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Employment Projections Technical Paper 1

Trend Based Employment Forecasts for London By Borough

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Volterra Consulting Ltd

Structural London borough employment forecasts

This report outlines the methodology and results of London borough employment forecasts as supplied by Volterra Consulting for the Greater London Authority (GLA) using actual data to 2003 and forecasting to 2026.

For the borough forecasts we initially carry out a data screening exercise by examining employment trends at the 30 sector level of aggregation (see Appendix 1). We transform each observation by dividing by total London employment for that year. This allows us to see how the employment within each sector and borough has been moving relative to the overall pattern in London.

For each borough we then focus on employment sectors which have historically accounted for 10% or more of that borough's total employment. We then also construct a series 'Rest' that sums the remaining employment in the borough. For example, in Barnet, on average, 14% of the employment has been in the sector Retailing, another 14% of the employment has been in the Business Services sector and 13% of the employment has been in the Health sector. We analyse the time series of these three sectors, as well as the remaining employment in Barnet.

To help decide on total borough employment growth projections, we calculate a short, medium and long term trend for each time-series examined. The short term historic trend is calculated as the gradient of a local linear fit to the period 1999-2003, multiplied by the average proportion that the sector accounted for over the same period. This adjusts the growth rate for the size of the sector and so gives an annual growth rate which can be applied to the whole borough.

For example, in Barnet, Business Services has historically accounted for 14% of the employment in Barnet. Over the last five years, the proportion of total London employment that this sector accounted for has experienced an annual average drop of around 3.3% per year. This drop contributed to an overall drop in the proportion of London employment that Barnet accounted for of -0.5% per annum over the period (= 14% of -3.3%). Retailing accounted for the same sized drop over the same period. Health was flatter, accounting for only a 0.1% drop and Rest declined more strongly, accounting for a drop of 0.8%. Therefore the proportion of total London employment that Barnet accounted for over the last five years has fallen by on average 1.9% per annum.

The ten year (medium term) trend is calculated similarly over the period 1994-2003 and the long term trend over the period 1982 to 2003. So, the sum of the long term growth rates will give an annual growth rate for the proportion of total London employment that each borough accounted for, based on the long term trend.

At the borough level of disaggregation some sectors have been particularly volatile or have suffered significant upturns or downturns over the period for which we have data. We therefore use judgment, informed by the trends, to decide on growth rates for employment sectors within each borough and then apply these to the 2003 total borough employment proportions in order to gain forecast values. We use a short term trend to forecast forwards to 2008 and the long term trend to forecast on further to 2026.

Finally, we calculate the actual forecast employment levels by rescaling each forecast year so that the proportions summed over the boroughs total 1. We then multiply each borough's share by the previously forecast total London employment for these same two years in the future (2008 and 2026) to arrive at the forecast employment levels by borough.

We now describe in detail the construction of the short and long term forecast growth of proportions within each borough. Plots of time-series referred to can be found in the Appendix 2.

Barking

Barking experienced significant drops in Transport Equipment employment over the last ten years, with the short term historic growth rate being equal to -4.1% . We consider this experience to have been a one off, and not sustainable into the future. We therefore forecast flat growth over the whole forecast horizon for this sector. Wholesaling employment has had a recent upturn but fell sharply in the period 1991-1995, and the long term trend shows a fall of -0.4% . Again, we forecast flat growth over the whole forecast period. The Rest of employment has also been falling sharply, with the short and medium term trends being equal to -2% and -2.2% respectively. We do not think that such strong negative growth can continue, even in the short term. We therefore take the long term historic fall of -0.8% for all forecast periods.

Barnet

Barnet has experienced recent dips in Retailing and Business Services employment, erratic Health employment levels and the trends in the immediate short term in the Rest of the sectors are hard to interpret. Due to the unpredictability of Barnet's employment in all sectors, for its short term growth we therefore forecast zero growth and for the long term we take the long term Business Services trend of 0.5% .

Bexley

Retail has been declining slightly in the last five years, at -0.4% . Business Services has been declining in line with Retail in the short term with a trend of -0.4% but the most recent figure suggests a slight upturn. The Rest has been declining since 1984, with short, medium and long term trends of -0.3% , -0.9% and -0.6% respectively. We combine the short term trends for a short term forecast of -1.1% . In the long term Retail and Business employment have been rising, with trends of 0.1% and 0.3% respectively. The long term trend of Rest looks likely to be one of continued decline. We therefore take a long term forecast of the sum of these three at -0.2% .

Brent

Brent Health employment was in steady decline throughout the 1990s. From 2000 to 2003 the trend levelled off. We therefore forecast flat growth in this sector. Wholesaling employment in Brent has on average accounted for around 11% of the borough's employment but the history has seen erratic swings. Therefore this sector is forecast to remain flat over all periods. Business Services has also been fairly erratic. It has been

declining since 2000 although this sharp trend of -0.5% in the short term seems unlikely to continue. We therefore also forecast flat growth in this sector. The remaining sectors have been in decline since 1982 apart from a brief recovery in the late 1990s. The absolute levels of decline seem unsustainable and so for the short term we take the medium term trend of -0.2% and in the long term we take half the long term trend, at -0.5% .

Bromley

Within individual sectors, Bromley's history of employment has been fairly erratic. Health employment along with Business Services and Rest we leave at zero growth, in the absence of strong evidence in either direction. Retail showed reasonable growth from 1982 to 1995, but like Business Services has been declining in the last five to ten years. For short term growth we take a combination of Retail's medium and short term trends, at -0.4% . We combine the medium and long term trends of this sector for a long term forecast of -0.1% .

Camden

Camden saw a rush in overall employment in the late 1990s, slowing in the last few years. Business Services has shown strong growth over the whole period with long and medium term trends of 0.5 and 0.3 respectively. This sector has slowed in the last three years, giving it a negative short term trend, at -0.1% . At the total London level the trend in the Business Services sector is strong, suggesting that the decline of this sector within Camden may come to a halt. We therefore take an average of the short and medium term trends for our short term forecast, at 0.1% . We combine this with the short term growth of Rest to achieve a short term forecast of 0.2% . For the long term forecast of Business Services we take the medium term trend of 0.3% in order to allow for the apparent recent slowing in this sector. Combining this with the long term Rest forecast of 0.3% we get an overall long term growth of 0.6% .

City

Employment in the Banking and Insurance sector has not moved smoothly historically. However the long term trend has been flat. We therefore choose the forecasts also as flat. The Rest of employment in the City saw rapid drops in the 1980s but then levelled off in the 1990s. This employment also looks flat into the future. Changes in employment therefore come from the remaining Business Services sector, that accounts for 25% of employment. Business Services has seen long and medium term growths of 0.6% and 0.7% , but the short term trend has levelled off at zero. We forecast short term growth to be an average of the medium and short term trends, at 0.3% with this picking up in line with the long term trend of 0.6% in the longer horizon.

Croydon

Retail in Croydon has been slightly erratic but the trends show steady declines of -0.1% , -0.1% and -0.2% in the long, medium and short terms respectively. Taking these into consideration we forecast a short term trend of -0.15% and a long term trend of -0.1% . Business Services has taken a slight downturn in the short term, with trends of 0.2% in the long and medium term, falling to -0.1% in the short term. We forecast Business

Services to continue falling slightly in the short term, at -0.1% and then to revert to the longer term trend of 0.2% over the duration of the forecast horizon. Rest has done the opposite in recent years to other types of employment in Croydon, showing a short term rise of 0.3% . However this is put into perspective by the long and medium term trends of -1.3% and -0.6% . We therefore forecast a short term fall of -0.15% in the Rest sector (average of the short and medium trends) reverting to a more serious decline in the long term of -1% (average of the medium and long term trends). This gives us a short term outlook of -0.4% and a long term decline of -0.9% in Croydon.

Ealing

Construction employment in Ealing has been in decline in the long term. Over the last four years it has been picking up however. We forecast flat growth in this sector. Business Services employment saw a large rise in the late 1990s but has levelled off in recent years. We forecast flat growth in the short term returning to the long term growth of 0.6% in the longer horizon. Rest has done the opposite to Business Services, flattening off in recent years against a backdrop of long term decline. Our short term trend comes from Rest, at -0.1% . In the medium and long term Rest has been falling at -0.7% and -1.2% . The average of these is -1% . Our long term trend therefore comes from a combination of the growth seen in Business Services against the large falls seen in Rest, giving a net fall of -0.4% .

Enfield

Health employment has bounced around since 1988, with flat medium and long term trends. Employment in Health has risen in the short term, with a very positive growth of 0.7% . We view this as unsustainable and therefore forecast zero growth in the long term and 0.2% in the short term for this sector. Our forecasts come mainly from the trends in Rest, with short, medium and long term declines of -0.5% . Our forecasts are therefore -0.5% in the long term and slightly more positive at -0.3% in the short term.

Greenwich

With a positive short term trend and a negative long term trend, there is no strong evidence of the direction of future employment levels for Education & Health (Standard Industrial Code 80) so we forecast flat growth in this sector. The Health sector (Standard Industrial Code 85) shows similar variability in the long term but the medium trend supports the short term trend of growth in this sector. We therefore forecast 0.3% short term growth, reverting to a flat trend in the long term. The Rest sector showed a significant rise in the two years from 1989-1991 and since then has been fairly flat. We forecast zero short and long term growth in this remaining sector.

Hackney

The short term trend for Business Services has been very strong in Hackney, at 1% . Employment in Construction saw a peak in the late 1990s which is hard to interpret, followed by the series levelling off and then falling afterwards. Rest has bobbed up and down since 1989. For the short term forecast we take a slightly positive outlook on Rest at 0.1% and take an average of the trends for Construction, at -0.7% along with the medium term trend for Business Services, at 0.5% . This gives us a short term trend of $-$

0.1%. For the long term forecast we take the combined long term trends of all three sectors, giving us a net effect of -0.2% .

Hammersmith

Hammersmith has seen some large jumps in employment in the last five to ten years. Business Services has been growing steadily. We take the short term trend of 0.4% and an average of the medium and long term trends of 0.8% and 1% to give us a long term trend of 0.9% for the sector. Health has shown significant growth in the last five years, following large falls in the previous seven years. We therefore take the average of the short and medium trends of 0.9% and -0.5% to give us a short term forecast of 0.2% and an average of the long and medium trends resulting in a fall of 0.3% in the long term. Other Services has been rising steadily. We take the short term trend of 0.4% and the medium term trend of 0.6% for the long term forecast. The remaining sectors make up the Rest employment which has been rising in the short-medium term but fell in the 1980s to early 1990s. We therefore predict the long term to be flat and take the medium term trend for the short term forecast. These trends aggregated give us a short term forecast of 1.5% and a long term growth of 1.2% .

Haringey

Retailing in Haringey has been erratic, with the long term trend being flat. We therefore project this flat trend forwards in both the short and long terms. Apart from a peak in 1993 which is difficult to interpret, Business Services has shown sustained growth over all time periods. In the short term it has levelled off slightly and we predict flat growth, reverting to 0.3% in the long term. Education & Health employment in Haringey has shown growth of 0.1% in the medium and short terms but suffered a significant fall in the late 1980s. We do not view this as likely to occur again and therefore forecast flat growth in this sector in all time periods. The Rest of employment has levelled in recent years but showed large declines in the medium and longer terms. We project flat growth in the short term, reverting to the sharper negative trend of -1% in the long term. This gives Haringey flat short term forecasts, reverting to -0.7% in the long term.

Harrow

Retailing and Business Services each account for around 13% of Harrow's employment. In the short term we take a combined forecast of all of the short term trends, giving us a net flat growth for Harrow (Business Services and Rest have been rising whereas Retailing has been falling). In the longer term we project flat employment in Rest as it suffered a significant fall in employment from 1997 to 2000 from which it appears to have begun to recover. We combine this with the long term trends in Retailing and Business Services, giving Harrow a net rise of 0.1% in the long term.

Havering

Retailing in Havering has been rather varied but has consistent long and short term trends of -0.1% and we therefore project this forecast. Business Services has been growing steadily, with a slight dip in the medium term. Taking account of the medium term we project short term growth of 0.3% reverting to a slightly higher 0.4% in the long term. Health employment has fluctuated in recent years, as has Rest, making forecasting

difficult. However in the short term we take averages of the short and medium term trends, giving -0.3% for Health and 0.2% for Rest. In the long term we project Health employment to return to its long term trend of 0.1% and Rest to fall to its medium term trend of -0.3% . These combined give Havering steady employment growths of 0.1% in both the short and long term future.

Hillingdon

Twenty seven per cent of Hillingdon's employment is in Transport, a large part of which will be due to Heathrow airport. Heathrow's employment is set to stay flat and rise with the building of Terminal 5 in the medium to long term. Transport employment has been falling slightly in the short term but in view of Heathrow we project flat growth. We project this to rise to 0.7% in the long term, an average of the medium and long term trends. Business Services has been growing steadily. We project the short term trend to continue at 0.3% and the long term to continue at the long term growth rate of 0.7% . For the Rest of the employment, we view the recent sharp declines as unsustainable and therefore use an average of long and short term histories for our short term forecast, to give a fall of -0.6% . The longer term forecast reverts to the medium term fall, of -0.8% . For total employment in Hillingdon, we have short and long term growths of 0% and 0.5% respectively.

Hounslow

The three largest employment sectors in Hounslow are Wholesaling, Transport and Business Services. For all of these, and Rest, we project the short term at the average of the short and medium term growths, giving a net fall of 0.2% . In the long term we revert to the average of the medium and long term growths, except for Business Services where the long term growths are very positive but the more recent trend appears to have levelled and fallen, and we project a more sustainable increase of 0.1% . This, along with the other sectors, gives us a flat outlook for Hounslow in the long term.

Islington

Business Services in Islington has been consistently growing for the last 20 years. We take an aggregation of the short and medium term histories, at 0.7% , and project this across the whole period. For Rest, which has been slightly more erratic, we take the medium term history of 0.6% in the short term and an average of this and the long term trend of 0.1% to give a smaller 0.3% growth in the long term. This puts total Islington employment growth at 1.3% in the short term and 1% in the long term.

Kensington

Four of the fifty-eight sectors make up over half of Kensington's employment. Forecasting Retailing, we use the short and medium term historic trends. Hotels & Catering saw a two year spurt from 1996 to 1998, levelling over the last five years. We forecast flat short term growth reverting to the long term trend of 0.3% . Business Services has been growing steadily in the long term, slowing more recently, so we take the short term trend to be flat and the long term trend at 0.5% . Other Services has shown steady growth, so we use the short and long term historic trends of 0.3% and 0.5% . Finally, Rest, has been very erratic, we forecast this as flat across the whole period.

Adding these all up gives us a short term forecast of 0.3%, medium and long term forecasts of 1.5%.

Kingston

Retailing employment in Kingston has been erratic, we therefore project zero growth in this sector. Business Services has been in slight decline in the short term but shows steady growth in the long term. We project zero growth in the short term, reverting the long term historic trend of 0.7% in the long term. Rest has fallen dramatically in the medium and short term. Much of this loss appears to have been in public sector employment. We do not think this is sustainable and therefore project flat growth in the short term and half of the long term trend in the long term, giving -0.4%. We therefore have a flat short term forecast, changing in the long term to a slight increase of 0.3%.

Lambeth

Health and Public Administration have seen recent turn-arounds to their long term trends in Lambeth. We project these to be flat in the short and long terms. Rest has been falling steadily, we take an average of the trends and project -0.4% for short and long terms. Business Services on the other hand has been rising steadily at 0.6% to 0.7%. We forecast this to continue at 0.7% in both the short term and long term. For Lambeth this gives us an increase of 0.3% in both the short and long terms.

Lewisham

Retailing, Education & Health, and Health all have fairly erratic histories in Lewisham. We forecast these to be flat. The short term trend therefore comes from the averages of the short and medium term trends for Rest and Business Services. This gives us a short term trend of 0.7%. For the long term forecast we take the average of the medium and long term trends in these two sectors. This gives us a net effect of zero growth.

Merton

Business Services has seen a recent drop in employment, and saw a sharp rise in 1989 to 1991. Rest saw a large decline in 1993 to 1999 but has recently picked up. The net effect being that there is no strong evidence in either direction for employment in Merton. We therefore forecast flat growth for our short and long term forecasts.

Newham

Public Administration employment in Newham was in decline for the whole of the 1980s and 1990s. The most recent few years of data suggest that this trend is levelling off however. For Public Administration we therefore forecast flat employment in the short term, reverting to the medium term fall of -0.2% in the long term. The Rest employment has been in decline also in the long term, at -0.2%, levelling off more in the short term. For the short term outlook we forecast flat overall employment growth, returning to the long term Rest trend of -0.2% for long term forecasts. This therefore gives Newham zero growth in the short term and declines of -0.4% in the long term.

Redbridge

Retailing has been bouncing up and down over the last 20 years but has been falling for the last five years. We therefore take an average of the short and medium term histories and project -0.2% growth in the short term and flat in the long term. Business Services has seen relatively steady growth over the last 20 years, with long, medium and short term trends of 0.5% , 0.4% and 0.5% respectively. We project 0.5% for the short term and 0.4% for the long term. Health employment has been erratic and so we ignore this sector in the forecasts. Rest has been declining over the long term horizon but has levelled off in the past five years. We project flat in the short term and -0.2% in the long term. This leads to short and long term forecasts of 0.3% and 0.2% respectively.

Richmond

Business Services employment showed steady growth from 1982 to 2001, but has since fallen. We project the short term to be flat and for the long term we take the medium term trend of 0.6% . Retailing also showed good growth until the early 1990s and then crashed. This has turned around though in the last five years, but still shows little to negative growth. We project zero growth over the whole forecast horizon. Other Services employment has bounced around, and so we project flat growth for this sector too. The Rest has seen a steady fall since 1982 but has levelled off in the past five years. We project flat for the short term and -0.4% for the long term. This leads to short and long term forecasts of flat and 0.2% respectively.

Southwark

Business Services saw steady growth over the 1980s and 1990s but has levelled in recent years, it has short, medium and long term histories of flat, 0.6% and 0.7% respectively. We think this sector will pick up again and therefore, with the trends in mind, we project short and long term growth of 0.5% and 0.7% in this sector. Health saw a large drop between 1989 and 1993, but has risen and been fairly steady in recent years. We use the short and medium term trends for our short and long term forecasts. These are 0.2% and flat. The Rest has had an erratic history but all trends are negative for this sector. We take the medium term trend of -0.7% for the short term forecasts and the average of this and the long term trend of -0.1% to give us a long term forecast of -0.4% . We therefore obtain for Southwark a flat short term forecast and growth in the long term of 0.3% .

Sutton

Construction employment in Sutton appears to have peaked in 1991 after which it fell over the following two years but has seen steady growth in the recent history. We take an average of the short and medium trends to give a short term forecast of 0.4% and we use the medium trend of 0.3% for the long term forecast. Retailing has seen steady medium and long term growth, with a slight decline in the last few years. We use the average of the short and medium term trends for the short term forecast, giving -0.2% and the long term trend of 0.2% for the long term forecasts. Business Services has had long term growth, a decline in the early 1990s and a recent turn-around. We take the average of the medium and short term trends to give almost flat growth of 0.1% in the short term. In the longer term we take the average of the medium and long term trends

which gives slightly stronger growth of 0.2%. Health was in steady decline in Sutton since 1984, with an upturn in the last three years of history. We take averages of the short and medium and medium and long term trends to give short and long term forecasts of 0.4% and -0.1% respectively. Rest has been in steady decline. We use the short term trend of -0.4% for the short term forecast and the long term trend of -0.3% for the long term forecast. The short and long term employment forecasts are therefore both 0.3% for Sutton.

Tower Hamlets

Banking & Insurance and Business Services have both shown strong growth in Tower Hamlets. For Banking & Insurance we take the averages of short and medium and medium and long term trends to give short and long term forecasts of 1.1% and 0.9%. For Business Services we take the short and medium term trends of 0.6% and 0.7% for the short and long term forecasts. The Rest of employment in Tower Hamlets has also seen steady growth. We take the short term trend of 0.7% for the short term forecasts and an average of the medium and long term trends to give the long term forecast of 0.6%. These combined give Tower Hamlets very healthy forecasts of 2.4% and 2.2% growth.

Waltham Forest

Retailing peaked in 1994 but apart from this has been fairly flat over the whole period. We take the short and long term trends for this sector. Health saw a large fall from 1993 to 1996 but has picked up since then. We forecast flat growth over the whole period. Rest has been in steady decline. We make judgements using the trends of -0.5%, -1.7% and -1.3% to forecast short and long term falls of 1.1% and 0.9% respectively. This leads to negative trends in Waltham Forest in both the short and long term. These are 1.2% and -0.8% respectively.

Wandsworth

Business Services has seen strong growth in the long term which has become more steady though still positive in the short and medium terms. We use the short term trend of 0.2% for the short term forecast and an average of the medium and long term trends giving a long term forecast of 0.5%. Health has been fairly erratic over the period but has been growing strongly in the short term. We use the long term trend of flat for the long term forecast and take an average of the short and medium term trends to give a short term forecast of 0.7%. Rest has been erratic in the short and medium term so we forecast flat growth in the short term and revert to the long term trend of 0.1% for the long term forecast. This gives Wandsworth short and long term growth rates of 0.9% and 0.3% respectively.

Westminster

Retailing, Public Administration and Rest have seen fluctuating historic employment trends. We have flat forecasts for these sectors. Business Services has been growing throughout the 1990s but has fallen slightly in the last two years. We take the long term trend of 0.3% for both the short and long term forecasts.

Table 1: London borough employment forecasts: history 2001-2003; forecast 2004-2026

GVA Growth = 2.5% pa (000s)																	
	Barking	Barnet	Bexley	Brent	Bromley	Camden	City	Croydon	Ealing	Enfield	Greenwich	Hackney	Hammersmith	Haringey	Harrow	Havering	Hillingdon
2001	54	143	78	115	116	290	330	155	128	112	77	98	127	69	83	89	188
2002	50	135	76	111	113	287	316	150	127	109	76	96	126	69	81	88	181
2003	52	133	76	110	118	285	315	149	128	110	82	98	130	71	82	89	182
2004	52	134	75	110	118	287	318	149	128	110	82	99	133	71	83	90	183
2005	52	135	75	111	118	289	321	149	129	110	83	99	136	71	83	90	184
2006	52	135	75	111	119	292	324	150	130	111	84	100	139	72	84	91	186
2007	52	136	74	112	119	294	327	150	131	111	85	100	142	72	85	92	187
2008	51	137	74	112	119	297	330	150	131	112	86	101	145	73	85	92	188
2009	51	139	74	112	120	301	334	150	131	112	86	101	147	73	86	93	190
2010	51	140	75	112	120	304	338	149	131	112	87	102	150	73	86	94	192
2011	51	142	75	112	121	308	342	149	132	112	87	102	153	72	87	94	194
2012	51	143	75	112	121	311	347	148	132	112	87	102	156	72	87	95	196
2013	51	145	75	112	122	315	351	147	132	112	88	103	159	72	88	95	198
2014	50	146	75	112	122	319	355	147	132	112	88	103	162	72	88	96	200
2015	50	148	76	112	123	323	359	146	132	111	89	103	165	72	89	97	203
2016	50	149	76	112	123	326	363	145	132	111	89	103	168	72	89	97	205
2017	50	151	76	112	124	330	367	145	132	111	90	104	171	71	90	98	207
2018	50	152	76	112	124	333	371	144	132	111	90	104	173	71	90	98	209
2019	50	154	76	112	124	336	374	144	132	111	90	104	176	71	91	99	211
2020	50	155	77	112	125	340	378	143	133	111	91	105	179	71	91	99	212
2021	49	156	77	112	125	343	382	142	133	111	91	105	181	71	92	100	214
2022	49	158	77	112	126	347	386	142	133	111	92	105	184	71	92	100	216
2023	49	159	77	112	126	350	390	141	133	111	92	105	187	70	93	101	218
2024	49	161	78	112	127	354	394	141	133	111	93	106	190	70	93	102	220
2025	49	162	78	112	127	357	397	140	133	111	93	106	193	70	94	102	222
2026	49	164	78	112	128	361	401	139	133	111	93	106	195	70	94	103	224

Table 1 (cont.): London borough employment forecasts: history 2001-2003; forecast 2004-2026

GVA Growth = 2.5% pa (000s)																	Total
	Hounslow	Islington	Kensington	Kingston	Lambeth	Lewisham	Merton	Newham	Redbridge	Richmond	Southwark	Sutton	Tower Hamlets	Waltham Forest	Wandsworth	Westminster	
2001	143	174	149	81	133	77	81	82	85	83	179	73	155	66	133	603	4546
2002	139	173	147	77	134	78	78	81	83	80	172	71	158	63	134	589	4448
2003	133	179	142	75	144	84	77	80	85	80	170	73	166	64	140	579	4480
2004	134	183	144	76	146	85	78	81	86	81	171	73	171	64	142	585	4521
2005	135	186	145	76	147	86	78	81	86	81	172	74	176	64	145	591	4562
2006	135	190	147	77	148	87	79	82	87	82	173	75	182	63	147	596	4603
2007	136	194	148	77	150	88	79	83	88	82	174	76	187	63	149	602	4645
2008	136	198	149	78	151	90	80	83	89	83	176	76	193	63	152	608	4687
2009	137	201	153	78	152	90	80	83	89	83	177	77	199	62	153	613	4730
2010	138	204	157	79	154	91	81	83	90	84	179	78	206	62	155	618	4773
2011	139	208	160	80	155	91	81	83	91	85	180	78	213	62	157	623	4816
2012	139	211	164	80	156	91	81	83	91	85	182	79	220	62	159	628	4860
2013	140	215	168	81	158	92	82	83	92	86	183	80	226	62	161	634	4904
2014	141	218	171	82	159	92	82	83	92	87	185	80	233	61	163	639	4948
2015	141	222	175	82	160	93	83	84	93	87	186	81	240	61	165	644	4993
2016	142	225	179	83	162	93	83	84	93	88	188	82	247	61	167	650	5039
2017	143	228	182	84	163	94	84	84	94	88	189	82	253	61	168	655	5078
2018	143	232	185	84	164	94	84	84	94	89	191	83	260	61	170	660	5118
2019	144	235	189	85	165	95	84	84	95	90	192	83	266	60	172	664	5159
2020	145	238	192	85	166	95	85	84	96	90	193	84	272	60	173	669	5199
2021	145	241	196	86	168	96	85	84	96	91	195	85	279	60	175	674	5240
2022	146	244	199	87	169	96	85	84	97	91	196	85	285	60	177	679	5281
2023	147	248	202	87	170	96	86	84	97	92	198	86	291	60	179	684	5323
2024	147	251	206	88	171	97	86	84	98	92	199	86	298	59	180	689	5365
2025	148	254	210	89	173	97	87	84	98	93	201	87	305	59	182	694	5407
2026	149	258	213	89	174	98	87	84	99	94	202	88	311	59	184	699	5450

Appendix 1: 30 Sector breakdown used for forecasting

30-sector-SIC code	Sector Title
1, 2 & 5	Agriculture, Forestry & Fishing
11	Oil & Gas Extraction
10 & 12 - 14	Other Mining
40 - 41	Gas, Electricity & Water
23	Fuel Refining
24	Chemicals
26	Minerals
27 - 28	Metals
29	Machinery & Equipment
30 - 33	Electrical & Optical equipment
34 - 35	Transport Equipment
15 - 16	Food, Drink & Tobacco
17 - 19	Textiles & Clothing
20	Wood & Wood Products
21 - 22	Paper, Printing & Publishing
25	Rubber & Plastics
36 - 37	Other manufacturing
45	Construction
52	Retailing
50 - 51	Wholesaling
55	Hotels & Catering
60 - 63	Transport
64	Communications
65 - 67	Banking & Insurance
72 & 74	Business Services
70, 71 & 73	Other Financial & Business Services
75	Public Administration & Defence
80	Education & Health
85	Health
90 - 95	Other Services

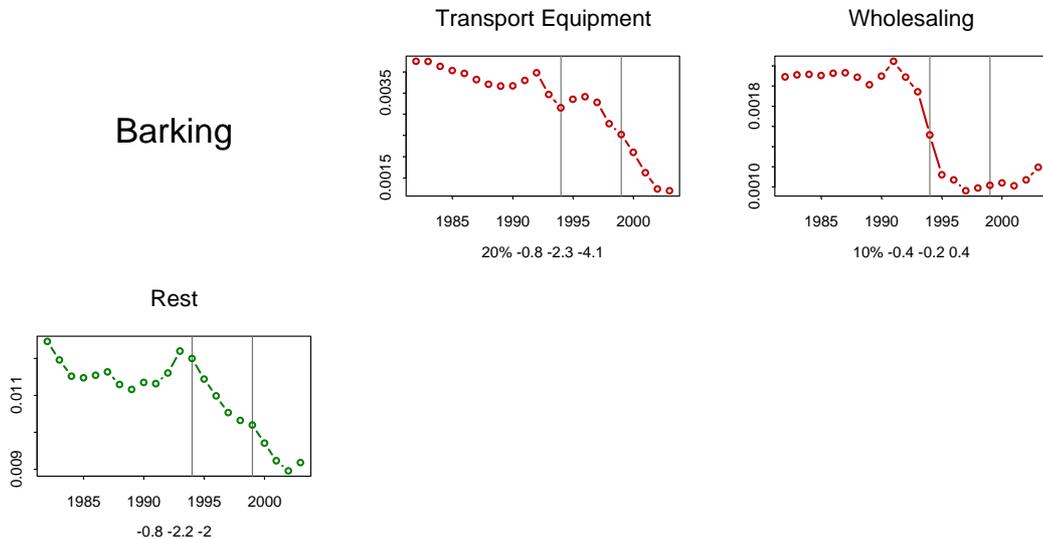
Source: Sector breakdown as supplied by Experian Business Strategies

Appendix 2: Historical employment data and trends by borough

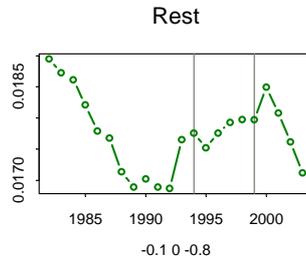
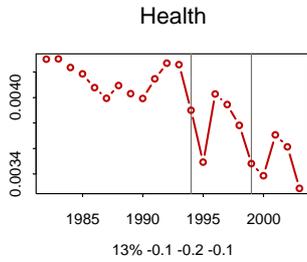
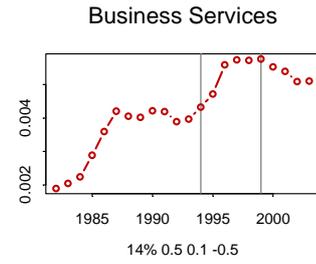
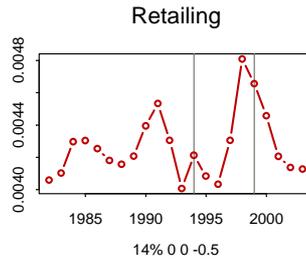
The plots below show the historic proportions of total London employment key sectors within each of the boroughs. Below each sector plot there is a percentage, showing the average historic proportion of employment that the sector accounts for within the borough, followed by the long, medium and short term historic trends of the data (rescaled by the proportion of employment). The grey lines show what we define to be the short, medium and long terms. The short term is from 1999-2003, the medium term is 1994-2003 and the long term is 1982-2003.

For example, Business Services has historically accounted for 14% of the employment in Barnet. Over the last five years, the proportion of total London employment that this sector accounted for has experienced an annual average drop of around 3.3% per year. This drop contributed to an overall drop in the proportion of London employment that Barnet accounted for of -0.5% per annum over the period ($= 14\%$ of -3.3%). Retailing accounted for the same sized drop over the same period. Health was flatter, accounting for only a 0.1% drop and Rest declined more strongly, accounting for a drop of 0.8%. Therefore the proportion of total London employment that Barnet accounted for over the last five years has fallen by on average 1.9% per annum.

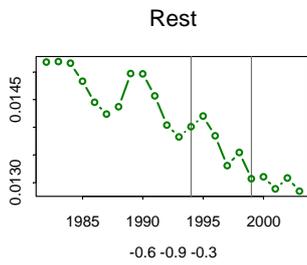
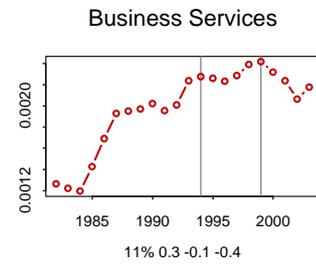
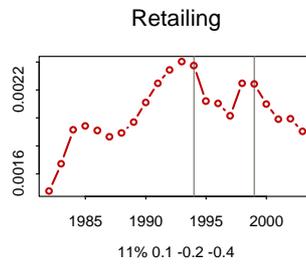
To calculate the overall employment trend, we can simply add the values of the rescaled trends. For example, in Barking, the short term trend value for Transport Equipment was -4.1% , for Wholesaling it was 0.4% and for the rest of the sectors it was -2% . The overall short term trend was therefore -5.7% .



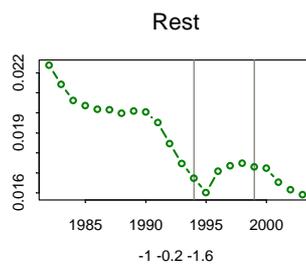
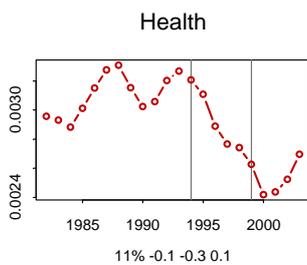
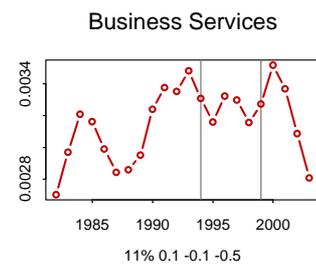
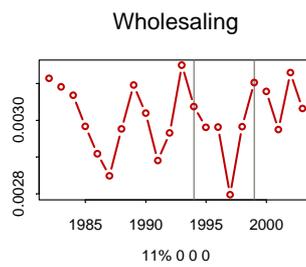
Barnet



Bexley

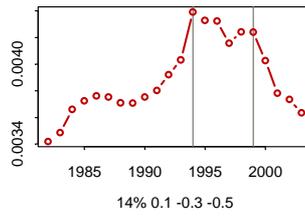


Brent

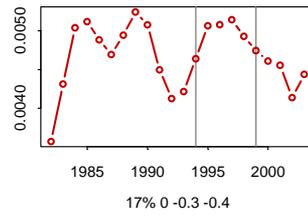


Bromley

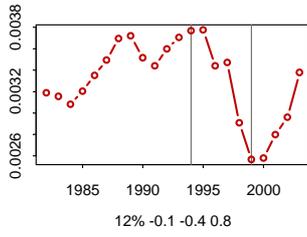
Retailing



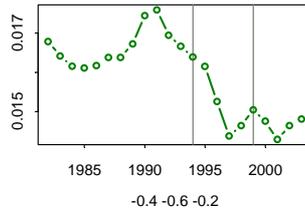
Business Services



Health

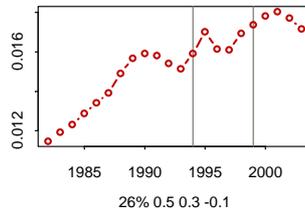


Rest

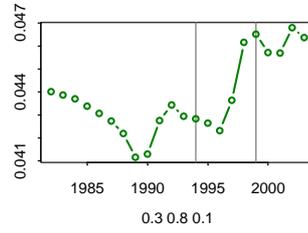


Camden

Business Services

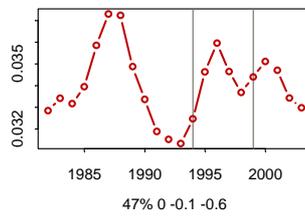


Rest

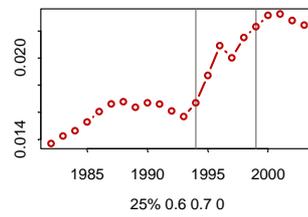


City

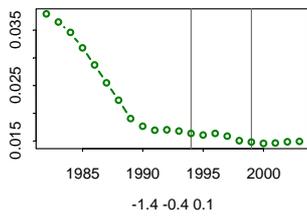
Banking & Insurance



Business Services

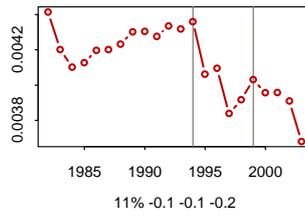


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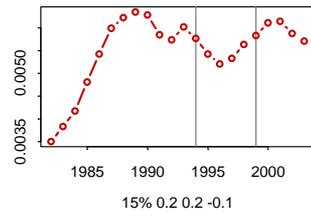


Croydon

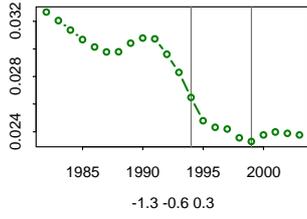
Retailing



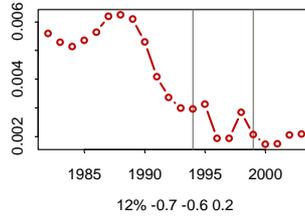
Business Services



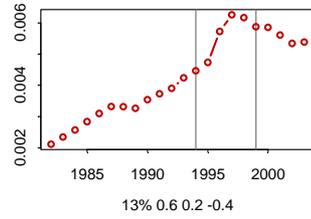
Rest



Construction

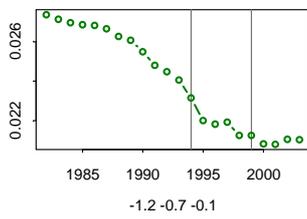


Business Services

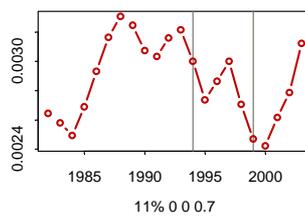


Ealing

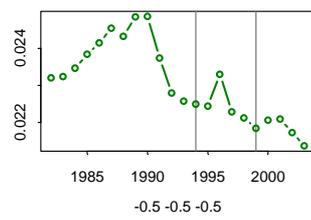
Rest



Health



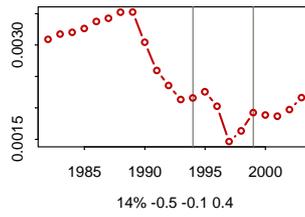
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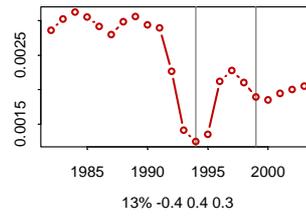
Enfield

Greenwich

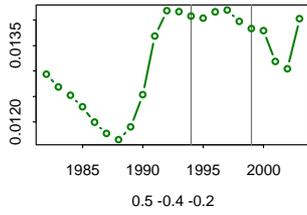
Education & Health



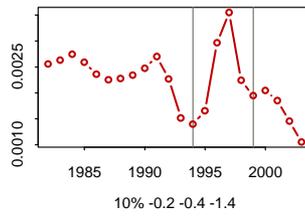
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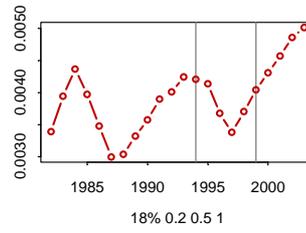
Rest



Construction

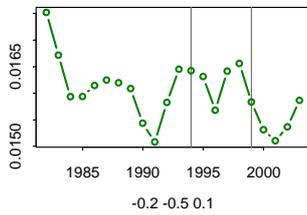


Business Services

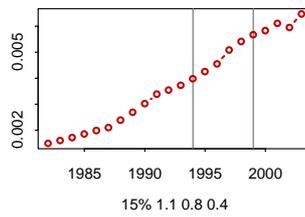


Hackney

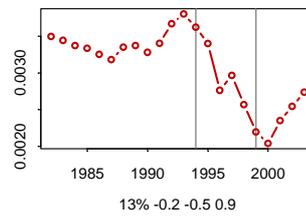
Rest



Business Services

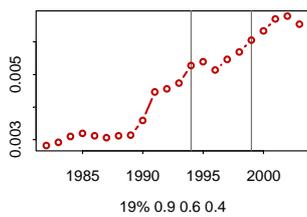


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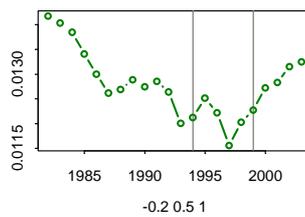


Hammersmith

Other Services

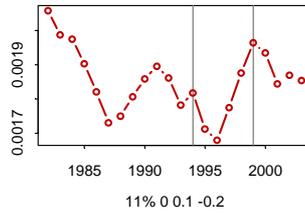


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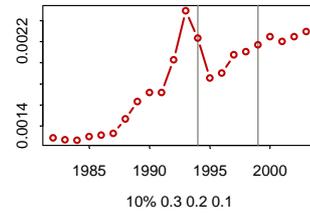


Haringey

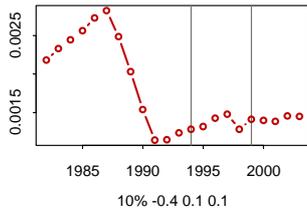
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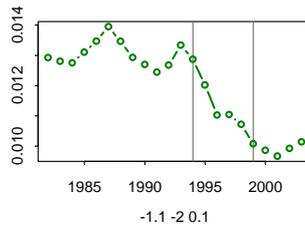
Business Services



Education & Health

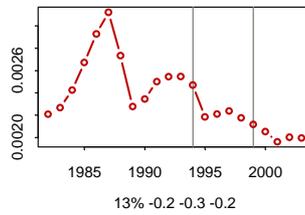


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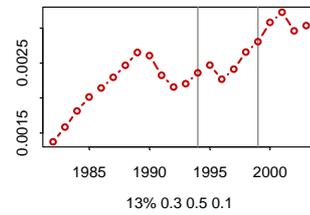


Harrow

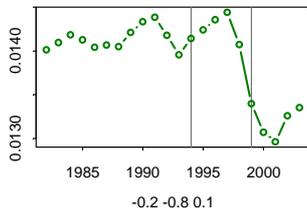
Retailing



Business Services

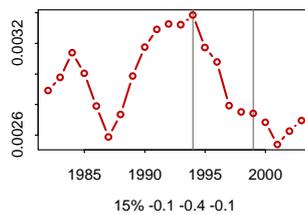


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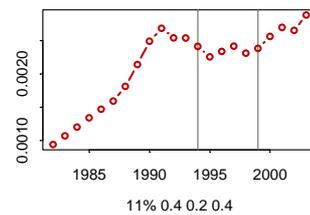


Havering

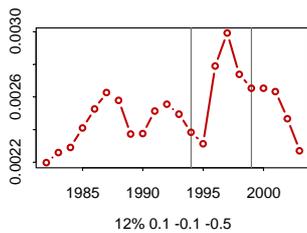
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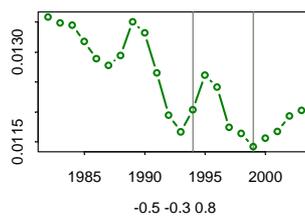
Business Services



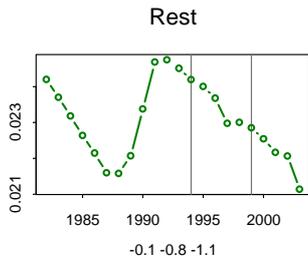
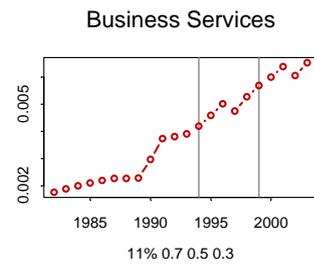
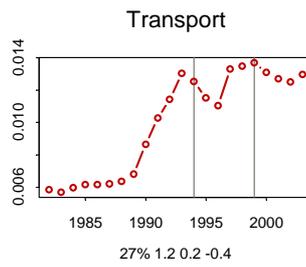
Health



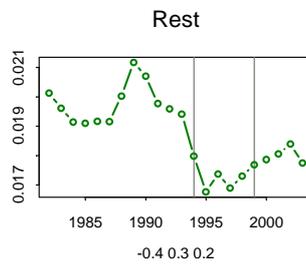
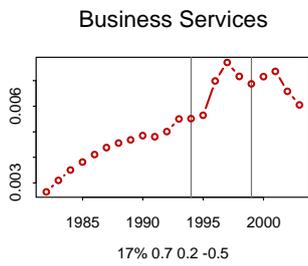
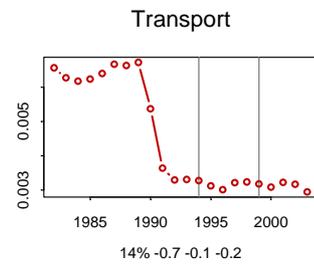
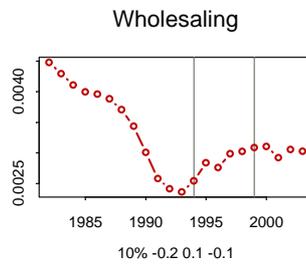
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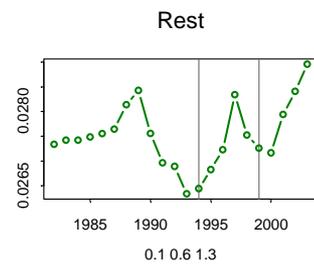
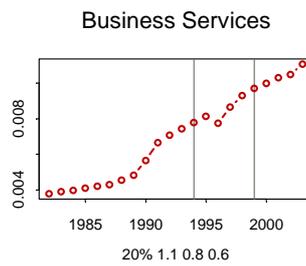
Hillingdon



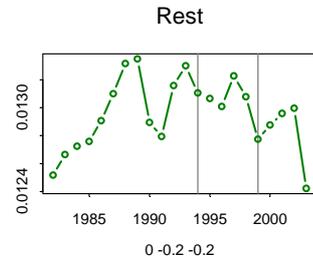
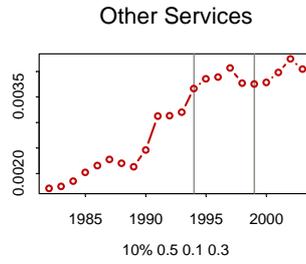
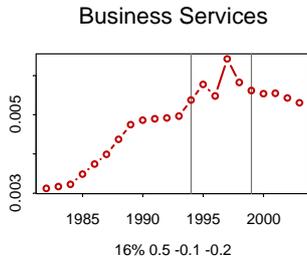
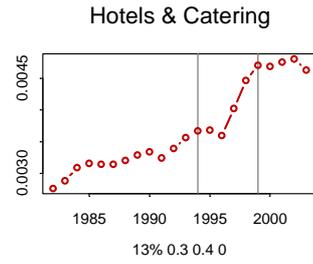
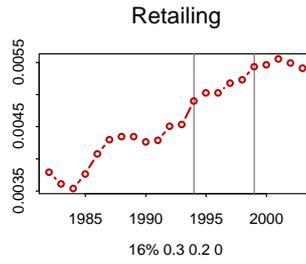
Hounslow



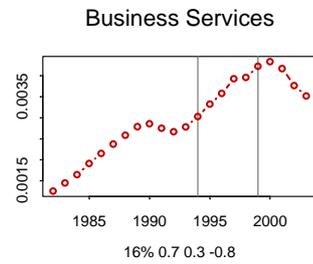
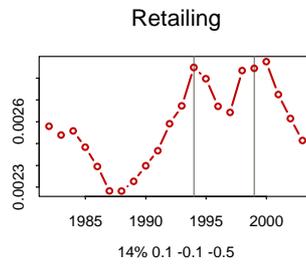
Islington



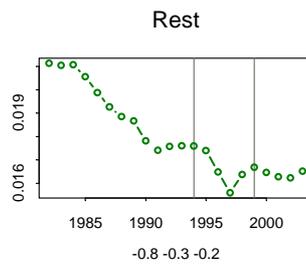
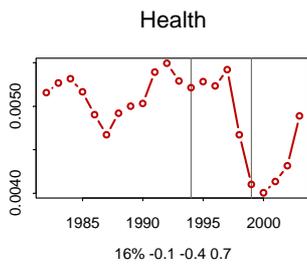
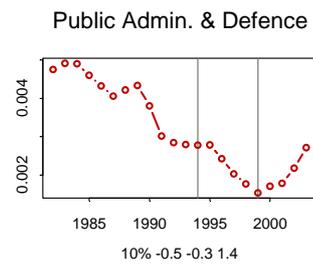
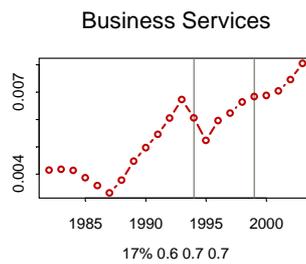
Kensington



Kingston

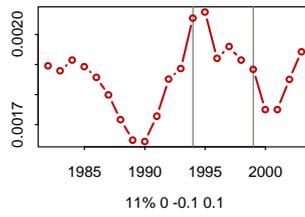


Lambeth

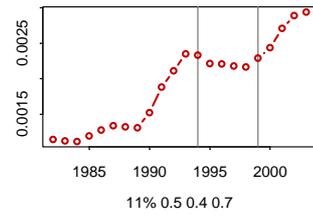


Lewisham

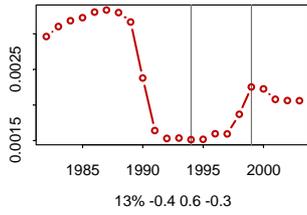
Retailing



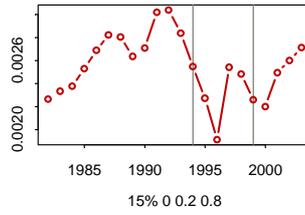
Business Services



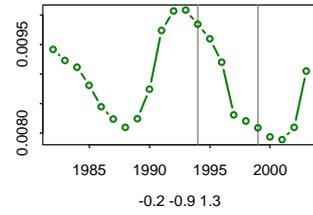
Education & Health



Health

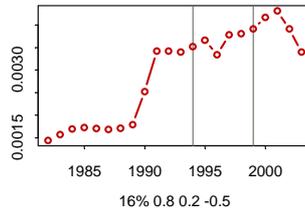


Rest

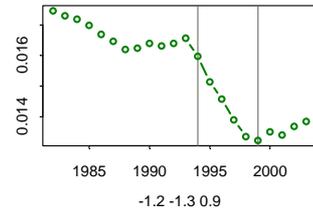


Merton

Business Services

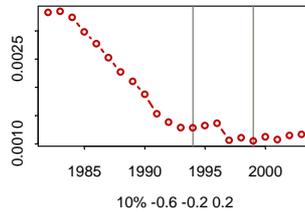


Rest

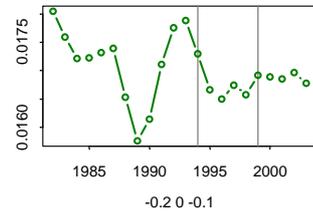


Newham

Public Admin. & Defence

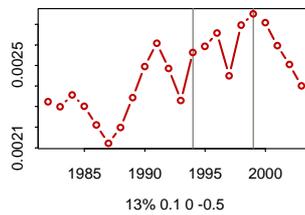


Rest

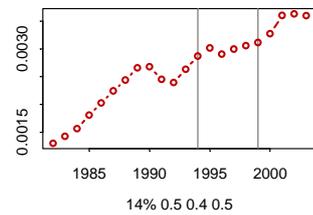


Redbridge

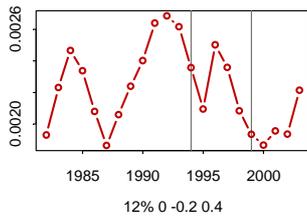
Retailing



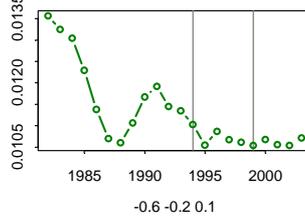
Business Services



Health

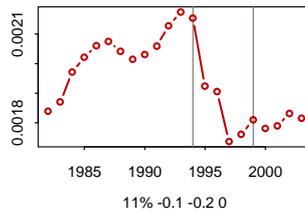


Rest

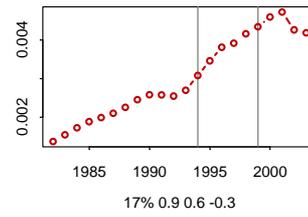


Richmond

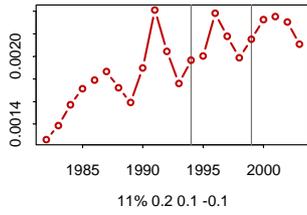
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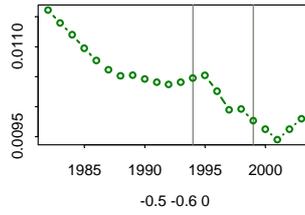
Business Services



Other Services

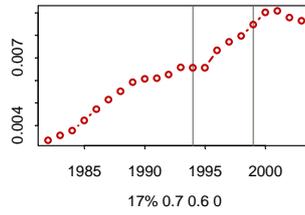


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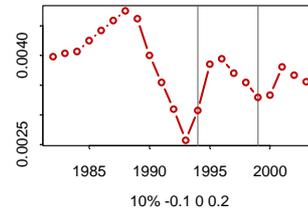


Southwark

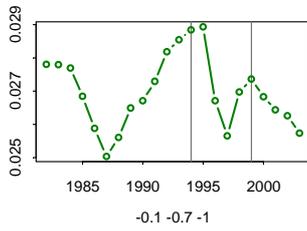
Business Services



Health

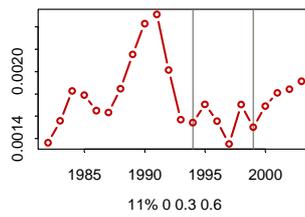


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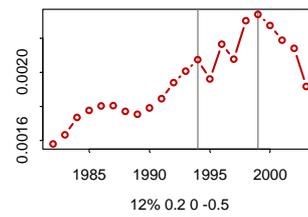


Sutton

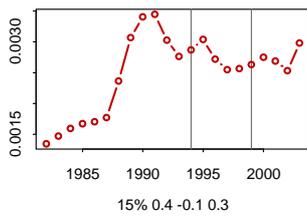
Construction



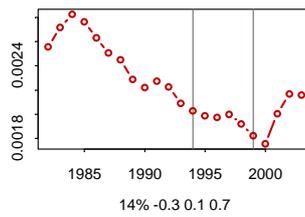
Retailing



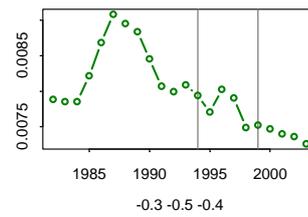
Business Services



Health

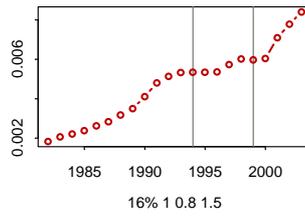


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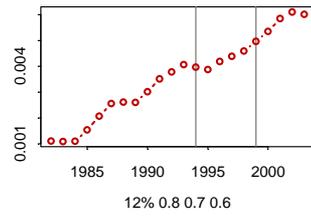


Tower Hamlets

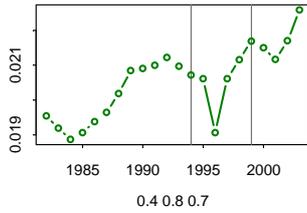
Banking & Insurance



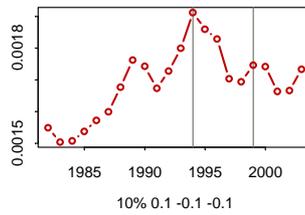
Business Services



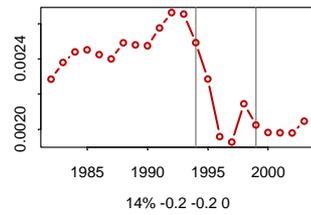
Rest



Retailing

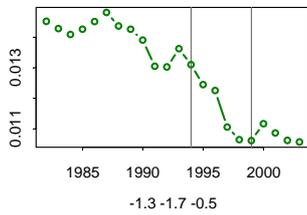


Health

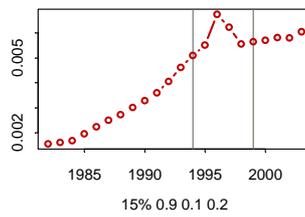


Waltham Forest

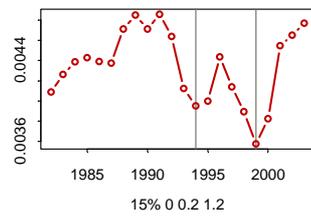
Rest



Business Services

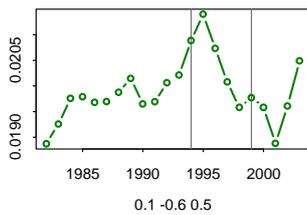


Health



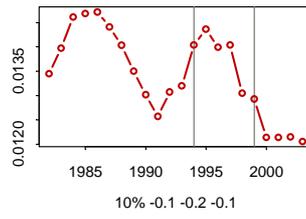
Wandsworth

Rest

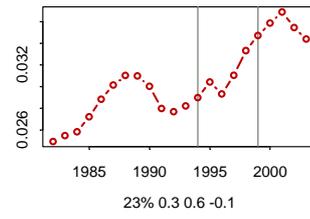


Westminster

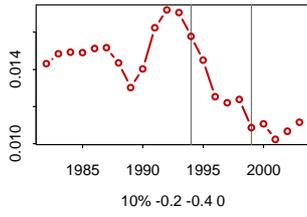
Retailing



Business Services



Public Admin. & Defence



Rest

