

Current Issues Note 11

Historical revisions to the GLA workforce employment series

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1 Introduction

GLA Economics publishes, each year, a dataset of workforce employment in London. This series, available on the GLA Economics Extranet, is described in “The GLA’s London Workforce Employment Series”¹ and was first produced in 2003. The series is updated each year, usually in September.

From 2004 onwards, the series is the underlying data for the GLA’s long-term projections.²

The series is updated annually as fresh data becomes available. In 2006, in addition to being updated, the series was significantly revised historically, so that the data for previous years changed. This was necessary because in 2006 the Office for National Statistics (ONS) carried out a historical revision of its data, on which the GLA’s workforce series is based and with which it has to be consistent. This Current Issues Note explains the revisions which GLA has made to its own data series and the reasons they were made.

The note contains an explanation of the national revisions to workplace jobs, based on the ONS publication “Revisions to Workforce Jobs 2005” which sets the context for the GLA’s own revisions.³ It contains a brief explanatory note prepared by Experian Business Strategies (EBS) who supply the workforce employment data, explaining the steps they have taken to revise the GLA’s series. Finally it provides a note explaining some discrepancies which EBS and the GLA have identified in the ONS-supplied data, and the measures EBS has taken to correct for these discrepancies.

2 Revisions to ONS workforce jobs, December 2005⁴

This section explains the revisions made to the ONS workforce jobs series, released on 14 December 2005. Workforce jobs is a quarterly measure of the number of jobs in the United Kingdom and is the preferred measure of short-term change by industry. It is the sum of employee jobs (as measured by surveys of employers), self-employment jobs from the Labour Force Survey (LFS), those in HM Forces, and government-supported trainees.

Revisions have resulted from the following changes:

- Integrating the new Public Sector Employment (PSE) series generated revisions back to 1959.
- Annual benchmarking of employee jobs to the latest estimates from the Annual Business Inquiry (ABI).

¹ http://www.london.gov.uk/mayor/economic_unit/docs/london_workforce_employment_series.pdf

² see http://www.london.gov.uk/mayor/economic_unit/docs/wp11_working_london.pdf

³ For original text see www.statistics.gov.uk/downloads/theme_labour/Revisions_Workforce_Jobs.pdf.

⁴ This section is adapted from the ONS report referenced in note 3.

- Taking on revised data for self-employment, government-supported trainees, and employment in Northern Ireland back to 1996.
- Updating seasonal factors back to 1996.

Benchmarking is an annual process to align quarterly movements of the employee jobs series to the annual movements of the ABI. Integrating the new definitive PSE series means that an ABI benchmark is only required for the private sector components. In anticipation of the PSE review, figures for Public Administration and Defence, Education, and Health and Social Work were not previously benchmarked after 2000. The private sector components of these mainly public sectors have now been benchmarked up to 2004, which mainly accounts for the revisions to change from 2000. To do this, analytical work has been undertaken to estimate, for the first time, a public versus private sector split for the ABI, within these industries.

The overall impact of these changes is an upward revision of 220,000 to the level of workforce jobs, and of 88,000 to the annual change in workforce jobs to June 2005.

Within the Standard Industrial Classification (SIC) sections covering Public Administration and Defence (L), Education (M), and Health and Social Work (N), there has been an upward revision of 80,000 to the annual change in employment to June 2005 and an upward revision of 308,000 to the level of employment. This has arisen from the integration of the new PSE series, and from benchmarking the private sector components for the first time beyond 2000 ABI results.

For most other industries the benchmarking process has been carried out as usual. The revised ABI benchmark for 2003 and the new benchmark for 2004 have been applied, revising the series from March 2003.

The benchmarking of services (excluding sections L to N) has caused an upward revision of 34,000 to the annual change in employment to June 2005 and an upward revision of 68,000 to the level of employment, offset by production (sections C to E) where benchmarking has caused a downward revision of 38,000 to the annual change and a downward revision of 70,000 to the level. For construction, benchmarking has caused an upward revision of 12,000 to the annual change and a downward revision of 87,000 to the level.

The values given include the small revisions resulting from changes in the sources for self-employment (back to 1992), government-supported trainees and employment in Northern Ireland, and from updating the seasonal factors (all back to 1996). A full seasonal adjustment review is due to be introduced in 2006.

Public Administration and Defence (section L), Education (section M), and Health and Social Work (section N)

Over the past year, ONS, in collaboration with other government departments, has implemented major improvements to estimates of Public Sector Employment. Standard

definitions for PSE across all departmental statistics have been agreed and a single definitive set of quarterly PSE estimates has been introduced. An article was published in March 2005 detailing these developments.⁵ ONS now publishes the official PSE estimates each quarter, as National Statistics, three to four months after the period to which they refer. The latest PSE statistics, for periods from 1991 up to June 2005, were published on 30 September 2005 in the Public Sector Employment First Release.⁶

To achieve consistency and coherence, the new definitive PSE series has now been integrated into workforce jobs. Most of PSE is within the standard industrial classification (SIC) sections L, M and N; Public Administration and Defence, Education, and Health and Social Work. These PSE series have now been fully integrated in to the wider employee jobs series (which include private sector jobs) revising the level back to the start in 1959. The PSE series for HM Forces has also been used. HM Forces fall under section L within workforce jobs, but are not counted as employee jobs. The rest of PSE has been taken on in part where possible i.e. within division 64 (post and telecommunications) and division 92 (recreation, cultural and sporting activities). The small remainder will be integrated next year.

In effect the ABI public sector level has been replaced within workforce jobs by the new PSE series. This has caused a shift in levels, over and above the revisions detailed in the March 2005 PSE article.⁵ The PSE article compares the new PSE series against the original public sector estimates that were not benchmarked to the ABI public sector level, as this was not previously available.

Collectively, the changes to sectors L, M and N have caused an upward revision of 308,000 in June 2005 and an increase in the growth from 2000 to 2005 of around 200,000. The revised growth is mainly a result of the private sector benchmarking.

Other Revisions

LFS data is used for employee jobs in construction and agriculture, and self-employment jobs across all industries. In September 2005, LFS estimates were updated to include revisions from its annual seasonal adjustment review and new population estimates. Further revisions were released in December following revised projections of population estimates from the Government Actuary's Department (GAD). The construction and agriculture series used for workforce jobs, which are taken from non seasonally-adjusted LFS microdata, were not affected by any of these revisions. The small upward revisions to the self-employment series have now been taken on within workforce jobs, back to September 2003.

⁵ Hicks, S. et.al. 'Public Sector Employment', ONS web-based publication, 11 March 2005.

<http://www.statistics.gov.uk/CCI/article.asp?ID=1095>

⁶ See also Hicks, S. et.al. 'Public Sector Employment Trends 2005', ONS web-based publication, 28 October 2005. <http://www.statistics.gov.uk/CCI/article.asp?ID=1293>

3 Historical revisions to the GLA workforce data⁷

Experian Business Strategies have recently provided GLA Economics with data on workforce employment in the London Boroughs going back to 1971. There have been a number of revisions from early datasets provided by Experian Business Strategies, which are particularly marked in the period before 1981. This note explains why these revisions have occurred.

There are a number of reasons why the data have been revised:

- 1). Routine revisions to the employees in employment data back to 1981Q3 as a result of revisions to the Annual Business Inquiry (ABI) and the impact of these revisions on spliced Annual Employment Survey (AES) and Census of Employment (COE) data.
- 2). Revisions to Borough level self-employment data because of the switch from a residence-basis to a workplace-basis. Note that workplace-based self-employment data are not available from the earlier Censuses of Population used in this exercise and residence-based data had to be spliced on to more recent workplace-based data to provide the complete time series.
- 3). In earlier versions of this dataset, the pre-1981 employees in employment data was generated by splicing estimates of employment by Borough by industry coded by the 1968 SIC from the Census of Employment onto estimates of employment by Borough by industry coded by the 1980 SIC taken from our Making Sense of the ABI estimates (which incorporate official data from the AES and COE back to 1981 as well as from the ABI). The revised estimates have added three constraints that, we believe, make the historical time series more reliable and realistic. These are:
 - a) The sum of employees in employment for the 30-industry breakdown produced across all Boroughs are constrained to a ten-industry breakdown available at the London level.
 - b) A separate splicing exercise is done for the total number of employees in employment with the sum of the Boroughs then being constrained to total London level estimates.
 - c) The sum of employees in employment in the 30-industries in each Borough are constrained to equal the estimate of Borough level employees generated by the separate higher-level splicing/constraining exercise described in “b” above.

This is an iterative process as splicing and constraining at the industry level does not initially produce the correct Borough total and vice-versa. As mentioned above, we believe that the results of this multi-level splicing and constraining exercise give a truer representation of what was actually happening to employment in the London Boroughs before 1981 as it preserves, as far as possible, both the Borough level growth rates for

⁷ The note in this section was provided for the GLA by Experian Business Services

total employees and the growth rates of employees by industry evident in the source data as well as building in appropriate London level constraints. The old methodology preserved only the growth rates of employees by industry. Its main effect is to dampen growth rates compared to earlier estimates (i.e. where Borough level employment was estimated to have fallen between 1971 and 1981 it is usually still estimated to have fallen but not so much, and where it was estimated to have risen between 1971 and 1981, it is usually still estimated to have risen, but not so much).

The London level employee estimates (totals and the broad industry split) used in the constraints are based on ONS time series for the old South East SSR broken into London and the Rest of the South East using COE data. Historical regional ONS data are spliced on to more recent ONS revisions and total employment across the regions are constrained to the published national totals.

Now that these improvements to the methodology have been made, we can see no reason why estimated growth rates for the 1971 to 1981 period should be revised further in the future.

Please note that the quarterly time series for employees in employment are not seasonally adjusted for recent (post-1981Q3) years although the amount of interpolation used for more distant years means that quarter-to-quarter movements tend to be very smooth. The self-employment estimates are seasonally adjusted for recent years and are also based on spliced-data for earlier years.

4 Supplementary note on data discrepancies for 1998 and 2001⁸

4.1 Introduction

Workforce employment is obtained from two major sources: the Annual Population Survey (APS, formerly the Labour Force Survey) and the Annual Business Inquiry (ABI). Like the ONS, the GLA uses the ABI to obtain data on employee jobs and the APS for data on self-employment.

However, ABI data is disseminated via two different routes, and confusion can arise because of differences in data obtained via these two routes.

Annual figures for employee jobs, derived from the ABI, are directly published on a website known as NOMIS.⁹ However figures are also published by the ONS, principally in *Labour Market Trends* (LMT)¹⁰ and in *Regional Trends*.¹¹

⁸ The note in this section was provided for the GLA by Experian Business Services

⁹ www.nomisweb.co.uk

¹⁰ <http://www.statistics.gov.uk/about/platforms/lmt/>

¹¹ <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=14356>

These two sources provide different estimates of annual employment totals as can be seen in Table 1 which compares London Employee jobs as reported in Regional Trends Table 5.4 and by the ABI, downloaded from NOMIS

Table 1: Comparison of employee jobs reported in *Regional Trends* and from NOMIS

		Thousands of Employee Jobs		
		Regional Trends	ABI	GLA workforce series
	2002	2,078	2,075	
Males	2003	2,039	2,057	
	2004	2,081	2,038	
	2002	1,839	1,857	
Females	2003	1,847	1,872	
	2004	1,842	1,916	
	2002	3,917	3,932	3,974
Total	2003	3,886	3,929	3,933
	2004	3,923	3,954	3,921

The GLA uses data published by ONS where possible by preference because it leads to consistency in planning. The GLA's data is therefore derived from data released via *Labour Market Trends*, and is hence fully consistent with it, except in those cases where it is necessary to compensate for known discrepancies.

The GLA's quarterly figures are identical, from 1996 onwards, to the quarterly employee jobs figures published and supplied by the ONS through *Labour Market Trends*, except where it is necessary to compensate for discrepancies in the ONS's own data, as explained in the remainder of this section.

As can be seen from Table 1, for annual data there is no single consistent standard available from the ONS. The ONS itself provides a variety of estimates of annual employee jobs for the regions.

The GLA's annual figures are therefore derived by taking an average of all four quarters in a year. This differs from NOMIS, where annual employee job totals are calculated by taking a single quarter (the fourth quarter) as the annual figure – this being the date on which the ABI itself is conducted.

There are other differences between GLA and ONS data particularly for years before 1996, which are necessary to compensate for discrepancies in the ONS series. The

reason for these differences is explained in “The GLA’s London Workforce Employment Series”¹². From 1996 onwards, the quarterly data is fully consistent with the published ONS data, with the exception of some small corrections for 1998, explained below.

4.2 The discrepancies

Experian’s *Making Sense of the ABI* (MSABI) constrains all of the sub-regional employment series to quarterly employee data supplied by the ONS at both Great Britain and Government Office Region (GOR) level. The quarterly ONS data is consistent with the annual ABI data.

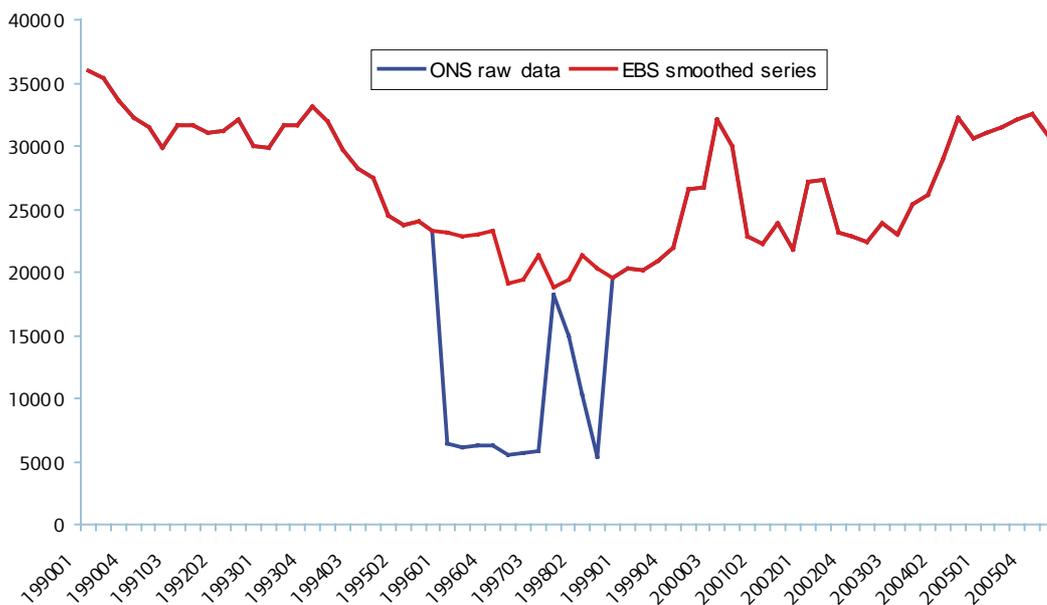
4.2.1 1998-1999

Detailed analysis of the quarterly ONS data raised questions over the reliability of the ONS data at two stages.

Firstly, at the Great Britain level there were problems with the gender and full-time/part-time split, with a number of erratic and implausible jumps in the series between 1995q4 and 1999q4. To correct for these errors EBS has smoothed the gender and full/part-time series and then constrained them back to the total Great Britain series.

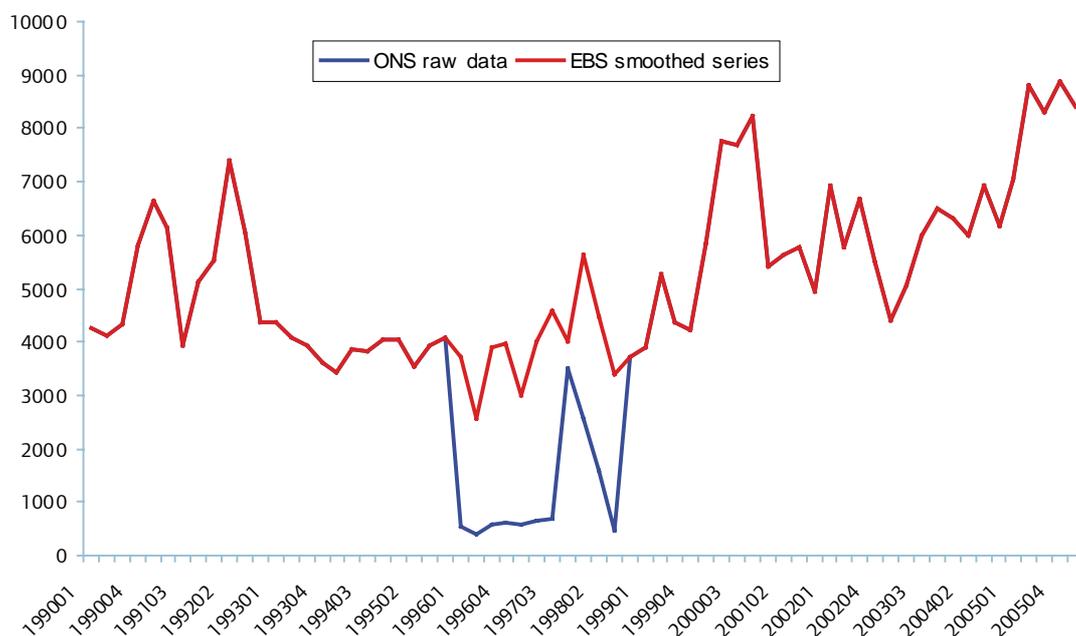
The charts that follow compare the original data series for SIC 67 (Activities Auxiliary to Financial Intermediation) with the smoothed series, for female part-time and male part-time workers.

Figure 1: SIC 67 – Female Part-time – Great Britain



¹² http://www.london.gov.uk/mayor/economic_unit/docs/london_workforce_employment_series.pdf

Figure 2: SIC 67 – Male Part-time – Great Britain



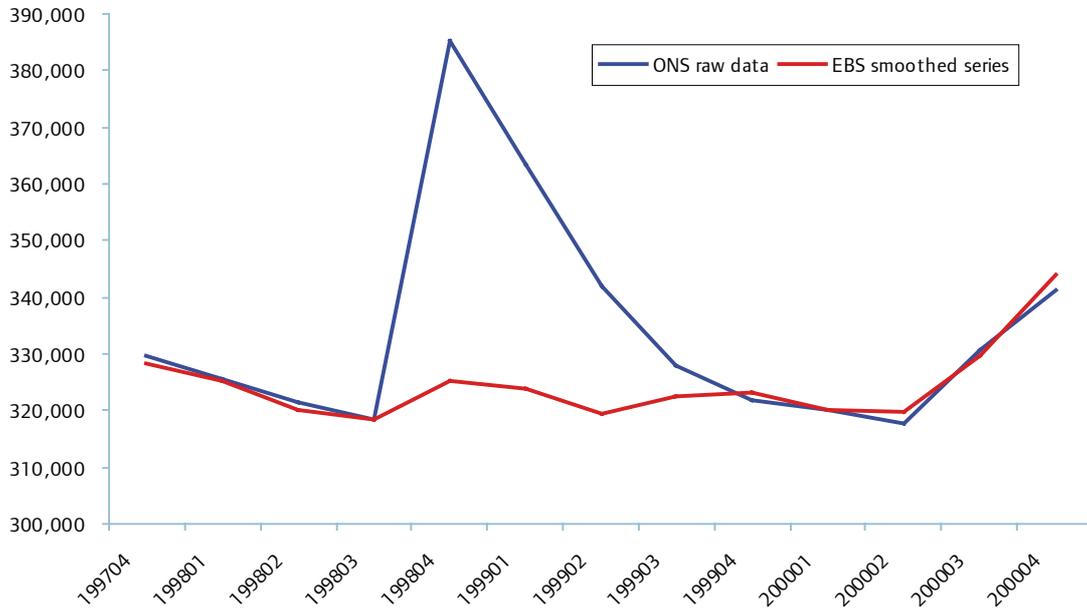
These changes at the Great Britain level then feed down to the constraints used at GOR level (the GOR figures are constrained back to this new smoothed series).

Secondly, questions were raised for a number of industry sectors at the GOR level, particularly for 1998q4 and 1999q1. For example, in Greater London employment in Health & Social Work was estimated to have risen by 21 per cent between 1998q3 and 1998q4, before falling by nearly six per cent in each of the next two quarters.

These trends were not reflected at the GB level, leading us to conclude that these data points were unreliable. Therefore EBS has smoothed the data for the affected sectors and then constrained them back to the GB sectoral totals, as well as the GOR totals.

Figure 3 compares the original data series for industry sector N *Health & Social Work* with the smoothed series.

Figure 3: Health and Social Work (N) GOR London



4.2.2 2001

There are some differences between the Greater London totals from the ABI and those in the quarterly regional employment updates which EBS received from the ONS for 2001. EBS has asked the ONS for clarification and await their response.

5 References

For more information on workforce jobs and labour market statistics in general visit www.statistics.gov.uk/about/data/guides/LabourMarket/

The GLA’s Workforce Employment Series, London: GLA (September 2003) www.london.gov.uk/mayor/economic_unit/docs/london_workforce_employment_series.pdf

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