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The Government Statistical Service

The Government Statistical Service (GSS) is a network of professional statisticians and their staff operating both within the Office for National Statistics and across more than 30 other government departments and agencies.

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Economic & Labour Market Review

Volume 5, Number 1
January 2011

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In brief

Happy new year! Economic & Labour Market Review in 2011

2010 was another busy year for the Economic & Labour Market Review (ELMR). In these still turbulent economic times, and as the UK economy continued to recover from its deepest post war recession, interest in the economic statistics published by the Office for National Statistics has been as strong as ever. ELMR seeks to be the gateway to these statistics.

Each month the Economic Review article tells the economic story from the standpoint of the most recently published data. Feature articles also provide commentary on developments in the economy and the labour market as well as explaining improvements to the methods and approaches ONS uses to measure economic activity. And in frequently updated online tables, key economic times series are available for download.

There have been some changes too. September was the final print edition of the journal. Although broadly the same content is still published each month, ELMR is now an exclusively 'online only' publication.

And in 2011 it is likely that there will be more changes to the ELMR publication. Before Christmas, ONS launched a public consultation to find out from users what outputs they valued. This consultation has now closed, and the results will be published on the ONS website early in the year and used to help establish the priorities following announced cuts to the ONS budget in the recent Spending Review. As a non–core, non–statutory output, ELMR is not protected and is therefore a possible target for efficiency savings.

This year, ONS plans to introduce a radically improved website. It will be launched on 30 April 2011, so all new statistical releases from the start of May will be published to the new site. Improvements include:

- quicker and easier to find information, including better search and navigation
- easier to use information, by downloading data, charts and graphs

And after the initial launch it is intended that the website will be developed further to provide:

- an online data explorer tool, enabling users to produce customised datasets for download
- an application programming interface that allows ONS data to be re–used elsewhere

The new website will also offer opportunities to change the way ONS publishes its analysis and research. And after taking on board the results of the consultation exercise, this could result in further changes to the way ELMR is produced, including the option of 'not at all'. However, regardless of the future of ELMR, ONS remains committed to publishing original and high quality analysis and commentary on economic statistics.

Further information

Future plans for ELMR will be regularly updated in the 'In brief' section of the journal. See www.statistics.gov.uk/StatBase/Product.asp?vlnk=14692

Updates on ONS's Web Development Programme can be found at: www.ons.gov.uk/about/what-we-do/programmes---projects/web-development/index.html

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Updates

Updates to statistics on www.statistics.gov.uk

14-Dec

Inflation

CPI inflation 3.3%, RPI inflation 4.7%

www.statistics.gov.uk/cci/nugget.asp?id=19

15-Dec

Average weekly earnings

Regular pay growth increases

www.statistics.gov.uk/cci/nugget.asp?id=10

Employment

Rate falls to 70.6%

www.statistics.gov.uk/cci/nugget.asp?id=12

Public sector employment

Employment decreases in Q3 2010

www.statistics.gov.uk/cci/nugget.asp?id=407

16-Dec

Retail sales

Modest growth in retail sales

www.statistics.gov.uk/cci/nugget.asp?id=256

21-Dec

Public sector finances

Monthly: record for net borrowing

www.statistics.gov.uk/cci/nugget.asp?id=206

Institutional net investment

Net investment £15.4 billion

www.statistics.gov.uk/cci/nugget.asp?id=396

22-Dec

GDP growth

UK output increases by 0.8%

www.statistics.gov.uk/cci/nugget.asp?id=192

Balance of payments

Current account deficit widened

www.statistics.gov.uk/cci/nugget.asp?id=194

Business investment

3.1% up in third quarter 2010

www.statistics.gov.uk/cci/nugget.asp?id=258

Consumer spending

Household expenditure grows by 0.35 in Q3 2010

www.statistics.gov.uk/cci/nugget.asp?id=11

23-Dec

Productivity

Growth in productivity Q3 2010

www.statistics.gov.uk/cci/nugget.asp?id=133

Index of services

1.9% annual rise into October

www.statistics.gov.uk/cci/nugget.asp?id=558

05-Jan

Corporate profitability

11.9% in Q3 2010

www.statistics.gov.uk/cci/nugget.asp?id=196

12-Jan

UK Trade

Deficit increased to to £4.1 billion

www.statistics.gov.uk/cci/nugget.asp?id=199

13-Jan

Index of production

Production: 3.3% annual rise

www.statistics.gov.uk/cci/nugget.asp?id=198

Travel and tourism

Visits abroad continue to fall

www.statistics.gov.uk/cci/nugget.asp?id=352

14-Jan

Producer prices

Factory gate inflation ????

www.statistics.gov.uk/cci/nugget.asp?id=248

Forthcoming releases

Future statistical releases on www.statistics.gov.uk

14-Jan

Output and employment in the construction industry – November 2010

17-Jan

Business spending on capital items - 2009 results

18-Jan

Consumer price indices – November 2010

Financial statistics – January 2011

19-Jan

Average weekly earnings – November 2010

Labour market statistics – January 2011

20-Jan

Wealth in Great Britain - Wave 2 interim report

Regional Trends

21-Jan

Retail sales – November 2010

25-Jan

Gross domestic product preliminary estimate Q4 2010

Index of services – November 2010

Public sector finance – December 2010

26-Jan

Public service productivity

Graduates in the labour market – January 2010

27-Jan

Social Trends - Lifestyles

31-Jan

Local area labour market - January 2011

02-Feb

Pension Trends - The labour market and retirement

03-Feb

Social Trends - Transport

09-Feb

UK Trade - December 2010

10-Feb

Overseas travel and tourism – November 2010

Index of production – November 2010

11-Feb

Output and employment in the construction industry – December 2010

Producer price index – December 2010

15-Feb

Consumer price indices – January 2011

Economic Indicators

PRICES AND INFLATION	Value	Period	Monthly change	Annual change	Release date
Consumer Prices Index (CPI) (2005=100)	115.6	Nov-10	0.4	3.3	14-Dec-10
Retail Prices Index (all items) (Jan 1987=100)	226.8	Nov-10	04	4.7	14-Dec-10
RPI excluding mortgage interest (RPIX) (Jan 1987=100)	225.9	Nov-10	0.4	4.7	14-Dec-10
Producer Prices Index - Output (2005=100)	119.2	Nov-10	0.3	3.9	13-Dec-10
Producer Prices Index - Input prices (materials and fuel) (2005=100)	149.7	Nov-10	0.9	9.0	13-Dec-10

LABOUR MARKET	Value	Period	Change on 3 months	Change on 1 year	Release date
Employment rate (%)	70.6	Aug-Oct 10	-0.1	0.0	15-Dec-10
Unemployment rate (%)	7.9	Aug-Oct 10	0.1	0.0	15-Dec-10
Average Weekly Earnings - total pay (%)	2.0	Aug-Oct 10	0.9	1.6	15-Dec-10
Average Weekly Earnings - regular pay (%)	3.0	Aug-Oct 10	0.7	1.1	15-Dec-10
Claimant count (Jobseeker's Allowance) (Thousands) (2005=100)	1,462.7	Nov-10	-5.1	-156.7	15-Dec-10
Vacancies (Thousands)	4683	Sep-Nov 10	1	25	15-Dec-10

NATIONAL ACCOUNTS ECONOMIC ACTIVITY	Value	Period	Quarterly change	Change on 1 year[3]	Release date
UK Gross Domestic Product (chained volume measure £ billion)	331.2	Q3 10	0.7	2.7	22-Dec-10
Private Non-Financial Corporations Net Lending (£ billion)	15.8	Q2 10			22-Dec-10
Household Saving Ratio (%)	5.0	Q3 10			22-Dec-10
Public Sector current budget (£ billion)	-19.9	Nov-10			21-Dec-10
Public Sector net debt as a % of GDP	58.0	Nov-10			22-Dec-10
Public Sector net borrowing (£ billion)	10.3	Oct-10			18-Nov-10
Public Sector net cash requirement (£ billion)	16.8	Nov-10			18-Nov-10
Public sector net borrowing (excluding financial interventions) (£ billion)	23.3	Nov-10			20-Oct-10

Public sector net debt as a % of GDP (excluding financial interventions)	57.2	Sep-10			20-Oct-10

BALANCE OF PAYMENTS AND TRADE	Value	Period	Change on 3 months	Change on 1 year	Release date
UK's trade balance (£ billion)	-£4.1	Nov-10			12-Jan-11
Balance of Payments current account - (£ billion)	-£9.6	Q3 10			22-Dec-11
of which: EU	-£12.8				
non-EU	£3.2				
Goods export volumes - excluding oil and erratics (2006=100)	9.8	Nov-10			12-Jan-11
Goods import volumes - excluding oil and erratics (2006=100)	94.6	Nov-10			12-Jan-11

SHORT TERM INDICATORS	Value	Period	Change on 3 months[1]	Change on 1 year[2]	Release date
Retail Sales (2006=100) (chained volume, seasonally adjusted)	108.8	Nov-10	0.2	0.5	16-Dec-10
Index of Manufacturing (2006=100)	92.4	Nov-10	1.2	5.4	13-Jan-11
Index of Production (2006=100)	90.0	Nov-10	0.8	3.5	13-Jan-11
Productivity - Whole economy (2005=100)	99.6	Q3 10	0.1	1.7	23-Dec-10
Productivity - Manufacturing (2005=100)	106.6	Q3 10	0.8	8.0	23-Dec-10
Index of Services (2006=100)	102.6	Oct-10	0.6	2.3	23-Dec-10

Notes:

1. Three months on previous three months
2. Three months on corresponding period one year ago
3. Quarter on corresponding period one year ago

Economic Review

January 2011

Graeme Chamberlin
Office for National Statistics

Summary

Gross Domestic Product expanded by 0.7 per cent in the third quarter of 2010. This was slower than in the previous quarter and reflected lower contributions to growth from household consumption, government consumption and net trade. On the other hand, changes to inventories and Gross Fixed Capital Formation made larger contributions to growth. The household saving ratio has fallen since the summer of 2009 as consumption recovers and growth in disposable income remains weak, although it edged upwards in 2010 Q3. The Private Non Financial Corporations sector remains a strong net lender to the rest of the economy, largely due to a strong fall in investment spending in the recession and a slow pick up during the recovery so far. Central government though is increasingly a net borrower due to sharply falling net taxes on income and wealth. The UK Current Account remains in deficit, but a growing deficit on the trade in goods and services balance has been largely offset by a rising surplus on the investment income balance.

UK economic growth decelerates in the third quarter of 2010

The Quarterly National Accounts provide the third estimate of Gross Domestic Product (GDP) for a particular quarter. The latest data show that GDP expanded by 0.7 per cent in 2010 Q3, the fourth straight quarter of positive growth since GDP reached its trough. However, growth was slower than in the preceding quarter and output remains below its pre–recession level.

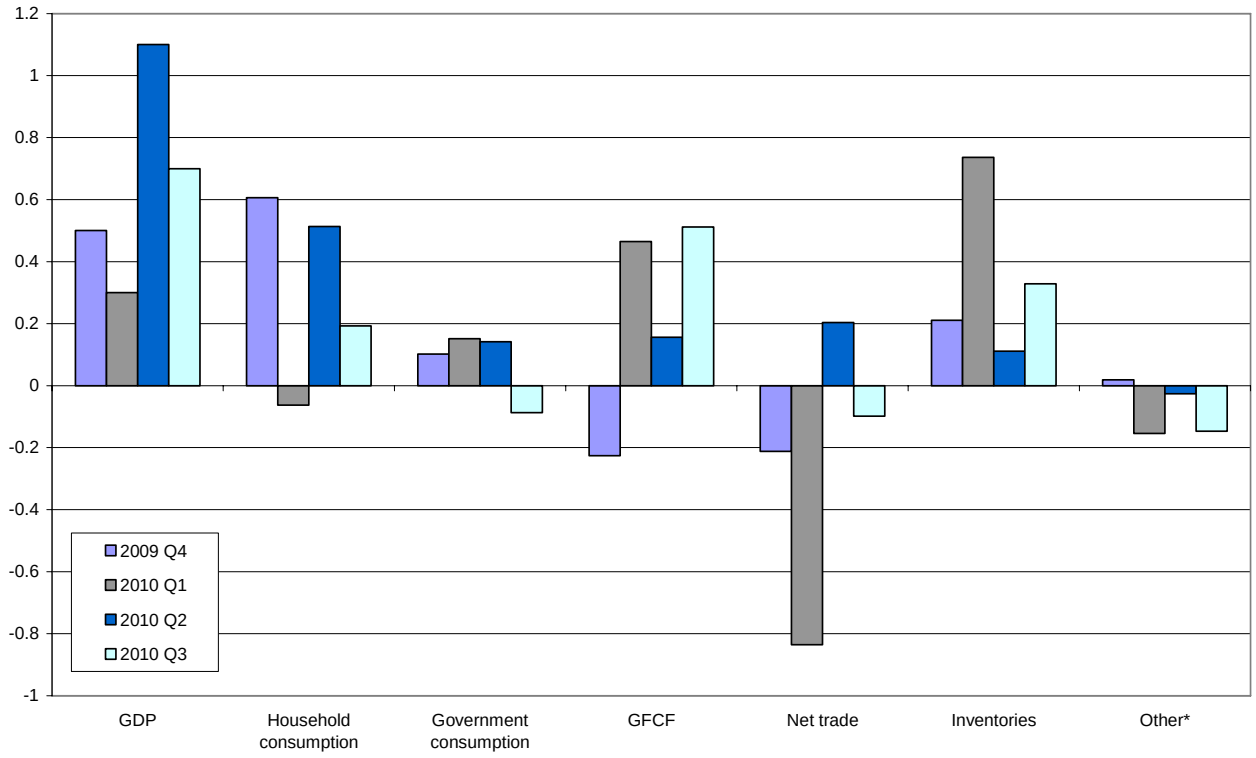
Figure 1 shows the contributions of each of the main components of expenditure to GDP growth over the last four quarters. In the third quarter of 2010, positive contributions came from household consumption, Gross Fixed Capital Formation (GFCF) and the change in inventories. Net trade and government consumption subtracted from GDP growth over the quarter.

The recent recovery in GDP has been partly attributed to the upswing in the stocks cycle. Between 2009 Q4 and 2010 Q2, the rate at which businesses were running down their holdings of inventories slowed, making a positive contribution to growth (due to a less negative change in expenditure). In 2010 Q3, the most recent published data show that the change in inventories itself

was positive for the first time since before the recession. Restocking has been accompanied by improving growth in the global economy and international trade. These have been led by emerging market economies, particularly in manufacturing industries, where stockholding is relatively more common than in other output sectors.

Figure 1 GDP expenditure contributions

Percentages



Source: Quarterly National Accounts

* Other includes Non–profit institutions serving households (NPISH), valuables, the statistical discrepancy and rounding

Positive changes in inventories though can only provide a temporary boost to growth as eventually the rate of stockbuilding will fall when stocks are replenished or reach desired levels. Therefore, other components of demand such as household consumption, investment, government spending and net trade, which provide the longer–term sources of growth, will become more important both domestically and internationally. This article will focus on these specific expenditure components of GDP.

The Quarterly National Accounts provides a comprehensive set of data on the expenditure (demand) side of the economy for this analysis. Furthermore, the adjoining Financial and Sector Accounts present balance sheet information covering the main constituents in the economy – households, firms and government. The financial position of these different sectors may also help to explain recent patterns of expenditure in the UK.

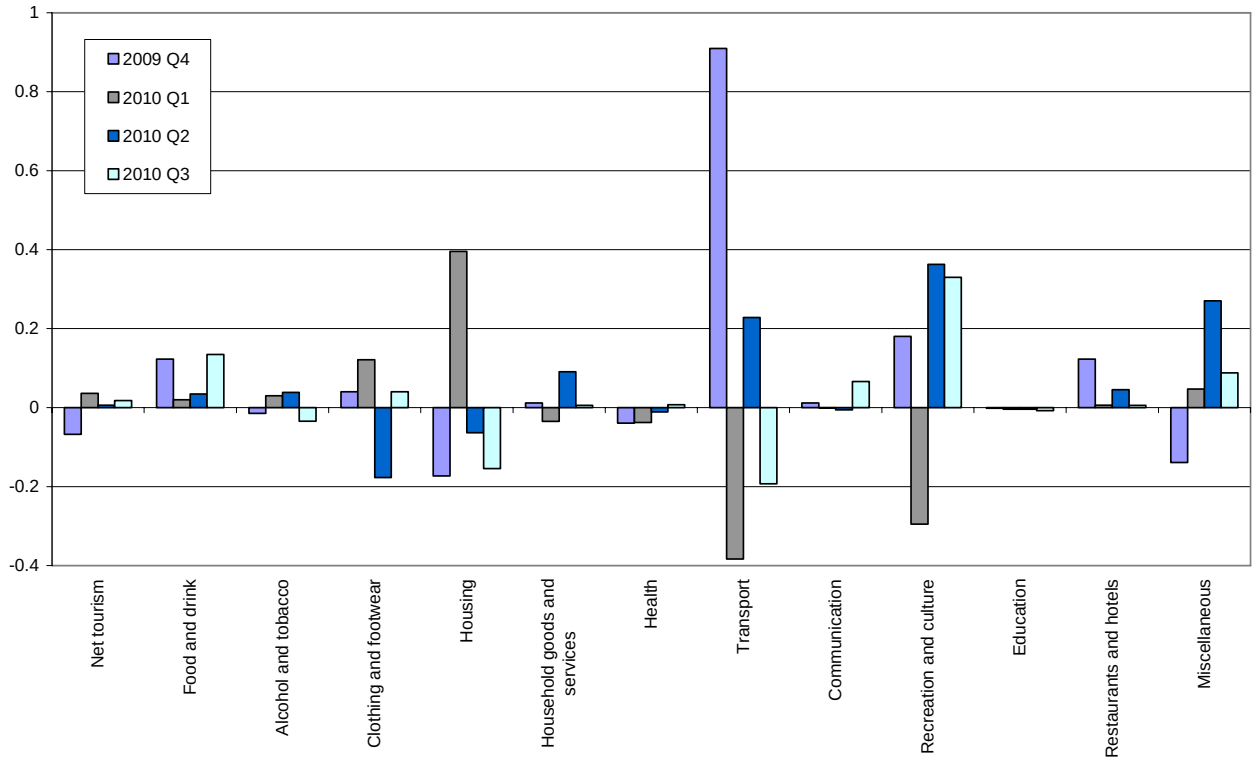
Recreation and culture is the main driver of consumption growth in 2010 Q3

Household consumption growth has been fairly uneven during 2010. After falling by 0.1 per cent in the first quarter of the year, when bad weather and the reversion to the 17.5 per cent rate of Value Added Tax (VAT) took place, household consumption rebounded strongly by 0.8 per cent in the second quarter. In the third quarter growth slowed to 0.3 per cent. Although the slowdown may partly reflect the strength of household consumption growth in the previous quarter, it is still less than half the long term average and reflects the cautious economic outlook of the household sector. The government's Spending Review appeared to impact negatively on confidence measures during the quarter through its possible direct and indirect impacts on jobs. Restrictions on credit availability, a new slowdown in the housing market, and slow pay growth (especially in real terms as average earnings struggle to keep pace with inflation) are ongoing factors likely to dampen confidence.

Figure 2 shows the main contributions to household consumption growth in the last four quarters.

Figure 2 **Household consumption contributions**

Percentages



Source: Consumer Trends

The transport sector, and in particular the purchases of new motor cars, has recently been an important driver of household consumption. It also accounts for some of the uneven growth observed in total household consumption growth. In the final quarter of 2009, purchases of new motor vehicles increased by 21.5 per cent as households looked to buy before the VAT rate rise in January 2010. As a result, it is likely that some consumption was brought forward from the first

quarter of 2010, when purchases of new motor cars contracted by 3.5 per cent. Purchases of new motor cars increased again in the second quarter, in part due to the last opportunity to take advantage of the Vehicle Scrappage Scheme. This may have had some bearing on consumption in quarter three, when new motor car purchases fell by 5.0 per cent and the transport component of consumption as a whole by 1.3 per cent.

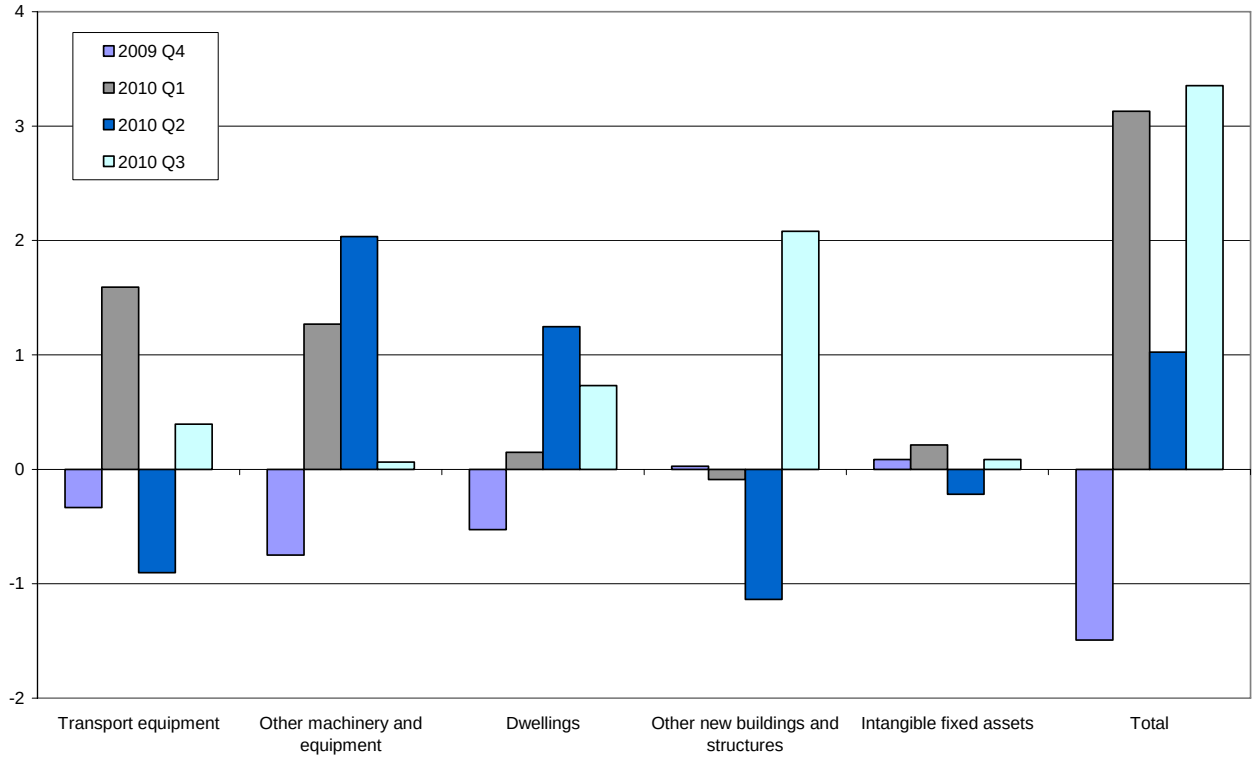
Housing also made a negative contribution to household consumption growth in 2010 Q3 as imputed rents and gas consumption fell on the quarter. However, a positive contribution came from food and drink where growth picked up from 0.4 per cent to 1.6 per cent due to higher consumption of meat, fish, fruit and sugar/confectionary products. Recreation and culture consumption grew by 2.8 per cent and 2.5 per cent in 2010 Q2 and 2010 Q3 respectively, making an important positive contribution to overall consumption growth. Within this category there has been strong growth in photographic equipment; toys, games and hobbies; and games of chance (gambling).

Gross Fixed Capital Formation increases by 3.4 per cent in 2010 Q3

GFCF, or fixed investment spending, grew faster in 2010 Q3 (+3.4 per cent) than in the preceding quarter (+1.0 per cent). A break down by main types of asset is shown in **Figure 3**.

Figure 3 Gross Fixed Capital Formation contributions

Percentages



Source: Quarterly National Accounts

Clearly, stronger growth in the most recent published quarter has been accounted for by 'other new buildings and structures', which also includes the costs associated with the transfer of ownership of buildings, dwellings and other non–produced assets (such as land). This is up 5.4 per cent on the preceding quarter, when it had fallen by 2.5 per cent. Transport equipment also contributed positively to third quarter GFCF growth having fallen in the second quarter. The positive contributions to growth though fell in the dwellings and significantly in the other machinery and equipment classes of GFCF.

Quarter on quarter movements in GFCF are generally quite erratic, reflecting the lumpiness of fixed investment goods. However, the lack of a sustained pick up in growth tends to suggest that businesses are still cautious regarding the strength of the economic recovery. Business surveys record 'uncertainty over future demand' as the key factor in constraining investment, along with existing surplus capacity. In a nutshell, firms are not sufficiently confident about the future to warrant a current rise in productive capacity. Although not a primary factor, small and medium businesses have also reported 'access to finance' as a factor adversely affecting investment.

Net trade continues to weigh on growth

In 2010 Q3, net trade impacted negatively on GDP growth for the fourth out of five quarters since 2009 Q2 (**Figure 4**). And in 2010 Q2, when net trade made a positive contribution to GDP growth, the result appears to be partly accounted for by a strong rebound in goods exports following heavy snow disruptions in the preceding quarter. In the latest published quarter, modest growth in goods exports and services exports were more than outweighed by stronger growth in goods imports – hence subtracting from GDP.

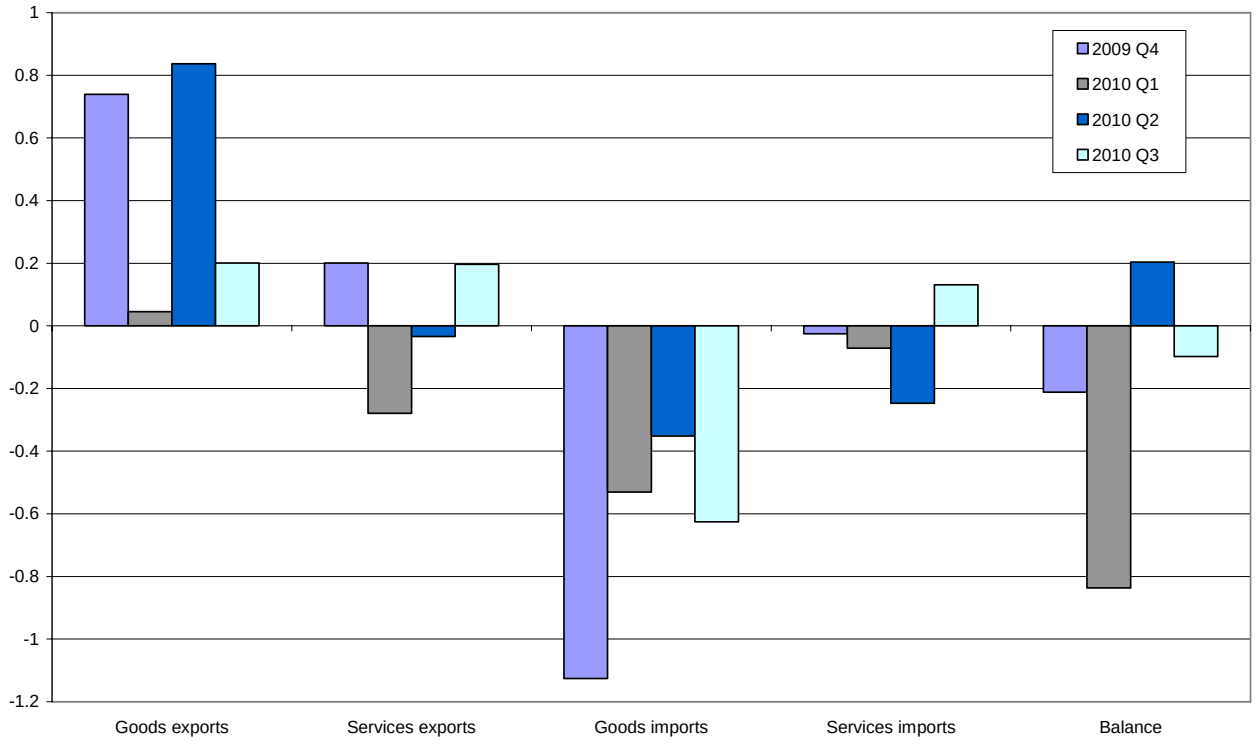
In the early part of the global recession (2008 Q2 to 2009 Q2), net trade made a positive contribution to GDP growth as imports fell at a faster rate than exports. But since the global economy started to recover in the second half of 2009, imports growth has generally outstripped exports growth in the UK. The ongoing weakness in the UK's net trade position has surprised commentators. It was hoped that trade would be a supporting factor in the recovery from recession. And it had also been touted that a rebalancing in demand away from domestic consumption towards exports was necessary and beneficial.

There is little evidence to suggest that net trade has responded significantly to the large fall in the sterling exchange rate in the second half of 2008. Part of the explanation appears to be the pattern of global growth during 2010. The pick up in global trade has been mainly concentrated in the manufacturing sector in conjunction with the upswing in the stocks cycle. It is also the case that the relatively fast growing emerging market economies, especially in Asia, are strongly orientated towards manufacturing. By contrast, the mature markets of advanced economies such as the Euro zone and the United Stated have exhibited much weaker growth – as a result of austerity measures to reign in the budget deficit, and higher unemployment. This is likely to impact negatively on global services trade, on which the UK economy is strongly focused. Furthermore, ongoing weakness in the global financial sector, typically a large source of UK exports, is likely to have weighed on the UK's net trade position.

Sterling depreciation following the exit from the European Exchange Rate Mechanism (ERM) provided a fillip to GDP growth in the mid 1990s. The fall in sterling in the second half of 2008 was similar in magnitude but has failed to provide a catalyst for growth this time around. However we do not know the counterfactual – the performance of net trade might have been worse had it not been for the impact of sterling depreciation. The strength of the recent global recession compared to that in the early 1990s may also be an important factor. And, given that UK exports primarily consist of services and higher–valued/technology manufactured goods – foreign demand may be less sensitive to price than standardised mass–manufactured products. This appears to be the sentiment reflected in business surveys, where the strength of overseas demand is usually cited as a more important factor for export orders than the exchange rate.

Figure 4 **Contributions of net trade to GDP growth**

Percentages

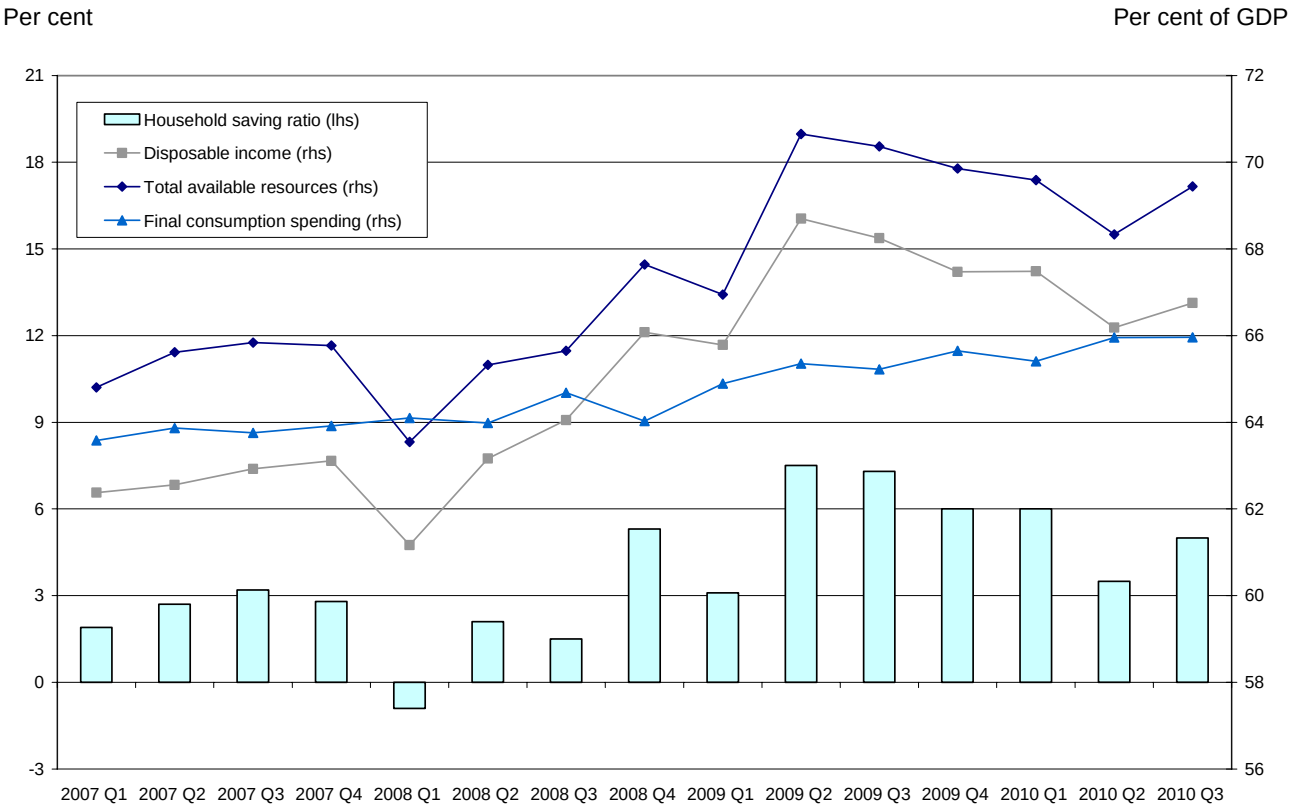


Source: Quarterly National Accounts

Household saving ratio falls

During the recession, UK household disposable income actually increased as a proportion of GDP (see **Figure 5a**). It is not uncommon for this to happen as household income, such as wages and salaries, tends to be more stable over an economic cycle than other sources of income such as the gross operating surpluses of corporations or the property income from dividends. As a result, the share of household income in GDP often rises in a recession and falls in periods of stronger growth, and is one reason why the labour share is often used as a cyclical indicator.

Figure 5a **Household* saving ratio**



Source: Quarterly National Accounts

* Also includes Non–Profit Institutions serving households (NPISH)

However, the rise in disposable income as a proportion of GDP also reflected two other supporting factors. First, the sharp reduction in the Bank of England base rate to 0.5 per cent at the end of 2008, where it has subsequently stayed, reduced the cost to households of servicing interest bearing debts such as mortgages. As the household sector holds a greater value of interest bearing liabilities than assets (following the large build up in mortgage debt in the preceding decade), low interest rates improved the net property income position of households. Second, automatic stabilisers in the taxes and benefits system reduced the extent to which disposable incomes fell relative to gross incomes.

The saving ratio is calculated as the percentage of gross saving relative to total available resources. In turn, gross saving is the difference between total available resources and consumption, where total available resources are disposable incomes plus an adjustment to reflect the change in net equity in pension funds. However, as shown in Figure 5a, total available resources are mainly driven by the trends in disposable income.

Therefore the saving ratio increased during the downturn as household consumption fell relative to household total available resources. From a low of -0.9 per cent at the brink of the downturn in 2008 Q1, the saving ratio increased to a high of 7.5 per cent in 2009 Q2. Since then, the saving ratio has generally trended downwards reaching 5.0 per cent in the latest published quarter of

2010 Q3. This fall has resulted from a general pick up in household consumption during the recovery (see Figure 1) and depressed growth in household disposable incomes due to low underlying wage growth and increases in taxes. The saving ratio did increase from 3.5 per cent in 2010 Q2 to 5.0 per cent in 2010 Q3 due to slower growth in household consumption and an increase in net property incomes.

The net borrowing/lending position for a particular sector reflects the difference between its total available resources for accumulating assets relative to the amount actually spent on accumulating assets. These assets consist of fixed investment goods (GFCF), inventories, valuables and non–financial non–produced goods. For example, a sector is a net borrower if its asset purchases exceed the internally generated funds available to purchase them, and is a net lender in the opposite case.

The funds available for asset purchases are usually related to gross saving. For the household sector, this is shown In **Figure 5b** as the sum of gross saving (Figure 5a) plus net capital taxes. The change in assets is also shown here as a percentage of GDP, with the net lending/borrowing position the difference between the two.

Figure 5b **Household* sector net borrowing/lending**

Percent of GDP

Source: Quarterly National Accounts

* Also includes Non–Profit Institutions serving households (NPISH)

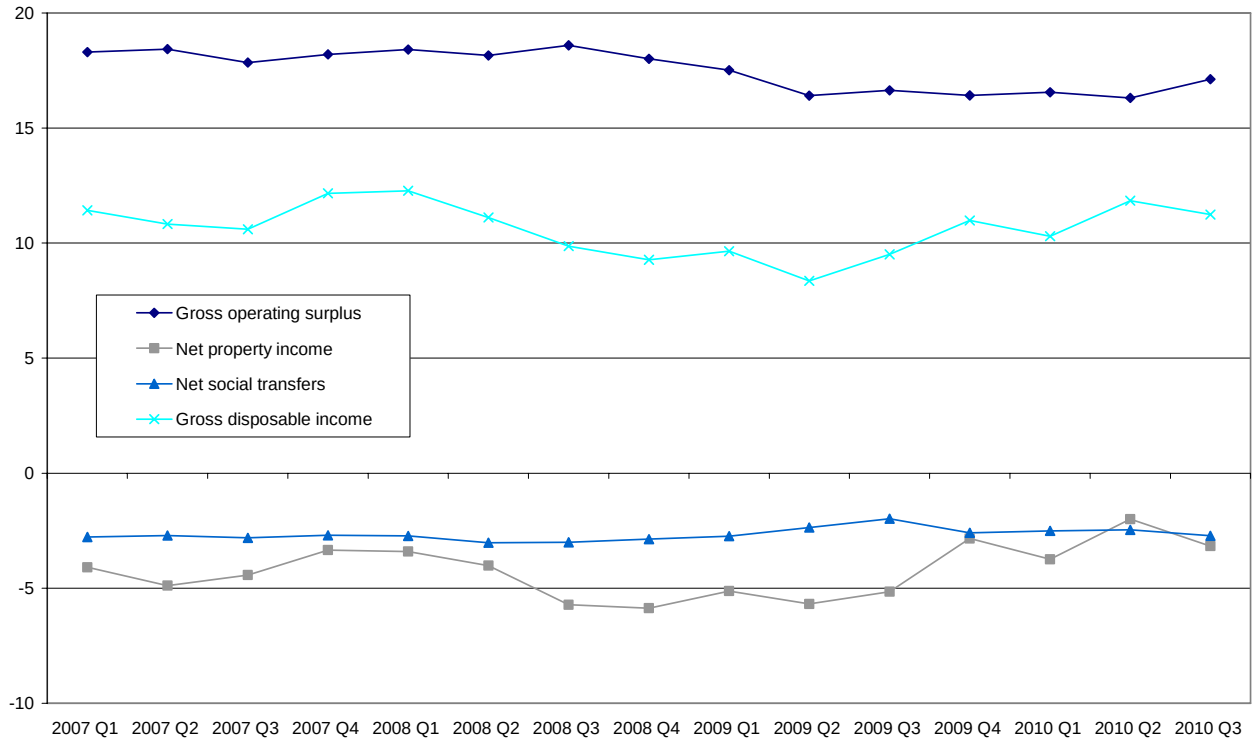
As Figure 5b shows, the household sector became a net lender to the rest of the economy through the year 2009 Q2 – 2010 Q2. This was due to a rise in gross saving (following a fall in household consumption relative to disposable income) and a fall in asset purchases. The main asset purchase made by the household sector is house purchases, so this trend clearly reflects the downturn in the housing market and the fall in new property transactions. In 2010 Q2 the household sector returned to being a net borrower, albeit a small one, following relatively strong consumption growth in that quarter reducing gross saving. But slower consumption growth in 2010 Q3 has seen the sector return to being a marginal net lender.

Private non–financial corporations (PNFC) continue as net lenders

The gross disposable income of the PNFC sector reflects its profits (operating surplus) plus net property income (distributive payments such as rents, interest and dividends and also earnings from foreign direct investment (FDI)) minus net taxes (taxes minus subsidies). These three components and gross disposable income for the PNFC sector are shown in **Figure 6a** as a percentage of GDP.

Figure 6a **PNFC balance sheet**

Per cent of GDP



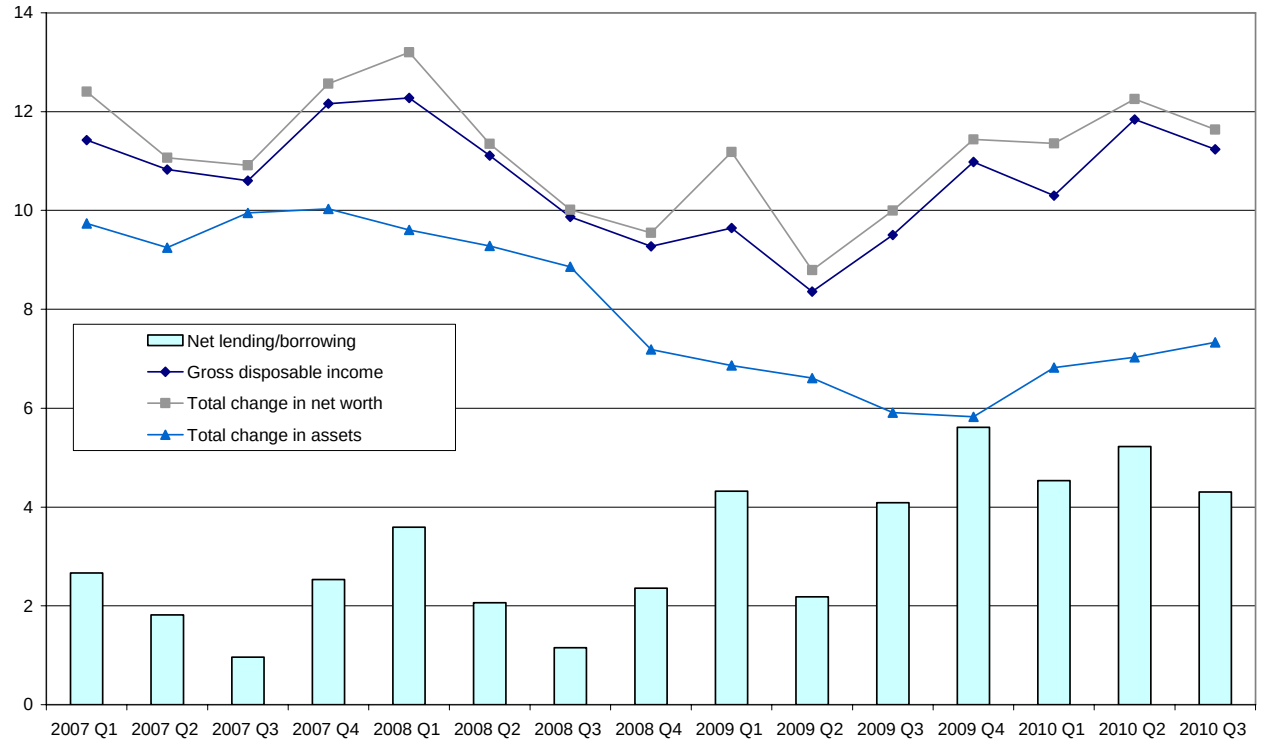
Source: Quarterly National Accounts

During the early stages of the recession PNFC disposable incomes fell relative to GDP reflecting both lower operating surpluses and lower net property income. The second of these reflecting lower income generated by financial assets held by the PNFC sector, such as equity and interest–bearing assets, and also lower earnings from FDI. Disposable incomes of the sector though have improved since the second half of 2009 as operating surpluses stabilise and net property incomes pick up following the rise in equity markets and global economic growth. The ratio of PNFC disposable income to GDP has, for the most part, been fairly stable.

Over the last decade the PNFC sector has typically been a net lender to the rest of the economy. As **Figure 6b** shows, net lending increased further during the recession as asset accumulation (investment) fell relative to changes in its net worth (gross disposable income from Figure 6a plus net capital transfers). The sharp fall in PNFC asset accumulation was the result of a contraction in GFCF and rapid destocking of inventories. The slowdown in the speed at which inventories were being run down and an increase in GFCF have meant that PNFC asset accumulation has increased relative to GDP since 2009 Q4. However, PNFC net worth has also improved relative to GDP following a rise in disposable income, so net lending remains at an elevated percentage of GDP. More than anything, high PNFC net lending appears to reflect low investment spending, which is an indication of the sector's cautious economic outlook.

Figure 6b **PNFC net lending/borrowing**

Per cent of GDP



Source: Quarterly National Accounts

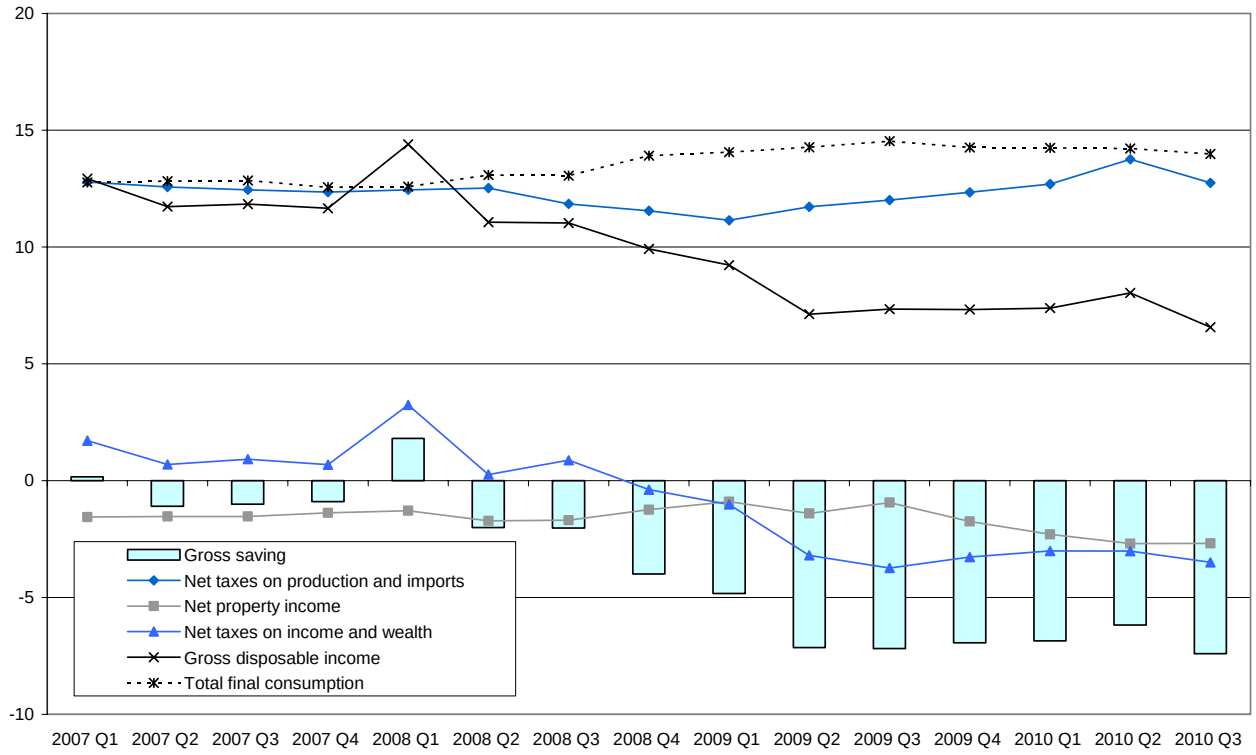
Central government net borrowing at over 10 per cent of GDP in 2010 Q3

The general government sector consists of both central and local governments, but in terms of the balance sheets represented in the Sector Accounts, local government is small in comparison to central government.

Gross disposable income of the central government consists of three main components: net taxes on production and imports (indirect taxes and subsidies); net property income (payments resulting from the holdings of financial asserts and liabilities); and net taxes on income and wealth (direct taxes and transfer payments). These are shown as a percentage of GDP in **Figure 7a**.

Figure 7a Central government balance sheet

Per cent of GDP



Source: Quarterly National Accounts

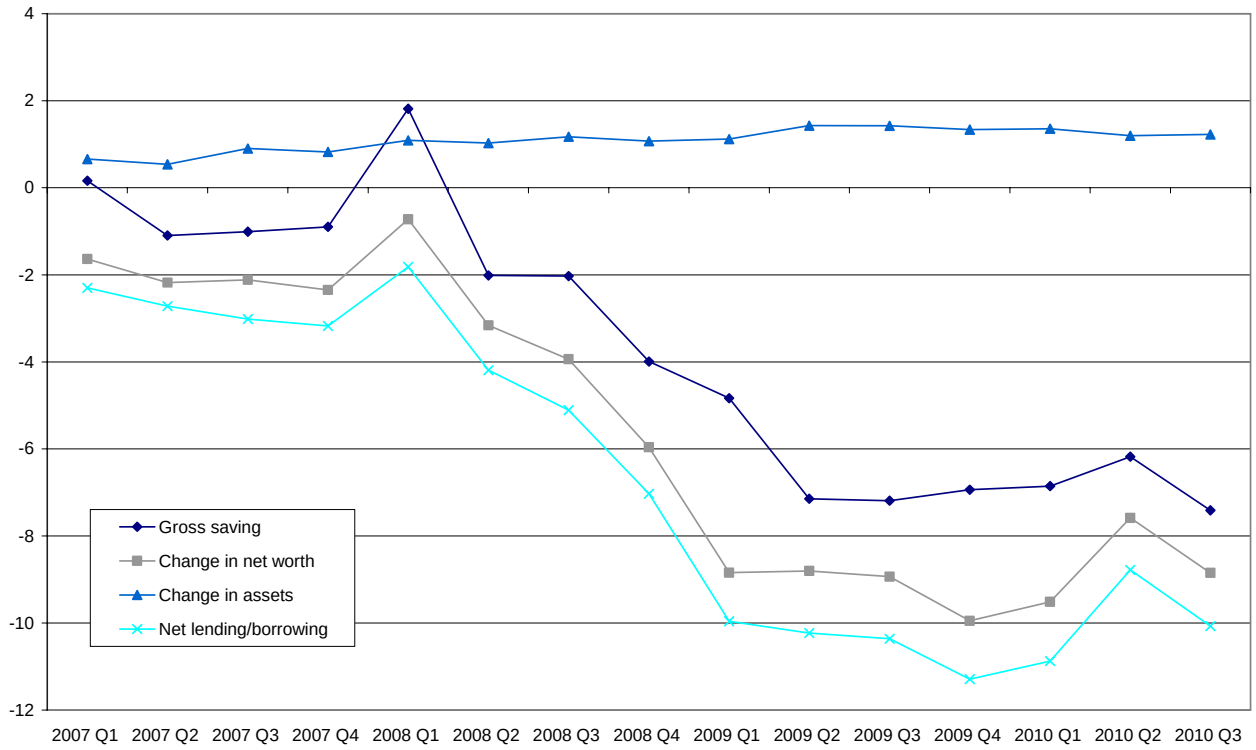
Since 2008, disposable income of the central government sector has fallen markedly. Taxes on production and imports initially fell (due to the cycle and the cut in VAT) but have picked up relative to GDP following increases in VAT and other indirect taxes along with the recovery in output. Net property income has deteriorated, primarily due to the growing interest costs associated with funding a higher public sector net debt (PSND). The main cause for the fall in disposable income though has been net taxes on income and wealth. These typically behave as an automatic stabiliser, with income related tax revenues falling and transfer payments rising in a downturn.

Gross saving reflects the difference between disposable incomes and consumption, and will behave in a similar way to the government's current budget balance. The sharp fall in disposable incomes (mainly from net direct taxes) coupled with the maintaining of government consumption levels has resulted in government gross saving falling to nearly -7.5 per cent in 2010 Q3. This shows the government to be running a significant budget deficit.

The overall net lending/borrowing position of the central government sector is then determined by netting out net capital transfers and investment spending from gross saving. These are shown in **Figure 7b**, and indicate that as central government gross saving has fallen it has become an increasing net borrower.

Figure 7b Central government net lending/borrowing

Per cent of GDP



Source: Quarterly National Accounts

Rest of the world remains a net lender to the UK

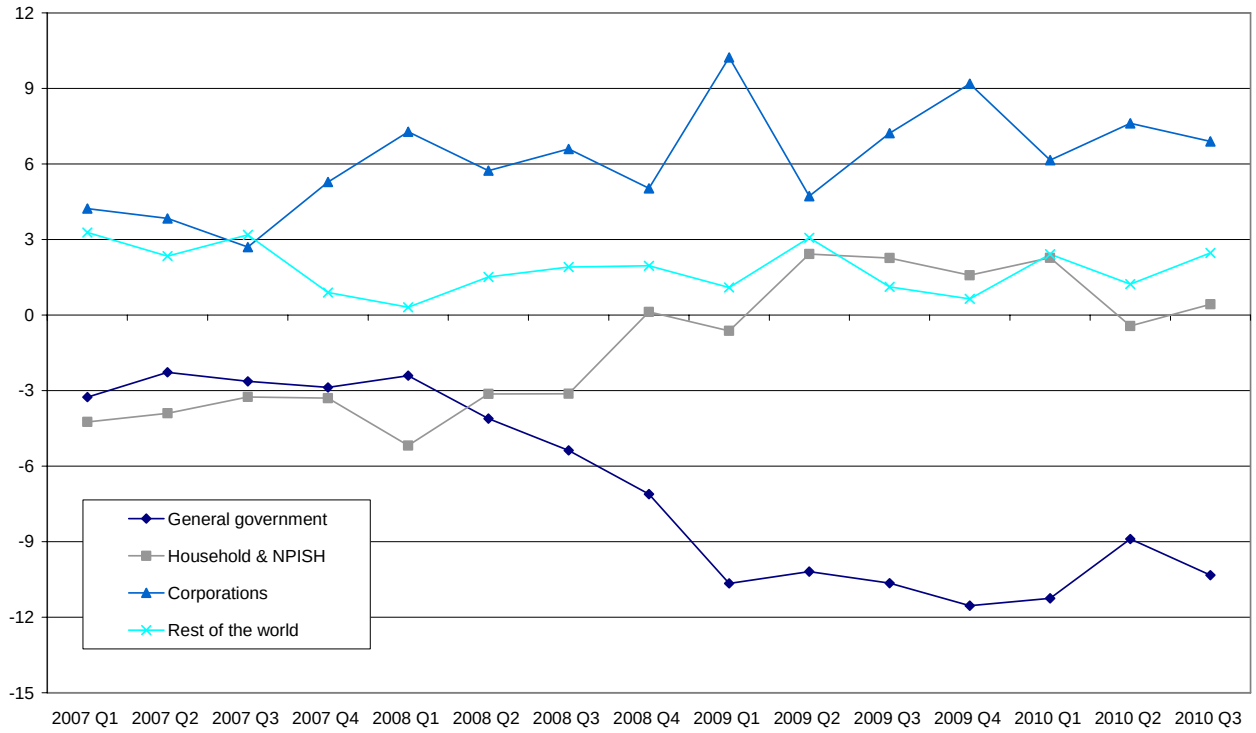
Figure 8 shows a summary of the net lending/borrowing positions for all the main sectors in the UK. General government is the addition of central government and local government, household and NPISH is as presented in Figure 5b; and corporations are the sum of PNFC, financial corporations and public corporations net lending/borrowing positions.

In the last three years there have been a number of shifts in these positions. The household and NPISH sector, having been a persistent net borrower due to a low saving ratio and high property related investments for most of the preceding decade, became a small net lender and has recently been close to neutral. The corporate sector has become an increasing net lender as well, largely due to the sharp fall and then slow pick up in investment spending. However, these positions have been insufficient to offset the growing net borrowing position of the general government sector.

Therefore, as a result, the UK's domestic sectors (households, firms and government) are an overall net borrower. This gap is filled by the Rest of the World being a net lender (as shown in Figure 8). It is also evident that the Rest of the World's net lending position as a percentage of GDP has also been fairly stable of late compared to the bigger movements in the domestic sectors.

Figure 8 Net borrowing/lending by sector

Per cent of GDP



Source: Quarterly National Accounts

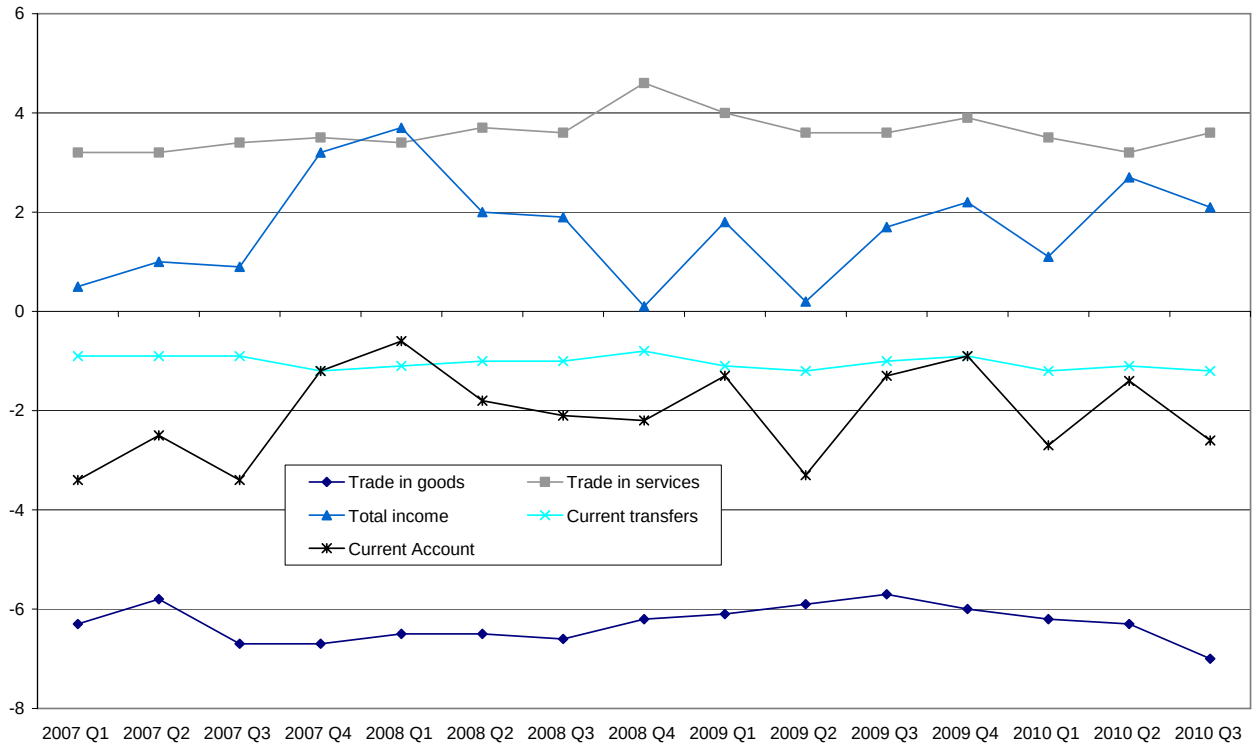
If the UK is a net borrower from the rest of the world, simply put, it means that the consumption and investment undertaken by its population of households, firms and government exceeds the disposable income being generated. This would naturally show up as a deficit on the Current Account in its Balance of Payments. And as **Figure 9** illustrates, this is the case. The UK's Current Account deficit clearly reflects the net lending position of the Rest of the World Sector in Figure 8.

Figure 9 also shows how the main components of the UK's Current Account deficit add up. The surplus on the trade in services has diminished slightly as a percentage of GDP in recent quarters.

This reflects the slow pick up in services exports shown in Figure 4. On the other hand, the faster growth in goods imports, also shown in Figure 4, is manifest in a growing deficit on the trade in goods balance. Current transfers, reflecting payments to supranational organisations like the European Union and foreign aid, tends to be a very stable proportion of GDP. Although quite volatile, net income flows resulting from the international ownership of financial assets and liabilities have generally improved in the last year, offsetting the deterioration in the goods and services trade balance. This probably reflects the recoveries in global economies and stock markets, and is consistent with the rise in property income recorded by the PNFC sector in Figure 6a.

Figure 9 Current Account balances

Per cent of GDP



Source: Quarterly National Accounts

Employment characteristics of UK tourism industries in 2008

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Summary

This article uses an analysis of data from the Annual Population Survey to provide estimates of the characteristics of employment in tourism industries in 2008. The results indicate that employment in these industries is more likely to be part–time, self–employed or temporary than in non–tourism industries.

The data also highlight that the workforce in tourism industries has a younger age profile than in other industries and that there are greater proportions of non–UK born and non–white workers in tourism industries. The article includes comparisons of different tourism industries in employment terms and features information at sub–regional geographical level.

Introduction

In November 2010, a paper examining the supply side of UK tourism industries was published by ONS's Tourism Intelligence Unit[1] (TIU) (see Smith, Webber and White 2010). It included analysis of output, gross value added (GVA), employment, company size and turnover levels in the industries. The paper also explained how the TIU has matched the internationally agreed definitions of tourism industries to UK Standard Industrial Classifications[2] (SIC 2003 and SIC 2007). This article uses 2008 data from the Annual Population Survey[3] (APS) to further explore the characteristics of employment in tourism industries and of those working in them.

The APS is a combined survey of households in the UK. Its purpose is to provide information on key social and socio–economic variables between the ten–yearly censuses, with particular emphasis on providing information relating to small geographical areas. The APS acts as a boost to the Labour Force Survey (LFS) to provide for a more disaggregate analysis of the population. This article includes information for sub–regional geographies and, therefore, the APS has been used in preference to the quarterly LFS. This is because the latter does not provide a large enough sample to give reliable results for small population groups in detailed cross–tabulations of several variables (geographical area and industry, for example). Regular outputs from the APS include

local area labour market data[4] and estimates of the UK population by country of birth and nationality[5]. This article uses aggregations of unpublished data that have been accessed via the ONS's Virtual Microdata Laboratory[6] (VML).

Tourism industries

The industries for which data have been collected in this article are those that serve tourists, as suggested in international recommendations on tourism statistics[7] (IRTS) published by Eurostat, UNWTO and OECD in 2008. It should be noted that this article does not provide an estimate of 'Tourism Direct Employment'. Such an estimate would exclude some workers within tourism industries, for example those serving food or beverages to non–tourists, and include some in non–tourism industries, such as those that manufacture goods that directly relates to tourism. The TIU is currently considering whether an estimate of Tourism Direct Employment could be included within the 2008 Tourism Satellite Accounts that are due to be released in 2011.

The November 2010 supply side paper highlighted estimates of employment from the APS. These suggested that, in 2008, about 2.36 million people had their main job in one of the tourism industries while just over 180,000 people had a second job within them. **Table 1** is a breakdown of main and second employment data into eleven tourism industries and it also includes information about the specific industry classes within the eleven, as well as examples of what is excluded from them.

Table 1 Tourism industries and industry classes[1]

	Estimated employment in main and second jobs, 2008 (thousands)		*Not included*
1	**Accommodation for visitors**	**378**	
	Hotels and motels	250	*Real estate agencies*
	Other provision of lodgings	58	
	Letting own property	27	
	Management of real estate on a fee or contract basis	27	
	Camping and caravan sites and youth hostels	17	
2	**Food and beverage serving activities**	**1,038**	
	Restaurants	455	
	Public houses and bars	271	
	Catering	151	
	Take–away food shops	102	
	Canteens	36	
	Licensed clubs	24	

	Estimated employment in main and second jobs, 2008 (thousands)		*Not included*
3	**Railway passenger transport**	**49**	
	Passenger rail transport, interurban	49	*Urban and suburban rail transport*
			Freight rail transport
4	**Road passenger transport**	**240**	
	Taxis and similar	194	*Urban and suburban road transport*
	Other (interurban) passenger land transport	46	*Freight road transport*
5	**Water passenger transport**	**24**	
	Sea and coastal passenger water transport	22	*Freight water transport*
	Inland passenger water transport	2	
6	**Air passenger transport**	**44**	
	Scheduled air transport	31	*Freight air transport*
	Non-scheduled air transport	13	
7	**Transport equipment rental**	**36**	
	Car rental	33	*Rental and leasing of trucks*
	Other	2	*and of freight transport*
8	**Travel agencies and other reservation service activities**	**126**	
	Travel agencies, organisers, guides	107	
	Other tourist assistance	11	
	Other	9	
9	**Cultural activities**	**267**	
	Artistic and literary creation	149	*Libraries and archives*
	Other entertainment	53	
	Museums	33	
	Arts facilities	22	
	Other	9	
10	**Sports and recreational activities**	**333**	
	Operation of sports arena and stadia	157	*Sports clubs*
	Gambling and betting	88	*Fitness facilities*
	Other recreational activities	47	*Racehorse owners*
	Other sporting activities	24	
	Fairs, amusement parks	11	
	Other	6	
11	**Country–specific tourism characteristic activities**	**11**	
	Exhibition, fair and conference organisers	11	

Source: Annual Population Survey 2008
Note

1. Based on definitions of tourism industries from the UN World Tourism Organisation (UNWTO)

In the remainder of this article, many of the analyses break down data into four broad tourism industries. These are:

- accommodation for visitors
- food and beverage serving activities
- passenger transport, transport equipment rental and travel agencies etc
- cultural, sport and recreation activities and conference activities etc

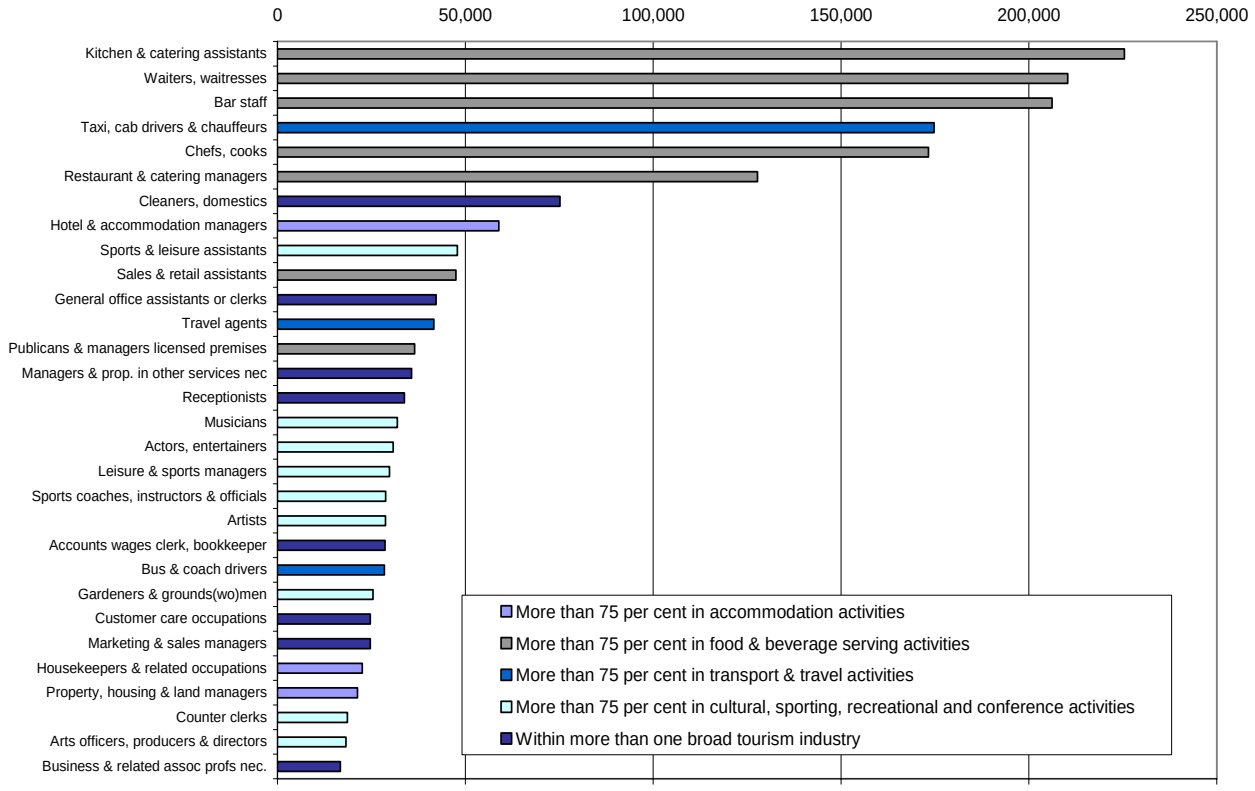
These relate, respectively, to the industries labelled 1, 2, 3 to 8 and 9 to 11 in Table 1.

Tourism occupations

Within the 2008 APS, occupations were classified using the four–digit 2000 Standard Occupational Classification[8] (SOC). Some of these relate to specialist areas of work (such as musicians or hotel porters) while others take place within a variety of industries (for example, cleaners and domestics or sales and retail assistants).

Figure 1 Main and second job employment in tourism industries: the 30 most prevalent occupations in 2008

Employment in main and second jobs



Source: Annual Population Survey 2008
nec = not elsewhere classified

In 2008, six occupations included about 44 per cent of main and second job employment in tourism industries. Five of these occupations were mainly in food and beverage serving activities with the other almost entirely within passenger transport. **Figure 1** illustrates these six occupations and the 24 others with the largest employment in tourism industries in 2008. Together, these 30 occupations had main and second job employment of 1.92 million in tourism but a further 630,000 people employed in tourism industries worked in 258 other occupations.

All occupations in Figure 1 also have workers in non–tourism industries, with many having the majority in these industries. Most notably, only 11 per cent of cleaners and domestics, 4 per cent of sales and retail assistants and 6 per cent of general office assistants or clerks were within tourism industries in 2008 despite these being the 7th, 10th and 11th most prevalent occupations. Even occupations more obviously relating to tourism industries have large numbers of workers elsewhere. Around 44 per cent of kitchen and catering assistants worked outside tourism industries in 2008 and the same was true of a third of chefs and cooks, about a sixth of bar staff, the same proportion of taxi drivers, cab drivers and chauffeurs and around a tenth of waiters and waitresses.

Characteristics of employment in tourism Industries

Main and second jobs

The 2008 estimate of 2.36 million workers with a main job in tourism industries was equivalent to 8.1 per cent of those in the UK with a main job in any industry. The number of second jobs in these industries, however, made up a much larger proportion of second jobs overall, around a sixth, as **Table 2** illustrates.

Second jobs are particularly prevalent in cultural, sporting and recreational industries but are also more in evidence in most other tourism industries than in the UK economy as a whole. The exception is passenger transport and travel, where second jobs are relatively rare. The APS includes no measure of third and subsequent jobs which means that it may underestimate employment in industries where these exist. Given the high levels of second jobs in most tourism industries, it is likely that third and subsequent jobs are also more common, suggesting a slight underestimate of the proportion of total employment that is within tourism industries.

In 2008, about 92,000 people who had main jobs in tourism industries had second jobs as well, with about a third of these (32,000) also being in tourism industries. In total, therefore, 2.514 million workers had main and/or second jobs in tourism industries (32,000 subtracted from the main and second jobs total in Table 2).

Table 2 Main and second job employment in tourism industries in 2008

	Main and second jobs		Main jobs		Second jobs		
	Number (1,000s)	as % of UK total	Number (1,000s)	as % of UK total	Number (1,000s)	as % of UK total	as % of main and second jobs
Tourism industries	2,546	8.4	2,362	8.1	184	16.6	7.2
Accommodation for visitors	378	1.2	355	1.2	23	2.1	6.1
Food and beverage serving	1,038	3.4	965	3.3	74	6.6	7.1
Passenger transport and travel	519	1.7	504	1.7	15	1.3	2.8
Culture, sport, recreation and conferences	610	2.0	538	1.8	73	6.6	11.9
Non–tourism industries	27,832	91.6	26,908	91.9	924	83.4	3.3
All industries	**30,378**	**100.0**	**29,270**	**100.0**	**1,108**	**100.0**	**3.6**

Source: Annual Population Survey 2008

Full–time and part–time jobs

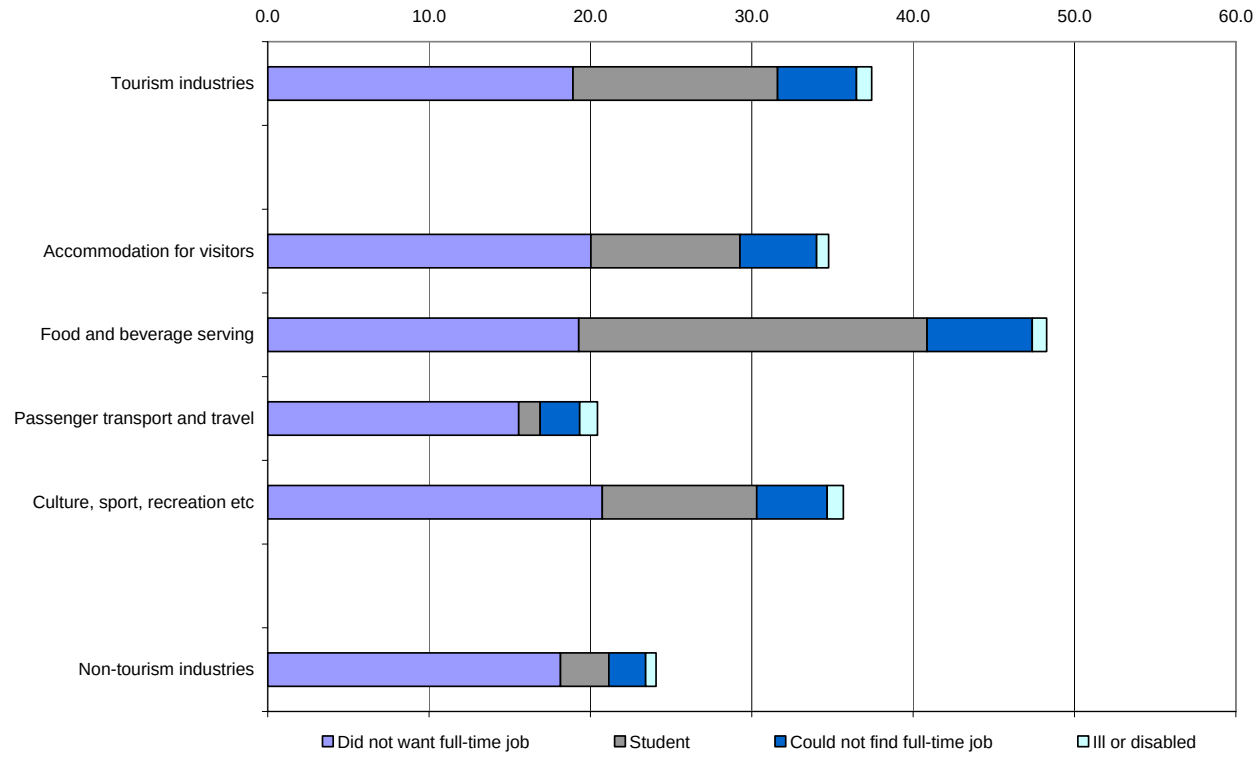
According to the APS, in 2008, around 38 per cent of main jobs in tourism industries were part–time, compared to just under a quarter in non–tourism industries. As **Figure 2** indicates, part–time working was most common in food and beverage serving but was less prevalent in travel and transport industries. In total, 12.0 per cent of part–time main jobs in the UK were in tourism industries compared to less than 7 per cent of full–time main jobs. In fact, food and beverage serving was the industry of more than 6 per cent of all part–time main jobs (but only just over 2 per cent of full–time jobs).

The APS asks respondents who are working part–time in their main job to supply information about their reasons for working part-time. In non–tourism industries, the vast majority of respondents in 2008 classified themselves as not wanting a full–time job. As Figure 2 also illustrates, this is not the case in tourism industries where about half classified themselves in this way, just over a third were students and there was a greater proportion of people working part–time because they were unable to find a full–time job (13 per cent compared to almost 10 per cent in other industries).

In 2008 almost one in five of students working part–time were in food and beverage serving industries as were nearly one in ten of part–time workers unable to find a full–time job. These industries, however, only included 3 per cent of those working part–time because they did not want a full–time job.

Figure 2 Part–time employment in main jobs by reported reason, 2008

Percentage of main jobs[1]



Source: Annual Population Survey 2008
Note

1. Proportions exclude part-time workers who gave no reason

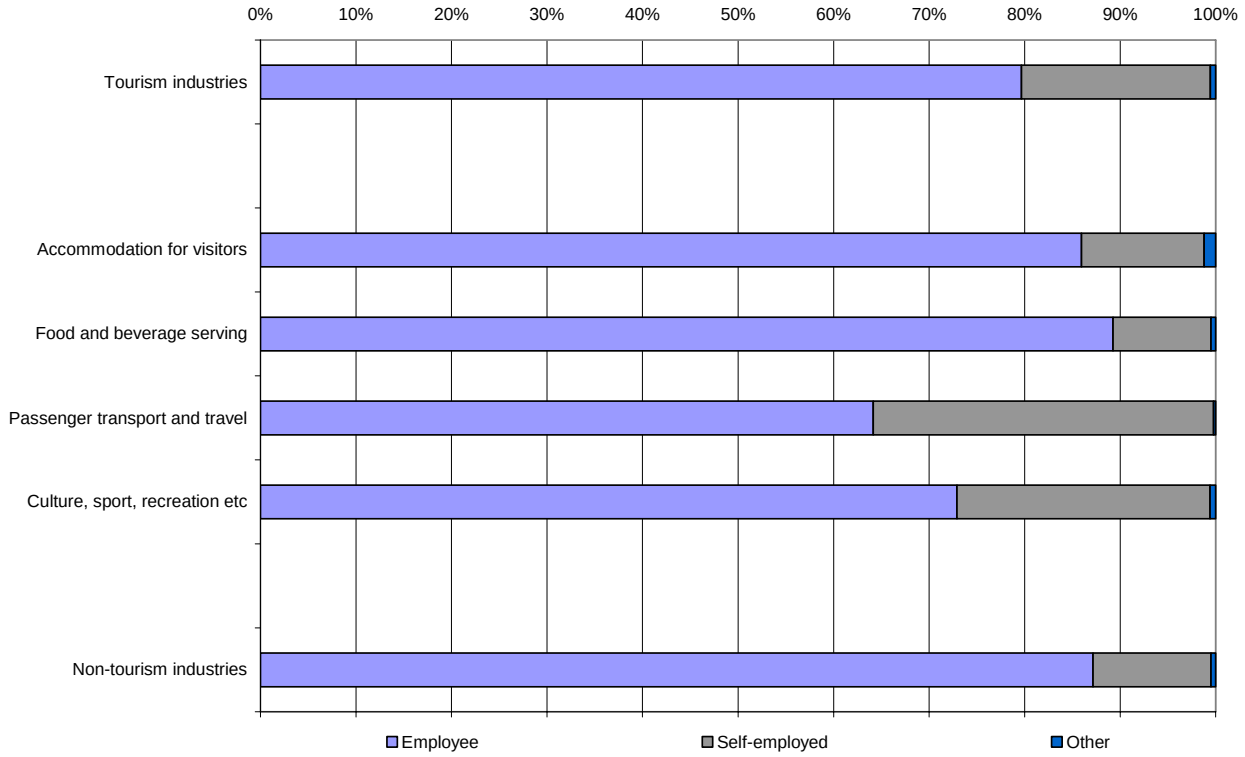
Self–employment

In 2008, around 21 per cent of employment in main or second jobs in tourism industries was self–employment, compared with 13 per cent in non–tourism industries. As **Figure 3** indicates, self–employment was particularly prevalent in transport and travel industries and in culture, sport and recreation. In total, almost 13 per cent of UK workers who were self–employed in their main or second job were in tourism industries but this was true of only 7.7 per cent of employees.

The category of 'other' in Figure 3 includes those with main jobs as unpaid family workers or that were part of Government schemes. Just over 100,000 workers in the UK classified themselves as the former in 2008 and about 11 per cent were in tourism industries, particularly those providing accommodation. Very few main jobs in Government schemes were in tourism (the exact estimate is not available due to the data being disclosive).

Figure 3 Employment status in main and second jobs in 2008

Percentages



Source: Annual Population Survey 2008

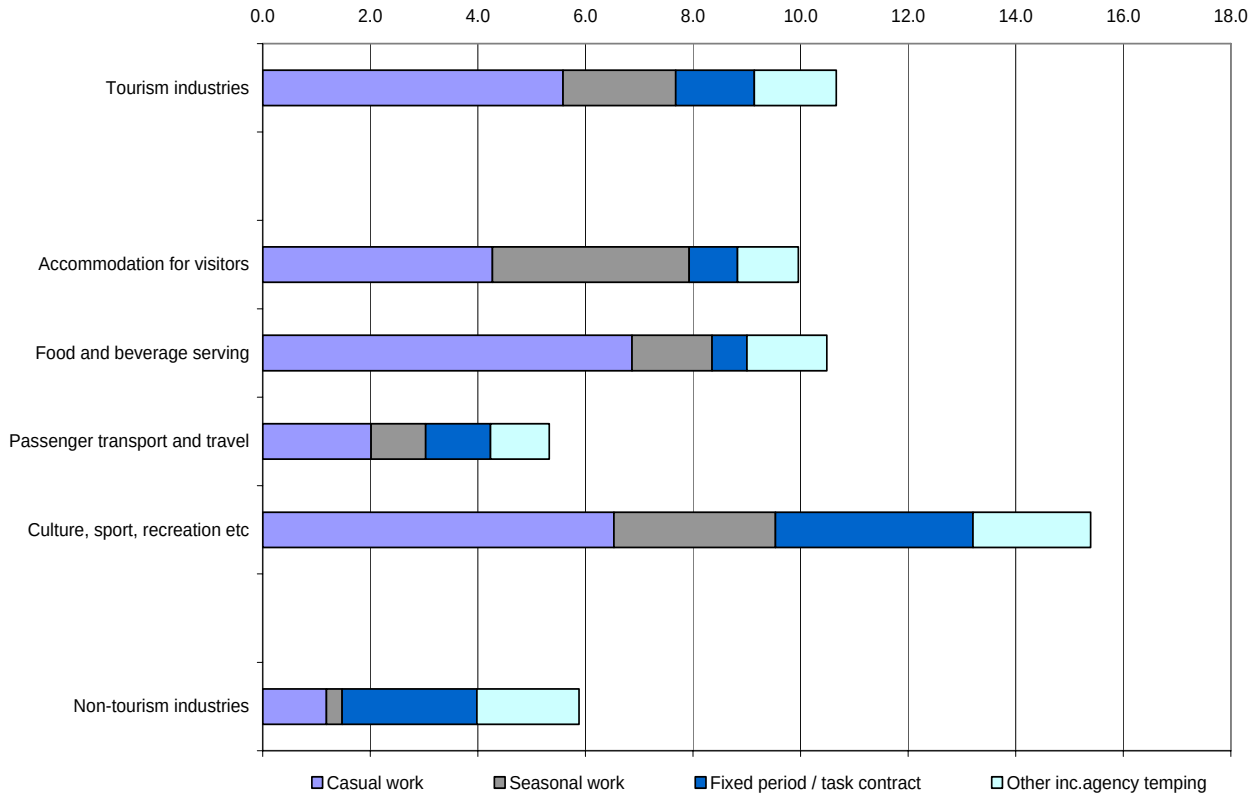
Temporary working

The APS gives information about whether jobs are permanent or temporary in some way, including a breakdown of the latter into types of temporary working. In 2008, about 11 per cent of main and second job employment in tourism industries was temporary, compared with 6 per cent in non–tourism industries. As **Figure 4** indicates, the proportion of temporary jobs was highest in culture, sport and recreation.

Figure 4 also shows that the proportions of casual and seasonal work among tourism industries were much higher than in non–tourism industries where the type of temporary working was more likely to be fixed term or task (non-seasonal) work. In total, 38 per cent of seasonal work and 29 per cent of casual work in UK main and second jobs were within tourism industries in 2008.

Figure 4 Temporary working in main and second jobs in 2008

Percentage of main and second jobs



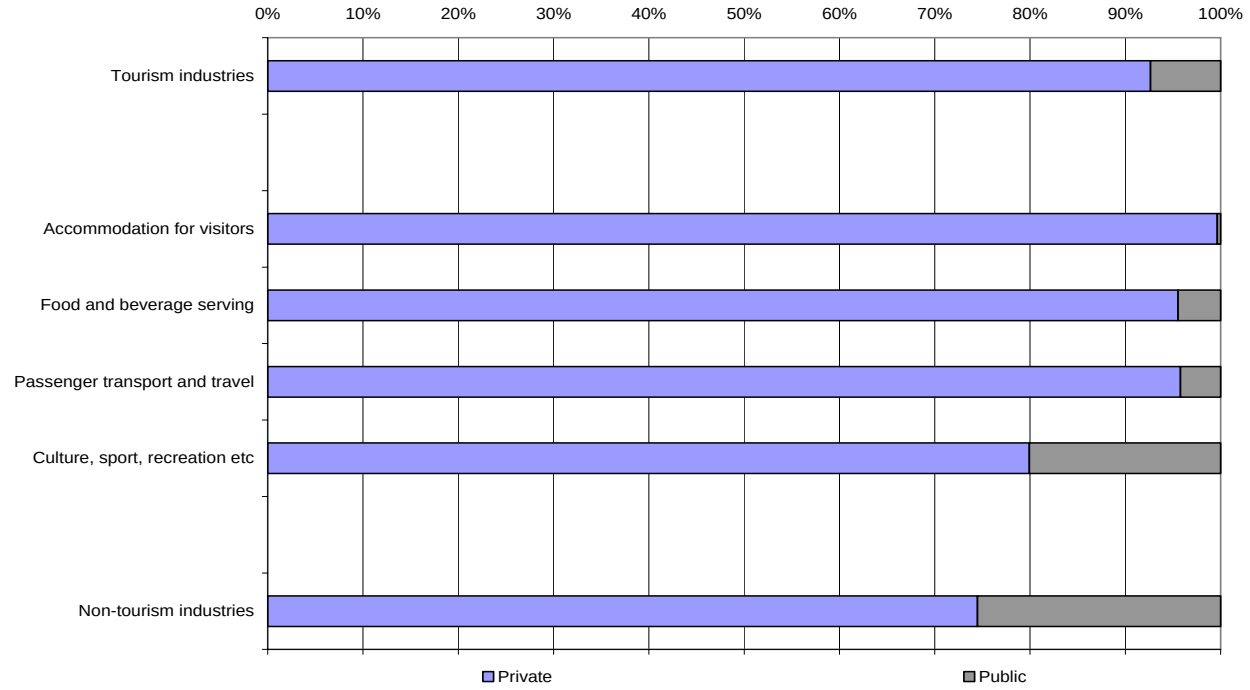
Source: Annual Population Survey 2008

Public and private sector

The APS includes information about whether the main job of a worker is reported to be in the public or private sector. In 2008, only 7 per cent of main job employment in tourism industries was reported to be in the public sector, compared to 26 per cent elsewhere. As **Figure 5** indicates, culture, sport and recreation is the only group of tourism industries where public sector employment makes up more than 5 per cent of main job employment. In total, tourism industries are responsible for 9.8 per cent of all main jobs in the private sector but only 2.5 per cent of those in the public sector.

Figure 5 **Private or public sector in main job (reported) in 2008**

Percentages



Source: Annual Population Survey 2008

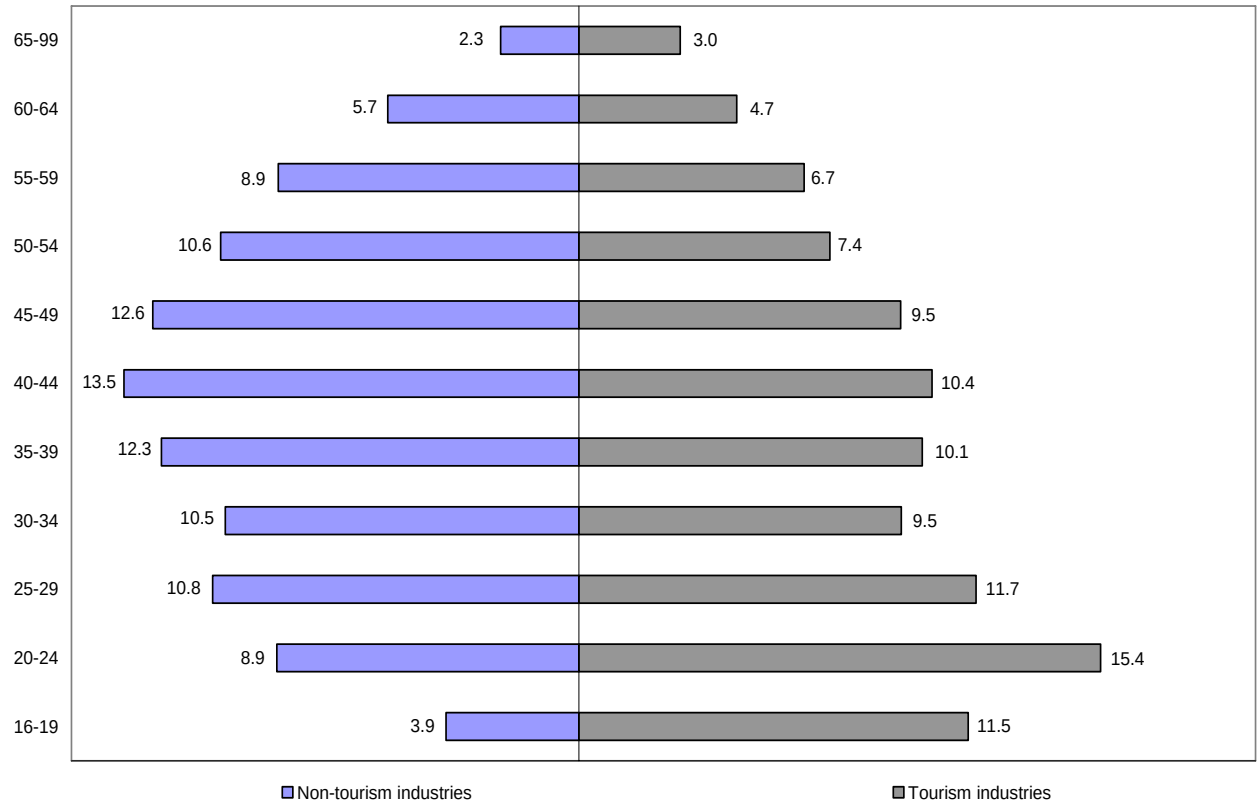
Characteristics of those with jobs in tourism industries

Age

The 2008 APS indicates that the age profile of those employed in tourism is younger than those in other industries, as illustrated in **Figure 6**. More than a quarter of those in employment in main and second jobs in tourism industries were under 25 years old compared with about 13 per cent in other industries. The proportion of those aged 25 to 29 was also higher within tourism industries but the only other age group where this was the case was those aged 65 and over.

Figure 6 Proportion of workers by age group in main and second jobs in 2008: tourism and non–tourism industries

Percentages

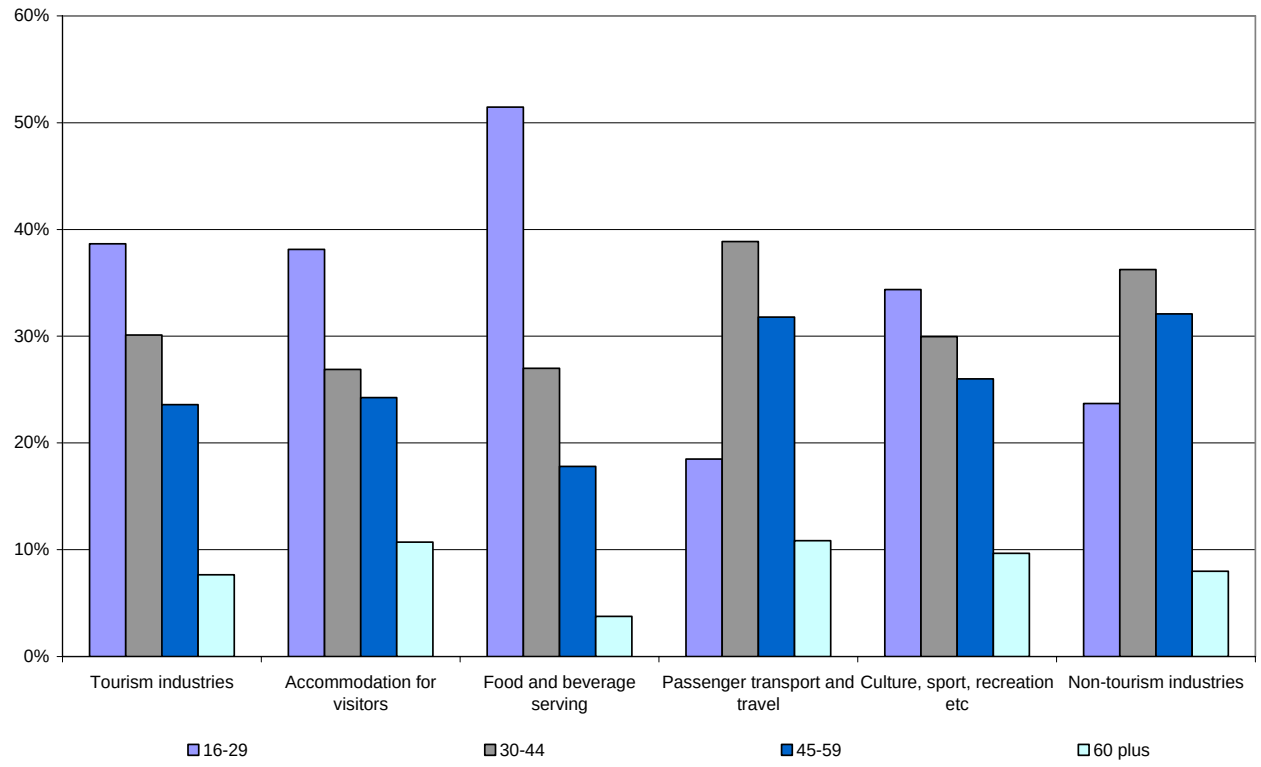


Source: Annual Population Survey 2008

The age profile of those employed in food and beverage serving is younger than that of other tourism industries, as **Figure 7** indicates. Over half of those with main or second jobs in this industry are aged under 30. Accommodation for visitors and culture, sport and recreation have similar age profiles to that of tourism industries as a whole but the age breakdown of employment in passenger transport and travel is nearer to that in non–tourism industries.

Figure 7 **Proportion of workers in main and second jobs in 2008 by age group: comparisons between tourism industries**

Percentages



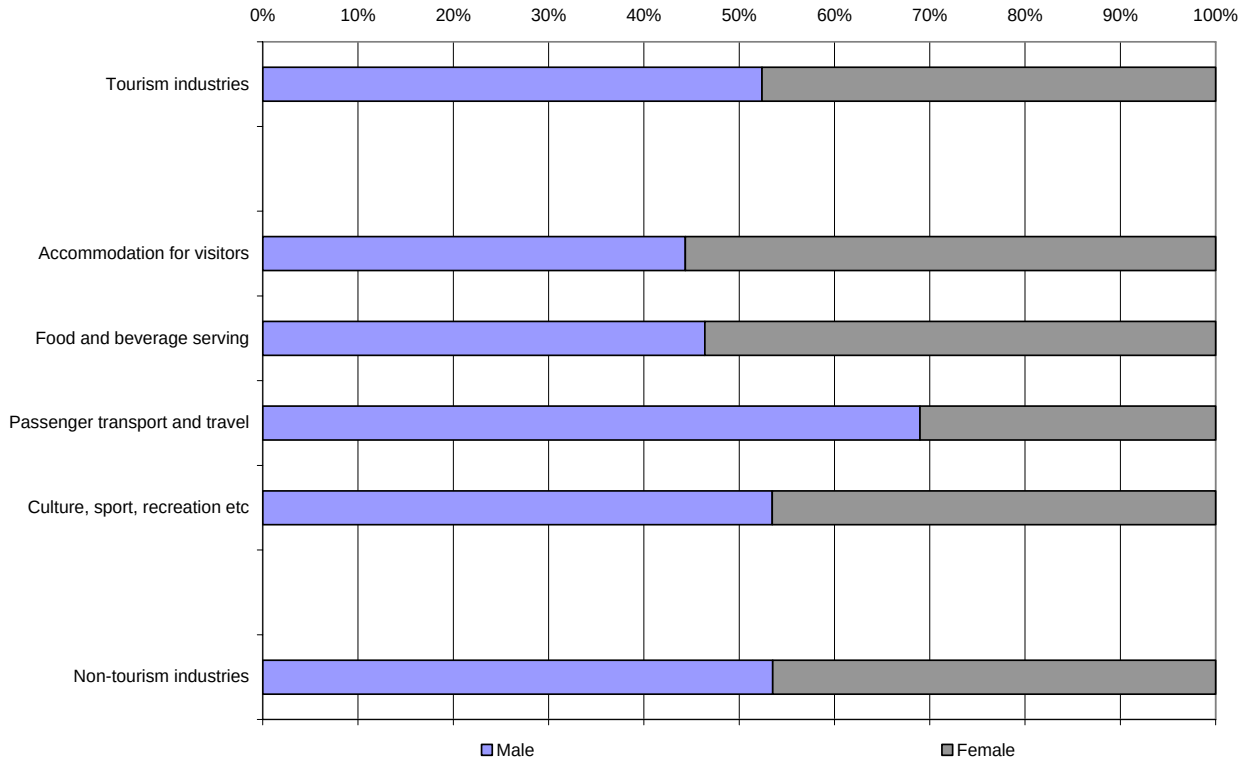
Source: Annual Population Survey 2008

Gender

The gender split of employment in main and second jobs in tourism industries in 2008 was similar to that in non–tourism industries, as **Figure 8** illustrates. In both cases there were slightly more male workers than females but within tourism industries the proportions varied. Culture, sport and recreation industries had the same gender split as non–tourism industries but accommodation and food and beverage serving both had a majority of female workers. Passenger transport and travel had by far the highest proportion of male workers.

Figure 8 Proportion of workers in main and second jobs by gender in 2008

Percentages



Source: Annual Population Survey 2008

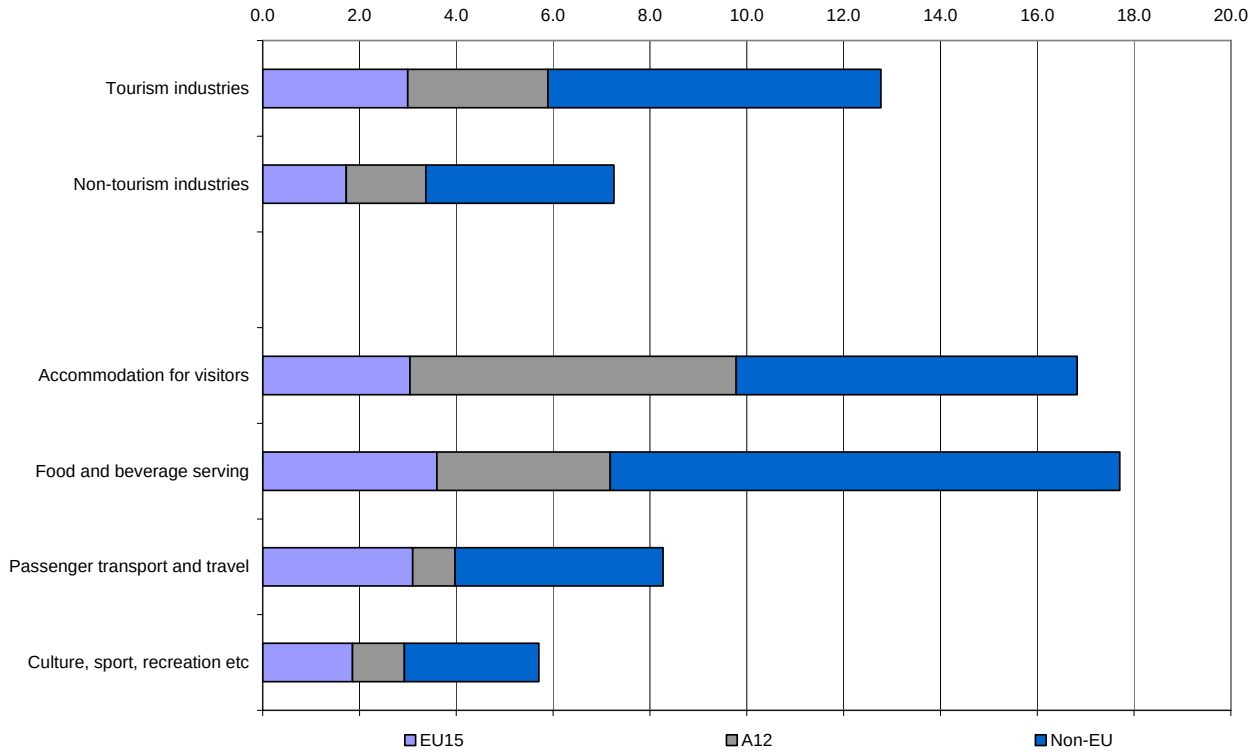
Nationality

The APS indicates that almost 13 per cent of main and second jobs in tourism industries were held by workers with a non–UK nationality in 2008. This compares to around 7 per cent in other industries and means that 14 per cent of all main and second jobs held by non–UK workers were in tourism industries while this was true of only 8 per cent of those held by UK workers. As **Figure 9** illustrates, the proportion of non–UK workers in the food and beverage serving and accommodation industries was more than twice that in other tourism industries.

Figure 9 also gives an indication of the nationalities of non–UK workers in tourism industries, particularly highlighting the food and beverage serving industry and the high proportions of workers from outside the EU and from the 12 accession countries (A12) that joined the EU in the 21st Century. In 2008, tourism industries were home to 14 per cent of main and second jobs of workers in each of the three nationality groupings in Figure 9.

Figure 9 Non–UK[1] nationality in main and second jobs in 2008

Percentage of main and second jobs



Source: Annual Population Survey 2008
Note

1. EU15 = Nations in the EU prior to 2004, A12 = Nations that joined the EU in 2004 and 2007

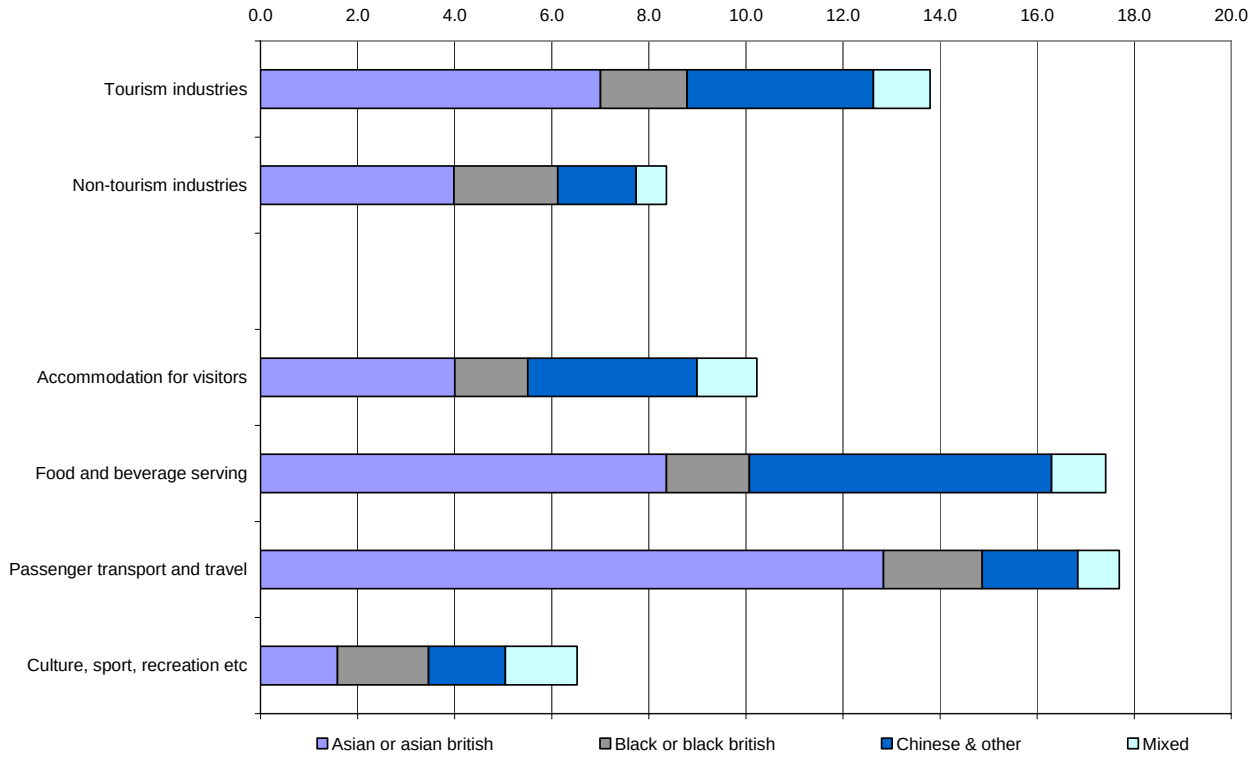
Ethnicity

In 2008, around 14 per cent of main and second jobs in UK tourism industries were held by workers of a non–white ethnicity, according to the APS. This was a higher proportion than in non–tourism industries where the figure was just over 8 per cent. As **Figure 10** illustrates, the proportions of non–white workers were highest in the passenger transport and travel and food and beverage serving industries. In total, around 13 per cent of all main and second jobs in the UK held by workers of a non–white ethnicity were in tourism industries in 2008.

Figure 10 also gives information about how the proportions of main and second jobs in tourism industries are broken down into broad non–white ethnic groups. It highlights how workers of an Asian or Asian British ethnicity were prevalent in transport and travel industries and, to a lesser extent, food and beverage serving in 2008.

Figure 10 Non–white ethnicity in main and second jobs in 2008

Percentage of main and second jobs



Source: Annual Population Survey 2008

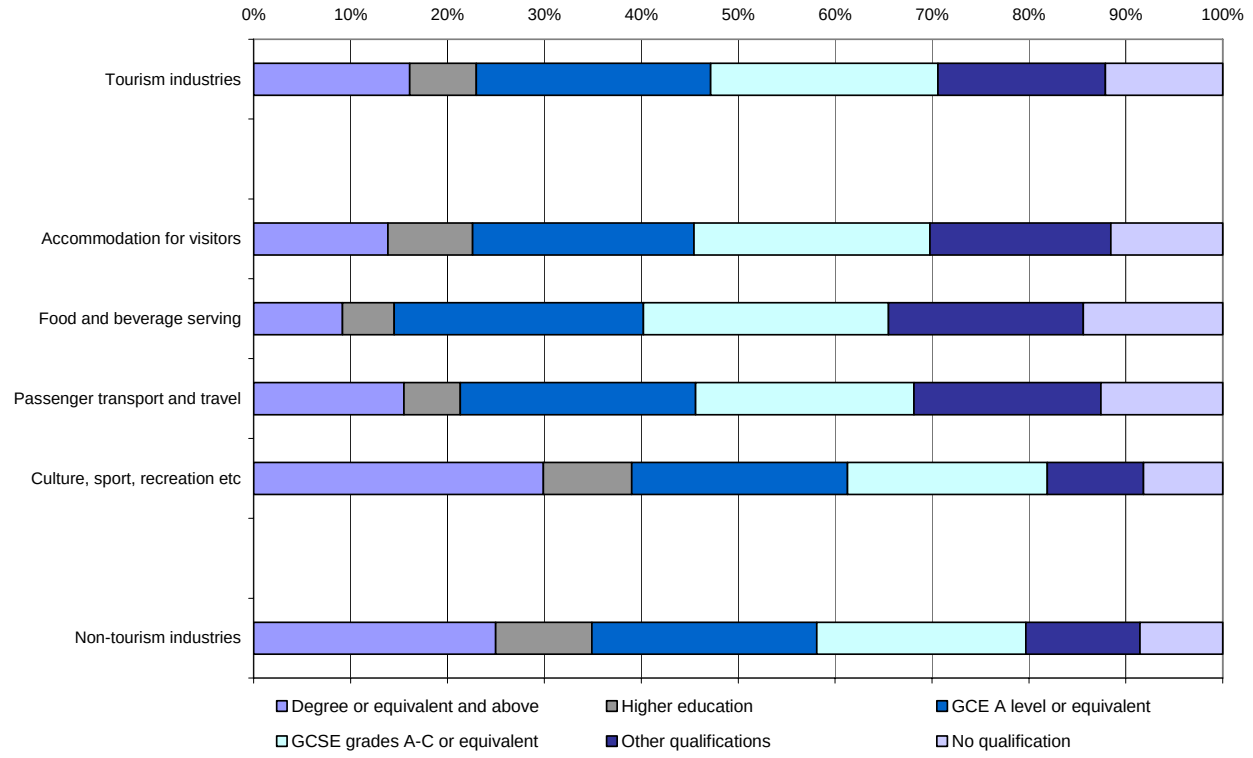
Qualifications

The APS indicates that the qualification level of workers with main or second jobs in tourism industries in 2008 was, in general, lower than in other industries. As **Figure 11** illustrates, around 16 per cent were qualified to degree level and above, compared to 25 per cent in non–tourism industries, while 47 per cent were qualified to GCE A Level and above, compared to 58 per cent elsewhere. About 12 per cent of workers in tourism industries in 2008 had no qualifications compared to 9 per cent in other industries.

As Figure 11 also shows, qualification levels of workers in cultural, sport and recreational industries were higher than in other tourism industries with 30 per cent qualified to degree level and above and only 8 per cent with no qualifications. On the other hand, the equivalent proportions among workers in the food and beverage serving industry were 9 per cent and 14 per cent.

Figure 11 Highest qualifications of workers in main and second jobs in 2008

Percentage of main and second jobs[1]



Source: Annual Population Survey 2008
Note

1. Proportions exclude 'don't know' responses

The geography of employment in tourism industries

Regions

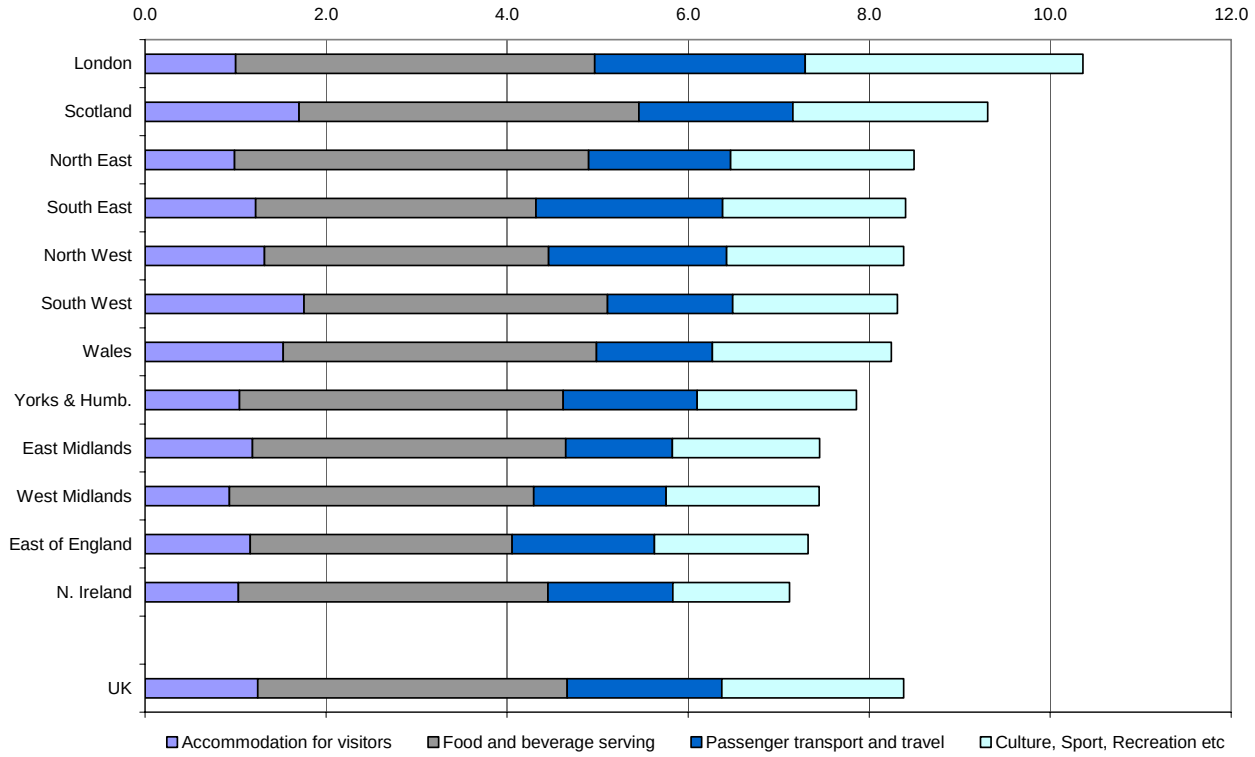
The APS includes information about the location of workers' residences and of the workplace of their main and, if appropriate, second job. According to both residence and workplace based analyses, London had the highest proportion of workers in main and second jobs within tourism industries of the 12 UK NUTS 1 regions in 2008 while Northern Ireland had the lowest.

Figure 12 shows residence based data for all NUTS 1 areas in 2008 and shows that, outside of London, tourism industries were most important, in employment terms to workers living in Scotland. The shares of workers in the different tourism industries varied by region with, for example, employment in culture, sport and recreation being most prevalent among London residents while the percentage of employment in accommodation was largest in the South West and Scotland. Workplace based data would produce a similar chart at regional level but for sub–

regions there are greater differences in the proportions as commuting has a greater effect. For this reason the NUTS 2 and 3 maps that follow are based on workplace data.

Figure 12 Resident workers in main and second jobs in tourism industries in 2008

Percentage of total in all industries



Source: Annual Population Survey 2008

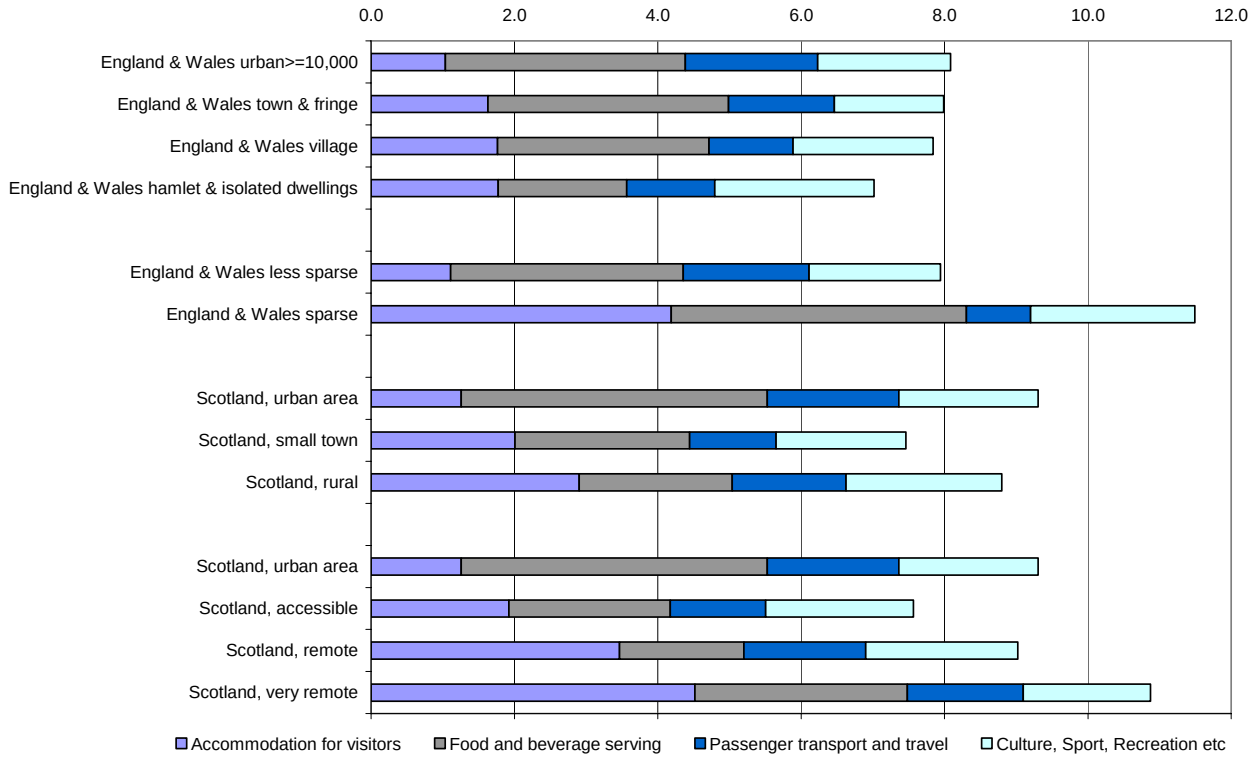
Rural / urban split

Each residence in the APS in Great Britain is classified using an ONS rural or urban definition that describes the area the address is within. **Figure 13** illustrates that the differences in proportion of employment in tourism between areas in 2008 related more to the sparseness or remoteness of the area than to the size of settlement. A greater proportion of workers resident in sparse or very remote areas were within tourism industries than in other areas in 2008 and workers in the accommodation industry were particularly common.

Although the overall proportions of employment in tourism within different types of settlement were similar in 2008, there were some differences between the tourism industries that were prevalent, with proportions of workers in food and beverage serving higher in more urban locations and the number of workers in the accommodation industry higher in more rural locations.

Figure 13 Resident workers in main and second jobs in tourism industries by rural/urban classification, 2008

Percentage of the total in all industries



Source: Annual Population Survey 2008

Sub–regional geographies

The TIU has produced 2008 estimates of proportions of employment in tourism industries at sub–regional (NUTS 2) and local area (NUTS 3) level on a workplace basis. The estimates are aggregations of information from each APS respondent about the local authority within which they work in their main job and second job, where applicable. The paucity of observations within a number of NUTS 3 areas for the four broad tourism industries have meant that, for this geography, only the percentage of employment in all tourism industries has been mapped.

As **Figure 14** illustrates, in 2008, the NUTS 3 areas with the highest proportions of workplace employment in tourism industries were generally those that had one or more of the following attributes:

- coastal resorts
- attractive scenery
- important airports
- other important transport facilities
- part of Central London

The four NUTS 2 maps in **Figure 15** indicate that the geographical patterns of employment in different tourism industries in 2008 differed quite considerably. For example, outer London had proportions of employment in passenger transport and travel, and in culture, sport and recreation that were among the highest in the UK but the percentage of employment in accommodation in the area was among the lowest.

Figure 14 **Workplace–based employment in tourism industries by NUTS 3 area, 2008**

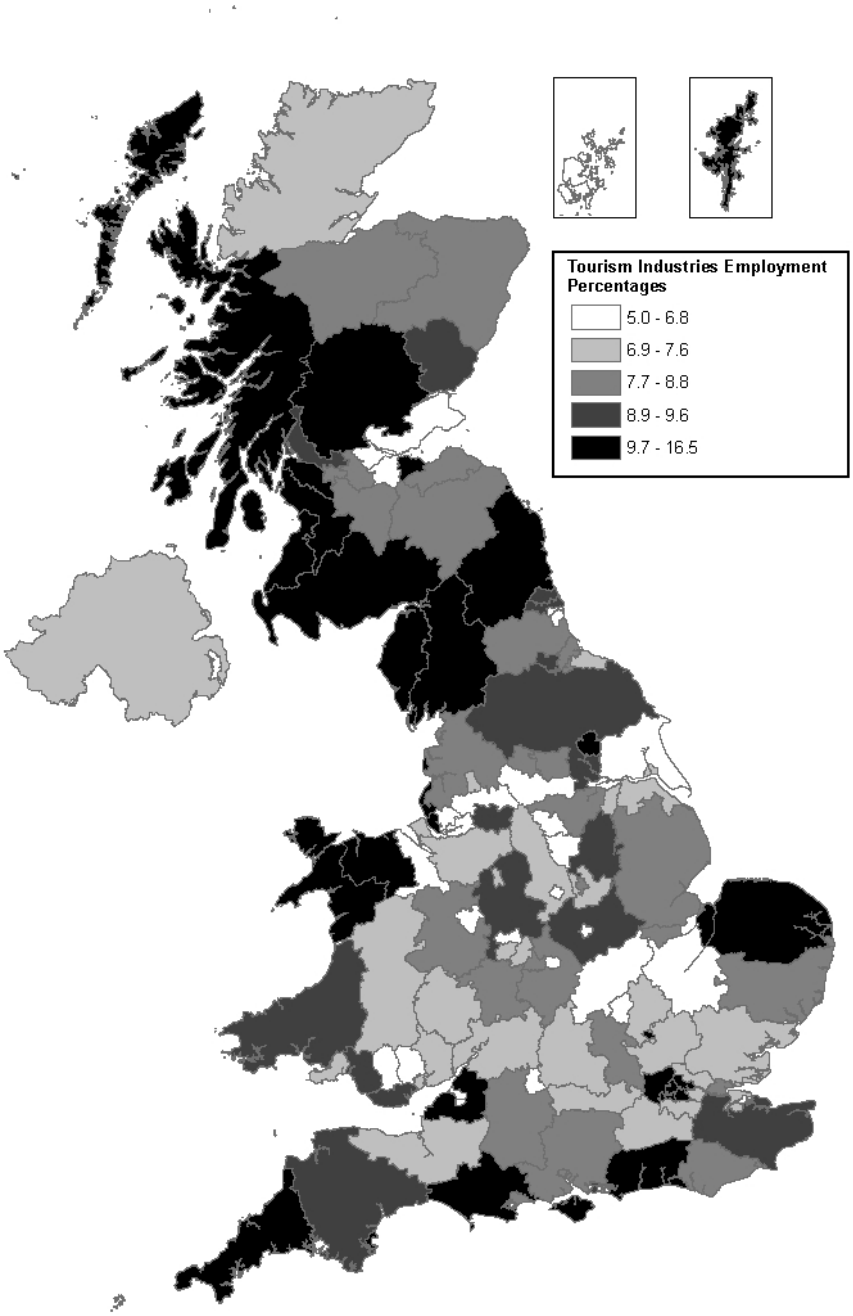
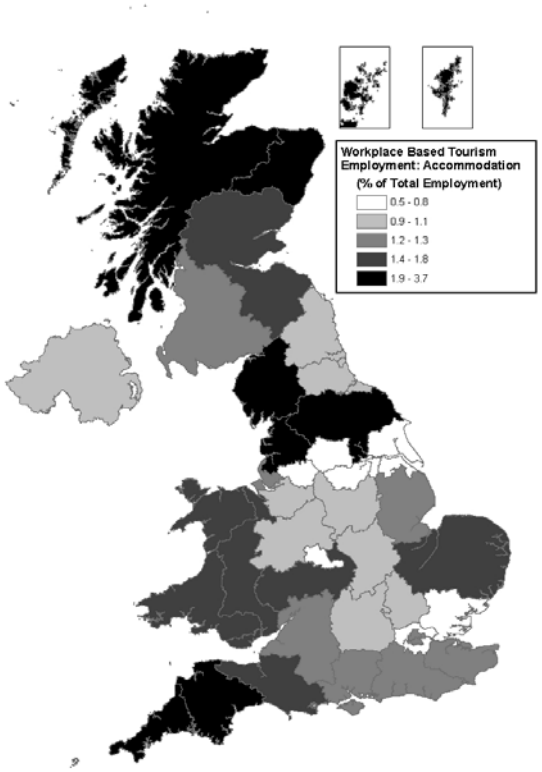
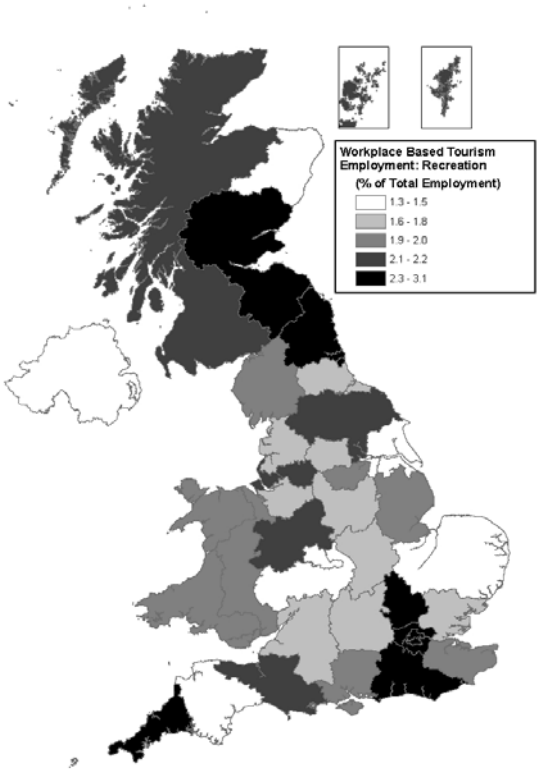
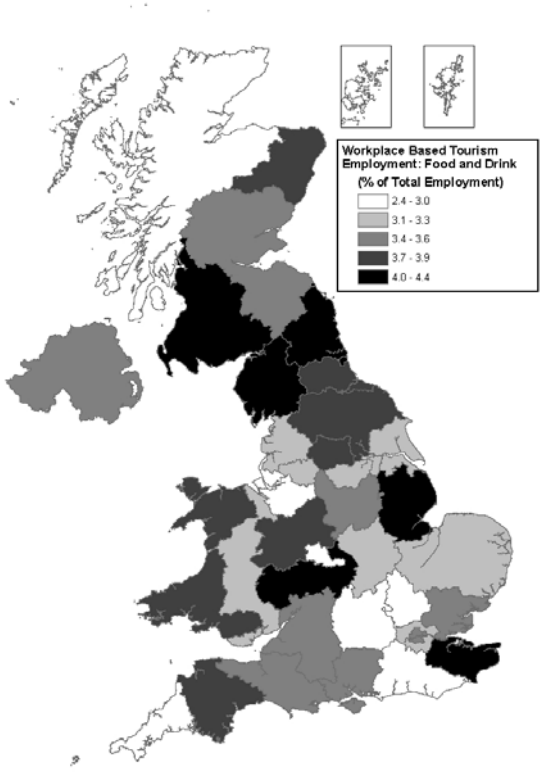
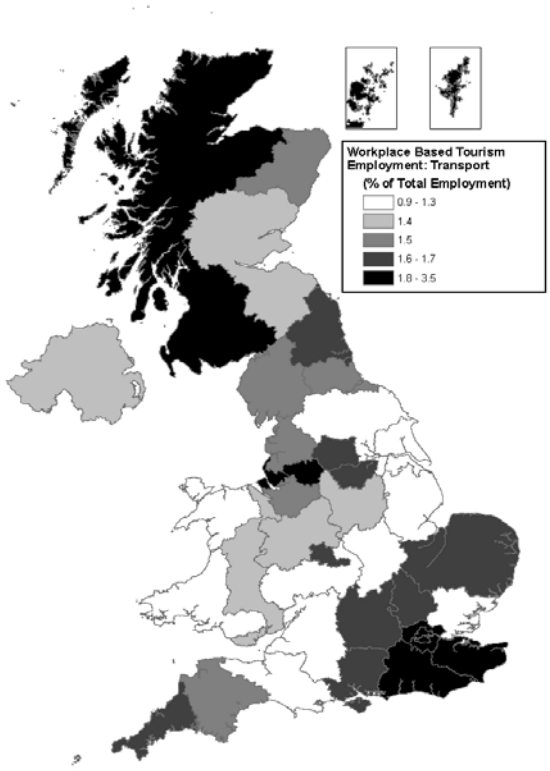


Figure 15 **Workplace–based employment in tourism industries by NUTS 2 Area, 2008**









Conclusion and future work

This article illustrates that the internationally agreed definition of tourism industries includes several diverse industry groups and occupations. In general, tourism industries in the UK had a greater incidence of part–time employment, temporary employment and second jobs in 2008, but, within these industries, proportions of such types of employment varied considerably. Similarly, the percentages of workers with a main or second job in tourism industries who were under 30 years old, of a non–UK nationality, of non–white ethnicity or who had no qualifications were larger than those in non–tourism industries but there were distinct differences between the types of tourism industries.

In the future the TIU intends to revisit this analysis using data for other years to provide information about change over time in the employment patterns of UK tourism industries.

At a regional and sub–regional level the proportion of total employment in tourism industries in 2008 was highest in London and other areas that are traditionally tourism focused. However, more detailed geographical patterns of employment indicate that the type of industry that was most prevalent varied across such areas.

In early 2011, the TIU will add the regional and sub–regional data used for charts and maps in this article to the ONS website (to be accessed via www.statistics.gov.uk/tiu).

As mentioned at the start of the article, the TIU is considering whether an estimate of 'Tourism Direct Employment' could be included in the UK Tourism Satellite Account (TSA) for 2008 due to be published in 2011.

Notes

1. The TIU was set up in ONS in August 2008, with external funding. One of the Unit's aims is to make improvements to tourism statistics and it has a web page at: www.statistics.gov.uk/tiu

2. ONS (2010). UK Standard Industrial Classification of Economic Activities 2007 (version: January 2010). Available at: www.statistics.gov.uk/statbase/product.asp?vlnk=14012

3. Further information about the Annual Population Survey is available at: www.ons.gov.uk/about-statistics/user-guidance/lm-guide/sources/household/aps/index.html

4. Local Area Labour Market Data from the APS are available via: www.statistics.gov.uk/onlineproducts/lms_regional.asp and https://www.nomisweb.co.uk/

5. UK population by country of birth and nationality data from the APS are available via: www.statistics.gov.uk/statbase/Product.asp?vlnk=15147

6. More information about the VML is available at: www.ons.gov.uk/about/who-we-are/our-services/vml/index.html

7. UNWTO, EUROSTAT, OECD (2008) International Recommendations on Tourism Statistics (IRTS, 2008), Madrid, Luxembourg, Paris. Available at: http://unstats.un.org/unsd/tradeserv/tourism/Methodology.htm

8. ONS (2000) Standard Occupational Classification 2000. Available at: www.ons.gov.uk/about-statistics/classifications/archived/SOC2000/index.html

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Developing financial statistics for policy

Progress report: January 2011

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Summary

The July 2009 special edition of the *Economic & Labour Market Review (ELMR)* included a series of articles reporting progress on work that was launched in the autumn of 2008 as the ONS's response to the financial crisis. Those articles included 14 recommendations that, when implemented, would improve financial statistics in the UK, particularly in the context of their inclusion in the National Accounts. This note reports progress on the further work that has been undertaken since that time on those recommendations and other related issues that have emerged in the last year. It concludes that there have been a number of improvements to the National Accounts arising from this work although there is more to do. However, future projects may be more focussed on meeting macroprudential policy needs rather than improving the National Accounts per se.

Introduction

The ONS has identified three roles in relation to financial statistics:

- to provide the tools to help policy makers and analysts understand the mechanics of the credit boom
- to keep pace with financial innovation in the collection and presentation of the statistics
- to contribute to the transparency agenda, particularly in relation to the shifting of risk from the private to the public sector balance sheets

In response to the financial crisis and to assist in the undertaking of these roles, ONS launched a project in the autumn of 2008 to examine how the statistics were recording the credit boom and the financial innovation of recent years and what improvements might be made for the future. It also aimed to raise the profile of Sector Accounts more generally in macroeconomic analysis and in particular, looked at how to record the continuing effects of the financial crisis and the effects of government interventions. The major focus of the work was, and has continued to be, on financial balance sheets and financial transactions.

Five detailed articles were produced and published in July 2009 covering:

- the impact of the financial crisis on the output and employment measures of the financial sector (Williams, Fender and Drew 2009)
- how the evolution of the credit boom might be detected in the sectoral balance sheets, including an analysis of gaps in the recording of assets and liabilities largely arising from the emergence of the 'shadow banking system' (Davies 2009)
- issues affecting the household sector balance sheet (Daffin, Levy and Walton 2009)
- issues raised by banking groups coming into the public sector (O'Donoghue 2009); and
- a discussion of the extent of government financial liabilities under different definitions extending beyond public sector net debt (Maitland–Smith 2009)

Additionally, a concluding article was also published outlining a number of recommendations from the project.

Progress report

The following is a report on the current state of play against each recommendation alongside two further priority action points (numbers 15 and 16) that were identified when the plan for further work was drawn up.

Recommendations 1 and 2

1. ONS should publish, after consulting other stakeholders, the analysis it has done on gaps in definition and coverage of reporting on financial services, products and entities as a basis for future joint work.

2. A forum for active cooperation with the Financial Services Authority (FSA), Bank of England and HM Treasury and other stakeholders should be developed, with a view to filling the gaps, and improving existing data.

- On track to be completed in early 2011.

As part of the strategy of engagement with users on wider economic statistics, an Economic Statistics Theme Group has been set up to fulfil the National Statistician's requirements for user engagement on the National Statistics Economy Theme. This group met for the first time on 29 July 2010 and, at that meeting agreed to set up a sub–group of expert users of financial statistics to fulfil the role envisaged by the recommendation. The terms of reference are shown in **Annex A**.

The sub–group met for the first time on 25 November 2010 and noted the work carried out so far. It discussed the priorities for future work and in particular, the feasibility of producing 'Flow of Funds' for the UK similar to those published for the USA by the Federal Reserve. It also considered the ONS analysis of gaps in reporting and an article reflecting these discussions will be published in a forthcoming edition of ELMR.

Recommendation 3

3. Data on derivatives are available and should be incorporated into the National Accounts at the earliest opportunity.

- Partly implemented in 2010 *Blue Book* – full implementation in 2011.

Data on derivatives in the banking sector have been incorporated into the 2010 *Blue Book* from 2006, the earliest period open for revision (Cullinane 2010). Data for earlier years will be taken on in the 2011 *Blue Book*. Information on securities dealers' transactions in derivatives was collected for the first time in 2009 and will also be included in the 2011 *Blue Book*.

Recommendation 4

4. A review of bonds transactions should be carried out, focusing on the reconciliation of data between the income and capital account and measures in the financial account.

- Completed in September 2010 for implementation in 2011 *Blue Book.*

A review of the current sources and methodology for bonds transactions has been completed. It found that the Bank of England's Bank and Building Society Balance Sheet survey could provide a more consistent data source for bank and building society debt securities liabilities than the current method. It confirmed that the London Stock Exchange provides high quality data on quoted debt securities issued by private non–financial corporations (PNFCs) and other financial institutions (OFIs), the latter being a consistent source for insurance and pension funds debt securities.

A review of the processes and methodology identified errors in sector allocations for some individual companies. A corrected master list for allocating debt securities data to sectors has been created. Data from the Bank of England and London Stock Exchange are both provided at nominal (or book) value. This is contrary to the requirements of the System of National Accounts (2003) (SNA2003) and the European System of Accounts (1995) (ESA95), which requires debt securities to be at market valuation. The review has developed a method using general indices of bond prices to convert the data from a nominal valuation to a market one to meet these requirements.

Finally, the review recommended that the presentation of bank and building society debt securities of differing maturities in different transaction lines should be stopped. It was causing confusion among the users of these statistics. Instead a single transaction line for UK debt securities should be used.

A fuller summary of the review is included in **Annex B**.

Recommendation 5

5. Estimates of the gross trading profits of fund managers should be improved, given that they are thought to have been underestimated since the cessation of the Fund Management survey in 2000.

- Some improvements made – further work needed.

The project looking at the methodology for estimating the gross trading profits (GTP) of fund managers fed into a wider project looking at aspects of GTP of financial companies more generally and household expenditure on investment in unit trusts. The work has led to improved methodology for the GTP of unit trust and investment trust companies, largely through the use of a more consistent set of component data. These changes were taken on board for the 2010 *Blue Book* estimates leading to small overall revisions of financial companies' GTP. The work also improved estimates of expenditure by households on investment in unit trusts by bringing the methodology into line with that used in the financial corporations GTP calculation. This provides for consistency across the measures of gross domestic product (GDP).

The further work on fund managers' GTP will continue. The Investment Management Association (IMA) are interested in this work and are undertaking their own project looking at the gross value added of fund managers. This work is scheduled to be picked up shortly.

Recommendation 6

6. Estimates of the gross trading profits from asset finance activity should be broken down by asset type, which in turn will improve the validation of finance leasing data.

- Improvements made to survey output. Further work needed to redesign the survey to meet National Accounts needs to be included in implementation of European System of Accounts 2010 (ESA10).

Work on the Asset Finance survey has fallen into two distinct parts. *Business Monitor SDQ7*, reporting the results for this sector, has been extensively revised and improved. Previously it gave a number of indicators for a few aggregates. A review showed those to be unreliable, while the eclectic group of indicators chosen was not the most useful set and it was not clear to all contributors and commentators how they mapped to the information requested from asset finance businesses. The Business Monitor now reports much more closely the results of the survey, with more data available, of higher quality.

In addition, a review of the current survey methodology was undertaken and made a number of recommendations. These detailed recommendations are listed in **Annex C** and will be prioritised against other developments. One possible outcome is that they will be implemented alongside any changes to the survey questionnaire that are needed in order to meet the requirements of ESA10. The set of National Accounts that are due to be published in September 2014 will be produced on an ESA10 basis.

Recommendation 7

7. A top–to–bottom account for banks should be developed to improve quality assurance and sectoral balancing.

- Improvements made in 2010 *Blue Book*. Some further development needed to make full use.

ONS is moving towards a policy of using the information collected by the Bank of England in its surveys of the monetary and financial institutions (MFI) sector as the primary source, rather than counterparty or modelled information. For the 2010 *Blue Book*, there was a significant improvement to the account for banks that arose from using Bank of England data on interest paid and interest received. For the future, a system has been developed that creates a top–to–bottom account for validation purposes but this needs further testing before it can be used more widely.

Recommendations 8 and 9

8. A volume measure of the output of hedge fund managers is needed, given that they are estimated to make up around 6 per cent of fund management activity.

9. The quarterly output of financial advisors and mortgage brokers is not currently measured and potential data sources should be investigated.

- Review completed which concluded no immediate need for alternative sources.

The recommendations were to investigate whether any volume indicators existed for hedge fund management activities, mortgage brokers and independent financial advisors. All these sectors belong to division 67 of the Standard Industrial Classification 2003 (SIC 2003) and therefore a broader review of the current methods used to measure output in this division was conducted, in particular looking at whether coverage and methods could be improved and/or extended.

The review encompassed a detailed investigation of the methods and concluded that current methods provide adequate coverage of the division. However, the review has yielded a number of recommendations that could improve the quality of the statistics. Some of these recommendations are being addressed as part of the current systems development. Other recommendations will be revisited once the GDP output (GDP(O)) measure calculation is fully integrated into the new system allowing further methods changes to be made. The review also highlighted the need for improved price deflators in this area. It is clear that one of the biggest improvements in quality to the measurement of this division would come from obtaining improved price deflators. The progress of the Services Producer Price Indices (SPPI) development project (Jenkins, Jones and Pegler 2010) will continue to be monitored and as indices are developed they should be assessed for inclusion into the quarterly GDP(O) measure.

In answer to the specific recommendations, the review concluded that no suitable output indicator currently exists for hedge fund managers and that their potential gross value added weight is too low to warrant further investigation or development at the current time. Hedge funds themselves may potentially be more important for the Financial Account and Sector Accounts than for the quarterly GDP(O) measure.

For mortgage brokers, a potential output indicator was identified (but at a cost), and further investigation into its suitability would be needed before it could be introduced into the quarterly GDP(O) calculation. However, until a value indicator or suitable price deflator can be identified, introducing this volume indicator is not possible. Further work will be prioritised against other possible improvements to GDP(O) sources more generally. Similarly, the review found that very little data exists for independent financial advisors and nothing that could be used in the quarterly

GDP(O) calculation. For both areas, the potential gross value added weight would mean any indicator would be unlikely to have a significant impact on the quarterly GDP(O) measure.

In the light of the review it was decided to consider the recommendations alongside other improvements to the quality of GDP(O) as part of next year's planning process.

Recommendation 10

10. ONS's work on improving its price indices for deflating banking sector output should be revisited and use of the current deflator (based on earnings) reviewed.

- To be taken forward as part of more general projects on deflators and the development of SSPIs.

A work programme will be established aimed at extending the use of existing SPPIs as deflators in the National Accounts. The priorities for further development of SPPIs are largely determined by the requirement to meet EU Regulation and the development programme does not currently include further work on the banking sector.

Recommendation 11

11. Development of the Securities Dealers' survey should be treated as a priority, including finding solutions to existing data discontinuities and conceptual difficulties with deflation.

- Questionnaire changes to collect information on derivatives implemented for 2010. Data changes will be implemented from 2011 *Blue Book*. More extensive changes to the questionnaire will be necessary to reflect changes arising from ESA10.

There were three strands to this project. First, the questionnaire was changed to include data on derivatives in line with that collected from the banking sector by the Bank of England. The additional data was collected in the new questionnaire from Q1 2010.

Secondly, the use of the data on the current Securities Dealers' questionnaire in the compilation of National Accounts has been reviewed and changes identified that will be implemented in the 2011 *Blue Book* along with the inclusion in the accounts of the additional information on derivatives.

Thirdly, the Securities Dealers' survey questionnaires will be changed to facilitate the collection of ESA10 changes. A seminar was held in London with some participating companies in early March 2010 and generally there was a positive response. Work will be ongoing with the introduction of the new questionnaire in line with the timetable for making ESA10 changes more generally.

Recommendation 12

12. ONS should pursue the objective of publishing data separately for the public financial corporations sub–sector.

- Nearing completion.

Lloyds Banking Group and RBS were classified as public sector institutions from October 2008. This project will fully incorporate the two banking groups into the Public Sector Finances.

The general approach that is being followed is to reuse data provided to the Bank of England or ONS for other statistical purposes. In order to achieve this, work has been proceeding on several fronts, each of which is drawing to a conclusion, so that ONS should soon be able to publish the required PSF data.

The main strands of work are as follows:

- for the banking subsidiaries, ONS has worked closely with the Bank to specify the series required from surveys conducted by them, and has engaged with RBS and Lloyds Banking Group to agree which series can be supplied when, so that commercially sensitive data are not released
- For financial companies that are not banks, ONS has been reworking survey data provided to it, to obtain the required PSF series
- For non–financial companies, ONS has been recruiting the biggest subsidiaries into its quarterly survey, and using annual accounts for smaller companies

Recommendation 13

13. ONS should move progressively towards comprehensive coverage of public sector assets and liabilities.

- Initial article published in July 2010 (Hobbs 2010a) and updated in September 2010 (Hobbs 2010b) to incorporate new balance sheet information from the 2010 *Blue Book*.

The project is to build upon earlier examinations of the boundaries of public sector debt, for example those in the *ELMR* articles by O'Donoghue (2009) and Maitland–Smith (2009).

The aim initially is to provide an overview of the scope of 'public debt', clarifying those aspects that are not currently included, and to bring together those data that currently exist from a range of sources. It is proposed that a series of more detailed articles on specific aspects of public sector debt (pensions, PFIs, contingencies and guarantees and so on) would follow in due course.

In terms of the proposed future in–depth articles, further stakeholder engagement will be necessary to establish the type of debt measures users will need in future. Much will depend on resources available and the impacts of possible restructuring within departments (including who will lead on this type of work).

Recommendation 14

14. ONS should work actively with Eurostat to develop tables of total pension liabilities in line with the 2008 System of National Accounts.

- On track for implementation alongside 2013 *Blue Book*.

The estimates of pension liabilities in line with ESA10 are on track to be published alongside the 2013 *Blue Book*, in line with the agreement with Eurostat, and may be published earlier if resources allow.

Recommendation 15

15. ONS should support the production of a set of Generational Accounts for the UK to allow analysis of the long term impact of the government interventions in the financial sector, on tax rates and spending possibilities for future generations.

- A seminar was held on Generational Accounts in July 2010 and an article was published describing what Generational Accounts are and how they might provide indicators of the sustainability of fiscal policy (Chandler and Phelps 2010).

ONS wanted to contribute to the wider debate on fiscal sustainability and commissioned a project to construct Generational Accounts for the UK in line with Cardarelli, Sefton and Kotlikoff (2000). The aim is to provide an alternative view of the long–term public finances to complement that in the Treasury's long-term public finance report.

The research work for this project was successfully contracted to a group consisting of National Institute of Economic and Social Research (NIESR) head Martin Weale and James Sefton, currently at Imperial College. The researchers have obtained and provided ONS with age–sex profiles of spending on all the key public services except primary care in health. Work has been completed to process these profiles and expenditure projections, compute the final Generational Account for the UK including an estimate of the intergenerational budget balances. These actions have been performed mainly by NIESR, with ONS mainly involved with managing the partners and the organisation of final dissemination.

Due to a change in government since the forecasts were collected it was decided that before publication of an article by NIESR based on the results from their model that a review of the initial departmental forecasts was carried out. ONS is now in negotiations with Office for Budget Responsibility (OBR) to check the initial departmental forecasts. It seemed appropriate to request that the OBR do this checking as they now have responsibility for forecasting. OBR have also been asked if they would be interested in taking over management of the model for producing Generational Accounts and making it available for analysis as this sits more comfortably with their remit than ONS's.

Recommendation 16

16. ONS should review the content of the *Financial Statistics* publication.

- Review of *Financial Statistics (FinStats)* publication due by March 2011.

In line with ONS publication policy more generally, from August 2010, the *FinStats* publication will not be produced in paper form. From that time until May 2011, when the new ONS website is due to be fully introduced, the publication will continue to be produced in online pdf format. After May

2011, it is unclear whether *FinStats* can continue to be produced in its current form and a review of its form and content is planned. The expert group formed in response to Recommendation 2 will be consulted as part of this review as well as users more generally.

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Annex A: Terms of reference for Expert Group on Financial Statistics

The ONS has identified three roles in relation to financial statistics:

- to provide the tools to help policy makers and analysts understand the mechanics of the credit boom
- to keep pace with financial innovation in the collection and presentation of the statistics
- to contribute to the transparency agenda, particularly in relation to the shifting of risk from the private to the public sector balance sheets

The Expert Group will advise ONS on these roles and, in particular, on issues relating to the collection and publication of financial statistics. It will identify:

- emerging issues in financial products in order that data collection systems are kept up to date
- alternative sources of financial statistics and advice on their appropriateness
- gaps in the statistical system in relation to financial statistics and prioritise the filling of these gaps
- a range of indicators to assist in the monitoring of macroprudential risk
- improvements to the presentation of financial statistics, in particular in relation to the *Financial Statistics* publication

The following organisations will be represented on the Expert Group:

- Office for National Statistics
- HM Treasury
- Bank of England
- Department for Business, Innovation and Skills
- Financial Services Authority

Meetings will be held twice a year with more urgent issues being dealt with by correspondence.

Annex B: Review of bonds transactions

The main aims of the project were to review current data sources for debt securities, and consider alternative sources, in order to provide estimates at market value. New estimates needed to be consistent with information published by other institutions, especially the Bank of England and meet valuation requirements for market prices for levels and flows.

The review covered debt securities issued by UK banks and building societies and other UK residents and made the following key recommendations:

- **Replace bank and building society bond liabilities data with that from the Bank of England's Bank and Building Society Balance Sheet survey**

Using data from the Bank of England's Bank and Building Society Balance Sheet survey constitutes an improvement in the quality of the debt securities liabilities data. Data will now be taken completely from the Bank of England aggregates, replacing the current compilation method where the logic behind data sourcing and compilation formulae was inconsistent and unsatisfactory.

- **Incorporate London Stock Exchange data for insurance and pension fund listed debt securities liabilities**

The current data source for insurance and pension fund debt securities liabilities is solely sourced from the ONS Foreign Direct Investment survey. The review recommends augmenting the insurance and pension fund debt securities liabilities with data on quoted debt securities liabilities from the London Stock Exchange which is already used for non–financial corporations and other financial institutions, thereby improving the coverage of this sector's debt securities liabilities.

- **Provide a methodology to convert debt securities liabilities from nominal (or book) value to market value**

In line with SNA2003/ESA95 requirements for market prices, the review recommends converting the liabilities from a nominal (or book) valuation to a market valuation.

The proposed methodology to convert debt securities from nominal (or book) value to market value is to use a weighted composite bond price index. The method weights together bond price indices denominated in euros, US dollars and sterling using weights derived from the amount of outstanding bond debt.

- **Incorporate refinements to the debt securities sectorisation**

The review discovered some misallocation of companies between the national accounts sectors. Therefore, recommends correcting these entries and going forward introducing a high and consistent standard of vetting for sectorisation.

- **Combine data for transaction lines UK issued bonds**

Bank and building society liabilities greater than 5 years being allocated to transaction line titled ‘bonds issued by other UK residents’. The bond review recommends combining bond issued by UK banks and building societies and other UK residents into one line, as a consistent category across all sectors rather than the current confusing allocation.

Further work

In the early stages of the review, the European Central Bank 'Centralised Securities Database' was considered, but then discarded in the short–term. However it should be investigated as a possible longer–term option.

The review has not made proposals on debt securities interest payments which form part of property income (D.4) within the allocation of primary income account. Additionally, it was not possible to investigate alternative methodologies for sector asset holdings of UK debt liabilities, nor a review of UK holdings of overseas debt (F.3329). A subsequent project should be undertaken to cover these points once resources are available.

Annex C: Improvements to the Asset Finance survey

As part of the work carried out in response to Recommendation 6 relating to the Asset Finance survey, a number of possible improvements were identified. These are listed as follows and will be prioritised against other statistical developments more generally.

- Work on identifying the businesses in the sector should continue. This will involve matching the ONS's Business Register with Trade Association membership files. Research into the possibility of obtaining additional variables from the trade association to identify industry specific key businesses and to ensure improve the survey methodology is also needed.
- The three SICs that are covered by the survey (Factoring, Credit Granting and Finance Leasing) need to be analysed separately. Further consideration should also be given as to which of the information is needed quarterly and which can be collected annually.
- There is a need to calculate historic data for all variables from 1999 to current period.
- Consider the role of the SDQ7 publication in the dissemination of data on asset finance. The publication of data from the Asset Finance and Monthly Credit surveys needs to be more coherent. The Financial Statistics publication could include the results of any new Asset Finance Survey.
- As part of a broader user engagement strategy, regular annual liaison with the relevant Trade Associations should take place to help keep up to date with industry developments and to take account of user needs as the survey is developed.

Exploring the geographical distribution of wealth using the output area classification

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Office for National Statistics

Summary

The results of the first wave of the Wealth and Assets Survey were published in the report, '*Wealth in Great Britain*' in December 2009 with datasets released in March 2010. However, apart from the presentation of the aggregate results on a Government Office Region basis, no more disaggregated geographical analysis of the data has so far been carried out, not least because of the potential disclosivity of the data when presented for low level geographies. This paper aims to provide an understanding of the geographical distribution of wealth and its components by areas with common socio–economic and demographic characteristics from relatively high to low levels of aggregation while overcoming the disclosivity problem. This is achieved by using the Output Area Classification (OAC) groupings, based on the 2001 Census.

Introduction

The Wealth and Assets Survey (WAS) commenced its first, two–year wave in July 2006, and gathered responses from a sample of approximately 30,000 private households from across Britain[1]. Information was collected at both at household and personal level on the property, physical[2], financial and pension wealth and indebtedness as well as attitudinal aspects and classificatory data. Although the second wave of the survey was completed in June 2010, and the third wave is now underway, data have only been released for wave 1, so it is on these that the article will focus.

The Output Area Classification (OAC) taxonomy was devised as a means of presenting Census outputs for areas exhibiting common characteristics. First published in 2005 (Vickers *et al*, 2005) based on average values (proportions) for 41 demographic, housing and socio-economic Census outputs, OAC areas are first divided into seven clusters or 'supergroups' termed by Vickers *et al*

(2005), ‘blue collar’, city living’, ‘countryside’, ‘prospering suburbs’, ‘constrained by circumstances’ ‘typical traits’ and ‘multicultural’. As **Table 1** and **Annex 1** indicate, these supergroups are next split into 21 groups (such as, ‘terraced blue collar’, ‘younger blue collar’, ‘transient communities’, ‘accessible countryside’…) and further subdivided into 52 subgroups. An example of the geographical distribution of these groupings is illustrated in **Map 1**.

Table 1 OAC hierachy[1]

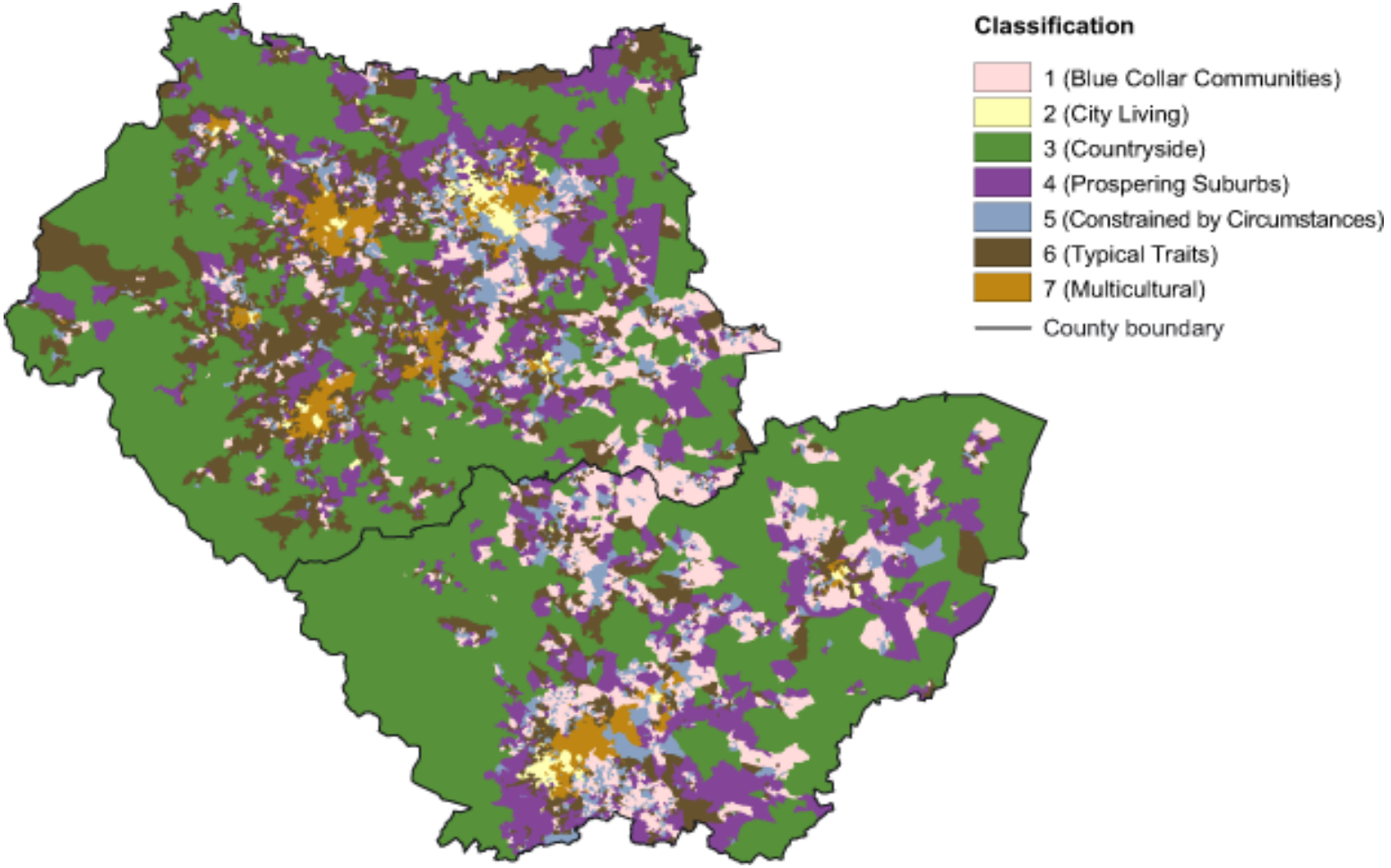
OAC Supergroup and Label	OAC Group and Label
1 - Blue Collar Communities	1a - Terraced blue collar
	1b - Younger blue collar
	1c - Older blue collar
2 - City Living	2a - Transient communities
	2b - Settled in the city
3 - Countryside	3a - Village life
	3b - Agricultural
	3c - Accessible countryside
4 - Prospering suburbs	4a - Prospering younger families
	4b - Prospering older families
	4c - Prospering semis
	4d - Thriving suburbs
5 - Constrained by circumstances	5a - Senior Communities
	5b - Older Workers
	5c - Public Housing
6 - Typical traits	6a - Settled households
	6b - Least divergent
	6c - Young families in terraced homes
	6d - Aspiring households
7 - Multicultural	7a - Asian communities
	7b - Afro-Caribbean communities

Note

1. OAC subgroups were not named

An introduction to OAC has been published by Vickers and Rees (2006). Populations of the OAC supergroups as well as an explanation of the cluster summaries can be found in Williams and Botterill (2006). Readers should be aware that names attached to the OAC supergroups (1 to 7) and groups (1a to 7b) are not part of the National Statistics Classification and should be used in conjunction with the cluster summaries provided by ONS (Vickers and Rees, 2006; ONS 2005).

Map 1 **Area classification of output areas: South and West Yorkshire supergroup**



Note: The names in brackets are provided in Vickers, Rees and Rinkin (2005). They are not part of the National Statistics Classification

Source: Office for National Statistics

The report, '*Wealth in Great Britain*' (ONS, 2009), estimated that total wealth in Great Britain for the period 2006–2008 was £9.0 trillion with net property wealth and private pension wealth each accounting for 39 per cent of total wealth and net financial wealth and physical wealth 11 per cent each. However, the distribution of wealth, in all four categories, was shown to be highly skewed. Thus, although mean total household wealth (including private pension wealth) was calculated to be £367,000, 50 per cent of households had total wealth of less than £200,000 while the most wealthy 5 per cent held wealth in excess of £1.1 million (**Table 2** and **Figure 1**). Because of this skewness, any one measure of central tendency of the data is inadequate and even misleading so in such circumstances, the form of the distribution of the data must be borne in mind.

Table 2 Wealth by component

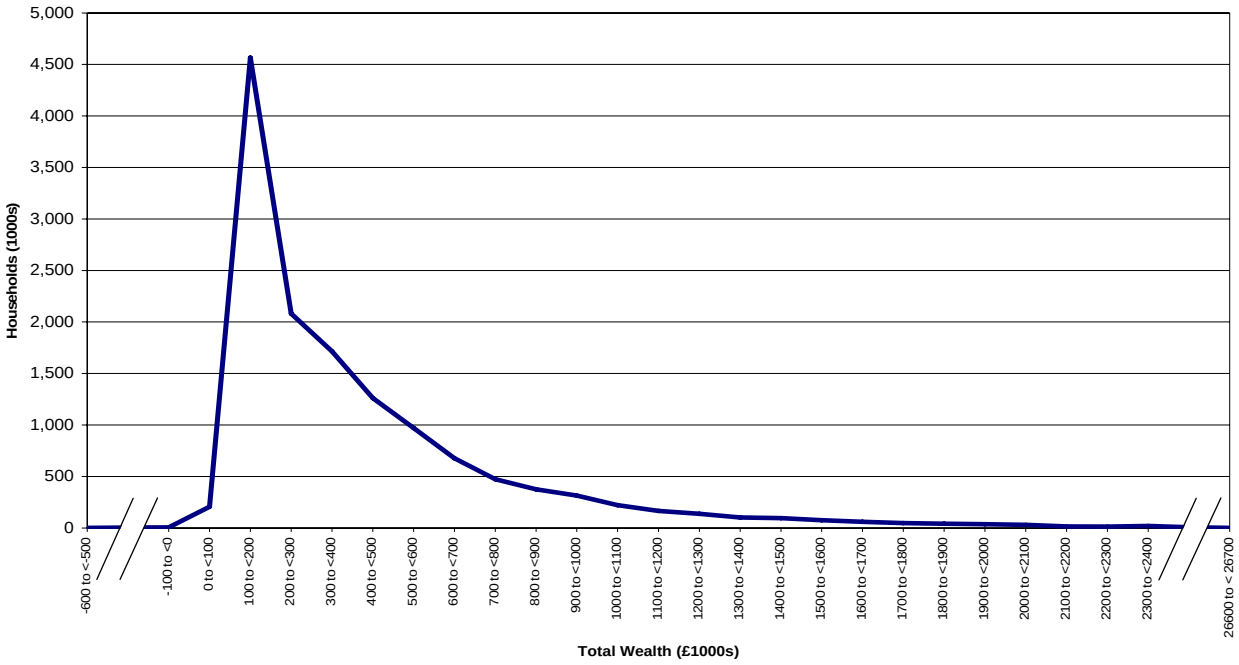
	Property Wealth	Pension Wealth	Financial Wealth	Physical Wealth[1]	Total Wealth[1]
Weighted Households	24,583,701	24,583,701	24,583,701	13,901,282	13,901,282
Mean	£143,214	£141,890	£39,432	£39,666	£367,125
Median	£95,000	£29,145	£5,140	£29,900	£204,607

Source: Wealth and Assets Survey

1. Refers to the half sample only

Figure 1 Total Wealth distribution

Households (1,000s)

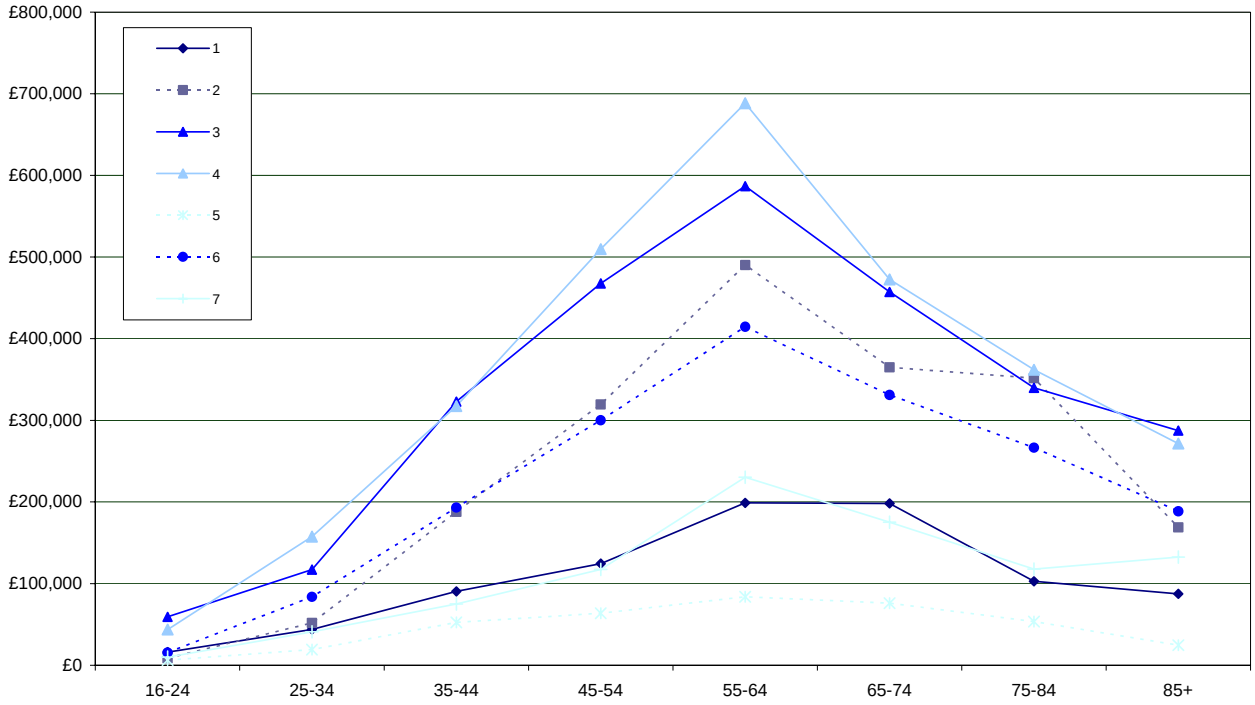


Source: Wealth and Assets Survey

When considering the geographical distribution of wealth it is important to appreciate the multiplicity of underlying factors which determine or are at least associated with wealth. As the report shows, wealth varies over the lifecycle, rising as savings and entitlements are built up, to a peak for those in the 55–64 age-group, and falling thereafter as wealth is drawn upon or distributed. As **Figure 2** shows, this pattern is repeated at supergroup level, with rankings remaining more or less the same over the life–cycle. Wealth also varies by household type, household structure, economic activity and socio–economic status. Thus, on the latter, across Britain the median total wealth ranges from £532,500 for household reference persons classified in the 'large employers and higher managerial' group to £15,000 for those in the 'never worked/long–term unemployed' group (ONS, 2009).

The OAC categories do, in fact, take account of many of the socio–economic and demographic differences, and these groupings represent clusters of households having certain of these characteristics in common, but differing significantly from other groups. This does not mean, however, that there are not overlaps between categories and variations within them. Neither does it mean that all of the underlying determinants and characteristics are covered by OA classifications. Nevertheless, analysing the extent to which mean and median values for supergroups, groups and subgroups diverge or converge does help in understanding some of the underlying factors associated with the geographical distribution of wealth.

Figure 2 Wealth by age of household head 2006/08



Source: Wealth and Assets Survey

The article proceeds by discussing the OAC–based distribution of each wealth category – property, pension, financial and physical as well as total wealth[3], for supergroups, groups and subgroups, compares the patterns for each of these wealth types and then draws conclusions regarding the wealth distribution patterns and the use of OAC for such studies.

As mentioned previously, means and medians are referred to in the discussion that follows; readers may refer to the Annexes for values for each of the groupings. Standard errors of the means for each of the wealth categories are also been presented in **Annex 2**. Although the standard error calculations have taken account of some of the nuances of the survey design, they have not done so completely, so they should be used to provide an indication only.

Property Wealth

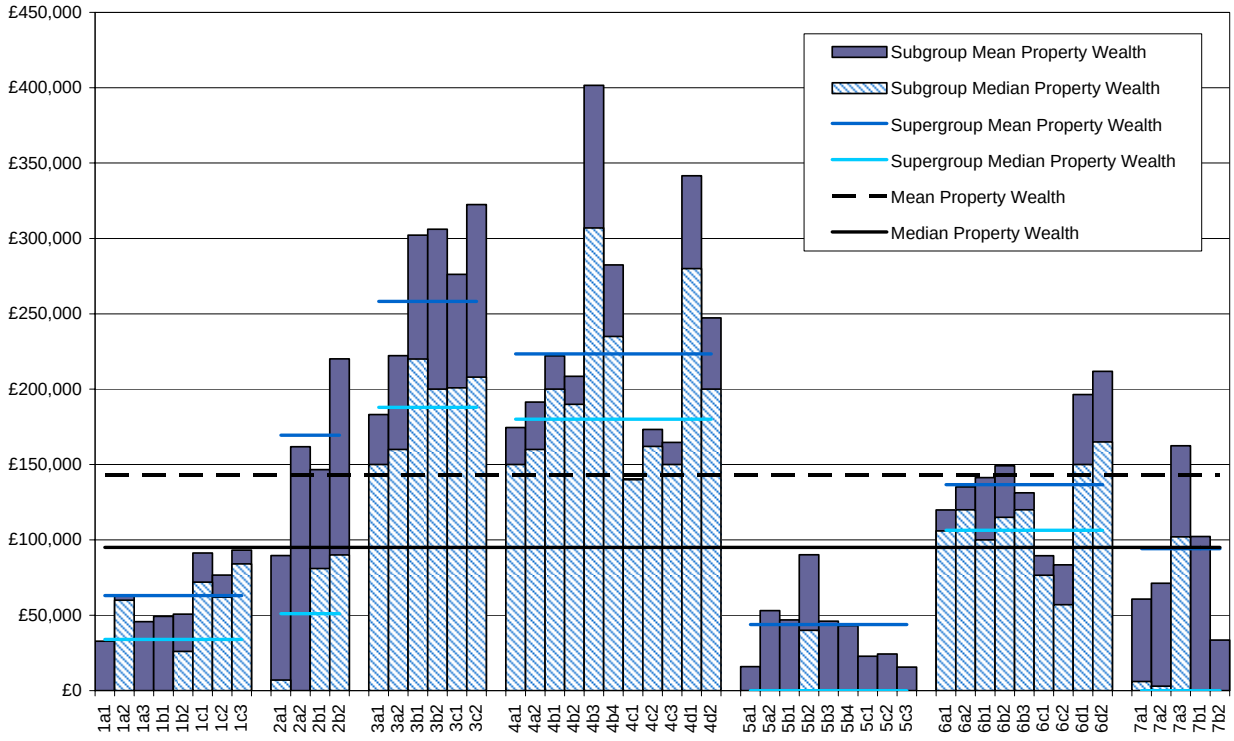
Mean property wealth at all levels of OAC depends not only on the value of properties, but the proportion of households owning property. Cluster summaries of OAC provide an insight into some of the factors that may contribute to mean property wealth. For example, the supergroup with proportions of public rented tenancy far above the national average[4] are 1, 5 and 7 (ONS, 2005), while those with proportions of privately rented tenants far above the national average are supergroups 2 and 7. Other variables in the OAC clusters that may be associated with variations in property wealth are: Terraced Housing, Detached Housing and All Flats which each relate to the percentage of households of that size and type in an OAC cluster summary.

Mean net property wealth was highest in supergroup 3 at £258,182 and 4 at £223,443[5] while the lowest was in supergroups 1 at £63,037 and 5 at £43,806. All supergroups had positive mean net property wealth with groups 2, 6 and 7 lying between the highest and lowest supergroups. Supergroups 3 and 4 exhibit highest values for median property wealth: £188,000 and £180,000 respectively. This contrasts with the zero median property wealth of supergroups 5 and 7.

At group level, supergroups 3 and 4 tend to include those with higher values for mean and median property wealth but there are exceptions: 4c, with a mean of £160,445, is lower than 6d, £204,414. The lowest group means are found mostly in supergroups 1, 5 and 7. At supergroup level, the median reveals some categories with zero property wealth, namely groups 1a, 5a, 5b, 5c and 7b. There was also very low median property wealth in 1b, £11,700 and 2a, £5,000. All of these groups have relatively high proportions of renting households with either flats or terraced housing being predominant.

As **Figure 3** shows, mean property wealth at subgroup level tends to reflect the distribution at group and supergroup level. The highest values are in the 3 and 4 supergroups with 3b1, 3b2, 3c2, 4b3 and 4d1 having the highest mean property wealth. Just over half of the subgroups had property wealth above the average for Great Britain: but apart from all subgroups belonging to supergroup 3 and 4 (except 4c1 which was below average), only 2a2, 2b1, 2b2, 6b2, 6d1, 6d2 and 7a3 meet this criterion. All subgroups within supergroups 1, 5 and 7 (except 7a3) fall well below the mean.

Figure 3 **Property Wealth by OAC groups, 2006/08**



Source: Wealth and Assets Survey

Median property wealth at subgroup level reveals the wide variation in values, not only between subgroups belonging to different supergroups but also between subgroups within the same supergroup. 5b2 had a median of £40,000 but was the only subgroup within supergroup 5 that did not have zero median property wealth. Similarly, 7a3 had median property wealth of £102,000 but the other subgroups in supergroup 7 had very low or zero property wealth. In all, 14 subgroups had zero median property wealth, whereas all subgroups within supergroups 3 and 4 had such wealth in excess of £150,000.

Pension Wealth

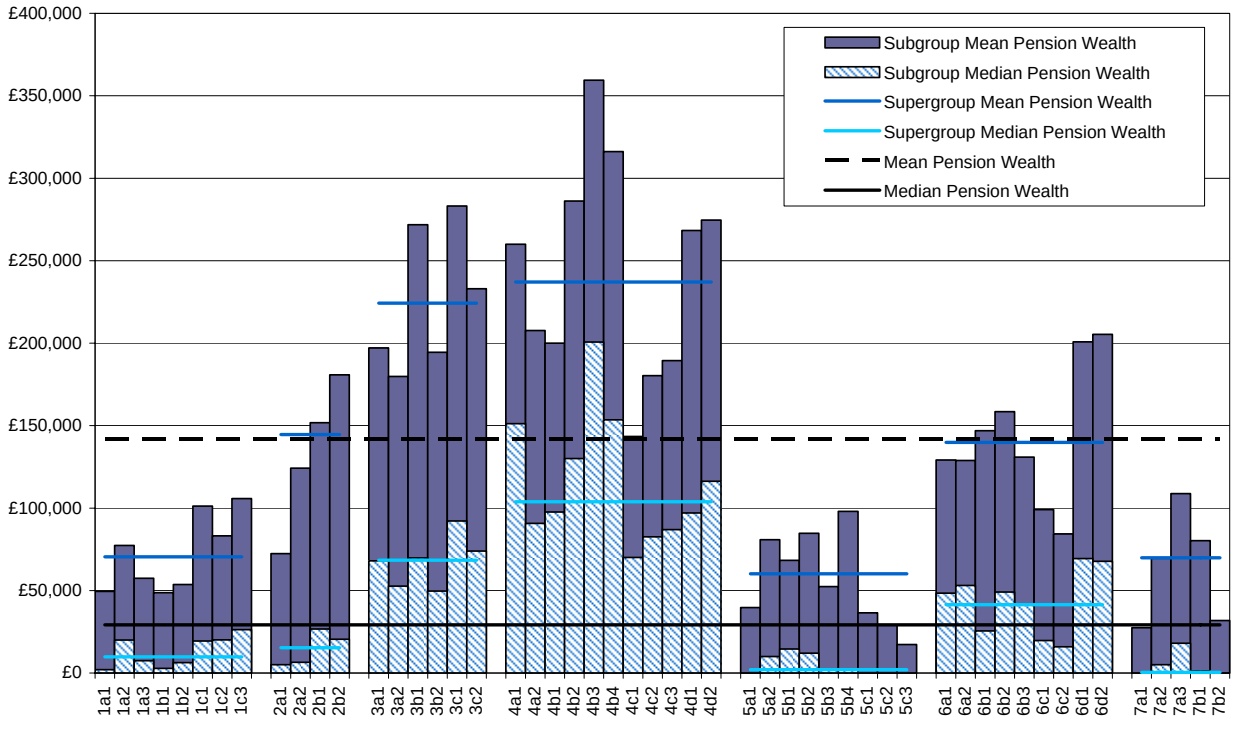
'*Wealth in Great Britain*' reported differences in levels of pension wealth by some of the characteristics that were used to develop OAC cluster summaries. Pension wealth tended to be highest in households whose household reference person (HRP) was educated to degree level or above, aged 55–64, married/cohabiting and owning the property (ONS, 2009). As detailed before, supergroups 1, 5 and 7 have high proportions of tenants, while the first two are well below the national average for the variable Higher Education (HE) Qualification.

The mean pension wealth was highest for supergroups 3 at £224,241 and 4 at £237,058. This was also true for the medians of 3 and 4 which were £68,631 and £103,772 respectively. The lowest mean pension wealth was in supergroups 1, 5 and 7 – ranging from £60,128 in 5 to £70,443 in 7, and only the first of these has a median substantially greater than zero.

Examining pension wealth by OAC group gives a similar picture to that at supergroup level, but with a few exceptions. Mean pension wealth was generally highest in the groups within supergroups 3 and 4, lowest for 1, 5 and 7, with 2 and 6 in between. 6d – which has low proportions of publicly rented tenants – is noteworthy as it had a reasonably high level of mean pension wealth at £203,004. Group 4c also breaks from other groups within supergroup 4 with a mean of £170,307, close to the mean of £169,819 for 2b.

As **Figure 4** shows, high values for pension wealth subgroups were mostly concentrated in those belonging to the 3 and 4 supergroups with 4b3 having the highest mean and median: £359,356 and £200,671. 4b3 has characteristics which may explain the high level of pension wealth – above average proportions of workers in the finance industry and persons with a degree level education, comparatively older HRP's, as well as low proportions of tenants and the unemployed. Subgroups of supergroups 1, 5 and 7 exhibit the lower pension wealth means. In particular subgroups 5c3, 7a1 and 5c2 had low mean pension wealth at £17,257, £27,429 and £29,130 as well as zero median pension wealth. 5a1, 5c1 and 7b2 also had zero median pension wealth. These six subgroups contain high proportions of tenants (some private, some public or both) and some have high proportions of lone parents, students, the unemployed and economically inactive.

Figure 4 Pension Wealth by OAC groups, 2006/08



Source: Wealth and Assets Survey

More than half of the subgroups had pension wealth below the national average: from 88 per cent below in 5c3 to 8 per cent below in 6b3. Of those with above average pension wealth, this ranges from 1 per cent above in 4c1 up to 153 per cent above in 4b3. All subgroups belonging to supergroups 1, 5 and 7 are below the national average.

Financial Wealth

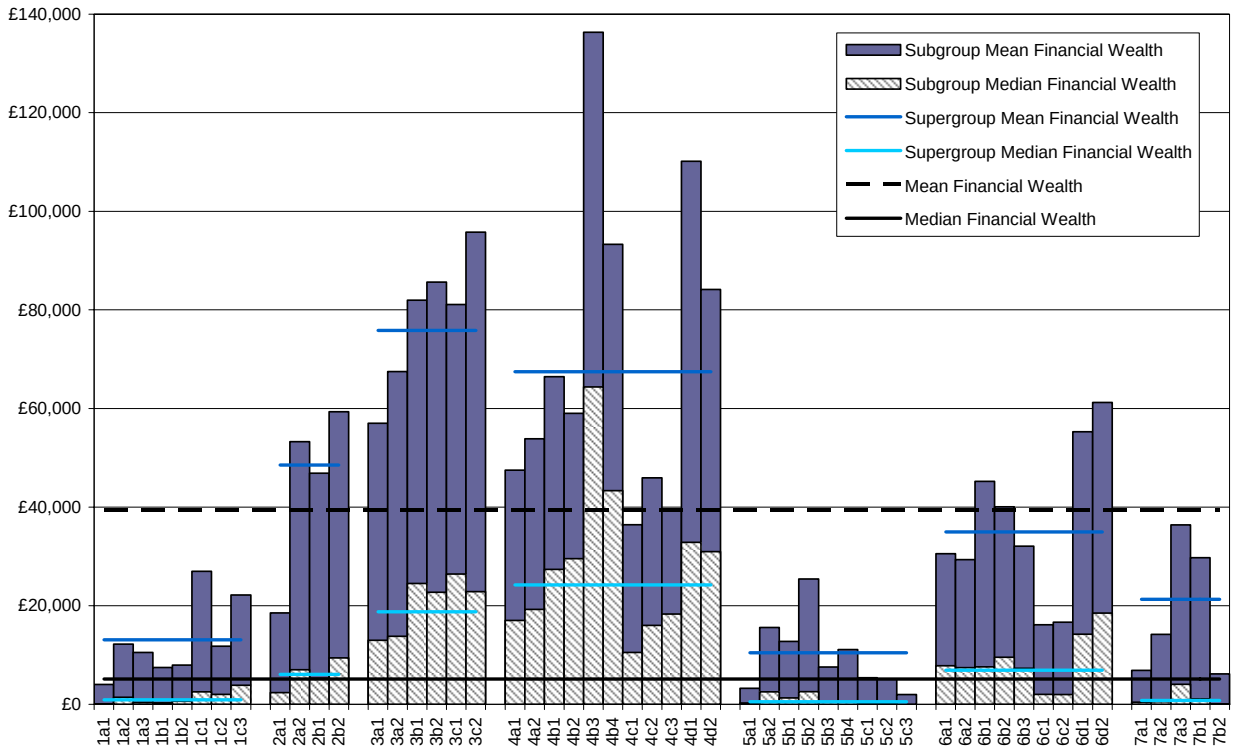
As indicated in Table 2, the mean net financial wealth in Great Britain was £39,432 in 2006/08 whereas the median was £5,140. At the OAC supergroup level, mean financial wealth was highest in supergroups 3 and 4 which were 92 per cent and 71 per cent respectively above the mean for Great Britain. These supergroups also had the highest median financial wealth but with the order reversed: supergroup 4 having a median of £24,200 and supergroup 3, £18,750.

Supergroups 5 and 1 had the lowest mean financial wealth: £10,454 and £13,059 respectively, constituting only 27 per cent and 33 per cent of the overall mean. The medians for these two supergroups as well as supergroup 7 are extremely low: less than £1,000 in all cases. Between these upper and lower classes are supergroup 2 with mean and median values of £48,561 and £6,045 and also supergroup 6 whose mean and median was £34,976 and £6,900.

At the OAC group level, the highest mean and median groups tend to come from the wealthiest supergroups (3 and 4), but groups 2b and 6d also had relatively high average financial wealth at £54,645 and £58,226 respectively.

Similarly, many, but not all, of the lowest financial wealth groups are encompassed by supergroups 1 and 5. However, the groups with labels indicating them as 'older' tended to have somewhat higher wealth.

Figure 5 **Financial Wealth by OAC groups, 2006/08**



Source: Wealth and Assets Survey

Figure 5 shows that there are noticeable differences in the level of financial wealth at supergroup level, but subgroups show more extremes. Supergroups 3 and 4 again contained the highest mean financial wealth subgroups. However, supergroup 4 exhibits some extremes in the subgroups as 4b3 had very high mean financial wealth, £136,336, while 4c1 was much lower at £36,411 – around the same level as some of the subgroups from supergroups 6 and 7. Nevertheless, most subgroups had median financial wealth that was fairly close to the median of the supergroup, although for 4c1, the median of £10,500 remains the exception in supergroup 4. At the other extreme, 4b3, £64,370 was well above the median for the supergroup.

All of the subgroups within supergroups 1 and 7, as well as most of those within 5 and 6 as along with 4c1 and 4c3 had financial wealth means below the national average.

Physical Wealth

Physical wealth is made up of the contents of the main residence of a household and of any other property which the household owns, collectables, valuables, vehicles and personalised number plates (ONS, 2009). For households which owned a vehicle[6], the '*Wealth in Great Britain*' report indicated that vehicles and personal number plates account for about 16 per cent of household physical wealth (ONS 2009).

The size and value of a specific property and of properties common to a location/area are likely to influence levels of physical wealth. Larger properties would be expected to hold more contents and thus, *ceteris paribus*, tend to have higher physical wealth. It should be also considered whether: households owning expensive properties are likely to hold higher value collectables such as antiques; city dwellers less likely to own vehicles such as cars; tenants are likely to report lower values for contents if they rent furnished accommodation. The answers to these may seem obvious but would be better supported by more detailed analysis not covered in this paper.

Car ownership is at present in the variables of OAC as '2+ Car household' and this may be a contributing factor to higher levels of average physical wealth depending on the proportion of this variable in an area. OAC supergroups 3 and 4 are far above average for this variable while supergroup 5 is far below.

Mean physical wealth was the highest in supergroups 3 and 4 at £56,861 and £53,145 respectively. Median values were also highest in 3 and 4 at £44,700 and £44,500. There was not a great difference in the physical wealth held by the other five supergroups (**Figure 6**). Means ranged from £25,124 in 5 to £39,037 in 6 while median physical wealth showed a similar distribution: £15,500 in 5 to £31,900 in 6. Supergroups 3 and 4 are the only categories which had above–average physical wealth although supergroup 6 is just below the average.

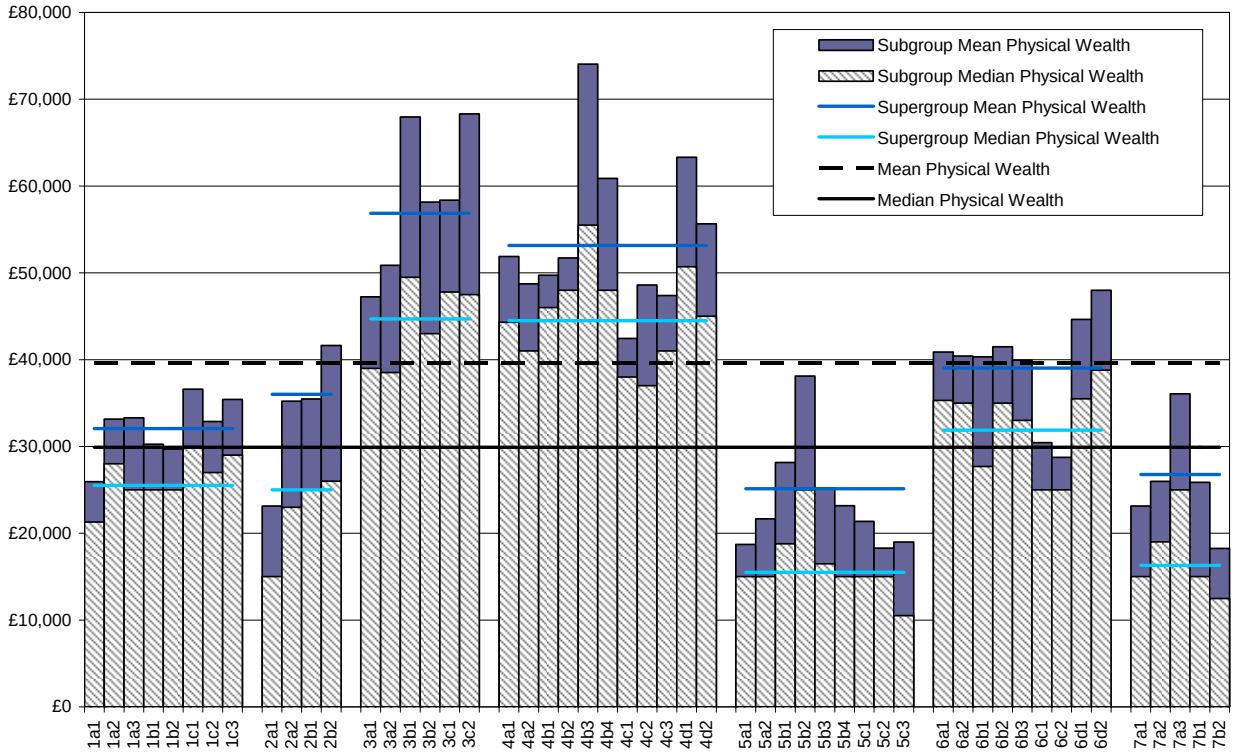
At group level, the distribution of physical wealth compared to the national average remains generally the same as at supergroup level.

The highest mean physical wealth in subgroups belonged to 4b3 at £74,067, followed by 3c2 at £68,319 and 3b1 at £67,965. The extra detail at the lowest level of OAC shows some subgroups

diverging from their group or supergroup: 5b2 had a mean of £38,128, much higher than others in supergroup 5 and the same can be said of 7a3, with £36,070.

The median physical wealth was lowest in 5c3 at £10,500 and highest in 4b3 at £55,500. For all of the other three components of total wealth – financial, property, pension – at OAC subgroup level, some categories have medians of zero. However, this is not the case for physical wealth as for the other types of wealth it would be much more feasible for a household to have no wealth either by not having financial wealth, not owning a property, or not having a pension. Physical wealth refers to material possessions and more households had at least some wealth of this type. Furthermore, financial and property wealth may be zero in many instances because liabilities cancel out assets leaving zero net wealth for those types.

Figure 6 **Physical Wealth by OAC groups, 2006/08**



Source: Wealth and Assets Survey

Total Wealth

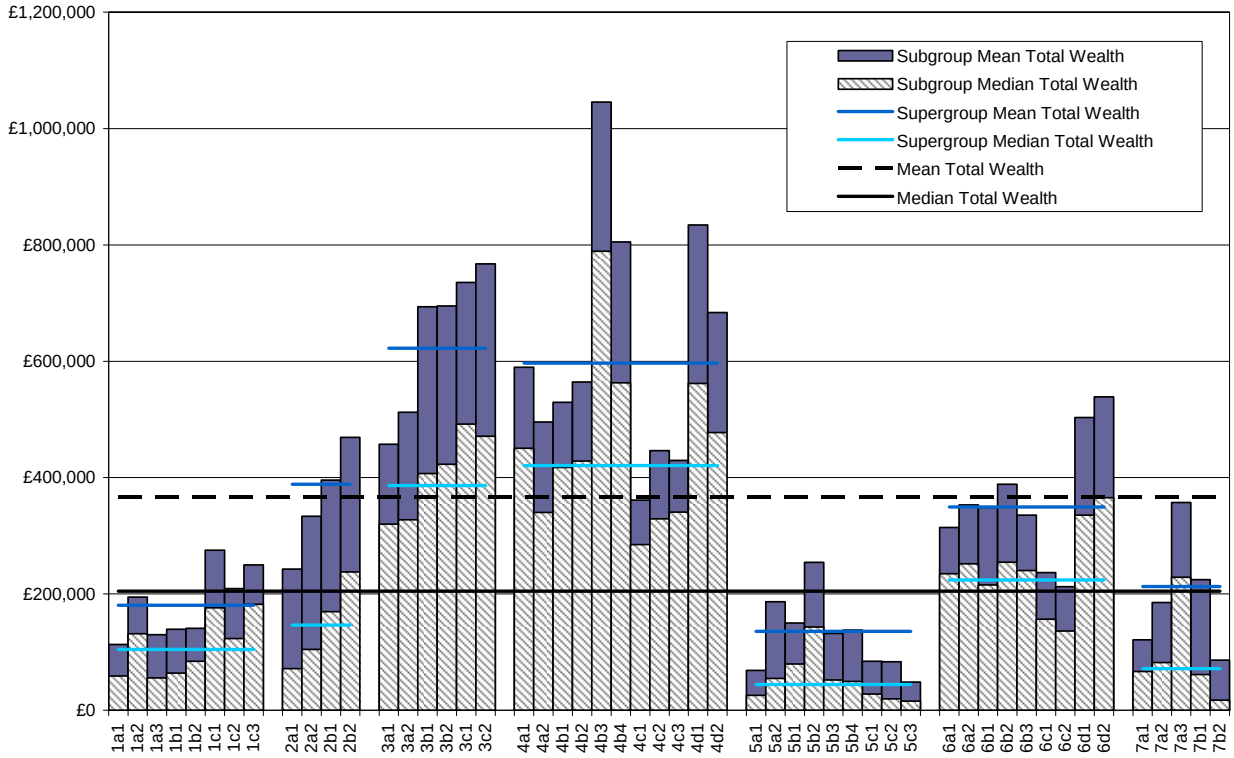
All OAC supergroups had positive mean and median net total wealth. The wealthiest OAC supergroups were 3 and 4 with mean wealth of £622,271 and £576,748 and median wealth of £386,242 and £420,839 respectively. The least wealthy supergroups are 5, 1 and 7 with mean wealth ranging from £135,526 to £212,694 and median wealth ranging from £44,379 to £104,400. The mean wealth in supergroup 2, £388,722 was higher than 6, £349,400, but the median in 2, £146,375, was substantially lower than the median of £223,770 in supergroup 6.

Groups 3b, 3c, 4b and 4d are extremely wealthy with means of: £694,364, £748,910, £713,978 and £732,586, perhaps reflecting, *inter alia*, older HRP's and more expensive housing. The net wealth of these groups was up to 104 per cent above the national average. 3a, 4a, and 4c stand out as groups which are noticeably lower than others in the wealthiest supergroups with means of £484,549, £529,607 and £414,573 respectively. Households in 4a tend to be younger as this subgroup has well below average proportions of persons aged over 65, whereas this variable was close to average for supergroup 4.

Groups in supergroups 1, 5 and 7 are the least wealthy with 5c standing out as having the lowest mean, £68,509 and median, £20,595. 5c has high proportions of lone parent households and low proportions of persons qualified to degree level and, as '*Wealth in Great Britain*' reported, the lowest mean and median total wealth was held by lone parent households with dependent children whereas those headed by a person educated to degree level or above were the wealthiest (ONS, 2009).

As has been seen with the components of wealth, total wealth remains highest in the subgroups belonging to supergroups 3 and 4, with the 4b3 mean exceeding £1 million (**Figure 7**). However, some of these subgroups (such as 4a2, 4b1 and 4c1) did have mean wealth that was a good deal closer to the national average.

Figure 7 Total Wealth by OAC groups, 2006/08



Source: Wealth and Assets Survey

Subgroups show massive differences in mean wealth holdings across output areas. These large differences exist within categories as well: in supergroup 4, for instance, 4b3 had the most wealth of all the subgroups and was 185 per cent above the mean yet 4c1, within the same supergroup, was just below the national average. On the other hand supergroups 1 and 5 show consistently low wealth at subgroup level.

Relationship between wealth components

As might be expected, the ranks of subgroups for each of the four wealth types and for total wealth are similar, with the Spearman's rank correlation coefficients all very close to 1 (**Table 3**).

Ranking the wealth components reveals the differences between the rank of a component in relation to that subgroup's total wealth rank. Some subgroups tend to rank higher or lower in terms of specific wealth types than their overall wealth rank would suggest, thus for physical wealth 1a3 and 2a1 are both 13 ranks apart from their total wealth rank, but in opposite directions: negative for 1a3 and positive for 2a1. Similarly, for pension wealth, 3b2 was 9 ranks higher than its total wealth position and 5b4 was 11 ranks lower. In terms of financial wealth, the two subgroups that stand out are 2a2 for being 10 ranks lower, and 4a1 for being 9 ranks higher than their total wealth ranks. 4a1 had property wealth that was 8 ranks higher than its total wealth; while subgroup 2a2 is 6 ranks lower than its total wealth rank.

Table 3 **Spearman's rank correlations between wealth components**

N=52		Property Wealth	Pension Wealth	Financial Wealth	Physical Wealth	Total Wealth
Property Wealth	Correlation Coefficient	1.00				
	Sig. (2-tailed)	.				
Pension Wealth	Correlation Coefficient	0.94**	1.00			
	Sig. (2-tailed)	0.000	.			
Financial Wealth	Correlation Coefficient	0.98**	0.95**	1.00		
	Sig. (2-tailed)	0.000	0.000	.		
Physical Wealth	Correlation Coefficient	0.94**	0.95**	0.93**	1.00	
	Sig. (2-tailed)	0.000	0.000	0.000	.	
Total Wealth	Correlation Coefficient	0.98**	0.98**	0.98**	0.96**	1.00
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	.

** Correlation is significant at the 0.01 level (2–tailed test)

The relative rankings of the different wealth types for each supergroup are also revealing: for supergroups 3 and 7, their property ranking tends to be higher than that for other wealth types, whereas this tends to be low for 1 and 5, for whom physical wealth ranking is more to the fore. For supergroup 4, particularly groups a and b, pension wealth is important, as it is for some of the older subgroups, such as 1c3 and 5b4.

Conclusion

The foregoing analysis provides an illustration of the use of Output Areas in providing a geographic representation of the distribution of wealth across 'zones of similarity' progressing from aggregate to relatively disaggregated levels, whilst simultaneously avoiding disclosivity.

Although there is a good deal of variation within the OAC groupings and the extreme skewness of the data needs to be borne in mind, the presentation of wealth statistics by classification into the supergroups, groups and subgroups by demographic, housing and socio-economic criteria does provide helpful insight.

Across the four wealth types and for total wealth supergroups 3 and 4, Countryside and Prospering Suburbs, consistently exhibited the highest mean and median wealth while supergroups 5, 1 and 7, Constrained by Circumstances, Blue Collar Communities and Multicultural, had the lowest levels of wealth. Disaggregation to group and subgroup levels generally presents a similar picture with a few notable exceptions. Thus groups and subgroups within supergroups 3 and 4 tended to have the highest means and medians and those within 5, 1 and 7 the lowest. Those few groups and subgroups which do not follow the trend for lower wealth supergroups tend to be those with relatively older and better qualified households, while from the higher wealth supergroups, it is the younger and more transient households which tend to be the exceptions. The divergence between the high and low wealth OAC categories is considerable. Thus, the median total wealth for supergroup 4 is about nine times that of supergroup 5, which is magnified at subgroup level - the median for subgroup 4b3 is fifty times that of subgroup 5c3.

The consistency of ranking of supergroups for all wealth types follows through into the more disaggregated groupings: in general those with low wealth had low wealth for all types and vice versa, although, again there are a few exceptions. However, it is notable that different types of wealth appear to take precedence for different supergroups

As the introduction suggested, the geographical distribution of wealth is the outcome of a multiplicity of factors, although indicators for some of these are used in the determination of the OAC grouping. Further study could analyse the impact of these on the geography of wealth. The approach taken here could also be useful for both gauging the geodemographic effects of current policies as well as for the development of geographically focussed future policy initiatives.

Additionally, the WAS dataset is of such a richness, that much more study could be carried out on the different components of wealth and indebtedness, and as datasets from wave 2 and further

waves become available, OAC analysis should further enhance our understanding of the geography of changes in wealth.

Acknowledgements

The authors are grateful for comments and advice from Keith Dugmore of the Demographic User Group, Nick Richardson and Deborah Rhodes of ONS Mapping Services, and the HAS Research Team. However, any errors or omissions are the sole responsibility of the authors.

Notes

1. With the exception of the Scotland north of the Caledonian Canal, the Scottish Islands and the Isles of Scilly.
2. Only half of the sample was asked about physical wealth.
3. Because physical wealth figures are based on a half sample, total wealth is also calculated on that basis. Nevertheless, comparison of the wealth distributions for the half and full sample suggests that the conclusions would not be markedly different.
4. For a variable to be far above average it must have a difference of more than 0.15 above the UK mean. For a variable to be far below average it must have a difference of more than 0.15 below the UK mean (see ONS, 2005 for details of cluster summaries).
5. Some figures quoted in this article are based on data deposited at the UK Data Archive after the publication of 'Wealth in Great Britain'. Any differences in figures quoted for mean and median wealth – as a component of wealth or total wealth – are explained by corrections made during quality assurance checks prior to the deposit of data at UKDA.
6. Households without this type of asset were excluded (zeros).
7. For a variable to be 'far above average' it must have a difference of more than 0.15 above the UK mean (see ONS, 2005 for details of cluster summaries)

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Annex 1: Wealth total and components, 2006/08

		Property Wealth		Pension Wealth		Financial Wealth			Total Wealth*		Physical Wealth*	
Output Area Classification	Weighted Households	Mean	Median	Mean	Median	Mean	Median	Weighted Households *	Mean	Median	Mean	Median
1 - Blue Collar Communities	3,951,681	£63,037	£34,000	£70,443	£9,754	£13,059	£893	2,181,845	£180,437	£104,400	£32,056	£25,500
1a - Terraced blue collar	924,083	£45,472	£0	£59,756	£7,500	£8,427	£411	515,651	£141,175	£70,750	£30,492	£25,000
1a1	362,111	£32,729	£0	£49,405	£2,000	£4,006	£100	193,907	£113,209	£58,964	£25,943	£21,300
1a2	255,341	£63,175	£60,000	£77,282	£20,000	£12,197	£1,400	140,211	£194,662	£131,754	£33,159	£28,000
1a3	306630	£45,779	£0	£57,385	£7,436	£10,507	£388	181,532	£129,734	£55,553	£33,290	£25,000
1b - Younger blue collar	1597426	£49,861	£11,700	£50,745	£3,807	£7,681	£400	884,508	£139,975	£73,737	£30,034	£25,000
1b1	934,339	£49,247	£0	£48,701	£2,770	£7,486	£290	511,662	£139,229	£64,134	£30,267	£25,000
1b2	663,087	£50,725	£26,000	£53,626	£6,265	£7,957	£585	372,847	£140,999	£84,468	£29,715	£25,000
1c - Older blue collar	1,430,172	£89,104	£74,000	£99,350	£22,186	£22,059	£3,000	781,686	£252,122	£167,882	£35,377	£28,750
1c1	582016	£91,255	£72,000	£101,152	£19,329	£26,997	£2,500	327,567	£275,350	£176,085	£36,586	£30,000
1c2	285913	£76,640	£62,000	£83,099	£20,035	£11,796	£2,000	163,525	£209,196	£123,220	£32,874	£27,000
1c3	562243	£93,215	£84,000	£105,748	£26,246	£22,166	£3,850	290,594	£250,094	£182,396	£35,423	£29,000
2 - City Living	1585629	£169,420	£51,000	£144,620	£15,250	£48,561	£6,045	893,490	£388,722	£146,375	£36,015	£25,000
2a - Transient communities	586,599	£130,418	£5,000	£101,705	£5,468	£38,199	£3,600	321,316	£296,666	£88,335	£30,306	£17,000
2a1	254,648	£89,588	£7,000	£72,381	£5,000	£18,534	£2,350	130,500	£242,800	£71,750	£23,131	£15,000
2a2	331,951	£161,740	£0	£124,200	£6,500	£53,284	£7,000	190,816	£333,504	£104,696	£35,213	£23,000
2b - Settled in the city	999,030	£192,321	£85,000	£169,819	£22,000	£54,645	£7,958	572,174	£440,419	£213,000	£39,220	£25,500
2b1	377,315	£146,580	£81,000	£151,744	£26,596	£46,897	£5,300	224,628	£395,741	£169,690	£35,470	£25,000
2b2	621,715	£220,081	£90,000	£180,788	£20,456	£59,348	£9,400	347,546	£469,295	£237,667	£41,644	£26,000
3 - Countryside	2,828,953	£258,182	£188,000	£224,241	£68,361	£75,845	£18,750	1,616,912	£622,271	£386,242	£56,861	£44,700
3a - Village life	1,198,879	£202,313	£154,768	£188,598	£59,208	£62,155	£13,400	697,775	£484,549	£324,455	£49,027	£39,000
3a1	610,710	£183,161	£150,000	£197,090	£68,000	£56,995	£13,000	353,506	£457,407	£320,300	£47,226	£39,000
3a2	588,169	£222,198	£160,000	£179,780	£52,632	£67,513	£13,800	344,269	£512,419	£327,550	£50,877	£38,500
3b - Agricultural	659,511	£304,151	£200,000	£233,845	£60,351	£83,796	£23,002	372,168	£694,364	£411,764	£63,133	£47,300
3b1	335,966	£302,213	£220,000	£271,783	£69,712	£81,992	£24,499	188,701	£693,651	£406,887	£67,965	£49,500
3b2	323,546	£306,163	£200,000	£194,451	£49,639	£85,668	£22,700	183,468	£695,098	£422,742	£58,163	£43,000
3c - Accessible countryside	970,563	£295,958	£202,000	£261,744	£85,000	£87,353	£26,000	546,969	£748,910	£485,951	£62,587	£47,500
3c1	556,398	£276,186	£200,868	£283,170	£92,118	£81,098	£26,445	314,829	£735,341	£492,170	£58,362	£47,800
3c2	414,165	£322,520	£208,000	£232,959	£73,931	£95,755	£22,851	232,140	£767,312	£470,971	£68,319	£47,500
4 - Prospering suburbs	5,287,073	£223,443	£180,000	£237,058	£103,772	£67,466	£24,200	2,957,792	£596,748	£420,839	£53,145	£44,500
4a - Prospering younger families	1,020,743	£185,331	£156,870	£226,455	£101,829	£51,553	£18,460	576,267	£529,607	£389,883	£49,874	£42,250
4a1	366,865	£174,527	£150,000	£259,998	£151,176	£47,494	£17,000	207,799	£589,706	£450,290	£51,896	£44,300
4a2	653,879	£191,393	£160,000	£207,635	£90,670	£53,830	£19,260	368,468	£495,715	£339,904	£48,734	£41,000
4b - Prospering older families	1,586,949	£270,835	£222,000	£284,668	£137,169	£85,644	£37,548	916,105	£713,978	£507,636	£58,084	£49,000
4b1	444,737	£222,102	£200,000	£200,021	£97,541	£66,452	£27,367	263,623	£529,337	£417,515	£49,734	£46,000
4b2	427,299	£208,496	£190,000	£286,133	£129,991	£58,989	£29,535	238,044	£564,348	£428,332	£51,726	£48,000
4b3	335,729	£401,610	£307,000	£359,356	£200,671	£136,336	£64,370	193,629	£1,045,497	£788,875	£74,067	£55,500
4b4	379,183	£282,455	£235,000	£316,171	£153,451	£93,308	£43,320	220,809	£805,020	£562,920	£60,893	£48,000
4c - Prospering semis	1,561,917	£160,445	£150,000	£170,307	£78,369	£41,216	£14,650	841,987	£414,573	£318,407	£46,301	£38,000

4c1	512,280	£140,454	£140,000	£143,382	£70,027	£36,411	£10,500	269,605	£361,313	£284,780	£42,432	£38,000
4c2	680,490	£173,238	£162,000	£180,243	£82,569	£45,922	£16,000	348,316	£446,274	£329,183	£48,596	£37,000
4c3	369,147	£164,605	£150,000	£189,356	£86,890	£39,211	£18,300	224,066	£429,377	£340,779	£47,389	£41,000
4d - Thriving suburbs	1,117,464	£279,009	£220,000	£272,430	£105,518	£92,879	£31,400	623,433	£732,586	£512,500	£58,153	£47,000
4d1	375,657	£341,626	£280,000	£268,247	£97,042	£110,136	£32,820	202,613	£834,227	£561,831	£63,321	£50,700
4d2	741,807	£247,300	£200,000	£274,548	£116,214	£84,140	£30,950	420,820	£683,649	£477,458	£55,664	£45,000
5 - Constrained by circumstances	3,094,081	£43,806	£0	£60,128	£2,000	£10,454	£500	1,766,079	£135,526	£44,379	£25,124	£15,500
5a - Senior Communities	426,303	£29,524	£0	£54,676	£1,437	£7,750	£677	241,873	£110,469	£34,830	£19,747	£15,000
5a1	270,767	£15,972	£0	£39,660	£0	£3,258	£247	156,413	£68,755	£25,624	£18,710	£15,000
5a2	155,536	£53,117	£0	£80,817	£10,023	£15,571	£2,500	85,460	£186,817	£55,127	£21,645	£15,000
5b - Older Workers	1,956,523	£55,556	£0	£73,516	£5,059	£13,449	£880	1,118,678	£165,238	£71,730	£28,272	£18,000
5b1	372,503	£46,912	£0	£68,349	£14,522	£12,747	£1,291	213,611	£150,152	£79,642	£28,150	£18,800
5b2	444,939	£90,092	£40,000	£84,688	£12,000	£25,401	£2,549	258,406	£254,495	£143,194	£38,128	£25,000
5b3	677,576	£46,083	£0	£52,352	£2,290	£7,575	£450	377,323	£132,226	£52,210	£25,224	£16,500
5b4	461,505	£43,142	£0	£97,987	£1,803	£11,115	£465	269,339	£137,816	£49,456	£23,184	£15,000
5c - Public Housing	711,256	£20,043	£0	£26,568	£0	£3,839	£40	405,528	£68,509	£20,595	£19,648	£15,000
5c1	245,628	£22,796	£0	£36,409	£0	£5,359	£110	140,450	£84,390	£27,754	£21,354	£15,000
5c2	161,596	£24,333	£0	£29,130	£0	£5,064	£100	88,963	£83,441	£19,510	£18,277	£15,000
5c3	304,032	£15,540	£0	£17,257	£0	£1,960	£0	176,115	£48,300	£15,801	£18,980	£10,500
6 - Typical traits	5,134,247	£136,594	£106,400	£139,852	£41,443	£34,976	£6,900	2,911,111	£349,400	£223,770	£39,037	£31,900
6a - Settled households	1,431,177	£125,671	£111,000	£129,041	£50,392	£30,083	£7,576	801,901	£328,319	£238,129	£40,710	£35,000
6a1	889,857	£119,897	£106,000	£129,151	£48,375	£30,532	£7,800	513,434	£314,407	£234,907	£40,874	£35,300
6a2	541,320	£135,162	£120,000	£128,860	£53,063	£29,345	£7,422	288,467	£353,080	£251,970	£40,418	£35,000
6b - Least divergent	1,406,729	£140,662	£112,000	£145,467	£41,134	£38,620	£8,300	809,758	£359,402	£245,600	£40,635	£33,500
6b1	384,042	£141,366	£100,000	£146,896	£25,460	£45,219	£7,580	215,401	£348,927	£215,610	£40,318	£27,700
6b2	520,980	£149,174	£115,000	£158,488	£49,000	£40,060	£9,501	311,432	£388,459	£254,847	£41,486	£35,000
6b3	501,707	£131,283	£120,000	£130,851	£41,134	£32,072	£7,292	282,925	£335,391	£240,288	£39,938	£33,000
6c - Young families in terraced homes	1,231,481	£86,344	£70,000	£91,395	£17,650	£16,395	£2,000	719,955	£223,465	£147,927	£29,516	£25,000
6c1	590,784	£89,429	£76,500	£99,053	£19,686	£16,122	£2,020	331,477	£236,639	£156,587	£30,427	£25,000
6c2	640,698	£83,499	£57,000	£84,334	£15,847	£16,647	£1,970	388,478	£212,224	£136,248	£28,739	£25,000
6d - Aspiring households	1,064,860	£204,014	£159,434	£203,004	£69,050	£58,226	£16,000	579,497	£521,055	£352,975	£46,317	£37,000
6d1	541,000	£196,392	£150,000	£200,782	£69,314	£55,302	£14,200	288,369	£503,389	£335,356	£44,634	£35,500
6d2	523,860	£211,885	£165,000	£205,300	£67,695	£61,246	£18,500	291,128	£538,553	£365,568	£47,984	£38,800
7 - Multicultural	2,702,036	£94,155	£0	£69,841	£400	£21,313	£750	1,574,053	£212,694	£71,513	£26,772	£16,300
7a - Asian communities	1,565,070	£108,294	£45,000	£76,357	£4,050	£22,051	£1,100	902,948	£243,707	£111,799	£29,627	£20,000
7a1	379,082	£60,776	£6,000	£27,429	£0	£6,881	£440	215,278	£121,273	£66,400	£23,128	£15,000
7a2	506,258	£71,231	£3,000	£69,508	£5,000	£14,185	£520	300,445	£185,387	£82,050	£25,979	£19,000
7a3	679,729	£162,398	£102,000	£108,744	£18,000	£36,369	£4,050	387,225	£357,025	£228,769	£36,070	£25,000
7b - Afro-Caribbean communities	1,136,966	£74,693	£0	£60,872	£0	£20,296	£400	671,105	£170,967	£33,000	£22,931	£15,000
7b1	681,931	£102,183	£0	£80,236	£1,264	£29,736	£1,100	410,726	£224,731	£61,660	£25,885	£15,000
7b2	455,035	£33,495	£0	£31,851	£0	£6,150	£50	260,378	£86,159	£17,186	£18,271	£12,500
Great Britain	**24,583,701**	**£143,214**	**£95,000**	**£141,890**	**£29,145**	**£39,432**	**£5,140**	**13,901,282**	**£367,125**	**£204,607**	**£39,666**	**£29,900**

Source: Wealth and Assets survey

* Refers to half the sample only

Annex 2: Standard errors for mean values

		Property Wealth	Pension Wealth	Financial Wealth		Physical Wealth*	Total Wealth*
Output Area Classification	**Weighted Households**	**S.E**	**S.E**	**S.E**	**Weighted Households***	**S.E**	**S.E**
1 - Blue Collar Communities	3,951,681	1,297	2,625	712	2,181,845	625	5,318
1a - Terraced blue collar	924,083	1,989	3,813	1,036	515,651	1,170	7,231
1a1	362,111	2,865	5,535	823	193,907	1,406	10,276
1a2	255,341	3,601	7,741	1,638	140,211	2,305	16,449
1a3	306,630	3,725	6,938	2,615	181,532	2,356	11,395
1b - Younger blue collar	1,597,426	1,902	3,159	742	884,508	1,096	6,573
1b1	934,339	2,692	4,019	1,018	511,662	1,618	8,916
1b2	663,087	2,557	5,085	1,060	372,847	1,351	9,638
1c - Older blue collar	1,430,172	2,470	5,800	1,633	781,686	953	11,614
1c1	582,016	4,303	10,776	3,114	327,567	1,400	21,793
1c2	285,913	4,627	10,585	1,526	163,525	2,402	20,800
1c3	562,243	3,728	7,984	2,478	290,594	1,498	15,215
2 - City Living	1,585,629	9,350	13,308	3,389	893,490	1,621	22,930
2a - Transient communities	586,599	17,145	17,065	5,814	321,316	2,553	32,577
2a1	254,648	24,137	12,111	3,508	130,500	3,561	56,434
2a2	331,951	23,768	28,697	9,876	190,816	3,502	38,804
2b - Settled in the city	999,030	10,675	18,569	4,120	572,174	2,074	30,382
2b1	377,315	10,806	15,247	5,450	224,628	2,760	37,430
2b2	621,715	15,722	28,376	5,717	347,546	2,905	43,584
3 - Countryside	2,828,953	5,971	10,948	2,656	1,616,912	1,378	20,005
3a - Village life	1,198,879	6,626	16,009	3,768	697,775	1,660	19,145
3a1	610,710	6,877	28,754	5,333	353,506	1,804	23,815
3a2	588,169	11,512	13,194	5,312	344,269	2,817	30,303
3b - Agricultural	659,511	14,271	23,197	5,251	372,168	3,489	48,276
3b1	335,966	15,421	42,288	7,506	188,701	5,886	81,303
3b2	323,546	24,242	17,406	7,310	183,468	3,565	50,782
3c - Accessible countryside	970,563	11,763	19,403	5,011	546,969	2,496	42,269
3c1	556,398	11,782	30,832	5,817	314,829	2,920	58,266
3c2	414,165	22,362	18,704	8,308	232,140	4,323	60,652
4 - Prospering suburbs	5,287,073	2,901	5,260	1,674	2,957,792	718	11,090
4a - Prospering younger families	1,020,743	6,303	13,026	3,001	576,267	1,378	24,955
4a1	366,865	8,510	27,222	5,207	207,799	2,526	51,488
4a2	653,879	8,606	13,437	3,681	368,468	1,616	25,938
4b - Prospering older families	1,586,949	6,498	10,540	3,345	916,105	1,376	21,660
4b1	444,737	5,460	13,462	4,391	263,623	1,751	20,866
4b2	427,299	7,500	21,951	4,521	238,044	2,125	30,669
4b3	335,729	23,667	22,244	11,274	193,629	4,290	67,292
4b4	379,183	12,072	25,941	6,223	220,809	2,756	48,994
4c - Prospering semis	1,561,917	2,688	6,168	1,809	841,987	1,250	11,348

4c1	512,280	4,398	10,111	3,150	269,605	1,718	17,755
4c2	680,490	4,121	9,294	2,989	348,316	2,306	19,013
4c3	369,147	5,741	13,624	3,099	224,066	2,221	22,237
4d - Thriving suburbs	1,117,464	6,847	13,348	5,027	623,433	1,705	30,088
4d1	375,657	14,126	20,573	10,879	202,613	3,295	52,246
4d2	741,807	7,295	17,259	5,206	420,820	1,953	36,789
5 - Constrained by circumstances	3,094,081	1,543	6,705	744	1,766,079	1,163	6,117
5a - Senior Communities	426,303	3,098	11,834	1,374	241,873	1,038	19,299
5a1	270,767	2,054	10,363	1,532	156,413	1,207	7,372
5a2	155,536	7,360	26,882	2,562	85,460	1,918	52,060
5b - Older Workers	1,956,523	2,106	10,230	1,095	1,118,678	1,778	8,137
5b1	372,503	3,396	7,223	2,500	213,611	1,997	16,772
5b2	444,939	5,965	8,803	3,393	258,406	7,118	21,107
5b3	677,576	3,571	5,182	1,200	377,323	1,285	11,086
5b4	461,505	3,053	41,417	1,840	269,339	1,293	16,868
5c - Public Housing	711,256	2,593	2,616	804	405,528	1,023	7,637
5c1	245,628	3,332	5,676	1,533	140,450	1,485	12,209
5c2	161,596	9,584	5,406	1,763	88,963	2,051	26,284
5c3	304,032	1,821	2,721	885	176,115	1,747	5,378
6 - Typical traits	5,134,247	2,195	4,199	1,086	2,911,111	628	7,957
6a - Settled households	1,431,177	2,674	5,183	1,748	801,901	1,089	10,153
6a1	889,857	3,209	6,623	2,151	513,434	1,226	11,767
6a2	541,320	4,660	8,319	2,977	288,467	2,098	18,837
6b - Least divergent	1,406,729	4,072	8,972	2,093	809,758	1,353	14,049
6b1	384,042	9,538	25,188	5,292	215,401	3,211	29,053
6b2	520,980	6,862	12,353	2,879	311,432	1,805	24,341
6b3	501,707	5,152	9,751	3,017	282,925	2,248	20,222
6c - Young families in terraced homes	1,231,481	2,867	8,458	1,529	719,955	1,004	15,423
6c1	590,784	3,857	15,139	2,581	331,477	1,735	27,975
6c2	640,698	4,211	8,303	1,729	388,478	1,133	15,685
6d - Aspiring households	1,064,860	7,310	10,931	3,256	579,497	1,510	24,228
6d1	541,000	9,736	15,118	4,122	288,369	2,173	30,887
6d2	523,860	10,960	15,804	5,062	291,128	2,102	37,262
7 - Multicultural	2,702,036	3,592	4,760	1,643	1,574,053	888	10,185
7a - Asian communities	1,565,070	4,253	6,921	1,761	902,948	1,144	14,383
7a1	379,082	4,910	3,772	1,712	215,278	2,077	10,647
7a2	506,258	5,190	16,365	2,346	300,445	1,307	30,737
7a3	679,729	8,212	9,885	3,471	387,225	2,133	21,762
7b - Afro-Caribbean communities	1,136,966	6,165	5,639	3,095	671,105	1,375	13,819
7b1	681,931	9,382	8,703	5,001	410,726	1,929	21,164
7b2	455,035	5,836	5,258	1,783	260,378	1,804	11,031
Great Britain	24,583,701	631	2,386	1,372	13,901,282	355	4,520

Source: Wealth and Assets survey

* Refers to half the sample only

Employment and intangible spending in the UK's creative industries

A view from the micro data

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Summary

The UK's creative industries and creative workforce grew faster than the rest of the economy between 1997 and 2008. This article uses micro data to explore the changing patterns of creative employment in the UK's creative industries. The categories of creative employment showing the strongest growth over this period were Advertising and Software & Computing. It is also shown that the creative industries exhibiting the highest proportions of creative employment are those with the highest proportions of sector– or skill–specific employment. The article then continues to find a broad association between the proportion of creative employment in an industry and the level of spending on intangibles. These intangibles predominately consist of knowledge capital, hence positing a link between an expert creative workforce and indicators of innovation.

The creative industries – a brief introduction by numbers

The Department for Culture, Media and Sports (DCMS) has identified nine main industries that form the UK's creative sector (see DCMS 2001). These are: Advertising; Architecture; Art & Antiques; Designer Fashion; Video, Film & Photography; Music and the Visual & Performing Arts; Publishing; Software, Computer Games & Electronic Publishing and Radio & Television[1]. **Table 1** provides a summary of the relative size of each sub–sector based on the share in overall gross value added (GVA). These data were compiled by DCMS using ONS's Annual Business Inquiry (ABI) micro data. The same table also shows how GVA by sub–sector grew between 1997 and 2007.

Table 1 The UK's creative industries: shares in total GVA and growth

Creative industries sub–sector	Share in UK total GVA, 2007	Average growth in GVA, 1997–2007
Advertising	0.6%	4%
Architecture	0.6%	4%
Art & Antiques	0.06%	5%
Designer Fashion	0.05%	3%
Video, Film & Photography	0.3%	2%
Music and the Visual & Performing Arts	0.4%	2%
Publishing	1.0%	2%
Software, Computer Games & Electronic Publishing	2.9%	9%
Radio & Television	0.2%	0%

Source: Economic Estimates of the creative industries, DCMS (2010)

The main observations from Table 1 are:

- the creative industries, excluding Crafts and Design, accounted for 6.2 per cent of Gross Value Added (GVA) in 2007
- the creative industries grew by an average of 5 per cent each year between 1997 and 2007. This compares to an average of 3 per cent for the whole of the economy over this period
- Software, Computer Games & Electronic Publishing has had the highest average growth at 9 per cent per annum between 1997 and 2007. The lowest was Radio and Television where GVA was broadly flat over the same period

Other key results reported in DCMS (2010) are:

- exports of services by the creative industries totalled £16.6 billion in 2007. This equated to 4.5 per cent of all goods and services exported
- 33 per cent of total creative industries exports were contributed by the Software, Computer Games & Electronic Publishing industry
- in 2008, there were an estimated 157,400 businesses in the creative industries on the Inter–Departmental Business Register (IDBR); and
- around two–thirds of the businesses in the creative industries are contained within two sectors; Software, Computer Games and Electronic Publishing (75,000 companies) and Music and the Visual & Performing Arts (31,200 companies)

Table 2 shows the total employment in the creative industries and the average growth rate of employment between 1997 and 2008. The figures in this table were calculated by adding up total employment data for each industry from the IDBR. The IDBR represents a population register covering 99 per cent of all business activity in the United Kingdom.

Table 2 Employment in the creative industries

Creative industries workforce	Total employment in 2008	Average employment growth, 1997 - 2008
Advertising	248,600 (3)	2%
Architecture	130,100 (5)	3%
Art & Antiques	23,000 (10)	1%
Crafts	101,700 (7)	1%
Design & Designer Fashion	107,200 (6)	3%
Video, Film & Photography	63,500 (9)	0%
Music and the Visual & Performing Arts	272,100 (2)	2%
Publishing	242,700 (4)	-2%
Software, Computer Games & Electronic Publishing	681,600 (1)	5%
Radio & Television	100,700 (8)	0%

Source: Economic Estimates of the creative industries, DCMS (2010)

The most striking observation from Table 2 is employment in the Software, Computer Games and Electronic Publishing sub–sector, which employs by far the largest number of workers at close to 700,000 and which also expanded at the fastest rate of 5 per cent between 1997 and 2008.

Other key findings reported in DCMS (2010) are:

- in the summer quarter of 2008, creative employment totalled just under 2 million jobs. This comprised over 1.1 million jobs in the creative industries and over 800,000 further creative jobs within businesses outside these industries
- total creative employment increased from 1.6 million in 1997 to nearly 2 million in 2008, an average growth rate of 2 per cent per annum, compared to 1 per cent for the whole of the economy over this period

This article uses up–to–date micro data to further explore the pattern of creative employment in the UK, specifically

- the composition of the relative value attributed by the market to creative workers employed within the creative industries and how this changes through time

A number of recent studies have investigated the importance of spending of intangibles in the UK. This research recognises that traditional definitions of capital expenditure (buildings, plant and machinery and vehicles) may fail to adequately capture all the spending undertaken by firms on productive assets. Advanced economies are increasingly engaged in generating net value through the generation of ideas, concepts and blueprints. For example, Hulten, Corrado and Sichel (2002) identify a number of 'intangibles' which they describe as having 'asset properties' – meaning that they raise the future productive capacity (value) of the firm. These include computer services,

research and development and economic competencies – which is a broad category of intangible spending directed at improving organisational structure, branding and training. However, with the exception of software these are largely classified in the National Accounts as intermediate consumption rather than investment. Giorgio Marrano and Haskel (2007) find that capitalising spending on intangibles would double the share of investment in the UK[2]. Related to this, The National Endowment in Science, Technology and the Arts (NESTA) has employed broadly similar approach to construct an index of innovation for the UK (see Clayton, Dal Borgo and Haskel 2009).

Therefore, this article also investigates

- the relative level and nature of intangible investment occurring within the creative industries for a given set of intangible investment indicators and how this varies through time

Accepting the view that concepts such as 'creativity', 'intangible investment', and 'innovation' are all in some way inextricably linked to each other, it makes sense to use available data to explore how strongly such measures co–move with each other over time. In particular:

- the relationship between creative employment in industries and intangible spending

One of the main findings of the paper is that sectors employing more sector– or skill–specific labour spent above average amounts on intangibles. This supports the view that 'creative expert denseness' is a key driver of intangible spending.

In order to compute estimates of creative employment as well as indicators of intangible spending, a number of micro data sets are used. These are:

- **Annual Survey of Hours and Earnings** (ASHE) – provides data on the raw headcount and earnings–adjusted[3] levels of creative and other employment in the creative industries through time
- **Business Expenditure on Research and Development** (BERD) – enables the estimation of the amount of scientific employment within the creative industries as well as the levels of various categories of research and development expenditure, which are likely to contribute to the accumulation of intangible assets
- **Annual Business Inquiry** (ABI)[4] – permits further computation of expenditure figures which are suitable for identifying investment flows into stocks of intangible assets, such as expenditure on marketing and advertising as well as software

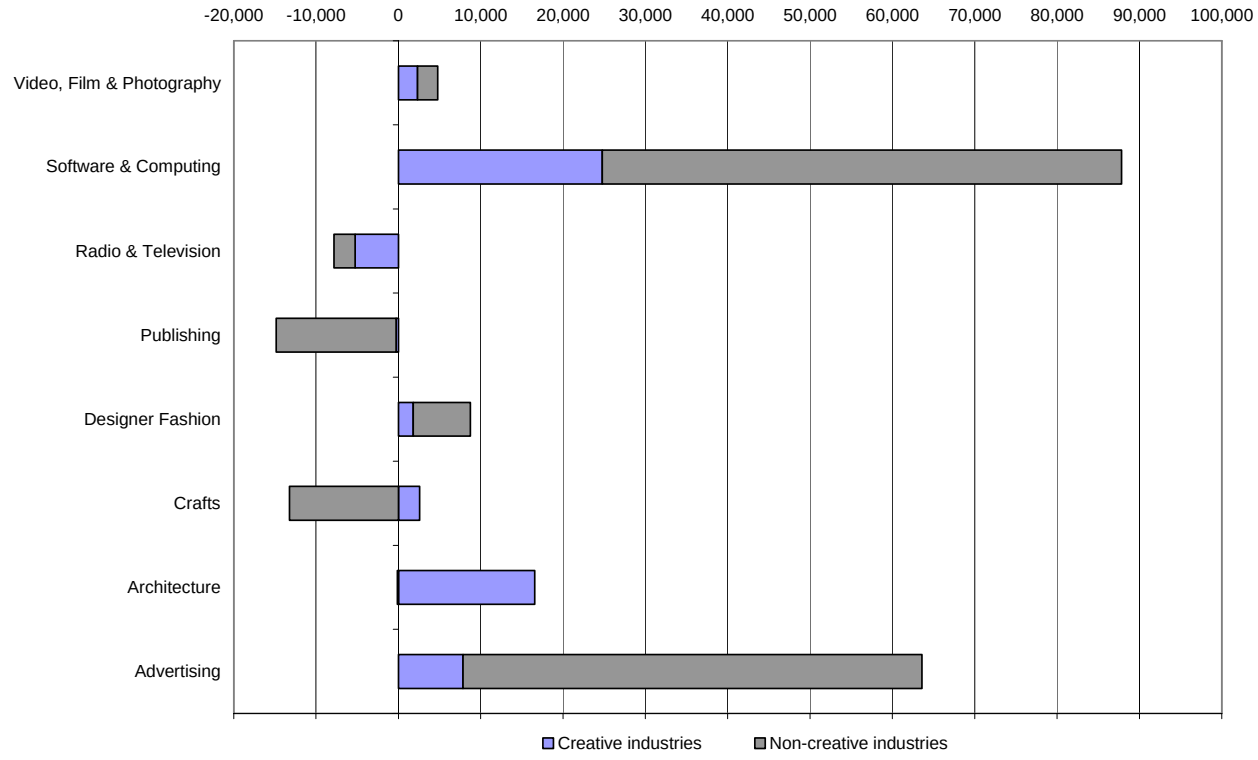
Patterns of creative employment in the creative and non–creative industries

DCMS (2001) also provides a mapping of how to identify employment in creative occupations[5]. These creative worker categories broadly correspond with the same break–down for the creative

industries in Table 1. As a first step, ASHE micro data is used to calculate the raw number of creative workers employed inside and outside of the creative industries between 2002 and 2008. **Figure 1** shows how the headcounts of different categories of creative workers have changed over this period.

Figure 1 Changes in creative employment, 2002–2008

Number of full–time employees



Source: ASHE micro data

The key observations are:

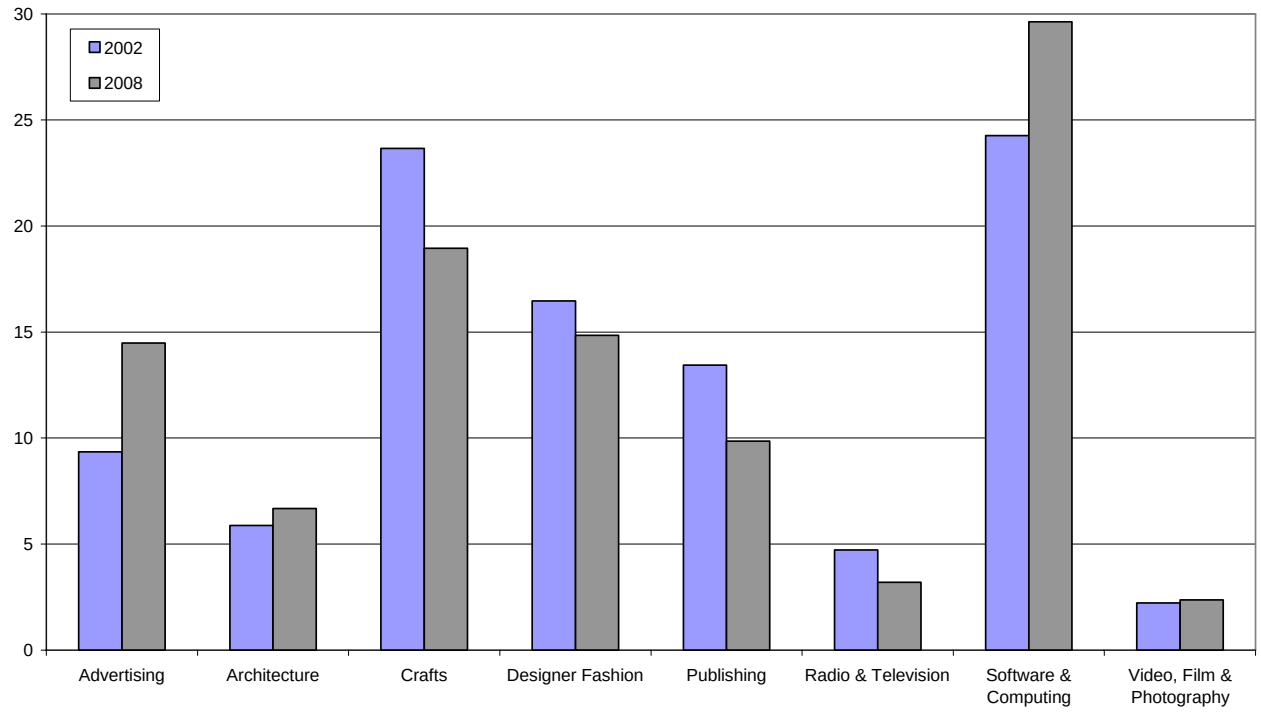
- total creative employment increased by 148,000 between 2002 and 2008. All employment was up by 1.41 million over the period
- the share of the creative workforce in the total workforce rose from 3.6 per cent to 4.0 per cent
- the largest increases in headcounts were in advertising (+64,000) and software (+87,000)
- most of the increase was outside of the creative industries (98,000 compared to 50,000)

The larger increase in the creative workforce outside of the creative industries is consistent with the findings of Chamberlin, Clayton and Farooqui (2007) who find that, in the measurement of in–house software development, there was a rapid increase in software–related workers outside of the software industry after 1997.

Figure 2 shows how the respective proportions of each creative worker category relative to all creative workers have changed between 2002 and 2008 (that is the bars add up to 100 per cent for each year)

Figure 2 Employment shares by creative worker categories

Percentage shares



Source: ASHE micro data

In line with the observations from Figure 1:

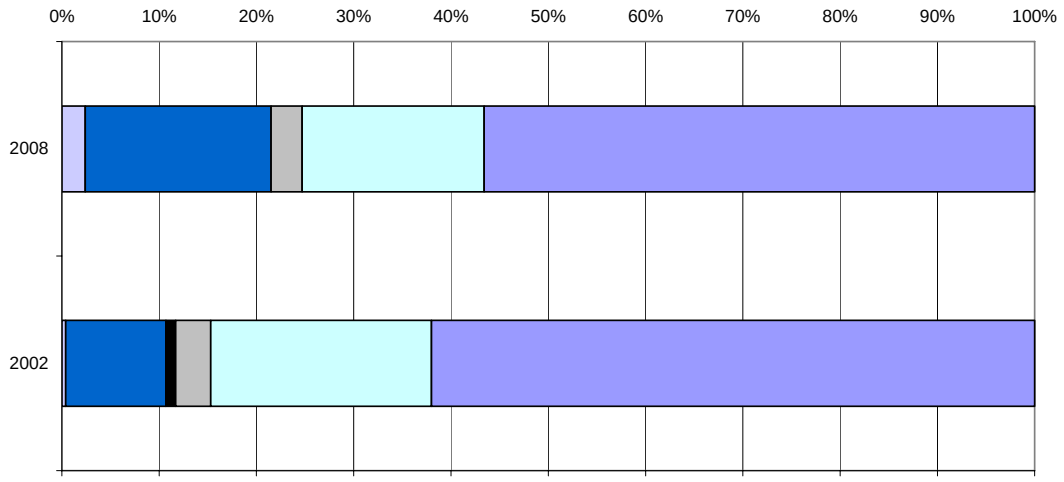
- Software & Computing rose from 24.3 per cent to 29.6 per cent (+5.3 percentage points)
- Advertising rose from 9.3 per cent to 14.5 per cent (+5.2 percentage points)
- Crafts fell from 23.7 per cent to 18.9 per cent (-4.8 percentage points)
- Publishing fell from 13.4 per cent to 9.9 per cent (-3.5 percentage points)

To measure the changing pattern of creative employment in the creative industries, ASHE micro data is used to calculate the earnings–adjusted composition of creative employment within the creative industries between 2002 and 2008. The earnings–adjustment works by multiplying the number of workers by earnings in order to better account for the market value attached and helping to illustrate the relative importance each category of creative employment has in each creative industry and how this changes over time. The findings in this section therefore focus exclusively on the composition of creative employment within the creative industries, ignoring those workers not belonging to the pool of creative workers. This analysis complements DCMS's own economic estimates which do not provide a detailed breakdown of creative workers employed within the creative industries.

Advertising

Figure 3 shows the earnings–weighted breakdown in employment patterns in the Advertising sub–sector of the UK's creative industries. In 2002, the earnings–adjusted employment of creative workers in this sector were 25.0 per cent of the total (23.0 per cent unadjusted), which was broadly unchanged in 2008 at 25.7 per cent of the total (23.7 per cent unadjusted). This sector shows a high share of sector specific employment at 62.0 per cent in 2002 and 56.6 per cent in 2008. There were some other changes in the composition of the earnings–adjusted creative workforce. Designer Fashion fell from 22.7 per cent to 18.7 per cent but Software & Computing rose from 10.3 per cent to 19.1 per cent, reflecting a rise in headcounts.

Figure 3 **Creative employment composition: Advertising**



	2002	2008
Advertising	62.0	56.6
Architecture	0.0	0.0
Crafts	0.0	0.0
Designer Fashion	22.7	18.7
Publishing	3.6	3.2
Radio & Television	1.0	0.0
Software & Computing	10.3	19.1
Video, Film & Photography	0.4	2.4

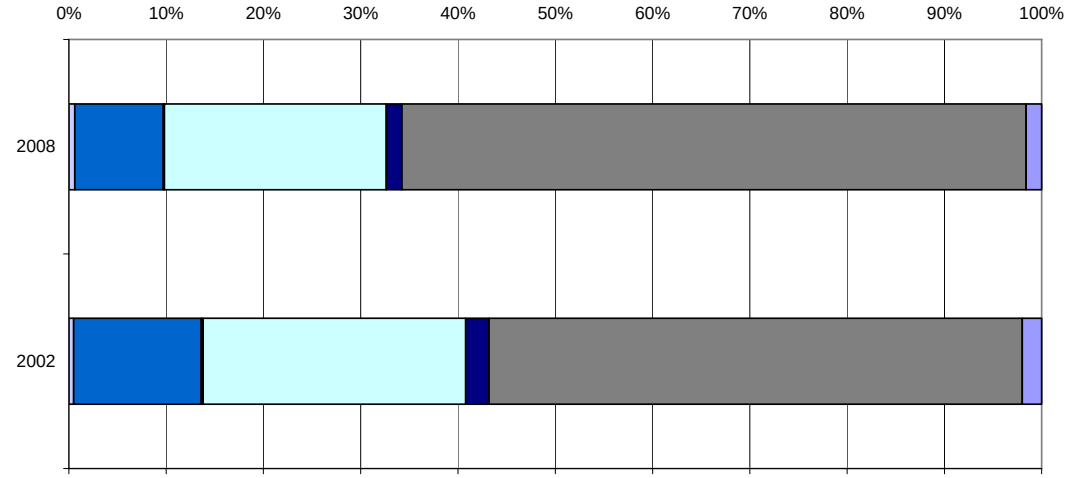
Source: ASHE micro data

Architecture

In the Architecture sub–sector the (earnings–adjusted) creative workforce was broadly unchanged as a proportion of the total workforce between 2002 and 2008 at 18.6 per cent and 18.4 per cent (unadjusted the proportions were 17.0 per cent and 17.8 per cent respectively). This sub–sector also exhibits a high share of sector–specific employment with Architecture increasing from 54.8 per cent to 64.1 per cent whilst the share of Designer Fashion fell from 27.0 per cent to 22.8 per cent (**Figure 4**). There was also a fall in the relative share of Software & Computing creative employment from 13.1 per cent to 9.1 per cent. These patterns predominantly reflect a significant

increase in Architecture employment in this sub–sector of the creative industries during this period.

Figure 4 **Creative employment composition: Architecture**



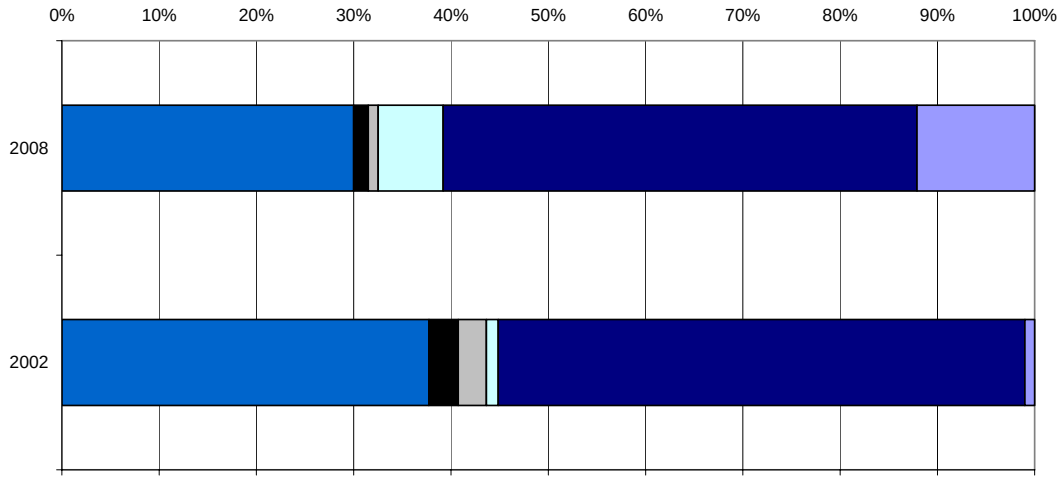
	2002	2008
Advertising	2.0	1.6
Architecture	54.8	64.1
Crafts	2.4	1.6
Designer Fashion	27.0	22.8
Publishing	0.0	0.1
Radio & Television	0.2	0.0
Software & Computing	13.1	9.1
Video, Film & Photography	0.5	0.6

Source: ASHE Micro data

Arts & Antiques

The Arts & Antiques sector comprises a relatively small share of total creative employment although the earnings–adjusted share increased from 5.4 per cent to 5.7 per cent between 2002 and 2008 (unadjusted the rise was 3.8 per cent to 4.9 per cent). But as **Figure 5** shows, it is heavily concentrated in the Crafts category (54.1 per cent in 2002 falling to 48.7 per cent in 2008). Software & Computing also accounts for a relatively large share of creative employment, although the respective share also fell from 37.7 per cent in 2002 to 30.0 per cent in 2008. These falls were countered by increasing shares in Advertising employment (1.0 per cent to 12.1 per cent) and Designer Fashion (1.2 per cent to 6.7 per cent). In these two employment categories there were increases in headcounts over the period.

Figure 5 Creative employment composition: Arts & Antiques



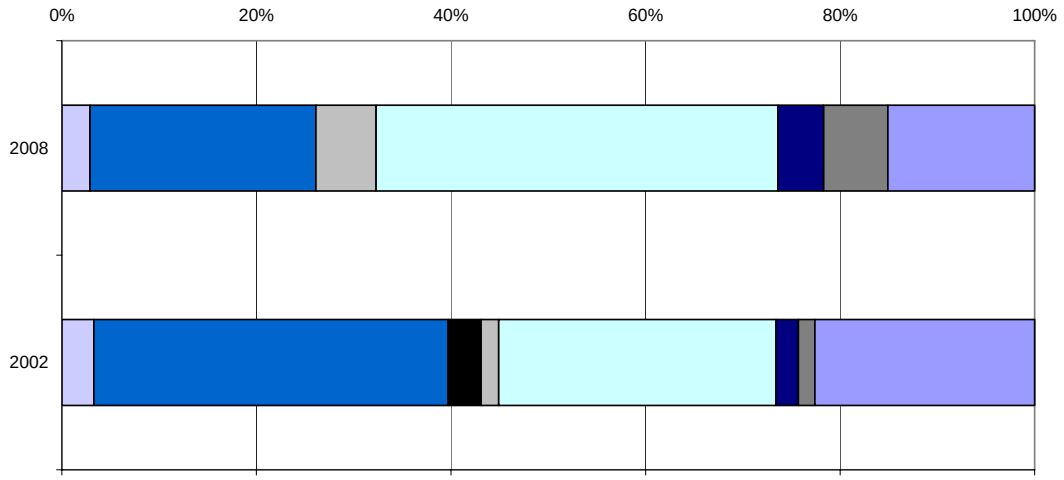
	2002	2008
Advertising	1.0	12.1
Architecture	0.0	0.0
Crafts	54.1	48.7
Designer Fashion	1.2	6.7
Publishing	2.9	1.0
Radio & Television	3.0	1.5
Software & Computing	37.7	30.0
Video, Film & Photography	0.0	0.0

Source: ASHE micro data

Designer Fashion

The earnings–adjusted share of the Designer Fashion creative workforce rose from 10.9 per cent to 11.1 per cent between 2002 and 2008 (7.8 to 9.6 unadjusted). As **Figure 6** shows there has been more variation in the creative employment composition in this sub–sector of the creative industries. There was a sharp rise in the Designer Fashion share from 28.5 per cent to 41.3 per cent with this increasing share coming at the expense of the Advertising share which fell from 22.6 per cent to 15.1 per cent and Software & Computing share which declined from 36.4 per cent to 23.2 per cent.

Figure 6 Creative employment composition: Designer Fashion



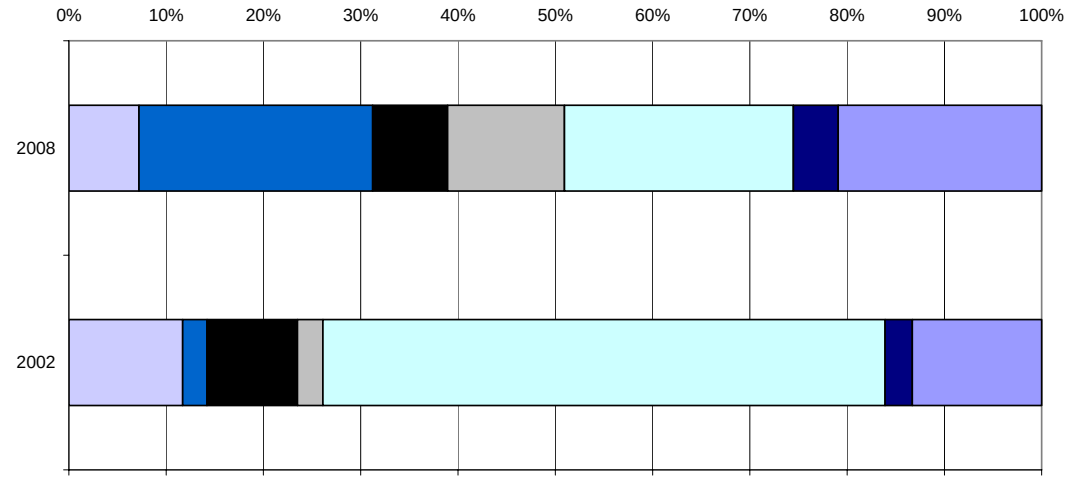
	2002	2008
Advertising	22.6	15.1
Architecture	1.7	6.6
Crafts	2.3	4.7
Designer Fashion	28.5	41.3
Publishing	1.8	6.2
Radio & Television	3.4	0.0
Software & Computing	36.4	23.2
Video, Film & Photography	3.3	2.9

Source: ASHE micro data

Music, Visual & Performing Arts

The earnings–adjusted share of the creative workforce picked up from 12.0 per cent to 14.5 per cent (9.8 per cent to 13.2 per cent unadjusted) between 2002 and 2008. However, as **Figure 7** shows, this sub–sector has seen substantial changes in respective shares of the different categories of creative workers. A sharp fall in the Designer Fashion share (57.8 per cent to 23.5 per cent) has been associated with increasing shares of Advertising (13.3 per cent to 20.9 per cent), Software & Computing (2.5 per cent to 24.0 per cent) and Publishing (2.6 per cent to 12.0 per cent). These moving shares are broadly consistent with changes in the headcounts of each.

Figure 7 **Creative employment composition: Music, Visual & Performing Arts**



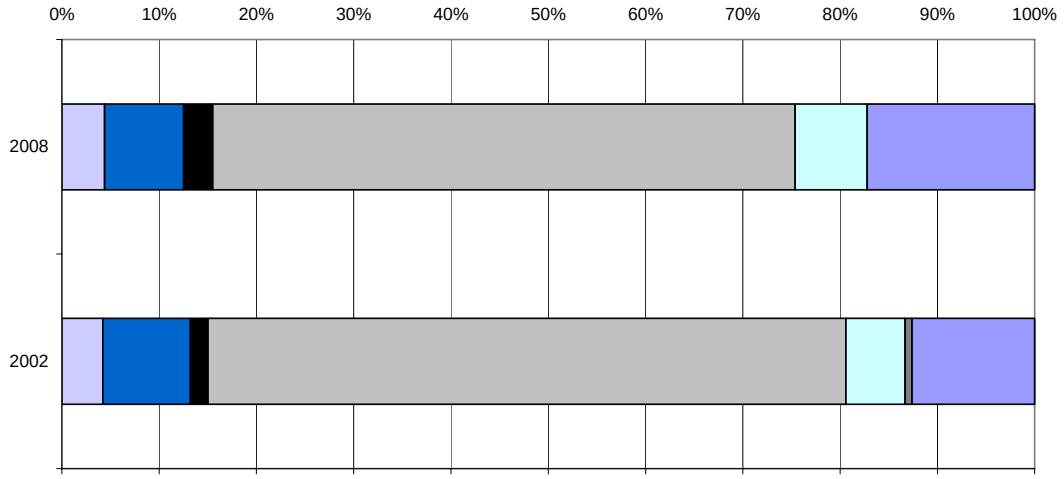
	2002	2008
Advertising	13.3	20.9
Architecture	0.0	0.0
Crafts	2.8	4.6
Designer Fashion	57.8	23.5
Publishing	2.6	12.0
Radio & Television	9.3	7.7
Software & Computing	2.5	24.0
Video, Film & Photography	11.7	7.2

Source: ASHE micro data

Publishing

In contrast to the Music, Visual & Performing Arts sub–sector, earnings–adjusted employment shares in the Publishing sector has been relatively stable (**Figure 8**). This is largely due to the very high sector–specific share of Publishing even though it fell from 65.5 per cent to 59.8 per cent between 2002 and 2008. This was primarily offset by a rise in the Advertising share from 12.6 per cent to 17.2 per cent. The creative workforce in this sub–sector is relatively high as a proportion of total employment although exhibiting a slight fall from 34.8 per cent in 2002 to 31.3 per cent in 2008 (unadjusted the fall was from 30.4 per cent to 29.1 per cent). This is in line with recent estimates published by DCMS (DCMS 2010) which recorded a fall in employment in the Publishing sub–sector in 2008.

Figure 8 Creative employment composition: Publishing



	2002	2008
Advertising	12.6	17.2
Architecture	0.7	0.0
Crafts	0.0	0.0
Designer Fashion	6.1	7.4
Publishing	65.5	59.8
Radio & Television	1.8	3.0
Software & Computing	9.0	8.1
Video, Film & Photography	4.2	4.4

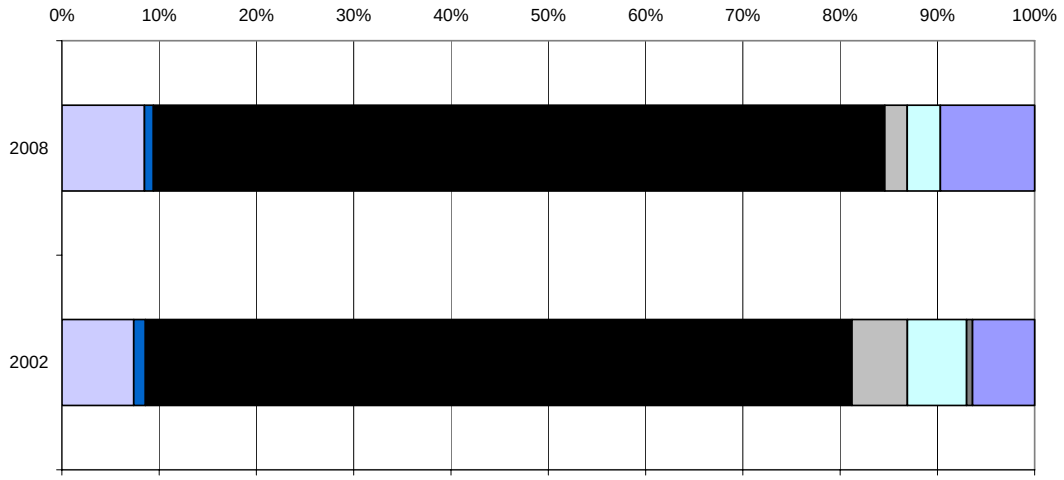
Source: ASHE micro data

Radio & Television

Figure 9 shows the earnings–weighted employment breakdown of creative workers in the Radio & Television sub–sector. In both 2002 and 2008, around three–quarters is sector–specific, 72.7 per cent in 2002 and 75.2 per cent in 2008. The shares accounted for by the other creative employment categories were fairly constant with a small increase in the advertising share and small falls in the Designer Fashion and Publishing shares.

This sub–sector also shows a relatively high concentration of creative workers at 53.1 per cent in 2002 and 46.3 per cent in 2008 (the unadjusted fall was from 47.9 per cent to 40.3 per cent). This fall largely reflects the larger fall in the creative workers headcount than the overall headcount over the period.

Figure 9 Creative employment composition: Radio & Television



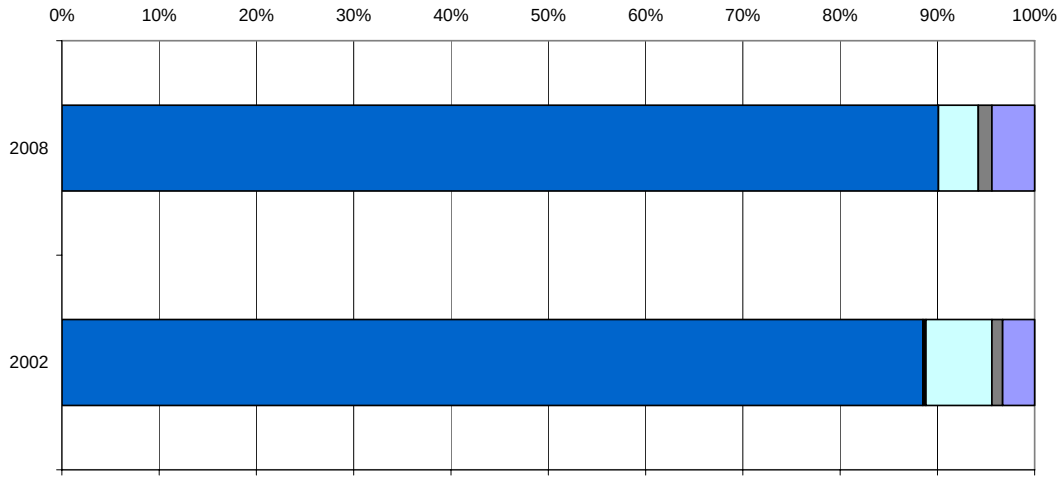
	2002	2008
Advertising	6.4	9.7
Architecture	0.6	0.0
Crafts	0.0	0.0
Designer Fashion	6.1	3.4
Publishing	5.7	2.3
Radio & Television	72.7	75.2
Software & Computing	1.2	0.9
Video, Film & Photography	7.4	8.5

Source: ASHE micro data

Software & Computing

Sector–specific employment is also very high in the Software & Computing sub–sector of the creative industries, accounting for around nine–tenths of all creative employment (88.6 per cent in 2002 and 90.1 per cent in 2008). Due to this large share, the overall distribution of employment across the creative worker categories is fairly stable in this sub–sector (see **Figure 10**). A strong rise in the Software & Computing headcount has also resulted in an increase in the relative share of creative employment in the sub–sector. On an earnings–adjusted basis, this increased from 21.0 per cent to 27.2 per cent (17.7 per cent to 23.1 per cent unadjusted).

Figure 10 Creative employment composition: Software & Computing



	2002	2008
Advertising	3.3	4.4
Architecture	1.1	1.4
Crafts	0.0	0.0
Designer Fashion	6.8	4.1
Publishing	0.0	0.0
Radio & Television	0.3	0.0
Software & Computing	88.6	90.1
Video, Film & Photography	0.0	0.0

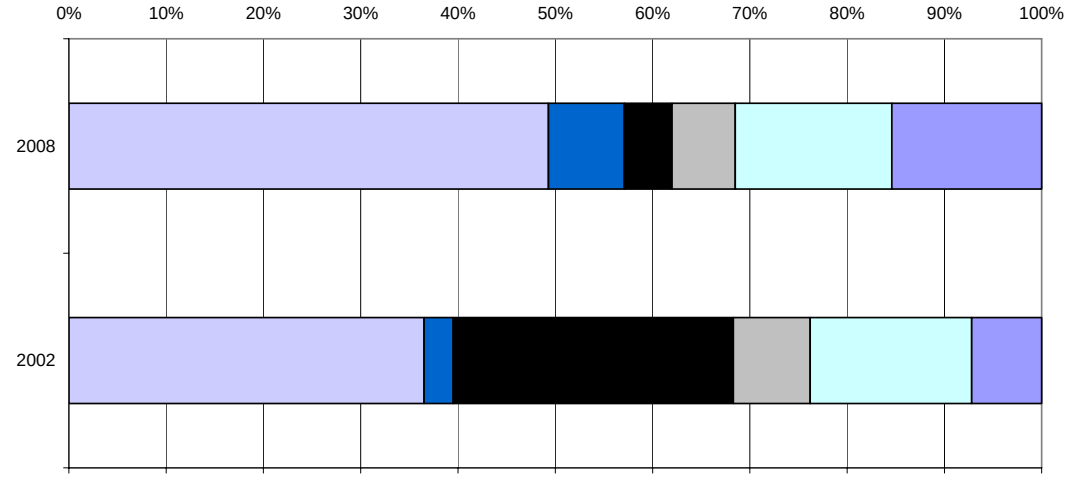
Source: ONS micro data

Video, Film and Photography

The share of creative employment in this sub–sector picked up significantly from 19.2 per cent in 2002 to 36.1 per cent. Using earnings–unadjusted data (straight headcounts), the proportional increase was from 17.3 per cent to 23.9 per cent – reflecting a stronger rise in creative than non–creative workers.

The share of sub–sector creative employment accounted for by Video Film and Photography increased from 36.5 per cent to 49.3 per cent. Advertising rose from 7.2 per cent to 15.4 per cent but the Radio & Television share fell markedly from 28.8 per cent to 4.9 per cent (**Figure 11**).

Figure 11 Creative employment composition: Video, Film & Photography



	2002	2008
Advertising	7.2	15.4
Architecture	0.0	0.0
Crafts	0.0	0.0
Designer Fashion	16.6	16.1
Publishing	7.9	6.5
Radio & Television	28.8	4.9
Software & Computing	3.0	7.8
Video, Film & Photography	36.5	49.3

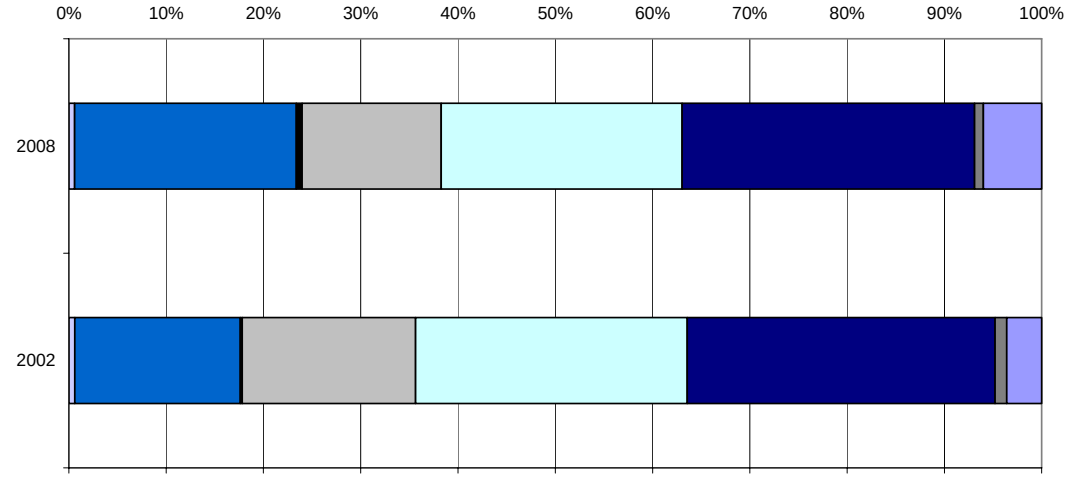
Source: ASHE micro data

Non–Creative Non–Services

The non–creative sector refers to all the firms not belonging to the creative industries defined in the DCMS mapping document (DCMS 2001). The earnings–adjusted intensity of creative employment in the non–creative non–services sector is relatively low – 6.1 per cent in 2002 and 6.5 per cent in 2008 (unadjusted – 6.3 per cent in 2002 and 6.6 per cent in 2008). The relative stability of these shares, along with the composition shares of different creative workers in **Figure 12** largely reflect that creative employment has fallen in proportion with non–creative employment in this sub–sector.

Crafts have the highest earnings–adjusted employment share (31.6 per cent in 2002 and 30.1 per cent in 2008). The Software & Computing share went up from 17.0 per cent to 22.8 per cent between 2002 and 2008. Over the same period, the Designer Fashion share declined from 27.9 per cent to 24.8 per cent and Publishing declined from 17.8 per cent to 14.3 per cent.

Figure 12 Creative employment composition: Non–Creative Non–Services



	2002	2008
Advertising	3.6	6.0
Architecture	1.2	0.9
Crafts	31.6	30.1
Designer Fashion	27.9	24.8
Publishing	17.8	14.3
Radio & Television	0.2	0.6
Software & Computing	17.0	22.8
Video, Film & Photography	0.6	0.6

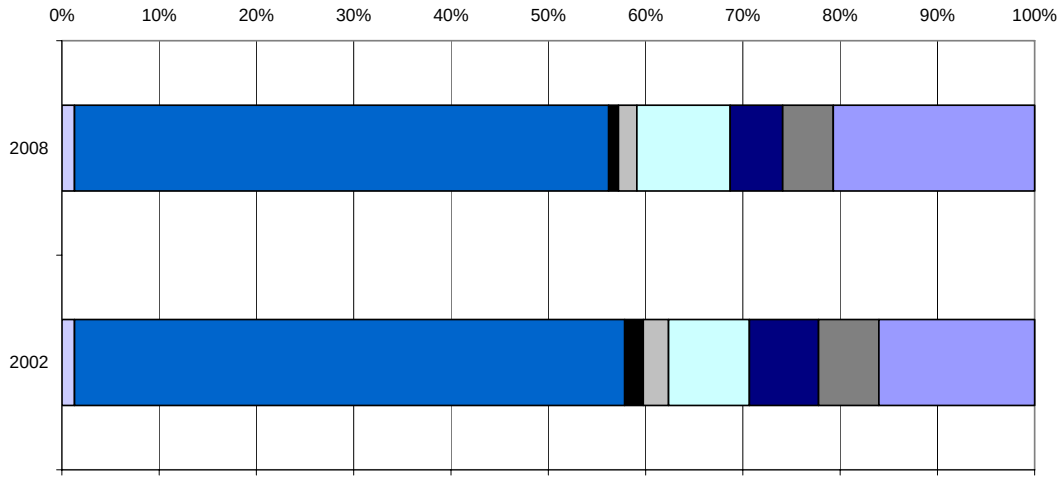
Source: ONS micro data

Non–creative services

The employment composition of creative workers in the Non–Creative Services sectors of the UK economy highlights the significant contribution of Software & Computing workers, whose earnings–weighted share remains stable at around 55 per cent of the total creative employment share in 2008, down slightly from 57 per cent in 2002 (**Figure 13**). Over the same period the earnings–weighted shares of the Advertising and Designer Fashion employment categories increased from 16 per cent to 21 per cent and from 8 per cent to 10 per cent respectively.

The overall earnings–adjusted share of the creative workforce was broadly unchanged between 2002 and 2008, increasingly modestly from 2.8 per cent to 3.2 per cent (unadjusted increase was from 1.8 per cent to 2.2 per cent). This shows that creative employment in this sector rose slightly faster than non–creative employment over the period.

Figure 13 Creative employment composition: Non–Creative Services



	2002	2008
Advertising	16.0	20.7
Architecture	6.2	5.2
Crafts	7.1	5.4
Designer Fashion	8.3	9.6
Publishing	2.6	1.9
Radio & Television	1.9	1.0
Software & Computing	56.5	54.9
Video, Film & Photography	1.3	1.3

Source: ONS micro data

Figure 14 shows the proportions of creative employment relative to all workers employed (both creative and non–creative) in each sub–sector of the creative industries and how these have changed over the period 2002–2008. Radio & Television, Publishing, Advertising, Designer Fashion, Software & Computing, Video, Film & Photography and Architecture exhibit the highest proportions of creative employment, with average proportions of 45 per cent, 30 per cent, 25 per cent, 20 per cent, 19 per cent and 18 per cent, respectively. This suggests that:

- sub–sectors of the creative industries showing the highest proportions of creative employment are also those sub–sectors with the highest proportions of skills– or sector–specific employment

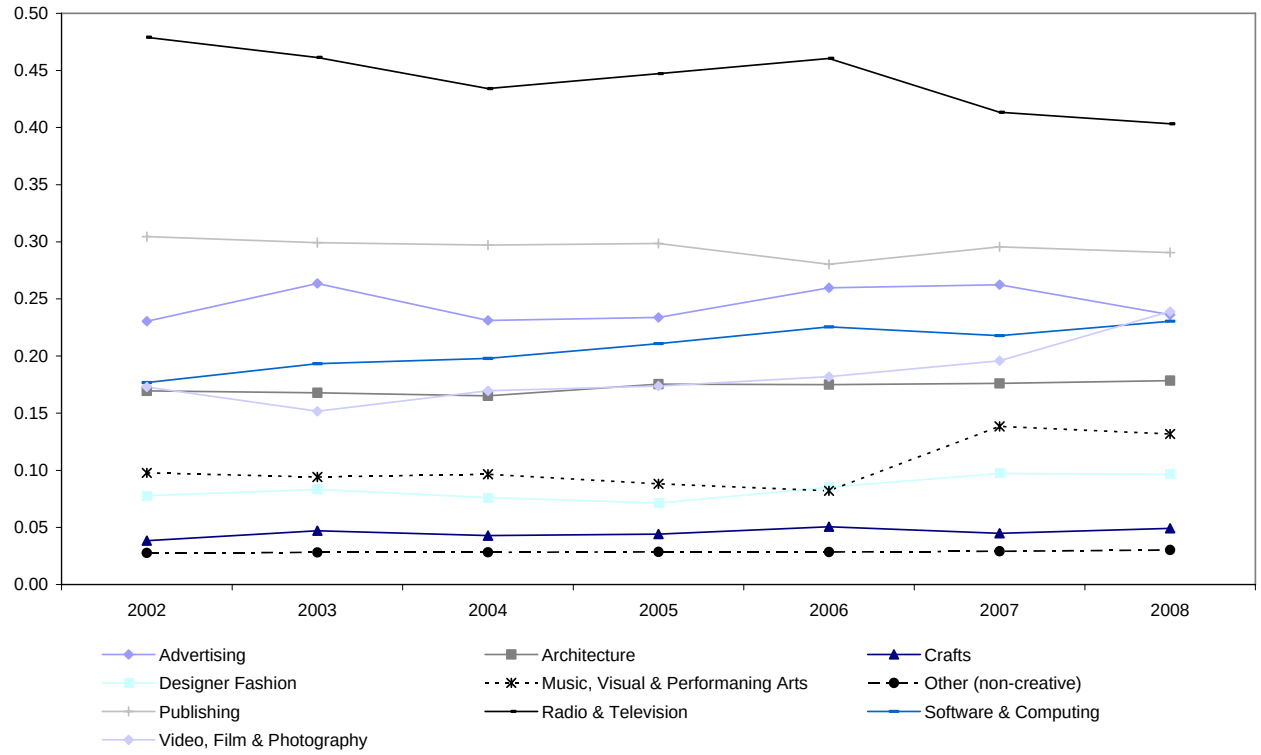
This is an important finding as it will be shown that:

- the positive association between ‘expert denseness’ and proportion of creative employment extends also to many categories of intangible expenditures

The sectors with the smallest proportion of creative employment are the non–creative sector (3 per cent), the Arts & Antiques sector (4 per cent), the Designer & Fashion sector (8 per cent) and the Music, Visual and Performing Arts sector (11 per cent).

Figure 14 **Proportions of creative employment in each creative sector**

Proportions



Source: ASHE micro data

Measures of intangible spending in the creative industries

Interest in spending on intangibles recognizes a firm's productive assets are broader than traditional 'plant and machinery'. Instead, such alternative assets may be given by:

- the brand recognition of the firm which it may have accumulated through marketing and advertising expenditures over time
- spending on computer services (software)
- the services provided by managers (fully or partially) engaged in optimizing organisational structures through business process re–engineering
- out–sourced or own–account expenditure on original research and development

This section presents a number of graphs showing spending by the creative industries on a number of intangibles. These are computer services, advertising, purchases of computer software, employment of scientists, total R&D expenditure, applied research, experimental research and in–house R&D expenditures.

These indicators have been produced using data (firm–level responses) available from the Annual Business Inquiry (ABI) as well the Business Enquiry on Research & Development (BERD). The graphs visualize relative expenditure intensities – which have been produced by dividing the

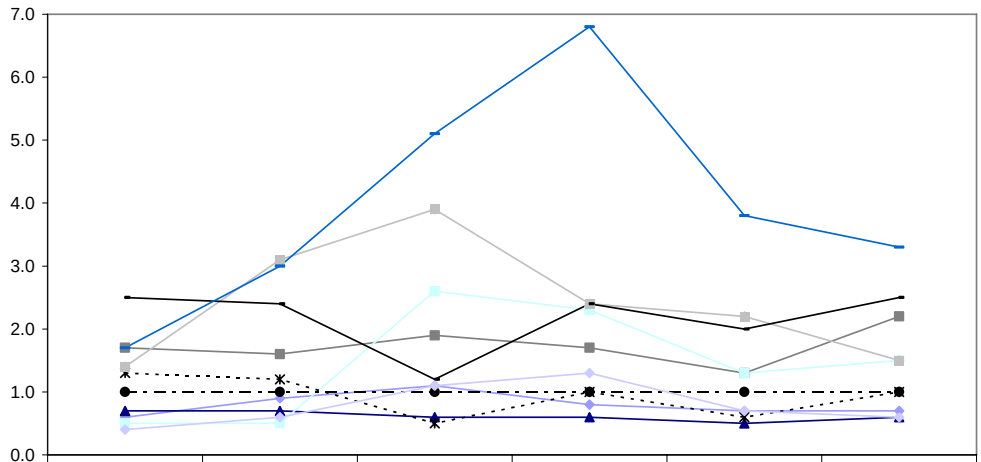
relevant expenditure figures at firm level by each firm's turnover – which have then been further normalized by dividing through by a 'benchmark' sector, which in this case is given by all of the firms not belonging to the creative industries (denominated here as 'Other'). This means that each graph reveals how the intensity of a particular expenditure category varies across time in terms of a multiple of the benchmark category, which remains stable at a value of 1.0 across all time period.

Computer services

Figure 15 shows that the Software & Computing sub–sector, unsurprisingly, reports the highest expenditure intensity in computer services at between 1.5 to nearly 7 times higher than the benchmark. Other sub–sectors which display investment intensities considerably above the benchmark are Publishing, Radio & Television and Architecture, which are up to 4, 2.5 and 2 times higher than the benchmark, respectively. Expenditures on computer services are generally lowest for Arts & Antiques, Music, Visual & Performing Arts, and Advertising. The Designer Fashion category starts off with a relatively low multiple of the benchmark at about 0.5 in 2001 and 2002 before increasing to a multiple of approximately 2.5 in 2003 and eventually falling to a multiple of 1.5 in the final year of the sample in 2006.

Figure 15 Creative industry spending on computer services

Expenditure intensity relative to benchmark



	2001	2002	2003	2004	2005	2006
Advertising	0.6	0.9	1.1	0.8	0.7	0.7
Architecture	1.7	1.6	1.9	1.7	1.3	2.2
Arts & Antiques	0.7	0.7	0.6	0.6	0.5	0.6
Designer Fashion	0.5	0.5	2.6	2.3	1.3	1.5
Music, Visual & Performing Arts	1.3	1.2	0.5	1.0	0.6	1.0
Other	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	1.4	3.1	3.9	2.4	2.2	1.5
Radio & Television	2.5	2.4	1.2	2.4	2.0	2.5
Software & Computing	1.7	3.0	5.1	6.8	3.8	3.3
Video, Film & Photography	0.4	0.6	1.1	1.3	0.7	0.6

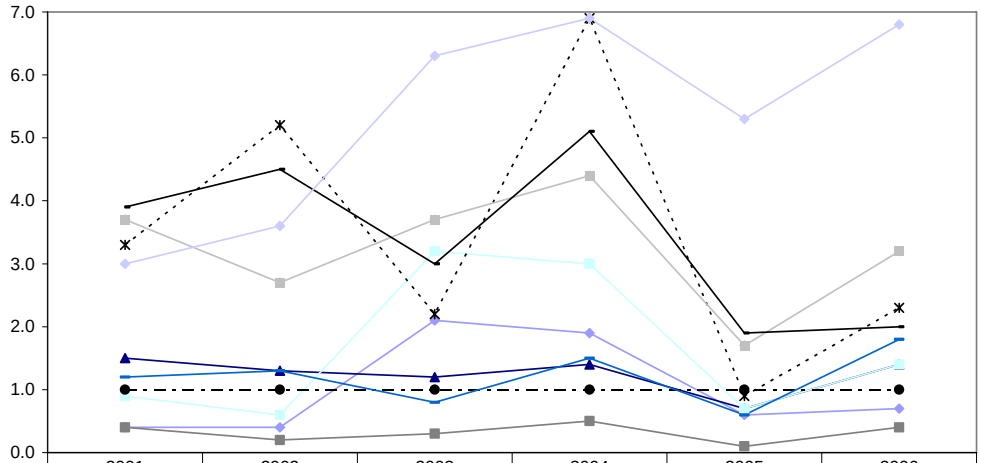
Source: ABI micro data

Advertising

Advertising expenditure is an indicator of firm investment in branding or reputation capital. Relative to the benchmark, spending is a significant multiple for Video, Film & Photography, Radio & Television and Publishing, which reach levels of up to 7, 5 and 4.5 times the investment intensity of the benchmark. Above average investment intensities are also exhibited by Music, Visual & Performing Arts, which happens to be the most volatile series. Creative sectors where advertising spending is closer to the benchmark – and are also much less volatile – are Arts & Antiques, Software & Computing and Architecture. Of these, the first two are usually above the benchmark in terms of relative expenditure, while the latter is normally below benchmark spending.

Figure 16 Creative industry spending on advertising

Expenditure intensity relative to benchmark



	2001	2002	2003	2004	2005	2006
Advertising	0.4	0.4	2.1	1.9	0.6	0.7
Architecture	0.4	0.2	0.3	0.5	0.1	0.4
Arts & Antiques	1.5	1.3	1.2	1.4	0.7	1.4
Designer Fashion	0.9	0.6	3.2	3.0	0.7	1.4
Music, Visual & Performing Arts	3.3	5.2	2.2	6.9	0.9	2.3
Other	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	3.7	2.7	3.7	4.4	1.7	3.2
Radio & Television	3.9	4.5	3.0	5.1	1.9	2.0
Software & Computing	1.2	1.3	0.8	1.5	0.6	1.8
Video, Film & Photography	3.0	3.6	6.3	6.9	5.3	6.8

Source: ABI micro data

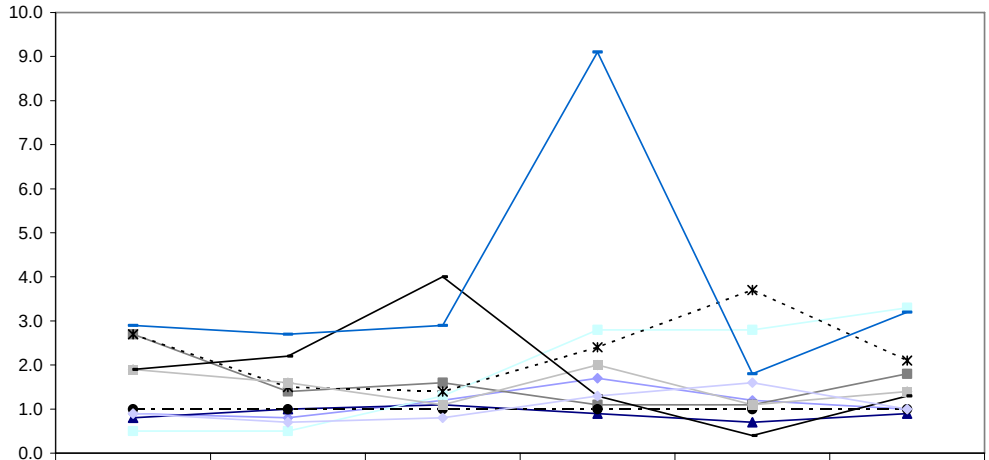
Purchased computer software

The Software & Computing sub–sector records the highest purchases of computer software at about 3 times the benchmark (**Figure 17**). This multiple rises to more than 9 in 2004 which may reflect an outlier. Radio & Television as well as Music, Visual and Performing Arts are the other two categories where investment intensities are generally above the benchmark, ranging between 1–4 and 1–3.5 respectively. Designer Fashion starts off below the benchmark only to rise significantly above it – reaching a peak of above 3 in 2006. Architecture also displays investment intensity

levels consistently above 1. Most of the other creative sectors record investment intensities which are close to the benchmark category.

Figure 17 Creative industry spending on computer software

Expenditure intensity relative to benchmark



	2001	2002	2003	2004	2005	2006
Advertising	0.9	0.8	1.2	1.7	1.2	1.0
Architecture	2.7	1.4	1.6	1.1	1.1	1.8
Arts & Antiques	0.8	1.0	1.1	0.9	0.7	0.9
Designer Fashion	0.5	0.5	1.3	2.8	2.8	3.3
Music, Visual & Performing Arts	2.7	1.5	1.4	2.4	3.7	2.1
Other	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	1.9	1.6	1.1	2.0	1.1	1.4
Radio & Television	1.9	2.2	4.0	1.3	0.4	1.3
Software & Computing	2.9	2.7	2.9	9.1	1.8	3.2
Video, Film & Photography	0.9	0.7	0.8	1.3	1.6	1.0

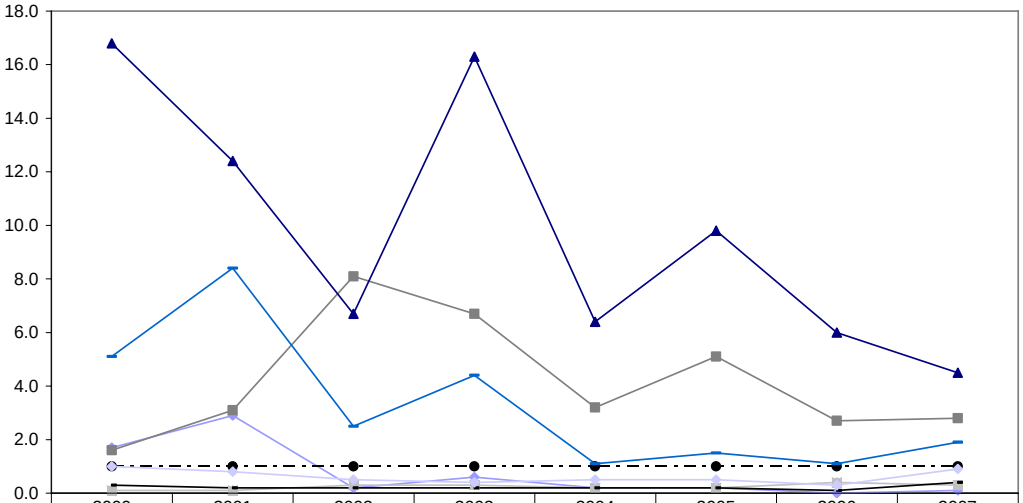
Source: ABI micro data

Employment of scientists

Figure 18 shows substantial volatility in a number of series but the Architecture, Arts & Antiques and Software & Computing industries all employ significantly more scientists relative to their general workforce, than those set of firms not belonging to the creative industries. This implies that two sectors with very high proportions of skills- or sector-specific employment shares – namely Software & Computing and Architecture – employ a significantly higher number of scientists relative to their general workforce than is the case in the benchmark sector.

Figure 18 Creative industry spending on employment of scientists

Expenditure intensity relative to benchmark



	2000	2001	2002	2003	2004	2005	2006	2007
Advertising	1.7	2.9	0.2	0.6	0.2	0.2	0.0	0.1
Architecture	1.6	3.1	8.1	6.7	3.2	5.1	2.7	2.8
Arts & Antiques	16.8	12.4	6.7	16.3	6.4	9.8	6.0	4.5
Other	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	0.1	0.1	0.3	0.3	0.2	0.2	0.4	0.3
Radio & Television	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.4
Software & Computing	5.1	8.4	2.5	4.4	1.1	1.5	1.1	1.9
Video, Film & Photography	1.0	0.8	0.5	0.4	0.5	0.5	0.3	0.9

Source: BERD micro data

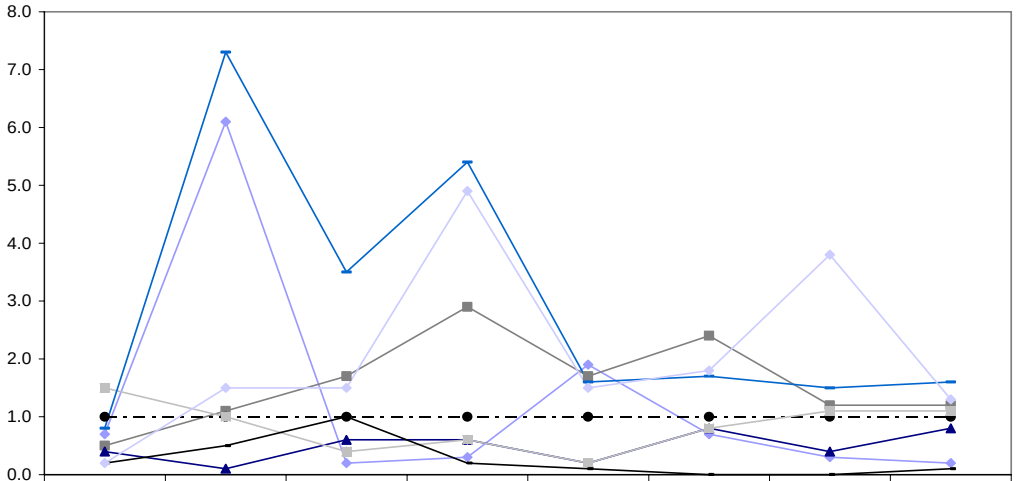
Research and Development

As **Figure 19** shows, there are three industries in the creative sector which consistently spend more on research and development than the benchmark of the non–creative industries. These industries are Architecture, Software & Computing and Video, Film & Photography. The other creative industries may rise above benchmark spending sporadically, such as Advertising in 2001 and 2004 and Publishing in 2000, 2006 and 2007, but these levels of expenditure relative to the benchmark are not sustained. Arts & Antiques and Radio & Television generally show a low level of spending on R&D.

These patterns are repeated when looking at the components of total R&D spending – Applied R&D (**Figure 20**), Experimental R&D (**Figure 21**) and In–house R&D (**Figure 22**). In each of these sub–categories of R&D, only the Architecture, Software & Computing and Video, Film & Photography industries consistently spend more than the benchmark. The other creative–industries generally undertake these R&D activities less intensively than in the non–creative industries as a whole.

Figure 19 Creative industry spending on total R&D

Expenditure intensity relative to benchmark

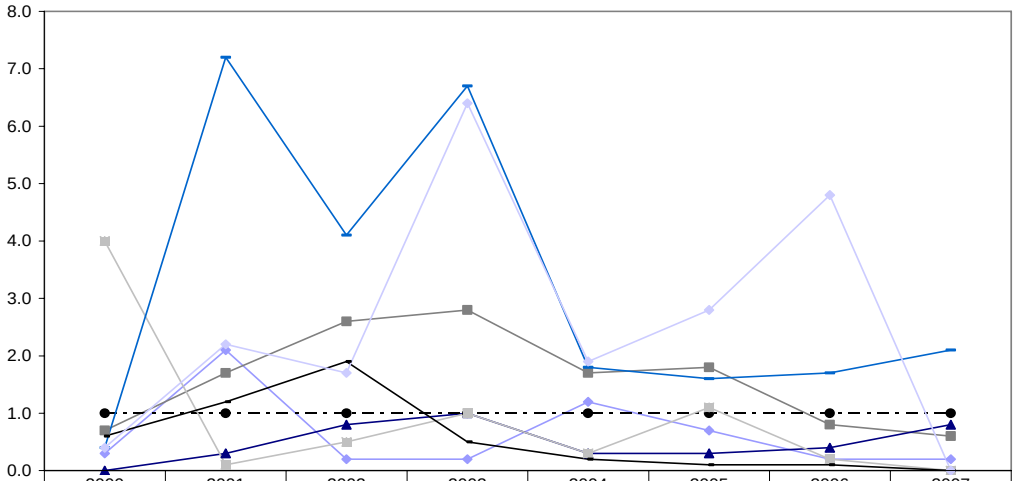


	2000	2001	2002	2003	2004	2005	2006	2007
Advertising	0.7	6.1	0.2	0.3	1.9	0.7	0.3	0.2
Architecture	0.5	1.1	1.7	2.9	1.7	2.4	1.2	1.2
Arts & Antiques	0.4	0.1	0.6	0.6	0.2	0.8	0.4	0.8
Other	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	1.5	1.0	0.4	0.6	0.2	0.8	1.1	1.1
Radio & Television	0.2	0.5	1.0	0.2	0.1	0.0	0.0	0.1
Software & Computing	0.8	7.3	3.5	5.4	1.6	1.7	1.5	1.6
Video, Film & Photography	0.2	1.5	1.5	4.9	1.5	1.8	3.8	1.3

Source: BERD micro data

Figure 20 Creative industry spending on applied R&D

Expenditure intensity relative to benchmark

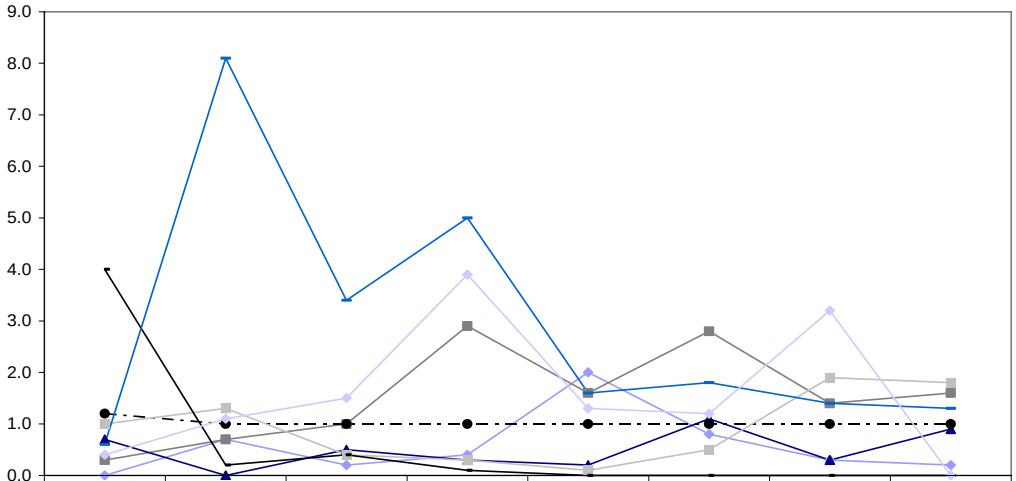


	2000	2001	2002	2003	2004	2005	2006	2007
Advertising	0.3	2.1	0.2	0.2	1.2	0.7	0.2	0.2
Architecture	0.7	1.7	2.6	2.8	1.7	1.8	0.8	0.6
Arts & Antiques	0.0	0.3	0.8	1.0	0.3	0.3	0.4	0.8
Other	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	4.0	0.1	0.5	1.0	0.3	1.1	0.2	0.0
Radio & Television	0.6	1.2	1.9	0.5	0.2	0.1	0.1	0.0
Software & Computing	0.4	7.2	4.1	6.7	1.8	1.6	1.7	2.1
Video, Film & Photography	0.4	2.2	1.7	6.4	1.9	2.8	4.8	0.0

Source: BERD micro data

Figure 21 Creative industry spending on experimental R&D

Expenditure intensity relative to benchmark

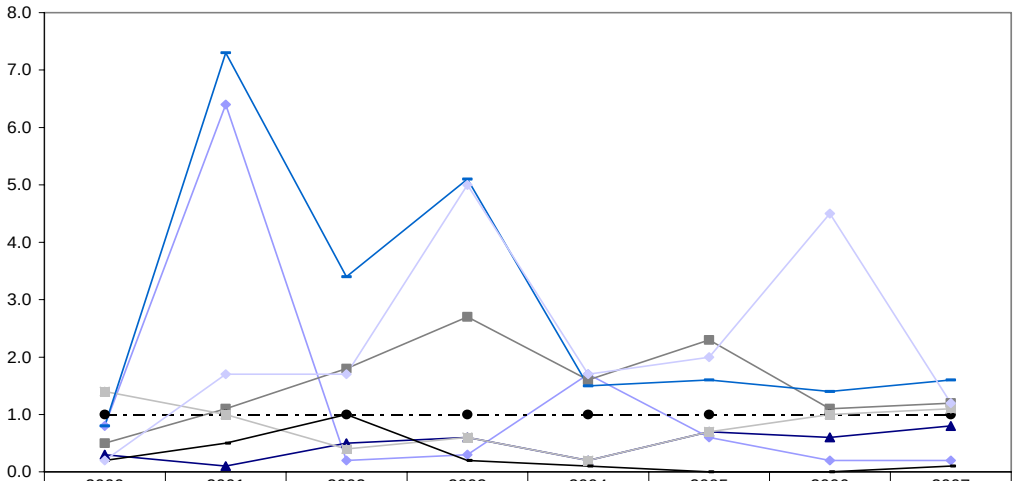


	2000	2001	2002	2003	2004	2005	2006	2007
Advertising	0.0	0.7	0.2	0.4	2.0	0.8	0.3	0.2
Architecture	0.3	0.7	1.0	2.9	1.6	2.8	1.4	1.6
Arts & Antiques	0.7	0.0	0.5	0.3	0.2	1.1	0.3	0.9
Other	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	1.0	1.3	0.4	0.3	0.1	0.5	1.9	1.8
Radio & Television	4.0	0.2	0.4	0.1	0.0	0.0	0.0	0.0
Software & Computing	0.6	8.1	3.4	5.0	1.6	1.8	1.4	1.3
Video, Film & Photography	0.4	1.1	1.5	3.9	1.3	1.2	3.2	0.0

Source: BERD micro data

Figure 22 Creative industry spending on in–house R&D

Expenditure intensity relative to benchmark



	2000	2001	2002	2003	2004	2005	2006	2007
Advertising	0.8	6.4	0.2	0.3	1.7	0.6	0.2	0.2
Architecture	0.5	1.1	1.8	2.7	1.6	2.3	1.1	1.2
Arts & Antiques	0.3	0.1	0.5	0.6	0.2	0.7	0.6	0.8
Other	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Publishing	1.4	1.0	0.4	0.6	0.2	0.7	1.0	1.1
Radio & Television	0.2	0.5	1.0	0.2	0.1	0.0	0.0	0.1
Software & Computing	0.8	7.3	3.4	5.1	1.5	1.6	1.4	1.6
Video, Film & Photography	0.2	1.7	1.7	5.0	1.7	2.0	4.5	1.2

Source: BERD micro data

Conclusions

This article has attempted to analyse and draw links between patterns of employment and spending on intangibles in the UK's creative industries. For the majority of the creative industries, the earnings–adjusted number of creative workers has been rising between 2002 and 2008. Sector–specific employment is typically dominant and stable and Software & Computing work is on the rise for practically all creative industry sectors. Advertising workers have also seen significant increases in their share of total creative employment between 2002 and 2008.

Two broad themes emerge from the analysis on spending on intangibles by creative industries. First, industries with high levels of skill– or sector–specific creative workforces tend to exhibit higher levels of spending on intangibles. This primarily includes Software & Computing, but also Architecture and Publishing. Second, Arts & Antiques is the creative sector displaying the lowest proportion of creative employment in total employment, and for that sector intangibles spending is consistently below the benchmark set of non–creative sectors.

This micro data study therefore posits a possible link between creative industries and higher (relative) spending on intangibles. This is particularly true for those creative sectors with high levels of skills- or sector-specific employment and suggests a link between 'creative expert denseness', relative levels of creative employment and the relative level of intangible spending.

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Notes

1. These are constructed using the 2003 Standard Industrial Classification (SIC) at the 4 digit level.

2. Further work shows that in growth accounting exercises including intangible spending as capital inputs fundamentally re–writes Britain's past productivity record. (see Giorgio Marrano, Haskel and Wallis 2007).

3. ASHE records the average earnings of all employees whose National Insurance number ends with '14'.

4. Strictly speaking the micro data being used here is the Annual Respondents Database (ARD). This is a database specific to the Virtual Microdata Laboratory (VML) at the Office for National Statistics containing individual firm–level responses to ABI1 and ABI2.

5. Based on the Standard Occupational Classification (SOC).

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Key time series

1. National Accounts aggregates

Last updated 22/12/10

Seasonally adjusted

	£ million		Indices (2006 = 100)						
	At current prices		Value indices at current prices		Chained volume indices			Implied deflators[3]	
	Gross domestic product (GDP) at market prices	Gross value added (GVA) at basic prices	GDP at market prices[1]	GVA at basic prices	Gross national disposable income at market prices[2]	GDP at market prices	GVA at basic prices	GDP at market prices	GVA at basic prices
	YBHA	ABML	YBEU	YBEX	YBFP	YBEZ	CGCE	YBGB	CGBV
2008	1,445,580	1,295,663	108.8	109.5	104.3	102.6	102.7	106.0	106.6
2009	1,394,989	1,257,627	105.0	106.2	98.4	97.6	97.9	107.6	108.5
2008 Q2	363,264	323,679	109.4	109.4	105.2	103.5	103.7	105.6	105.5
2008 Q3	361,466	325,041	108.8	109.8	103.8	102.6	102.6	106.1	107.1
2008 Q4	358,848	324,009	108.1	109.5	100.9	100.5	100.5	107.5	108.9
2009 Q1	349,801	317,113	105.3	107.2	99.5	98.2	98.4	107.2	108.9
2009 Q2	344,504	311,156	103.7	105.1	96.6	97.4	97.7	106.5	107.6
2009 Q3	348,081	313,018	104.8	105.8	98.3	97.2	97.5	107.9	108.5
2009 Q4	352,603	316,340	106.2	106.9	99.4	97.6	98.0	108.8	109.0
2010 Q1	358,941	320,297	108.1	108.2	98.7	97.9	98.3	110.4	110.1
2010 Q2	362,630	323,260	109.2	109.2	101.0	99.0	99.4	110.3	109.9
2010 Q3	365,920	326,192	110.2	110.2	100.6	99.7	100.1	110.5	110.1
			Percentage change, quarter on corresponding quarter of previous year						
			IHYO	ABML[4]	YBGO[4]	IHYR	ABMM[4]	IHYU	ABML/ABMM[4]
2008 Q2	3.9	3.9	3.9	3.9	2.1	1.0	1.1	2.9	2.8
2008 Q3	2.4	3.4	2.4	3.4	0.3	-0.4	-0.6	2.9	4.0
2008 Q4	0.5	1.6	0.5	1.6	-5.2	-2.7	-2.8	3.3	4.6
2009 Q1	-3.4	-1.8	-3.4	-1.8	-7.2	-5.4	-5.4	2.1	3.8
2009 Q2	-5.2	-3.9	-5.2	-3.9	-8.2	-5.9	-5.8	0.8	2.0
2009 Q3	-3.7	-3.7	-3.7	-3.7	-5.3	-5.3	-5.0	1.7	1.4
2009 Q4	-1.7	-2.4	-1.7	-2.4	-1.6	-2.8	-2.5	1.1	0.1
2010 Q1	2.6	1.0	2.6	1.0	-0.8	-0.3	0.0	2.9	1.0
2010 Q2	5.3	3.9	5.3	3.9	4.6	1.6	1.7	3.6	2.1
2010 Q3	5.1	4.2	5.1	4.2	2.4	2.7	2.7	2.4	1.5

Notes

1. 'Money GDP'
2. This series is only updated once a quarter, in line with the full quarterly national accounts data set
3. Based on chained volume measures and current price estimates of expenditure components of GDP
4. Derived from these identification (CDID) codes.

2. Gross Domestic Product: by category of expenditure

Last updated 22/12/10

£ million, chained volume measures, reference year 2006, seasonally adjusted

	Domestic expenditure on goods and services at market prices											
	Final consumption expenditure			Gross capital formation								
	Households	Non-profit institutions1	General government	Gross fixed capital formation	Changes in inventories2	Acquisitions less disposals of valuables	Total	Exports of goods and services	Gross final expenditure	less Imports of goods and services	Statistical discrepancy (expenditure)	Gross domestic product at market prices
	ABJR	HAYO	NMRY	NPQT	CAFU	NPJR	YBIM	IKBK	ABMG	IKBL	GIXS	ABMI
2008	842,174	32,338	293,464	232,777	130	1,290	1,402,173	372,104	1,774,277	411,138	0	1,363,139
2009	814,666	32,281	296,306	196,997	-16,012	1,222	1,325,460	334,601	1,660,061	362,026	-1,346	1,296,689
2008 Q1	213,214	8,292	72,104	59,619	3,228	206	356,664	93,858	450,522	105,712	0	344,809
2008 Q2	211,525	8,183	73,334	59,779	872	440	354,134	94,284	448,418	104,550	0	343,868
2008 Q3	210,330	8,018	73,473	57,254	645	367	350,088	93,918	444,005	103,226	0	340,780
2008 Q4	207,105	7,845	74,553	56,125	-4,615	277	341,287	90,044	431,332	97,650	0	333,682
2009 Q1	204,262	8,153	73,972	51,112	-4,514	420	333,404	83,645	417,050	90,636	-156	326,257
2009 Q2	202,792	8,078	74,089	48,858	-3,796	239	330,260	82,166	412,426	88,581	-260	323,585
2009 Q3	202,828	8,026	73,958	48,878	-4,191	212	329,711	82,879	412,590	89,547	-388	322,655
2009 Q4	204,784	8,024	74,287	48,149	-3,511	351	332,085	85,911	417,995	93,262	-542	324,192
2010 Q1	204,582	7,988	74,778	49,656	-1,124	267	336,148	85,153	421,300	95,214	-888	325,198
2010 Q2	206,251	8,050	75,239	50,164	-762	369	339,310	87,763	427,073	97,162	-1,031	328,881
2010 Q3	206,885	7,862	74,952	51,846	318	210	342,073	89,066	431,140	98,789	-1,129	331,222
	Percentage change, quarter on corresponding quarter of previous year											
2008 Q1	2.9	0.1	0.8	-1.9			1.8	3.7	2.2	3.1		1.9
2008 Q2	1.4	-1.5	1.9	-1.4			1.2	2.7	1.5	3.1		1
2008 Q3	0.1	-4.1	1.2	-6.0			-1.3	0.5	-0.9	-2.5		-0.4
2008 Q4	-2.1	-6.9	2.5	-10.5			-4.4	-2.7	-4.1	-8.4		-2.7
2009 Q1	-4.2	-1.7	2.6	-14.3			-6.5	-10.9	-7.4	-14.3		-5.4
2009 Q2	-4.1	-1.3	1.0	-18.3			-6.7	-12.9	-8	-15.3		-5.9
2009 Q3	-3.6	0.1	0.7	-14.6			-5.8	-11.8	-7.1	-13.3		-5.3
2009 Q4	-1.1	2.3	-0.4	-14.2			-2.7	-4.6	-3.1	-4.5		-2.8
2010 Q1	0.2	-2.0	1.1	-2.8			0.8	1.8	1	5.1		-0.3
2010 Q2	1.7	-0.3	1.6	2.7			2.7	6.8	3.6	9.7		1.6
2010 Q3	2.0	-2.0	1.3	6.1			3.7	7.5	4.5	10.3		2.7

Notes

1. Non–profit institutions serving households
2. This series includes a quarterly alignment adjustment

3. Labour Market summary

Last updated 15/12/10

United Kingdom (thousands) seasonally adjusted

			Headline indicators					
	LFS household population[1]		Employment		Unemployment		Inactivity	
			Level	Rate[2]	Level	Rate[3]	Level	Rate[4]
	All aged 16 & over	All aged 16 to 64	All aged 16 & over	All aged 16 to 64	All aged 16 & over	All aged 16 to 64	All aged 16 & over	All aged 16 to 64
People	MGSL	LF2O	MGRZ	LF24	MGSC	MGSX	LF2M	LF2S
Aug–Oct 2008	49,165	39,636	29,351	72.3	1,876	6.0	9,122	23.0
Aug–Oct 2009	49,548	39,854	28,906	70.6	2,485	7.9	9,248	23.2
Nov–Jan 2010	49,646	39,905	28,861	70.4	2,443	7.8	9,396	23.5
Feb–Apr 2010	49,744	39,955	28,872	70.3	2,475	7.9	9,422	23.6
May–Jul 2010	49,842	40,006	29,158	70.7	2,467	7.8	9,264	23.2
Aug–Oct 2010	49,935	40,050	29,125	70.6	2,502	7.9	9,286	23.2
Change on quarter	92	44	-33	-0.1	35	0.1	22	0.0
Change on quarter %	0.2	0.1	-0.1		1.4		0.2	
Change on year	387	197	219	0.0	18	0.0	37	0.0
Change on year %	0.8	0.5	0.8		0.7		0.4	
Men	MGSM	YBTG	MGSA	MGSV	MGSD	MGSY	YBSO	YBTM
Aug–Oct 2008	23,941	19,718	15,821	78.0	1,111	6.6	3,236	16.4
Aug–Oct 2009	24,148	19,830	15,408	75.4	1,535	9.1	3,360	16.9
Nov–Jan 2010	24,202	19,858	15,355	75.0	1,505	8.9	3,476	17.5
Feb–Apr 2010	24,257	19,885	15,389	75.0	1,511	8.9	3,468	17.4
May–Jul 2010	24,311	19,912	15,610	75.8	1,452	8.5	3,375	17.0
Aug–Oct 2010	24,362	19,935	15,620	75.8	1,464	8.6	3,372	16.9
Change on quarter	51	23	10	0.0	11	0.1	-3	0.0
Change on quarter %	0.2	0.1	0.1		0.8		0.1	
Change on year	215	105	211	0.4	-71	-0.5	12	0.0
Change on year %	0.9	0.5	1.4		-4.6		0.4	
Women	MGSN	LF2P	MGSB	LF25	MGSE	MGSZ	LF2N	LF2T
Aug–Oct 2008	25,224	19,918	13,530	66.6	765	5.4	5,886	29.6
Aug–Oct 2009	25,400	20,023	13,497	65.9	950	6.6	5,888	29.4
Nov–Jan 2010	25,444	20,047	13,506	65.8	938	6.5	5,920	29.5
Feb–Apr 2010	25,487	20,071	13,483	65.6	964	6.7	5,954	29.7
May–Jul 2010	25,531	20,095	13,548	65.7	1,015	7.0	5,888	29.3
Aug–Oct 2010	25,573	20,115	13,505	65.5	1,039	7.1	5,914	29.4
Change on quarter	42	201	-43	-0.2	24	0.2	25	0.1
Change on quarter %	0.2	0.1	-0.3		2.4		0.4	
Change on year	172	92	8	-0.4	89	0.6	26	0.0
Change on year %	0.7	0.5	0.1		9.4		0.4	

Notes

1. The Labour Force Survey (LFS) is a survey of the population of private households, student halls of residence and NHS accommodation.

2. The headline employment rate is the number of people aged 16 to 64 in employment divided by the population aged 16 to 64.

3. The headline unemployment rate is the number of unemployed people (aged 16+) divided by the economically active population (aged 16+). The economically active population is defined as those in employment plus those who are unemployed.

4. The headline inactivity rate is the number of people aged 16 to 64 divided by the population aged 16 to 64.

Note on headline employment, unemployment and inactivity rates

The headline employment and inactivity rates are based on the population aged 16 to 64 but the headline unemployment rate is based on the economically active population aged 16 and over. The employment and inactivity rates for those aged 16 and over are affected by the inclusion of the retired population in the denominators and are therefore less meaningful than the rates for those aged from 16 to 64. However, for the unemployment rate for those aged 16 and over, no such effect occurs as the denominator for the unemployment rate is the economically active population which only includes people in work or actively seeking and able to work.

Note on headline employment, unemployment and inactivity levels

The headline employment and unemployment levels are for those aged 16 and over; they measure all people in work or actively seeking and able to work. However, the headline inactivity level is for those aged 16 to 64. The inactivity level for those aged 16 and over is less meaningful as it includes elderly people who have retired from the labour force.

4. Prices

Last updated 14/12/10

Percentage change over 12 months, Not seasonally adjusted

	Consumer prices						Producer prices			
	Consumer prices index (CPI)			Retail prices index (RPI)			Output prices		Input prices	
	All items	CPI excluding indirect taxes (CPIY)[1]	CPI at constant tax rates (CPI-CT)	All items	All items excluding mortgage interest payments (RPIX)	All items excluding mortgage interest payments and indirect taxes (RPIY)[2]	All manufactured products	Excluding food, beverages, tobacco and petroleum products	Materials and fuels purchased by manufacturing industry	Excluding food, beverages, tobacco and petroleum products
	D7G7	EL2S	EAD6	CZBH	CDKQ	CBZX	PLLU[3]	PLLV[3,4]	RNNK[3,4]	RNNQ[3,4]
2009 Jan	3.0	4.5	4.1	0.1	2.4	3.4	3.5	4.0	1.7	10.8
2009 Feb	3.2	4.6	4.2	0.0	2.5	3.5	3.0	3.7	0.8	8.9
2009 Mar	2.9	4.3	3.9	-0.4	2.2	3.2	2.0	3.2	-0.4	7.5
2009 Apr	2.3	3.8	3.4	-1.2	1.7	2.7	1.3	2.5	-5.8	2.6
2009 May	2.2	3.6	3.3	-1.1	1.6	2.6	-0.3	1.2	-8.8	0.2
2009 Jun	1.8	3.1	2.9	-1.6	1.0	1.9	-1.0	0.3	-12.0	-2.9
2009 Jul	1.8	3.1	2.8	-1.4	1.2	2.1	-1.3	0.2	-12.2	-3.4
2009 Aug	1.6	2.9	2.7	-1.3	1.4	2.3	-0.3	0.8	-7.7	-2.1
2009 Sep	1.1	2.2	2.1	-1.4	1.3	2.0	0.4	1.3	-6.2	-1.2
2009 Oct	1.5	2.6	2.5	-0.8	1.9	2.8	1.8	2.1	0.5	0.9
2009 Nov	1.9	3.0	2.9	0.3	2.7	3.5	2.9	2.0	4.2	0.8
2009 Dec	2.9	2.8	2.6	2.4	3.8	3.8	3.5	2.5	7.4	1.1
2010 Jan	3.5	1.9	1.7	3.7	4.6	3.3	3.8	2.6	7.7	1.4
2010 Feb	3.0	1.4	1.2	3.7	4.2	2.9	4.2	3.0	7.8	2.4
2010 Mar	3.4	1.8	1.6	4.4	4.8	3.5	5.0	3.7	10.5	4.4
2010 Apr	3.7	2.0	1.9	5.3	5.4	3.9	5.9	4.5	12.8	6.3
2010 May	3.4	1.7	1.6	5.1	5.1	3.8	5.5	4.4	11.7	7.2
2010 Jun	3.2	1.6	1.5	5.0	5.0	3.8	5.1	5.0	10.6	7.1
2010 Jul	3.1	1.4	1.3	4.8	4.8	3.5	5.0	4.7	10.8	7.6
2010 Aug	3.1	1.4	1.3	4.7	4.7	3.4	4.7	4.6	8.7	6.6
2010 Sep	3.1	1.5	1.4	4.6	4.6	3.4	4.4	4.6	9.5	6.4
2010 Oct	3.2	1.6	1.4	4.5	4.6	3.2				
2010 Nov	3.3	1.6	1.5	4.7	4.7	3.4				

Notes

1 The taxes excluded are VAT, duties, insurance premium tax, air passenger duty and stamp duty on share transactions.

2 The taxes excluded are council tax, VAT, duties, vehicle excise duty, insurance premium tax and air passenger duty.

3 Derived from these identification (CDID) codes.

4 These derived series replace those previously shown.

Notes to tables

Identification (CDID) codes

The four-letter identification code at the top of each data column is the ONS reference for this series of data on our time series database. Please quote the relevant code if you contact us requiring any further information about the data.

Conventions

Where figures have been rounded to the final digit, there may be an apparent slight discrepancy between the sum of the constituent items and the total as shown. Although figures may be given in unrounded form to facilitate the calculation of percentage changes, rates of change etc by users, this does not imply that the figures can be estimated to this degree of precision as they may be affected by sampling variability or imprecision in estimation methods.

The following standard symbols are used:

..	not available
–	nil or negligible (less than half the final digit shown)
P	provisional
—	break in series
R	revised
r	series revised from indicated entry onwards

Labour market statistics concepts and definitions

Labour Force Survey 'monthly' estimates

Labour Force Survey (LFS) results are three-monthly averages, so consecutive months' results overlap. Comparing estimates for overlapping three-month periods can produce more volatile results, which can be difficult to interpret.

Labour force summary table

Economically active

People aged 16 and over who are either in employment or unemployed.

Economically inactive

People who are neither in employment nor unemployed. This includes those who want a job but have not been seeking work in the last four weeks, those who want a job and are seeking work but not available to start work, and those who do not want a job.

Employment and jobs

There are two ways of looking at employment: the number of people with jobs, or the number of jobs. The two concepts are not the same as one person can have more than one job. The number of people with jobs is measured by the Labour Force Survey (LFS) and includes people aged 16 or over who do paid work (as an employee or self-employed), those who have a job that they are temporarily away from, those on government-supported training and employment programmes, and those doing unpaid family work. The number of jobs is measured by workforce jobs and is the sum of employee jobs (as measured by surveys of employers), self-employment jobs from the LFS, people in HM Forces, and government-supported trainees. Vacant jobs are not included.

Unemployment

The number of unemployed people in the UK is measured through the Labour Force Survey following the internationally agreed definition recommended by the ILO (International Labour Organisation) – an agency of the United Nations. Unemployed people:

are without a job, want a job, have actively sought work in the last four weeks and are available to start work in the next two weeks, or

are out of work, have found a job and are waiting to start it in the next two weeks

Other key indicators

Claimant count

The number of people claiming Jobseeker's Allowance benefits.

Earnings

A measure of the money people receive in return for work done, gross of tax. It includes salaries and, unless otherwise stated, bonuses but not unearned income, benefits in kind or arrears of pay.

Productivity

Whole economy output per worker is the ratio of Gross Value Added (GVA) at basic prices and Labour Force Survey (LFS) total employment. Manufacturing output per filled job is the ratio of manufacturing output (from the Index of Production) and productivity jobs for manufacturing (constrained to LFS jobs at the whole economy level).

Redundancies

The number of people who:

were not in employment during the reference week, and

reported that they had been made redundant in the month of, or the two calendar months prior to, the reference week

plus the number of people who:

were in employment during the reference week, and

started their job in the same calendar month as, or the two calendar months prior to, the reference week, and

reported that they had been made redundant in the month of, or the two calendar months prior to, the reference week

Unit wage costs

A measure of the cost of wages and salaries per unit of output.

Vacancies

The statistics are based on ONS's Vacancy Survey of businesses. The survey is designed to provide comprehensive estimates of the stock of vacancies across the economy, excluding those in agriculture, forestry and fishing. Vacancies are defined as positions for which employers are actively seeking recruits from outside their business or organisation. More information on labour market concepts, sources and methods is available in the *Guide to Labour Market Statistics* at www.statistics.gov.uk/about/data/guides/LabourMarket/default.asp

Directory of online tables

Weblink: www.statistics.gov.uk/StatBase/Product.asp?vlnk=14692

Title	Frequency of update
1. UK economic accounts	
Weblink: www.statistics.gov.uk/elmr/downloads/elmr1.pdf	
1.01 National accounts aggregates	M
1.02 Gross domestic product and gross national income	M
1.03 Gross domestic product, by category of expenditure	M
1.04 Gross domestic product, by category of income	M
1.05 Gross domestic product and shares of income and expenditure	M
1.06 Income, product and spending per head	Q
1.07 Households' disposable income and consumption	M
1.08 Household final consumption expenditure	M
1.09 Gross fixed capital formation	M
1.10 Gross value added, by category of output	M
1.11 Gross value added, by category of output: service industries	M
1.12 Summary capital accounts and net lending/net borrowing	Q
1.13 Private non-financial corporations: allocation of primary income account	Q
1.14 Private non-financial corporations: secondary distribution of income account and capital account	Q
1.15 Balance of payments: current account	M
1.16 Trade in goods (on a balance of payments basis)	M
1.17 Index of Services	M
2. Selected labour market statistics	
Weblink: www.statistics.gov.uk/elmr/downloads/elmr2.pdf	
2.01 Summary of Labour Force Survey data	M
2.02 Employment by age	M
2.03 Full-time, part-time and temporary workers	M
2.04 Public and private sector employment	Q
2.05 Workforce jobs	Q
2.06 Workforce jobs by industry	Q
2.07 Actual weekly hours of work	M
2.08 Usual weekly hours of work	M

2.09 Unemployment by age and duration	M
2.10 Claimant count levels and rates	M
2.11 Claimant count by age and duration	M
2.12 Economic activity by age	M
2.13 Economic inactivity by age	M
2.14 Economic inactivity: reasons	M
2.15 Educational status, economic activity and inactivity of young people	M
2.16 Average weekly earnings - total pay	M
2.16A Average weekly earnings - bonus pay	M
2.17 Average weekly earnings - regular pay	M
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2.19 Regional labour market summary	M
2.20 International comparisons	M
2.21 Labour disputes	M
2.22 Vacancies by size of enterprise	M
2.23 Vacancies by industry	M
2.24 Redundancies: levels and rates	M
2.25 Redundancies: by industry	Q
2.27 Employment levels by country of birth and nationality	M
2.28 Working age employment rates by country of birth and nationality	Q
2.29 Lone parent claimants of Jobseekers Allowance by age of youngest child	M
2.30 Key out of work benefits	M
2.31 Production industry employee jobs	M
2.32 Public sector employment by industry	Q

3. Prices

Weblink: www.statistics.gov.uk/elmr/downloads/elmr3.pdf

3.01 Producer and consumer prices	M
3.02 Harmonised Indices of Consumer Prices: EU comparisons	M

4. Selected output and demand indicators

Weblink: www.statistics.gov.uk/elmr/downloads/elmr4.pdf

4.01 Output of the production industries	M
4.02 Construction output	M
4.03 Construction new orders	M
4.04 Indicators of fixed investment in dwellings	M
4.05 Number of property transactions	M
4.06 Change in inventories	Q
4.07 Retail sales and credit business	M

5. Selected financial statistics

Weblink: www.statistics.gov.uk/elmr/downloads/elmr5.pdf

5.01 Sterling exchange rates and UK reserves	M
5.02 Monetary aggregates	M
5.03 Counterparts to changes in money stock M4	M
5.04 Public sector receipts and expenditure	Q
5.05 Public sector key fiscal indicators	M
5.06 Consumer credit and other household sector borrowing	M
5.07 Analysis of MFI lending to UK residents	M
5.08 Interest rates and yields	M
5.09 A selection of asset prices	M

6. Further labour market statistics

Weblink: www.statistics.gov.uk/elmr/downloads/elmr6.pdf

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6.02 Local labour market indicators by unitary and local authority	Q
6.03 Employment by occupation	Q
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6.05 Employee jobs by industry	Q
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6.13 Average Earnings Index: effect of bonus payments by industry	M
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6.15 Median earnings and hours by industry section	A
6.16 Index of wages per head: international comparisons	M
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6.23 Interval between Jobseeker's Allowance claims	Q
6.24 Average duration of Jobseeker's Allowance claims by age	Q

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6.26 Redundancies: re-employment rates	Q
6.27 Redundancies by Government Office Region	Q
6.28 Redundancy rates by industry	Q
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6.30 Labour disputes: stoppages in progress	M

Notes
A Annual
Q Quarterly
M Monthly

More information

- Time series are available from www.statistics.gov.uk/statbase/tsdintro.asp
- Subnational labour market data are available from www.statistics.gov.uk/statbase/Product.asp?vlnk=14160 and www.nomis.web
- Labour Force Survey tables are available from www.statistics.gov.uk/statbase/Product.asp?vlnk=11771
- Annual Survey of Hours and Earnings data are available from www.statistics.gov.uk/StatBase/Product.asp?vlnk=13101

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- The changing face of public sector employment 1999–2009
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- Methods explained: Temporal disaggregation

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- Googling the present
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Future articles

List is provisional and subject to change

- Enhancing the coverage of financial sector activity
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- On–call workers in the labour market
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- Volume index of capital services (VICS)
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