Economic review

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SUMMARY

GDP growth slowed in the first quarter of 2010 to 0.3 per cent, marginally lower than growth of 0.4 per cent in the preceding quarter. The slowdown in growth was particularly marked in the services sector. Two specific factors appear to have had some effect in slowing growth in the latest quarter. First, bad weather during January caused disruption to many UK economic activities, especially in the distribution and hotels and catering sector, but also in retail sales and exports of goods. Second, the reversion of VAT to its higher rate in January may have encouraged some household expenditure to be brought forward to December. Household consumption was flat over the quarter, but stockholding and fixed investment contributed positively to growth. Despite significant sterling depreciation, net trade continues to weigh on GDP growth. Average weekly earnings picked up a little in March but remain at subdued rates, especially in the private sector. Annual consumer prices inflation was 3.7 per cent in April reflecting the reversion of VAT to its higher rate and also the transport component of the index which includes motor fuels, second cars, railway transport and air transport.

GDP, GVA and the basic price adjustment in 2010 Q1

In current prices, headline measures of quarterly growth rates for gross domestic product (GDP) and gross value added (GVA) have differed in the past year. This is especially so in the first quarter of 2010, when GDP in current *market* prices increased by 2.1 per cent while GVA in current *basic* prices grew by a smaller 1.2 per cent (see **Figure 1a**).

GDP is defined as the total value of all goods and services produced within a country and can be measured using income, expenditure and output approaches. GVA, on the other hand, measures the contribution of each individual producer, industry or sector in the UK. This can be calculated as either the sum of factor incomes (wages, profits, interest, rents) generated by the production process, or as the difference between total output less intermediate consumption (that is the goods and services used up in the process of producing the output) for each industry.

GDP is the primary measure of activity

when using the expenditure approach. As it records market transactions it is measured in market prices, these are the prices at which goods and services are exchanged. However, when using the income or production approaches, GVA is measured at basic prices which exclude the impact of taxes and subsidies on market prices. As this may also be measured using factor incomes, basic prices are also sometimes referred to as factor cost.

Therefore, GDP at market prices and GVA at basic prices are linked through the basic price adjustment which takes into account the effects of taxes and subsidies so that:

	GVA at basic prices
plus	taxes on products
less	subsidies on products
equals	GDP at market prices

When the economy is measured at current prices, that are before adjustments are made for price inflation, it is clearly possible for the growth rates of GDP and GVA to differ reflecting changes in the basic price adjustment. This can be seen in **Figure 1a**

where the quarterly growth rate in GDP at market prices tends to exceed that of GVA in basic prices when the basic price adjustment is negative, and vice versa when the basic price adjustment is positive. In 2010 Q1 the basic price adjustment was 9.4 per cent higher than the previous quarter and 17.1 per cent higher than in the same quarter of 2009. This predominately reflects the reversion of Value Added Tax (VAT) to the higher rate of 17.5 per cent in January 2010, after it was temporarily reduced to 15 per cent in December 2008.

In principle the basic price adjustment should only cause a nominal effect and not a real one as the volume of output is unchanged. However, the basic price adjustment is difficult to deflate accurately as all the sectors of the economy tend to grow at differential rates. Consequently ONS attempts to constrain the basic price adjustment so that it has no real impact, meaning GVA and GDP in chained volume terms grow at the same rate with the deflators adjusted accordingly. As **Figure 1b** shows, differences between GDP and GVA are much smaller when compared in real terms. Both state that the UK economy expanded by 0.3 per cent in the latest quarter compared to 0.4 per cent in the final quarter of 2009.

Changes in the basic price adjustment are clearly reflected in the GDP and GVA deflators (see **Figure 2**). Furthermore, the effect of the temporary reduction in the rate of VAT is more transparent when based in terms of quarter on the same quarter a year ago growth rate. The rate of GDP deflation fell below that of GVA when the rate of VAT was reduced from 17.5 per cent to 15 per cent and passed through into market prices. Reversion to the higher rate then saw the rate of GDP deflation rise above that of GVA.

Real GVA growth slows

After expanding by 0.4 per cent in the final quarter of 2009, the rate of growth in quarterly GVA slowed to 0.3 per cent in the first quarter of this year. Despite registering two successive quarters of positive growth, the level of UK output is still 5.2 per cent below the pre-recession peak in 2008 Q1 (**Figure 3**).

Production output fell sharply during

Figure 1a

Quarterly growth rates of GDP, GVA and the basic price adjustment in current prices

Source: UK output, income and expenditure

Figure 1b

Quarterly growth rates of GDP, GVA and the basic price adjustment in constant prices

Source: UK output, income and expenditure

Figure 2

GDP and GVA deflators and the basic price adjustment

Source: UK output, income and expenditure

Figure 3

GVA, manufacturing and services output

Source: UK output, income and expenditure

the recent recession. Credit restrictions, weakened demand and the uncertain economic outlook led businesses to cut back on investment and increasingly meet existing orders by running down stocks rather than through production. Economic downturns therefore impact strongly on capital and intermediate goods producers, which together, account for the majority of the UK's production output. This was exacerbated by the global recession. As production goods are more heavily traded they are more sensitive to a slowdown in world trade, which in this case was prompted by a synchronised downturn across all the major world economies.

In the latest quarter output expanded by 1.2 per cent – faster than in the previous quarter when output increased by 0.3 per cent. This was even in spite of a small fall in the Index of Production during January, most likely a consequence of weather-related disruptions. Stronger growth may indicate an improvement in expected demand as the global economy emerges from recession and as business confidence improves.

Growth in the services sector though, rather than picking up in the latest quarter, actually slowed to 0.2 per cent from 0.5 per cent in the previous quarter. As this sector accounts for approximately three-quarters of total GVA it was responsible for the overall deceleration in the economy.

Contributions to quarterly growth in the last two quarters are shown in **Figure 4**. The biggest slowdown was in the distribution, hotels and restaurant sector, where output grew by 1.9 per cent in 2009 Q4 but contracted by 0.7 per cent in 2010 Q1. As a result the contribution to the total growth rate fell from 0.3 percentage points to -0.1 percentage points. The transport and communications sector also slowed from 0.6 per cent to flat, but as a smaller component in GVA weights its impact in reducing the quarterly growth rate was much smaller.

Together, the slowdowns in these two industries were more than sufficient to offset the stronger growth in the production sector and also in business services and finance. Business services and finance is an important part of the UK economy representing about three-tenths of total activity. Here growth picked up from 0.4 per cent to 0.7 per cent between the final quarter of 2009 and the first quarter of 2010. As a result the contribution to total GVA growth doubled from 0.1 percentage points to 0.2 percentage points. According to the Index of Services this sector has now

Figure 4
Contributions to GVA growth in 2009 Q4 and 2010 Q1

Source: UK output, income and expenditure

Figure 5
Contributions to total production output growth

Source: Index of production

expanded in every month since reaching a trough in August 2009.

Intermediate and capital goods boost production output

Figure 5 shows the contributions of each type of activity to the recent quarterly growth path of production output. Clearly, capital goods and intermediate (including energy) goods producers have been the main driver of industrial output in both the downturn and the recovery. In part, this reflects the relatively high weights attached to these two components, which together, account for around 70 per cent of all production output. The UK's presence in the production of durable and non-durable goods sectors has declined over the last four decades in line with the emergence of lower-cost producers elsewhere in the world.

Intermediate and capital goods, as already mentioned, are also more sensitive to cyclical movements in the domestic and global economies. Businesses are unlikely to invest in extra capacity at a time when current demand is fragile and there is uncertainty over the economic outlook. Running down stocks and inventories is

also a logical response if future production is expected to be lower as well as possibly aiding short-term cash flows.

The return to growth in the latest two quarters reflects a stabilisation and improvement in capital and intermediate goods production as domestic and overseas demand shows sign of recovery. Despite this, and as shown very clearly in Figure 3, production output is still far below its pre-recession level.

Most production activity takes place in manufacturing (around 70 per cent) which is the key driver of growth in the sector, although output in the extraction and utilities industries can be volatile and often important determinants of quarter-on-quarter movements. Figure 6 presents the contributions of different manufacturing industries to recent growth rates. The engineering and allied industries consist of a number of production activities including machinery, electrical, communications and medical equipment and transport equipment. As these are essentially capital goods it is unsurprising that the contributions to growth are broadly similar to the capital goods sector as a whole, especially in the extent of the downturn (Figure 5). In the first quarter of the year these industries grew by 0.4 per cent following 1.4 per cent growth in the previous quarter.

The metal and metal products industry has also made an important contribution to manufacturing growth over the cycle, especially given its relatively small weight in total output. Not only is this a key intermediate input into many production activities it is also a staple of the construction industry. Therefore, sharp falls in the output of this product during the recession likely reflects the downturn in global manufacturing trade and also the contraction in both the UK residential and commercial property markets. Output fell by almost 10 per cent for two successive

Figure 6
Contributions to total manufacturing output growth

Source: Index of production

Figure 7a
Contributions to total services output growth

Source: Index of services

Figure 7b
Contributions to total services output growth from the distribution industries

Source: Index of services

quarters in 2008 Q4 and 2009 Q1. After modest growth of 0.8 per cent in 2009 Q4 output growth improved to 2.4 per cent in 2010 Q1.

Services growth decelerates following a contraction in January

Growth in the services sector slowed during the first quarter of 2010 as output in the distribution, hotels and restaurants sector contracted (Figure 4). Further detail on the cause of the slowdown can be found by analysing the month-on-month growth rates and the contributions from the main service-sector industries for the last two quarters in **Figure 7a**. This shows that the significant fall in the index during January was the main factor in the lower rate of growth in 2010 Q1.

In January the Index of Services declined by 0.8 per cent, before rebounding by 0.6 per cent in February and 0.5 per cent in March. The breakdown shows that the distribution sector was responsible for 0.5 percentage points of this monthly fall, and the hotels and restaurants sector 0.2 percentage points – reflecting month-

on-month falls of 3.4 per cent and 4.4 per cent respectively. The transport and communications and government and other services both contributed -0.1 percentage points to the January growth rate, while business services and finance contributed positively by 0.1 percentage points.

Output in both the distribution and hotels and restaurants industries subsequently rebounded in February and March. However, this was insufficient for either sector to report growth over the quarter as a whole, the distribution sector

contracted by 0.7 per cent and the hotels and restaurant sector by 0.4 per cent. These industries, which are generally dependent on footfall and transport, appear to have been adversely affected by the bad weather in January. The rebound in February and March suggest that the January fall was partly caused by temporary factors such as weather-related disruptions.

Within the distribution sector, motor trades fell by 4.9 per cent in January; the wholesale distribution fell by 3.8 per cent and the retailing by 2.7 per cent. Part of the fall in January though could have been a response to the strong growth rates seen in December which were 6.4 per cent, 4.1 per cent and 0.6 per cent respectively (**Figure 7b**). These patterns suggest that the restoration of the higher rate of VAT on 01 January 2010 may have had an important impact between December 2009 and January 2010, especially in the motor trades industry where consumers faced an incentive to bring forward spending from January to December. It might also explain why output then didn't fully rebound in the remaining months of the quarter.

Household consumption remains weak

The UK output, income and expenditure statistical bulletin reports the first estimates for the demand-side of the economy. **Figure 8** shows the contributions of the main expenditure components of GDP to the overall growth rate in recent quarters.

Household consumption was flat in the latest quarter compared to slight growth of 0.4 per cent in 2009 Q4. This is consistent with the weak activity recorded in the distribution, hotels and restaurant sectors and suggests that bad weather disruptions and the VAT increase may have had

Figure 8
Contributions to GDP growth by main expenditure components

Source: UK output, income and expenditure

Figure 9
Retail sales index

Source: Retail sales

an impact on consumption in the first quarter of the year. However, even without these two negative factors; consumption growth has been weak in recent quarters as evidenced by the rise in the saving ratio. Reduced availability and appetite for consumer credit, the weakening labour market, a slow housing market and tepid wage growth compared to rising inflation have resulted in fragile confidence, which continue to weigh on spending even though the economy is now technically out of recession. In 2009 Q4, what household consumption growth that occurred was mainly accounted for by the purchase of motor vehicles, stimulated by the vehicle scrappage scheme and the final opportunity to take advantage of the lower rate of VAT. In the third quarter household consumption was also flat despite a positive contribution from spending on motor vehicles. More details on household consumption are provided in *Consumer Trends* which is published alongside the Quarterly National Accounts at the end of June.

Retail sales data, however, are available. Although this only represents spending in retail establishments, and not all of this is done by households and very little is in services, it may still provide an indication of the trends in household consumption. **Figure 9** plots the monthly index of retail sales, both including and excluding the component that is predominately automotive fuels. This clearly shows the dip in January which was even more pronounced in the measure including automotive fuel sales – again pointing to the impact of the bad weather in the month. Sales in the predominately automotive fuels component fell by 12.8 per cent in January before rebounding by 9.9 per cent in February. Likewise, sales in household goods stores fell heavily in January, by 14 per cent relative to December, before bouncing back by

10.7 per cent in the following month. As a result total retail sales fell by 3.4 per cent in January (2.6 per cent excluding predominately automotive fuels) and bounced-back by 2.4 per cent (1.8 per cent excluding predominately automotive fuels) a month later. The January monthly fall was the largest in the history of the index since it started in 1996, and excluding the predominately automotive fuels component it was the second largest since the index began in 1988.

Fixed investment and inventories the main drivers of growth in quarter one

Fixed investment fell sharply in the downturn, especially during the first half of 2009 when the contractions in both quarter one and two were over 7 per cent. The share of investment in GDP is less than that of household consumption, but because it is more volatile it often makes significant contributions to the quarterly GDP growth rate. Many economic models make the assumption that the capital–output ratio is around three. This means that in order to increase output capacity by say £100 million would require a £300 million increase in the capital stock. Therefore, because investment is forward looking, it tends to be sensitive to the economic outlook, sometimes a leading indicator and also has stronger cyclical amplitude than GDP as a whole.

If this is the case, one of the hallmarks of recovery from recession would be a marked pick up in gross fixed capital formation (GFCF). Investment though has fluctuated in recent quarters. The 1.5 per cent growth in 2010 Q1 is smaller than the 2.7 per cent fall in the final quarter of 2009 that was concentrated in the transport and communication sector. Nonetheless, this

added 0.2 percentage points to growth in the latest published quarter.

The largest contribution to growth came from the other sector which includes spending on valuables, final expenditure by non–profit institutions, and most importantly stockholding. This component contributed 0.4 percentage points to growth in 2010 Q1 as businesses ran down their stocks at a slower rate than in the previous quarter.

General government consumption spending has made a small positive contribution to growth in every quarter since 2008 Q1 except in 2009 Q1. In the latest quarter this component of demand added 0.1 percentage points to the overall GDP growth rate.

Net trade continues to weigh on GDP growth

Net trade is the difference between exports and imports. As the economy entered into recession, net trade initially made a positive contribution to growth between 2008 Q1 and 2009 Q2 because imports fell at a faster rate than exports. In the last three quarters, however, net trade has been making negative contributions to growth. This has coincided with the stabilisation and slight pick up in both domestic and global demand, but as a result imports growth has outstripped that of exports. In 2010 Q1 net trade reduced GDP growth by 0.4 percentage points as exports were flat but imports rose by 1.4 per cent.

One explanation for the first quarter stalling of export growth is shown in **Figure 10**, which displays the monthly index of goods exports and imports. Since the beginning of 2009 both time series have generally moved in the same direction, but in January 2010 exports dipped sharply by 7.4 per cent on the month while imports, in comparison, fell by 1.4 per cent. Although exports then rebounded by 7.1 per cent in the following month, this was insufficient to fully offset the impact of the previous month's fall on the quarterly growth rate. The index of goods exports was lower in March 2010 than in December 2009.

Once again this points to another effect of January's bad weather on UK economic activity. Exports of goods appear to have been hampered by snow disruption to production and transport, but the impact on goods arriving at UK ports from overseas was more limited. Therefore, the asymmetric impact of the bad weather on goods exports and imports may account

Figure 10
Trade in goods, exports and imports

Source: UK trade

Figure 11
Sterling effective exchange rate and UK exports growth

Source: Bank of England and UK output, income and expenditure

Figure 12
Average weekly earnings growth, excluding bonuses and arrears

Source: Average weekly earnings

for some of the negative contribution of net trade in the first quarter of the year.

Net trade also made a negative contribution to GDP growth in both 2009 Q3 and 2009 Q4 which cannot be blamed so much on weather conditions at the time. Following the sharp depreciation of sterling in the second half of 2008 it was expected that net trade would make a positive contribution to growth throughout 2009, especially as the global economy began to recover. As **Figure 11** shows, after the UK exited the European Exchange Rate Mechanism (ERM) in September 1992 there

was a 12.3 per cent fall in the broad effective exchange rate between the third and fourth quarters of that year which was sustained until late 1996, at which point, sterling recovered to above the rate at which it left the ERM. This period saw a sustained rise in UK exports growth.

In the second half of 2008 the sterling effective exchange rate depreciated by a greater margin, although this may reflect some reversal of the strengthening of sterling in the first half of that year. The impact on exports growth though has been muted and insufficient to offset the effect

of weak overseas demand. The relative strength of the global economy (overseas demand) appears to be a key difference in accounting for the response of exports and net trade to the depreciation in sterling in the latest period compared to the post ERM period.

Regular earnings growth remains depressed

Average weekly earnings growth (not including bonuses or arrears), for the whole economy, grew by 1.9 per cent in the three months to March 2010 compared to the same period a year earlier. It is clear that although regular earnings growth has picked up a little of late, it has slowed considerably since the UK economy entered recession. For example, between January 2006 and June 2008, average earnings growth measured on the same basis, increased at an average rate of 4.1 per cent (**Figure 12**).

The slowdown in earnings growth is a natural response to the recession. Firms facing falling profits and smaller cash flows are less able to fund pay rises, and workers facing a weakened labour market and growing unemployment are more likely to show pay constraint in order to preserve employment. In fact, it has been suggested that this is one of the reasons why unemployment has, so far, not increased to the extent feared, especially given the size of the fall in output compared to previous recessions when unemployment increased to above three million.

Figure 12 also shows regular pay growth between the private and public sectors. At first glance it appears that public sector pay growth has been preserved while private sector pay growth has fallen significantly. In the three months to March 2010, private sector regular pay growth was 1.2 per cent compared to 4 per cent in the public sector. However, within the last two years public sector pay has been boosted by the reclassification of parts of the financial services sector to public ownership – hence employees of these institutions are now classified as being in the public sector. As the financial services sector supports relatively well paid occupations, reclassification would then raise average weekly earnings in the public sector. Regular pay growth in the public sector excluding financial services was lower at 2.9 per cent.

Not only has the slowdown in public sector regular pay growth has been less severe than in the private sector, average

Figure 13a

Average weekly earnings growth, excluding bonuses and arrears: total

Percentages, month on same month 1 year ago

Source: Average weekly earnings

Figure 13b

Average weekly earnings growth, excluding bonuses and arrears: employment contribution

Percentages, month on same month 1 year ago

Source: Average weekly earnings

Figure 13c

Average weekly earnings growth, excluding bonuses and arrears: wage contribution

Percentages, month on same month 1 year ago

Source: Average weekly earnings

weekly earnings (excluding arrears and bonuses) at present are also greater. In the three months to March 2010, average weekly earnings in the private sector were £421 compared to £453 in the public sector excluding financial services.

ONS also publishes additional data on average weekly earnings which splits average weekly earnings growth into wage and employment components (see www.statistics.gov.uk/StatBase/Product.asp?vlnk=14015). The employment component is designed to capture the effect of changes in the distribution of

employment on average earnings – for example if there was a drift into higher earnings occupations then average weekly earnings would increase even if regular pay across all occupations was unchanged. Abstracting from this employment effect enables a ‘pure’ wage component of average earnings growth to be captured. This may be particularly important during a recession if the downturn has different impacts on different occupations.

Figure 13a plots average weekly earnings growth, excluding bonuses and arrears, for the whole economy, private sector and

public sector. This time though the figures are based on a comparison of one month relative to the same month a year earlier – whereas in Figure 12 three-months averages were used in the annual comparisons. This confirms the observations taken from Figure 12. In March 2010, whole economy average earnings growth was 2.2 per cent. In the public sector it was 4.1 per cent and in the private sector it was 1.5 per cent. Clearly the slowdown in earnings growth, on these measures, has been more drastic in the private sector.

Figure 13b looks at the impact of the employment effect in each sector and the economy as whole. Since the start of the recession, the employment effect has made a negative contribution to whole economy average earnings growth which suggests that there has been a move in the distribution of employment to lower paid occupations. Or put another way, the loss in employment in higher paid occupations has acted to drag down average earnings growth – either because the loss in employment has been relatively greater in these occupations or because there has been a fall in employment among the more highly paid workers which has reduced some of the positive skewness in the earnings distribution and hence lowered the mean average. In March 2010 this employment effect was estimated at -0.7 per cent.

The employment effect though has had opposite effects on the average weekly earnings in the private and public sectors. In the private sector the employment effect has generally been negative; in March 2010 it was calculated at -1.4 per cent. In the public sector though it has been positive at 1.4 per cent in March 2010. This in part reflects the transfer of certain financial institutions into effective public ownership. As this is one of the higher paid sectors of the economy it will have the effect of reducing average earnings in the private sector but raising them in the public sector.

Once these employment effects on average weekly earnings have been calculated it then becomes possible to isolate the ‘pure’ wages effect. These are presented in **Figure 13c**. The striking observation is that in recent months, based on these measures, average wage growth has been fairly uniform between the public and private sectors. Although it appears that wages growth initially slowed faster in the private sector as a result of the downturn, private sector wage growth was also faster in the period leading up to the recession – suggesting that public sector wage growth is

Figure 14
CPI annual inflation

Source: Consumer price indices

Figure 15
Differences between CPI and RPI inflation rates

Source: Consumer price indices

less sensitive to the economic cycle than in the private sector.

Consumer prices inflation up to 3.7 per cent in April

Annual inflation in the Consumer Prices Index (CPI) picked up to 3.7 per cent in April compared to 3.4 per cent in March. CPI inflation has accelerated from the low of 1.1 per cent recorded in September 2009. Recent increases in the rate of CPI inflation appear to have been driven by two main factors – the contributions of each to total CPI inflation are also plotted in **Figure 14**.

First, the temporary reduction in the rate of VAT from 17.5 per cent to 15 per cent in December 2008 had the effect of lowering inflation throughout 2009. CPI-CT is a measure of CPI inflation where indirect taxes are held constant. Therefore the difference between this and the all-items rate of inflation gives an indication of the contribution of indirect

taxes to CPI inflation. As shown in **Figure 14** this was around -1 percentage point between December 2008 and November 2009 (that is reducing annual CPI inflation by around 1 per cent over this period). Although this also reflects annual changes in other indirect taxes, the VAT reduction announced in the 2008 Pre-Budget Report was the most significant.

This impact fell out of the annual calculation in December 2009, when indirect taxes added a quarter percentage points to overall CPI inflation. The reversion to the higher rate at the start of January 2010 now means that indirect taxes are making a strong positive contribution to annual CPI inflation. Based on the CPI-CT measure this is estimated at 1.9 percentage points in April 2010. Furthermore, in the absence of any other policy changes to indirect taxes, this upward effect will remain in CPI inflation until January 2011.

The second significant positive inflation effect in the CPI is coming from transport-related goods and services. In April 2010

this component of the CPI was 11 per cent higher than in April 2009, contributing 1.8 percentage points to the measured CPI inflation rate in that month. The main contribution to this has come from motor fuels and lubricants, which are 25 per cent higher than last year and on their own added 1 percentage point to CPI inflation in April. As **Figure 14** shows, this has been a significant driver of the rate of inflation in the last few years.

However, other products in the transport sector have also made a significant contribution to CPI inflation in recent months. In particular the prices of second hand cars were 12.7 per cent higher in April 2010 than in April 2009 – perhaps due to the vehicle scrappage scheme supporting prices. This added 0.4 percentage points to CPI inflation in April 2010. Transport services prices also increased significantly, up by 7.4 per cent in the year and contributing 0.3 percentage points to overall CPI inflation. This reflects a 7.9 per cent increase in the prices of railway services and an 11 per cent rise in the prices of air transportation services.

RPI inflation is 5.3 per cent in April 2010

Consumer prices inflation, as measured by the longstanding Retail Prices Index (RPI), was 5.3 per cent in the latest quarter. **Figure 15** shows the main factors in accounting for the differences between CPI and RPI inflation rates and how these have changed since the start of 2008.

Differences in weights and coverage mean that CPI and RPI inflation rates do not necessarily register the same annual change in consumer prices. However, holding all other things equal, RPI inflation would be expected to be greater than CPI inflation due to the formula effect. CPI is calculated using the geometric mean of price changes whereas RPI is calculated as the arithmetic mean. As the geometric mean of a given set of data will always be equal or less than the arithmetic mean of the same data, the formula effect will lower CPI inflation relative to RPI inflation, usually by around 0.5 percentage points. This is why the inflation target pursued by the Bank of England fell from 2.5 per cent to 2.0 per cent when the target indicator changed from RPIX to CPI in December 2003. As **Figure 15** shows, the formula effect has been fairly stable over time.

Despite this, throughout 2009 CPI inflation was significantly above the

corresponding RPI inflation rate. This difference peaked in April 2009 when CPI inflation was 2.3 per cent and RPI inflation was -1.2 per cent. In fact, the RPI was negative between March 2009 and October 2009. The main factors explaining the difference were housing-related items included in the RPI but not the CPI. In particular, mortgage interest payment fell significantly following the sharp cuts in the Bank of England base rate in late 2008 and were gradually passed through to mortgage lending rates. Although the Bank of England base rate has remained at 0.5 per cent since

December 2008, its impact on the annual RPI calculation has now largely fallen out of the equation – which accounts for the recent convergence between RPI and RPIX inflation measures – the second of which excludes the effects of mortgage interest payments.

Another important housing-related factor included in RPI but not CPI is housing depreciation costs. As these are estimated based on house prices the impact on inflation tends to follow recent house price inflation. Although house prices have generally risen from their trough in February 2009, average prices remained

below the level in the same month of the previous year so having a negative influence on RPI inflation. This effect has now also largely fallen of the annual RPI calculation. In April 2010 housing related factors acted to reduce RPI inflation by 0.1 percentage points relative to the CPI, compared to a maximum of 3.8 percentage points in April 2009. At present formula and weighting effects explain why CPI inflation is lower than RPI inflation.

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