

# Methodology for the production of a quarterly Northern Ireland Composite Economic Index

31<sup>st</sup> January 2013

Owen Johnston  
Northern Ireland Statistics and Research Agency  
(NISRA)

## Summary

The main objective of this paper is to present work done on the development of an experimental Northern Ireland Composite Economic Index (NICEI) and to seek user views. The index is designed to provide a short term measure of the performance of the Northern Ireland economy and is based on available official statistics. Existing quarterly indices relating to output in the Production, Construction and Services sectors and those relating to employee jobs in the Public sector have been combined to provide a seasonally adjusted measure of change. It is not possible to provide a comprehensive measure of quarterly Gross Domestic Product for Northern Ireland due to the lack of available data sources. However the NICEI is proposed as an appropriate short term indicator for the NI economy making the best use of current data sources.

Results for this experimental NICEI show that, base-lined at 2009, it reached its peak value of 108.8 in Q2 2007. It then decreased by 12.0% to its subsequent minimum value of 95.8 in Q2 2012; in the current quarter (Q3 2012) it increased by 0.7% from the previous quarter. In contrast, the UK measure of GDP (although not strictly comparable) peaked in Q1 2008 at a value of 106.3; it then declined in the next five quarters falling by 6.2% to the subsequent minimum value of 99.7 in Q2 2009. In Q3 2012 UK GDP increased by 0.9% compared to the previous quarter.

The methodology for development of the NICEI has been developed in conjunction with the UK Statistics Authority through their Quality Improvement Fund and the current paper presents the latest estimates based on this approach up to Q3 2012. This is an experimental series subject to ongoing development.

Users of official statistics are invited to provide comments and views regarding the methodology adopted and the value of publishing the series on a quarterly basis thereafter. Comments can be provided to Economic and Labour Market Statistics Branch, NISRA at: [statistics@detini.gov.uk](mailto:statistics@detini.gov.uk).

## Introduction

Existing official statistics produced by NISRA provide information on quarterly private sector output in the Production, Construction and Services sectors and for both Public and Private sector employee jobs. These statistics are published as separate indices and do not readily provide a summary measure of how the economy is performing in relative terms. The NICEI has been developed in response to the recognised need for an overall measure of the performance of the Northern Ireland economy, which is available on a timely basis.

For both the UK and Scotland economic activity is quantified by a quarterly measure of Gross Domestic Product (GDP). Estimates of GDP can be arrived at by separately considering the value added created by producing goods and services in an economy (the production approach), the sum of all income generated by such activity (the income approach) or the sum of all final expenditures (the expenditure approach). These estimates are reconciled into a comprehensive single measure of the value of economic activity (GDP) by integrating data from a very wide range of sources within a single internationally agreed framework known as a set of National Accounts (see for example <http://www.ons.gov.uk/ons/rel/naa1-rd/united-kingdom-national-accounts/2010-edition/uk-national-accounts---a-short-guide.pdf>). However, the full range of data sources required for a comprehensive measure of GDP are not currently available at Northern Ireland level.

As a result the approach adopted was to combine private sector output measures from existing surveys: the Index of Services (IOS), the Index of Production (IOP), the Index of Construction (IOC) and Public sector employee jobs data from the Quarterly Employment Survey (QES), to provide a proxy measure of total economic activity. It is important to recognise that the NICEI is not a comprehensive measure of quarterly Gross Domestic Product that meets the full requirements of the System of National Accounts. Rather, it relies heavily on quarterly surveys of businesses' sales and public sector employee jobs weighted to annual Gross Value Added to approximate to a measure of GDP.

Despite these constraints, it is considered that the NICEI will provide a useful quarterly short-term measure of changes in economic activity to help inform economic decision making. Obtaining user views on whether the approach adopted meets these requirements is therefore important to inform its ongoing development.

## **Development of Methodology**

### **Input Data**

The two main criteria for selecting data sources were that the data should be sufficiently robust and should together provide coverage of the whole economy. NISRA's existing published quarterly index series namely the IOS, IOP, IOC and QES have been assessed in recent years by the UK Statistics Authority as meeting the standards of the Official Statistics Code of Practice (<http://www.statisticsauthority.gov.uk/assessment/code-of-practice/>). These statistics have also undergone a considerable programme of development in terms of improved sample design, improved grossing and estimation, the introduction of chain linking and the introduction of new industrial classification systems (<http://www.ons.gov.uk/ons/guide-method/classifications/development-projects/operation-2007/index.html>). Together the IOS, IOP and IOC cover their respective elements of the private sector economy. These input indices were all adjusted so that the same year was made equal to 100 before input. Forms of input were still required for the Agricultural sector and the Public sector, which are proportionally larger in Northern Ireland than in the UK.

The methodology report from the ONS analysed current price data for the Agricultural sector available from the Regional Accounts and the NI Department of Agriculture and Rural Development, and concluded that the two data sources were not consistent. It recommended that in the absence of constant price data, the best option for a quarterly volume index is to use employment as a proxy for output. The impact on the whole economy index will be small as these industries make up less than 2% of the total GVA.

Subsequent discussions with DARD identified that whilst there is no quarterly output data available for the Agricultural sector at present, a gross output volume index is available on an annual basis from the Statistical Review of Northern Ireland Agriculture published by DARD (the most recent publication relating to 2011), and it was decided to use these figures as input into the NICEI. DARD have also provided quarterly output data for 2012, which was used as input and are investigating whether a back series of quarterly data can be produced.

No output data for the Public sector is collected in Northern Ireland and as a best available proxy Public sector employment from the Quarterly Employment Survey (QES) was used. Financial data from the Combined Online Information System (COINS) was investigated as an alternative input measure but it was decided not to use this as it was difficult to identify the correct components and the expenditure data was irregular with larger amounts occurring in the last quarter of each year. This is however an area of potential future development. At present a method of attributing Public sector output to the various industries is being explored using employment data from the Annual Survey of Hours and Earnings (ASHE) and the QES.

## Weighting and Combining the Data

A method of combining the input data from the various sectors was required to produce indices for the Private sector, the Public sector and an overall index. Before the data was input they were all rebased to the same year.

Output series were then produced as weighted aggregates of the above input series, where the weights were based on private sector Gross Value Added (GVA) by industry obtained for Northern Ireland from Regional Accounts produced by ONS. GVA at industry level for NI is available though only up to one year earlier than for all industry GVA. The Private sector split for each of the industry groupings and for the Public sector as a whole of total published GVA was estimated by using the ratio of Private/Public sector jobs from total employment.

The four components of employment were sourced as follows:- Numbers of Employees were taken from the Quarterly Employment Survey, Self-employed were taken from the Labour Force Survey, HM Forces were taken from the MOD website and Government Training and Employee Schemes were sourced from the Department for Employment and Learning (DEL).

The latest available data for GVA by industry published in December 2012 refers to the year 2010 (although total GVA is available for the following year 2011). There is therefore a time lag between the latest quarterly NICEI figures (e.g. currently Q3 2012) and the most recent annual GVA industry weights available (2010). However, this is unavoidable and the weights will ultimately be updated each year with the release of new annual GVA figures.

Indices for the private Services, Production, Construction and Agricultural sectors and for the Public sector were produced in this way and were adjusted so that 2009=100 in each case. An index number is a convenient form of expressing a series in a way that makes it easier to see changes in that series. The numbers in the series are expressed relatively, with one number in that series chosen to be the 'base' (usually expressed as 100) and other numbers being measured relative to that base. In this case 2009 was selected as the base year; therefore all numbers in the indices are expressed relative to their values in 2009.

The reason 2009 was chosen for the base year is that this is the base year used by the main input indices i.e. IOP and IOS. 2009 is maintained as the base year for the NICEI to facilitate comparisons with these indices.

Please note that the figures presented within the NI Construction Output bulletin prepared by the Central Survey Unit use 2005 as the base year for comparisons as per Eurostat guidelines to facilitate comparison with other EC member states. For the purposes of the development of the NICEI we rebased construction figures to 2009=100 to allow comparison with other component sectors. For this reason the construction figures within the NI Construction Bulletin will differ to those within this publication.

A methodology called Chain-linking (discussed later) was used to combine the private Services, Production, Construction and Agriculture sectors to produce an index for the Private sector, which was then combined with the index for the Public sector to give an overall index for the economy. This followed the recommendation of ONS through their assistance funded by the UK Statistics Authority Quality Improvement Fund (QIF).

## Quality Improvement Fund Assistance from the Office for National Statistics

The above work was carried out within the Northern Ireland Statistics Research agency (NISRA) and assistance was provided by the ONS under the Quality Improvement Fund (QIF) provided by the UK Statistics Authority for assistance with the methodological development of this project. ONS examined the work that had been done in NISRA and produced a report from their Consultancy Service.

It concluded that:-

- A whole economy index could be constructed from the existing indices and other sources to give a broad indicator of the behaviour of the NI economy.
- The whole economy index should be produced as an annual chain-linked weighted aggregate of the existing IOP, IOC and IOS plus an index for the Agricultural sector and an index for the Public sector.
- The weights used to aggregate the series should be based on GVA by industry for Northern Ireland from Regional Accounts.
- The quarterly volume (input) indices for the Agricultural and Public sectors should be based on employment estimates. Quarterly output data for these industries are not available; therefore in the absence of constant price data, the only option for a quarterly volume index is to use employment as a proxy for output.
- The quality of the indicator could be improved by introducing the following changes to the input series:
  - (a) Introduce annual chain-linking into the IOP and IOS to ensure annual weights are more up-to-date and relevant to the current economic situation;
  - (b) Reconcile the ABI based weights used in the IOP and IOS with the GVA estimates in the Regional Accounts. This ensures that the whole economy index for Northern Ireland is consistent with the United Kingdom Index;
  - (c) Extend the coverage of the IOP and IOS to include activity in the Public sector, as the annual Regional GVA estimates by industry groups (NUTS 1.3) cover both private and public sector activity; and
  - (d) Develop suitable measures of quarterly output for the Agriculture and Public sectors.

## Annual Chain-Linking

Annual chain-linking is a method for aggregating volume measures on a yearly basis - it can be thought of as rebasing every year rather than having a fixed base year to which all subsequent years are weighted. In this way dynamic changes in the structure of the economy are better reflected in the index. Instead of referring back to value shares from the most recent base year, volume measures for each year are produced in prices of the previous year. These volume measures are then 'chainlinked' together to produce a continuous time series, preserving the growth rates of the underlying component series.

This is standard National Accounts practice. The advantage of calculating volume measures in this form is that they may be summed to obtain equivalent measures for higher levels of aggregation, ensuring coherence between the weights used for aggregation and current price GVA data. In effect, these volume measures are the numerators of the ratios used to calculate Laspeyres indices for the relevant base prices. (For further information please see:

<http://www.ons.gov.uk/ons/search/index.html?newquery=chain+linking>)

Annual chain-linking was introduced into the existing methodology between Q4 of the previous year and Q1 of the following year in line with the recommendation of the System of National Accounts 1993 (SNA93). This provided a suitable method of combining the sectors to produce a Private sector index and combining it with the Public sector index to produce an overall Composite index.

Chain-linking has the following advantages:-

- Annual weights are more up-to-date and are therefore more relevant to the current economic situation;
- Although the index will be subject to revision each year when new weights are introduced, the revisions will be smaller than those that would occur using a fixed-base weighted methodology with the base year revised at say five yearly intervals;
- Turnover is often used as a proxy for GVA in quarterly indices under the assumption that the turnover to GVA ratio remains fixed over time. Chain-linking reduces the inaccuracies caused by this assumption of a stable relationship. Using annual weights the assumption only has to hold from one year to the next; and
- Every year becomes a link year, so there is no subjective choice about the base year.

Annual chain-linking works in the following way (taking the Production sector as an example):-

### **Step 1**

First of all to calculate each private sector index, the proportion of GVA for that sector is estimated by ratioing the published GVA for that sector by the proportion of private sector employment in that sector.

$$\text{Private sector GVA for Production} = \text{Total GVA for Production} \times \frac{\text{Private sector Employment in Production}}{\text{Total Employment in Production}}$$

### **Step 2**

Then two different sets of volume measures, current year's prices and previous year's prices, are calculated from this Private sector GVA and the input index for Production.

$$\text{Volume at Current years prices} = \text{Private sector GVA for the year} \times \frac{\text{Input index for the quarter}}{\text{Sum of Input indices for that year}}$$

$$\text{Volume at Previous years prices} = \text{Private sector GVA for previous year} \times \frac{\text{Input index for the quarter}}{\text{Sum of Input indices for the previous year}}$$

### **Step 3**

Two different growth rates are calculated. The growth rate between Q4 and Q1 of the next year uses Previous Years prices for Q1 and Current Years prices for Q4, while the growth rate between all other quarters uses Previous Years prices for both quarters.

$$\text{Growth rate Q4 to Q1} = \frac{\text{Volume this quarter at Previous Years prices}}{\text{Volume last quarter at Current Years prices}}$$

$$\text{Growth rate all other quarters} = \frac{\text{Volume this quarter at Previous Years prices}}{\text{Volume last quarter at Previous Years prices}}$$

Using these growth rates, indices for the Private sector components i.e. Production, Services, Construction and Agriculture are calculated making the base year 2009=100 as well as an index for the Public sector.

The index for the Public sector was calculated in the same way taking Public sector GVA as the difference between total GVA and the total of that calculated for the Private sector components.

Note that the quarterly growth rates for each of these private sector components and the Public sector should be the same as the quarterly growth rates for the corresponding input series and this was checked at this stage of the process.

### **Combining the Indices**

The final step was to combine the Private sector components to give a total Private sector index and then combine this with the Public sector index to give the overall Composite index.

This is where the Current Years prices and the Previous Years prices already calculated were used.

Total Private Sector GVA was taken as the sum of the GVA in the sectors making up the Private sector.

Similarly both Current Years prices and Previous Years prices for the relevant sectors were summed to give total Current Years prices and Previous Years prices for the Private sector. From these Current Years prices and Previous Years prices, growth rates were calculated in the same way as for the individual sectors and these were used to construct an index for the Private sector.

The same method was used to combine the Private sector index with the Public sector index to give the overall Composite index.

As a check these combined indices were compared with weighted averages of the constituent indices, using the percentage of GVA as weights and were found to be very close. This illustrates a practical benefit of annual chain-linking in that it provides an appropriate method of combining individual indices, using yearly updated weights (in this case GVA).

### **Seasonal Adjustment of the Indices**

This was the last step carried out to produce the final figures.

There are two methods of seasonal adjustment of combined data series. Direct adjustment involves inputting unadjusted figures and seasonally adjusting the output series. Indirect adjustment involves using seasonally adjusted input figures and then testing the output figures for seasonality. The indirect adjustment method was used as it is recommended where the input series display different seasonality patterns. Seasonally adjusted input figures were available for all the input series except the Agricultural data, which is currently input on a yearly basis, except for 2012. When the output series for the Private sector and the overall Composite Index were tested for seasonality there was no residual seasonality found.

In the earlier stages of development X11 Arima was used for seasonal adjustment of the input series, but results have been produced using X12 Arima since October 2010.

### **Checks on Composite Index Results**

The following comparisons were made to check how the results produced using the above methodology compared with other indicators:-

- A Composite Index was produced for the UK using the same methodology as that for the Northern Ireland index. This UK composite index was then compared with published quarterly GDP for the UK. Both were found to have a similar trend, which points to the methodology used being sound; and
- Other NI labour market data was examined to see if trends there were consistent with the results produced for the NI Composite Economic Index. Again this data supported the findings from the NICEI.

The outcomes of these comparisons are given in more detail in the following Results section.

## Recent Improvements in the IOP and IOS

Recent improvements in both the IOS and IOP series (as detailed below) are now reflected in these Composite Economic index results.

- 1) Q2 2011 results published on 12th October 2011 were the first to be produced on a SIC 2007 basis, rather than on a SIC 2003 basis as previously, for both series. For this conversion matrices were constructed to convert industries from a SIC03 to a SIC07 basis and a back series of data was produced up to Q1 2011 on a SIC07 basis. This was then linked to the grossed data from Q2 2011 onwards (collected on a SIC07 basis), using a linking factor for the data previously held on a SIC03 basis.

$$\text{Linking factor} = \frac{\text{Turnover for Q2 2011}^*}{\text{Turnover for Q1 2011}^*}$$

\*Taken from Business Register and Employment Survey (BRES)

- 2) For both the IOP and IOS the samples were redrawn and increased in number to give a more up-to-date representation of companies in the sectors and increase the accuracy of the results due to the larger sample sizes. The IOS sample was increased from about 1,500 companies to 1,900 companies, while the IOP sample was increased from about 500 companies to 650 companies.
- 3) The IOS produced results using annual chain-linking for the first time for Q1 2011 in July 2011, while the IOP followed one quarter later with Q2 2011 results published in October 2011.
- 4) Historically the IOP turnover was not grossed and then moved to grossing using numbers of companies in the sample and the total population. Historically the IOS had been grossing using turnover.
- 5) For the IOP the GVA weights used in the apportionment were changed over from the Annual Business Inquiry (ABI) to those in the published Regional GVA Accounts. The IOS series had already been weighting their results using GVA weights from Regional Accounts.
- 6) Under the IOP some companies had been supplying physical units of production, as a proxy to turnover, which were then used as input, but now all but one company provides turnover figures, which leads to greater consistency.

## Limitations of the Methodology

The above methodology for producing a NI Composite Economic Index has a number of recognised limitations:-

- The main limitation is that the index is not a comprehensive measure of Gross Domestic Product that meets the international standards of the System of National Accounts. It relies instead on sales data for Private sector output and employee jobs for the Public sector. These quarterly “output” based estimates are based solely on sales data as a proxy for Gross Value Added, so no account is taken of the costs of purchases, changes in stocks or productivity improvements to provide a measure of the true change in the value added. Data are also not available to provide estimates based on the income or expenditure approach. The IOC does take account of potential double counting of intermediate consumption by excluding work done by sub-contractors, but the IOS and IOP (as in the equivalent UK series) do not adjust for such effects. That said, the principal correcting factor is that the individual series are weighted back to their relative shares of Regional Accounts’ GVA, thereby ensuring that they are representative of the most recent GVA information available. The development of input/output tables for Northern Ireland to link turnover to GVA would further assist in the input data for the index.
- Any weaknesses in the input series will be carried across to the composite index. While current results produced for the IOS and IOP have corrected most of the main known weaknesses in these two series (as detailed previously) there still remains further investigation into whether any issues arise because of potential sample attrition. The IOS and IOP were originally sampled in 2005 and 2006 respectively. This has been addressed with new samples selected in 2011 which have been updated with adjustments for any new “births” each quarter. Sample refresh with annual rotations will occur from 2013 onwards.
- Regional Accounts GVA estimates are not available separately for Private and Public sector activity and so the split has to be estimated by using Private/Public split from employment. It is acknowledged that this is not an ideal way to apportion GVA as it is likely that the Private sector would produce more GVA per head than non-market public services. This is an area for development and work is ongoing to develop a more accurate method to disaggregate Regional GVA between the Public and Private sectors (using ASHE data).
- There is a time lag in Regional Account GVA figures by industry, which is used for weighting the input figures e.g. figures released at industry level in December 2012 only go up to 2010.
- Regional GVA is currently measured using the income approach, which involves adding up the income generated by resident individuals or corporations in the production of goods and services. It is calculated gross of deductions for consumption of fixed capital, which is the amount of fixed assets used up in the process of production in any period. However, a project\* is underway to develop estimates of real regional GVA growth using a production approach.
- No output data for the Public sector are collected in Northern Ireland. This means that the best available option (after investigation of available financial data) for a quarterly volume index was to use employment as a proxy for output.
- For the Agricultural sector quarterly output data is not currently available and an annual gross output index published by DARD is used as input for all years except 2012 (where quarterly data has just become available). This is an area for development going forward and we intend to make use of quarterly data which should become available from DARD and AFBI.



## Results

The latest results for Q3 2012 from the newly developed experimental Northern Ireland Composite Economic Index (NICEI) are presented below. The index provides a weighted measure of sales by broad industry sector and Public sector employee jobs to provide a measure of overall change in Northern Ireland economic activity. This is an experimental series subject to ongoing development, results are subject to revision and users views are welcome. The index series is referenced to 2009=100.

Disaggregated results for the Private and Public sectors, with the former being broken down into the Service sector, the Construction sector, the Production sector and the Agricultural sector are also presented.

Gross Domestic Product (GDP) data for the UK and Scotland are included for illustrative purposes, though it should be noted these are not strictly comparable measures.

In NI the Public sector comprises some 26% of total Gross Value Added (GVA) while the Private sector accounts for some 74% of total GVA (2009). Within the Private sector the Service industries account for the largest share (66%) of Regional Accounts GVA.

### Composite Index Results for Q3 2012

Results from the Composite Index, covering both private and public sectors show that it rose over the most recent quarter by 0.7% to 96.5 in Q3 2012. The index has fallen in sixteen out of the last twenty-one quarters, since reaching a maximum value of 108.8 in Q2 2007. Over the last year there have been three quarterly rises and one fall. However, the index still remains close to the minimum value of 95.8 reached in Q2 2012.

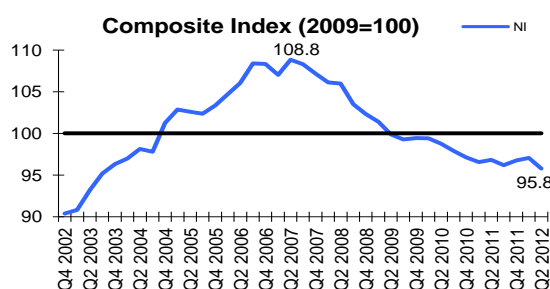
There has been a total fall of over one tenth (11.4%) in the last 5 years from the series peak in Q2 2007 to the most recent quarter. The Composite Index first reported two successive quarterly falls in overall levels of Northern Ireland economic activity in Q4 2007.

**NI Composite Economic Index Table (2009=100)**

Year	Quarter	Index*	Quarter Change (%)	Annual Change (%)	Rolling Annual Change (%)**
2002	Q4	90.4			
2003	Q1	90.8	0.5		
	Q2	93.2	2.6		
	Q3	95.2	2.1		
2004	Q4	96.3	1.2	6.6	3.9
	Q1	97.0	0.7	6.8	5.3
	Q2	98.1	1.2	5.3	5.7
	Q3	97.8	-0.3	2.7	5.3
2005	Q4	101.3	3.5	5.1	5.0
	Q1	102.9	1.6	6.1	4.8
	Q2	102.6	-0.2	4.6	4.6
	Q3	102.4	-0.2	4.7	5.1
2006	Q4	103.4	1.0	2.1	4.3
	Q1	104.7	1.3	1.8	3.3
	Q2	106.1	1.3	3.4	3.0
	Q3	108.4	2.2	5.9	3.3
2007	Q4	108.3	-0.1	4.8	4.0
	Q1	107.0	-1.2	2.2	4.1
	Q2	108.8	1.7	2.6	3.9
	Q3	108.3	-0.5	-0.1	2.4
2008	Q4	107.2	-1.0	-1.1	0.9
	Q1	106.1	-1.0	-0.8	0.1
	Q2	106.0	-0.1	-2.6	-1.2
	Q3	103.5	-2.3	-4.4	-2.2
2009	Q4	102.3	-1.2	-4.5	-3.1
	Q1	101.4	-0.9	-4.4	-4.0
	Q2	99.9	-1.5	-5.8	-4.8
	Q3	99.3	-0.6	-4.1	-4.7
2010	Q4	99.4	0.2	-2.8	-4.3
	Q1	99.4	0.0	-1.9	-3.7
	Q2	98.8	-0.6	-1.1	-2.5
	Q3	97.9	-0.9	-1.4	-1.8
2011	Q4	97.1	-0.8	-2.3	-1.7
	Q1	96.6	-0.6	-2.9	-1.9
	Q2	96.8	0.3	-2.0	-2.1
	Q3	96.2	-0.7	-1.7	-2.2
2012	Q4	96.7	0.6	-0.4	-1.8
	Q1	97.1	0.3	0.5	-0.9
	Q2	95.8	-1.3	-1.1	-0.7
	Q3	96.5	0.7	0.3	-0.2

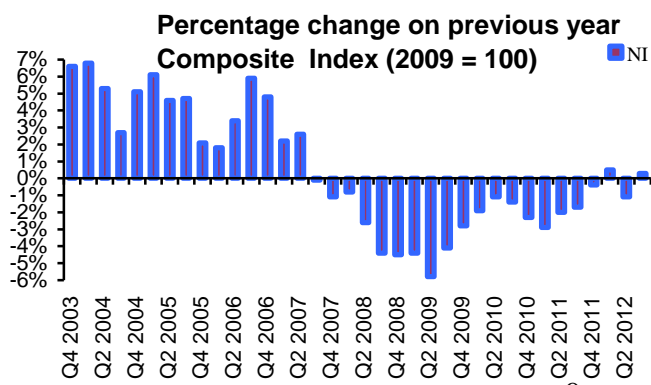
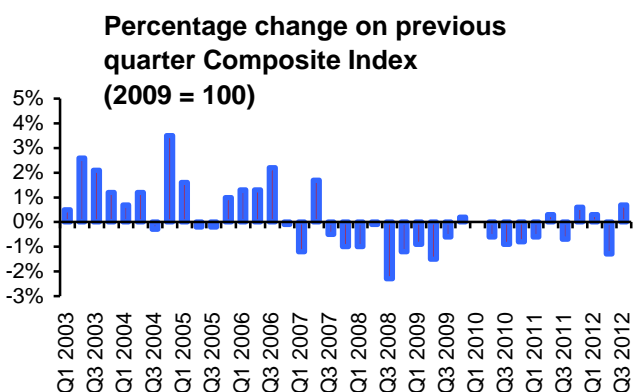
\*Please see Appendix I for an overview of all indices in the NICEI.

\*\*The change in the rolling annual average measures the change in the average of the latest four quarters against the same four quarters one year previous.



Three small quarterly rises in the last four quarters to Q3 2012 has contributed to an annual increase of 0.3%; however a larger quarterly fall in Q2 2012 has resulted in a rolling annual fall of 0.2%. Indeed, there have been 18 consecutive decreases in the rolling annual change since Q2 2008.

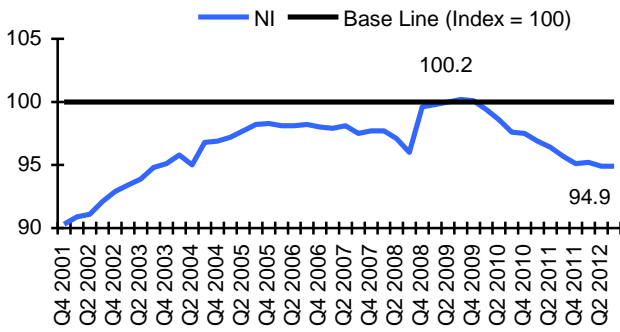
There have been nineteen year on year decreases in the last twenty-one quarters going back to Q3 2007, the exceptions being Q1 and Q3 2012. The largest annual decrease was -5.8% which occurred in the year to Q2 2009.



### Public Sector Sub-Index

The Public sector index initially showed more resilience to the general downturn in the economy than the Private sector index, but has been on a downward trend since Q4 2009.

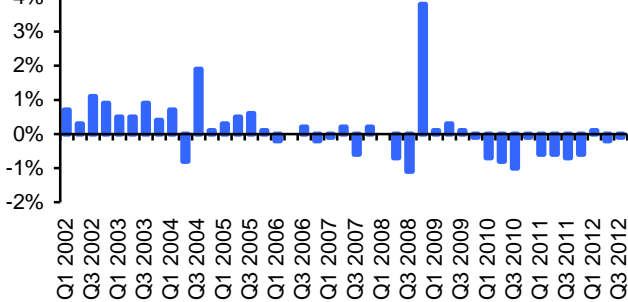
#### Public Sector Sub-Index (2009 = 100)



The index fell by 0.1% in Q3 2012 to 94.9, the lowest level since reaching its maximum value in Q3 2009.

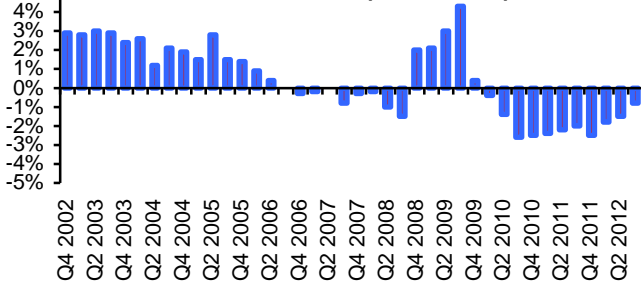
As such, the Public sector index continued rising for longer than the Private sector index, reaching a maximum value of 100.2 in Q3 2009. However, from Q4 2009 there were eleven quarterly falls in the following twelve quarters, rising only in Q1 2012, and reaching its subsequent minimum value of 94.9 in Q3 2012. This represents a fall of 5.3% from maximum to minimum, much smaller than that for the whole economy, which fell by 12.0% from its maximum to minimum, though over a longer time period.

#### Percentage change on previous quarter Public sector (2009 = 100)



The public sector index has witnessed eleven consecutive year on year decreases since Q1 2010 up to the current quarter Q3 2012. The largest annual change was -2.6% which occurred in Q3 2010.

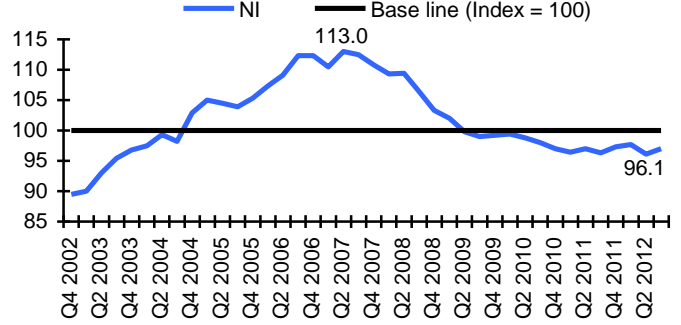
#### Percentage change on previous year Public sector Index (2009 = 100)



### Private Sector Sub-Index

The Private sector output component of the index uses weighted measures of the following published indices: the Index of Services (IOS), the Index of Production (IOP) and the Index of Construction (IOC) together with output in the agricultural sector.

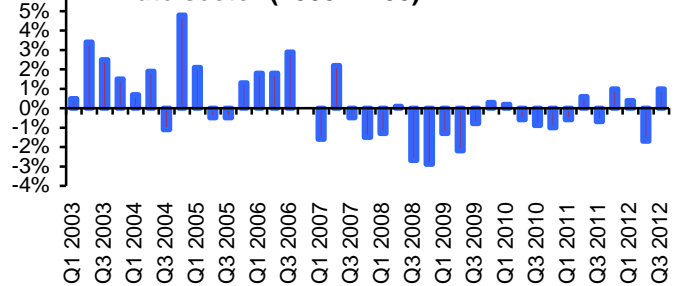
#### Private Sector Sub-Index (2009 = 100)



Results for the Private sector show a similar pattern to that for the whole economy. Here the index rose by 0.7% to 97.0 in Q3 2012. Since reaching a maximum value of 113.0 in Q2 2007 the index has fallen in fourteen out of twenty-one quarters.

The index fell by a total of 14.9% from its maximum to minimum value of 96.1 in quarter Q2 2012, which is larger than that for the whole economy, which fell by 12.0%. The seven quarters where the index rose were Q2 2008, Q4 2009, Q1 2010, Q2 and Q4 2011, and Q1 and Q3 2012. The Private sector of the Northern Ireland economy first experienced two successive quarters of decline in Q4 2007.

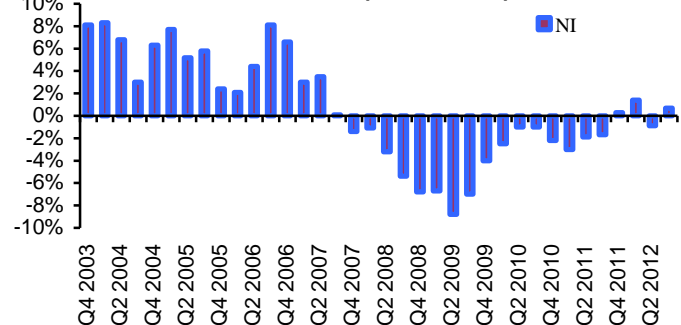
#### Percentage change on previous quarter Private sector (2009 = 100)



Three quarterly rises in the last four quarters have resulted in an annual increase of 0.7% over the year to Q3 2012.

Indeed, there were sixteen successive year on year decreases from Q4 2007 to Q3 2011, followed by two rises in Q4 2011 and Q1 2012, then a fall in Q2 2012, and another rise in Q3 2012. The largest annual change was -8.8% which occurred in the year to Q2 2009.

#### Percentage change on previous year Private sector Index (2009 = 100)



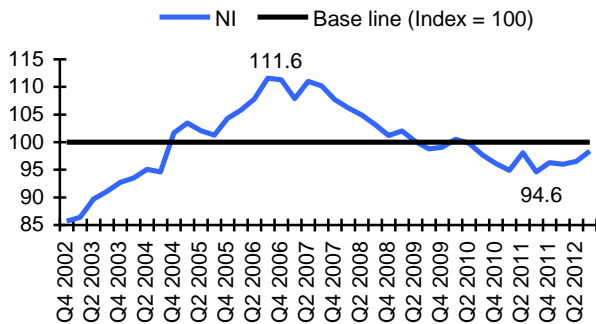
# Private Sector Components of Index

## Service Sector component

As the Service sector makes up the largest share (currently around 66% of private sector GVA) of the Private sector its performance is similar to that described for the Private sector.

The Service sector index grew by 2.0% to 98.4 in Q3 2012.

### Service sector Output Index (2009 = 100)

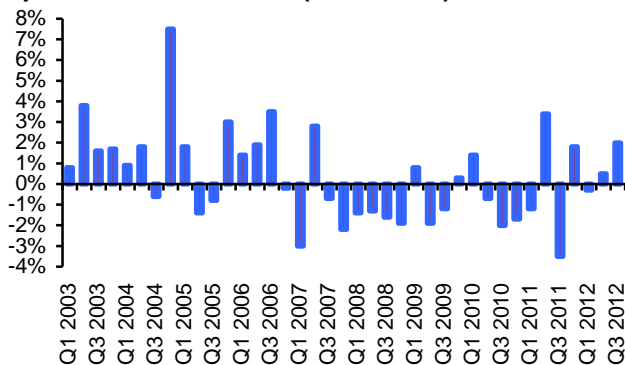


Since reaching a maximum value of 111.6 in Q3 2006, the index has fallen in sixteen out of twenty-four quarters; reaching its most recent minimum value of 94.6 in Q3 2011. This represents a total fall of 15.2% from its maximum to minimum value. This is similar to that for the overall Private sector, which fell by 14.9% from its maximum to minimum value. The eight quarters where the index rose were Q2 2007, Q1 and Q4 2009, Q1 2010, Q2 and Q4 2011, and the latest two quarters Q2 and Q3 2012.

The Service sector of the Northern Ireland economy first reported two consecutive quarters of decline in Q1 2007.

There has been three quarterly rises in the last four quarters of 1.8% (Q4 2011), 0.5% (Q2 2012) and 2.0% (Q3 2012), with a small fall of 0.3% in Q1 2012. This has resulted in an annual increase of 4.0% over the year to Q3 2012.

### Percentage change on previous quarter Service sector (2009 = 100)



Indeed there have been eighteen year on year decreases in the period Q3 2007 to Q2 2012. The largest annual decrease was -6.3% which occurred in the year to Q3 2008.

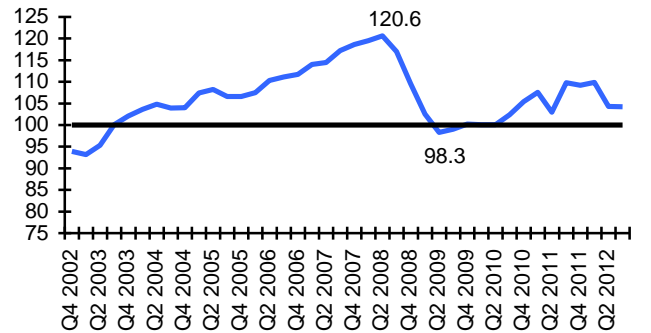
## Production Sector component

The Production sector makes up the next largest share (currently around 24% of private sector GVA) of the Private sector and its performance differs from that of the overall Private sector.

Indeed, the Production sector index fell by 0.1% to 104.2 in Q3 2012.

Since reaching its maximum value in Q2 2008 there have been seven rises and ten falls in the last seventeen quarters.

### Production sector Output Index (2009 = 100)

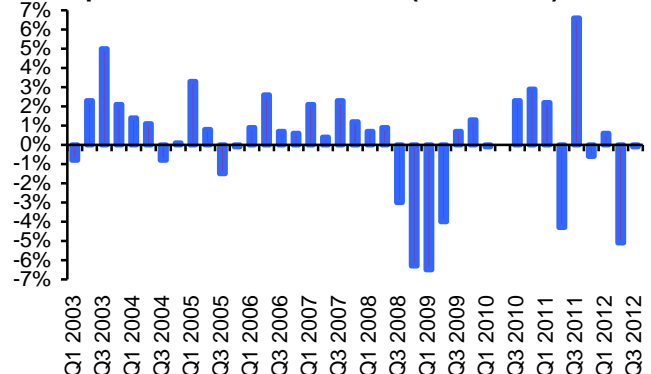


The Production sector continued rising after the Service sector had started to fall, reaching a maximum value of 120.6 in Q2 2008. The index then fell sharply for four successive quarters to a subsequent minimum value of 98.3 in Q2 2009. This represents a total fall of 18.5%, which is slightly greater than that for the Service sector (which fell by 15.2% from its maximum to minimum values) and which occurred over a shorter period of time in the Production Sector. Since then the index has made a partial recovery rising by 6.0% from its minimum value to its current value.

The Production sector of the Northern Ireland economy first reported two consecutive quarters of decline from this peak in Q4 2008, nearly two years later than the Service sector.

Three quarterly falls in the last four quarters (0.6% in Q4 2011, 5.1% in Q2 2012 and 0.1% in Q3 2012), have resulted in an annual decrease of 5.1% over the year to Q3 2012 (this contrasts to the yearly rise in the Service sector).

### Percentage change on previous quarter Production sector (2009 = 100)



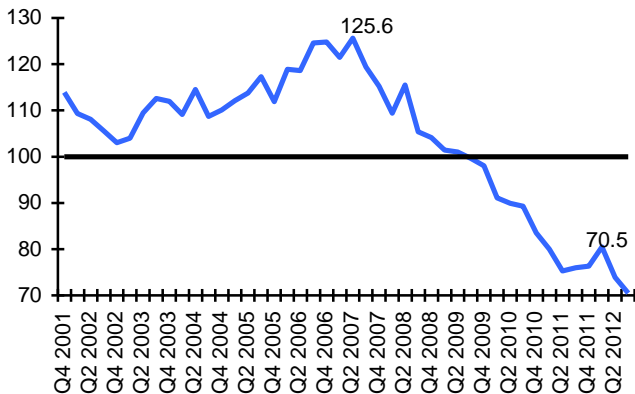
During the period of rapid decline there were year on year decreases averaging about 16% in each of the years to the first three quarters of 2009.

### Construction Sector component

The Construction sector makes up around 9% of the Private sector in terms of GVA. The Construction sector index fell by 4.6% to 70.5 in Q3 2012; this follows a fall which was preceded by three consecutive rises. Prior to this were 12 consecutive falls since Q3 2008.

#### Construction sector Output Index

(2009 = 100) — NI — Base line (Index = 100)



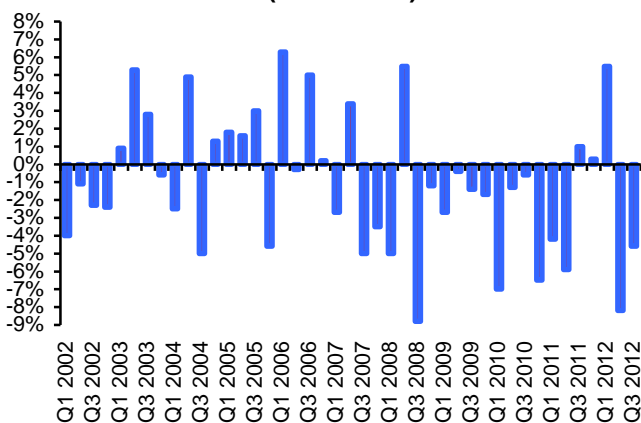
Since reaching a maximum value of 125.6 in Q2 2007 (three quarters later than the Service sector) the index has fallen in seventeen out of twenty-one quarters, reaching its subsequent minimum value of 70.5 in the current quarter Q3 2012.

This represents a total fall of 43.8% from its maximum to minimum value, which is almost three times that for the Service sector which fell by 15.2% from its maximum to minimum value. The only four quarters where the index rose were Q2 2008, and more recently in Q3 and Q4 2011, and Q1 2012.

The Construction sector of the Northern Ireland economy first reported two successive falls in the index in Q4 2007. It is the sector that has been most affected by the downturn in the economy.

#### Percentage change on previous quarter

Construction sector (2009 = 100)



This sector has shown more volatility with quarterly changes tending to be higher than the other sectors. Two rises of 0.3% and 5.5% in Q4 2011 and Q1 2012 were followed by two falls of 8.2% and 4.6% in Q2 and Q3 2012, leading to an annual fall of 7.2% in the year to Q3 2012.

Indeed there have been twenty year on year falls in the last twenty-one quarters, the only exception being in the year to Q1 2012, with nine of these being over 10%.

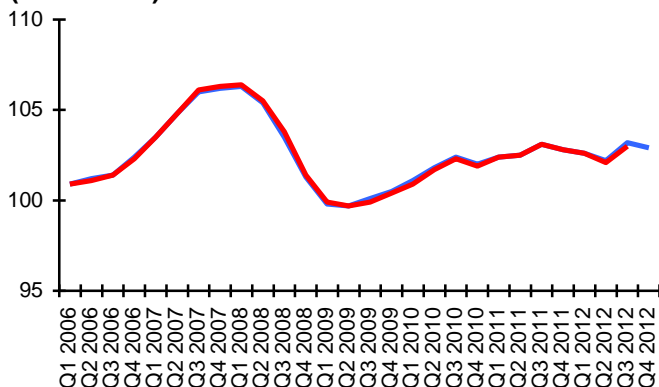
## Replicating the Composite Index for UK

A composite output index was constructed for the UK using the same methodology as for the NICEI. This was compared with published GDP for the UK.

As there was not an overall Construction index published for the UK, published turnover for GB and published turnover for NI were combined to create an input index for the UK Construction sector.

### Comparison of UK GDP and UK

#### Composite Index (2009 = 100)



The two indices were very similar showing the same pattern of rises and falls in every quarter during the above period. The average absolute difference was less than 0.1 percentage point over the period.

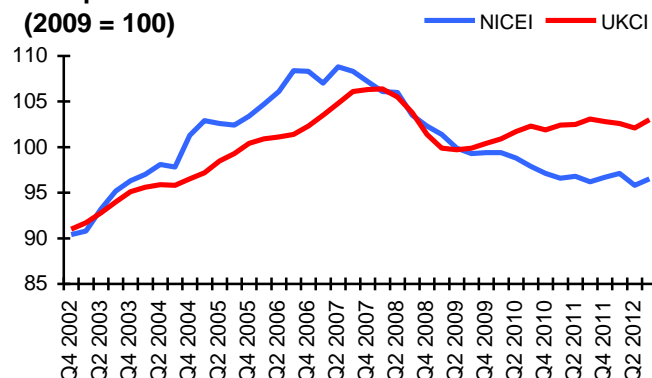
For both the UKCI and GDP the maximum values occurred in Q1 2008, with both indices also recording subsequent minimum values in Q2 2009. The maximum values were 106.4 for the UKCI and 106.3 for the GDP, with both minimum values being 99.7. This represents a fall of 6.3% and 6.2% from maximum to minimum, for both the UKCI and GDP indices.

After reaching their maximum values, both indices recorded five successive quarterly falls, followed by five quarterly rises to Q3 2010. This was followed by a series of rises and falls to Q3 2012.

**The results from this comparison suggest that when the methodology used for compiling the NICEI is applied to equivalent data in the UK; it provides a reasonable approximation to the official UK measure of GDP.**

The Composite Index for the UK was also compared with the NICEI, as both were produced using the same methodology.

### Comparison of NICEI and the UKCI (2009 = 100)



This showed that the NI index exhibited a different time profile relative to the equivalent UK index.

NI showed a faster rate of growth than the UK from 2002 up until Q2 2007, when the NI index reached a maximum (108.8).

After that, the UK index continued to rise to its maximum (106.4) in Q1 2008, the NI index has been on a downward trend recording sixteen quarterly falls in the last twenty-one quarters. The five quarters which experienced rises were Q4 2009, Q2 and Q4 2011 and Q1 and Q3 2012.

The NI index reached its subsequent minimum value in quarter Q2 2012 (95.8), having fallen 12.0% from the maximum value.

After reaching its maximum value in Q1 2008 the UK index recorded five quarterly decreases to a minimum value of 99.7 in Q2 2009. This represented a fall of 6.3% in this period. After that the UK index recovered rising in nine of the next thirteen quarters to its current value of 103.0 in Q3 2012.

Thus the downturn in the NI economy started three quarters earlier than in the UK, with output falling by more (12.0% compared with 6.3%). The index continued on a downward trend in NI to a minimum in Q2 2012, with the UK economy showing signs of some recovery in the last two years.



## Comparison of NI Composite Economic Index with Gross Domestic Product for UK, Scotland and Republic of Ireland

### Gross Domestic Product for UK

Gross Domestic Product (GDP) in the UK provides a measure of the total economic activity in the country. GDP is a measure of the value added to materials and other inputs in the production of goods and services by resident organisations, before allowing for depreciation or capital consumption. Net receipts from interest, profits and dividends abroad are excluded. Three different theoretical approaches are used in the estimation of the one GDP estimate: the output or production approach GDP (O), the income approach GDP (I) and the expenditure approach GDP (E). Latest preliminary estimates were published by the Office for National Statistics on 25 January 2013 (2009=100). They show that the chained volume measure of GDP at market prices increased by 0.9% in Q3 2012 after 3 successive quarters of decline.

The maximum value of 106.3 was reached in Q1 2008 which was followed by 5 quarters of decline to 99.7 in Q2 2009. This represents a total decrease of 6.2% in this period. Following this decline the index increased in the next 5 quarters to Q3 2010, but in the eight quarters since (to Q3 2012) the index has increased in four quarters and fell in four. The latest index for Q3 2012 of 103.2 is now 3.5% above the minimum level reported in Q2 2009.

Using this measure the UK economy first recorded two successive decreases in output in Q3 2008, and returned to growth in Q3 2009 (when the first increase in output was recorded). The economy subsequently recorded another three quarterly decreases in output to Q2 2012, but returned to growth in Q3 2012. Latest estimates for Q4 2012 recorded a slight fall in output.

### Gross Domestic Product for Scotland

The latest estimates of GDP were published by the Scottish Government on 17 October 2012 (please note that the Q3 publication has been delayed until the 1<sup>st</sup> February 2013) and refer to GDP at basic prices (2007=100) but have been based on 2009=100 in the following tables. Results show that this measure of GDP fell by 0.3% in Q2 2012.

The maximum value of 105.8 was reached in Q2 2008 which was followed by 5 quarters of decline to its subsequent minimum value of 99.7 in Q3 and Q4 2009. This represents a total decrease of 5.8% in this period. Following this decline the index remained at 99.7 in Q4 2009 and then increased in 6 of the next 10 quarters, declining in the latest quarter to 101.2. The latest index for Q2 2012 is now 1.5% above the minimum level.

Using this measure the Scottish economy first recorded two quarterly decreases in Q4 2008 (one quarter after the UK economy). It returned to growth in Q1 2010, but there have been three successive decreases in output from Q4 2011.

### Gross Domestic Product for Republic of Ireland (ROI)

The latest GDP estimates for the ROI were published by the Central Statistics Office on the 18<sup>th</sup> December 2012 and refer to GDP at constant market prices referenced to 2010. However these have been rebased

Latest preliminary estimates for Q3 2012 show that GDP in the ROI fell by 1.3% compared with Q2 2012. The maximum value of 109.9 was reached in Q4 2007 which was followed by six quarters of decline in the following eight. The subsequent minimum value of 97.2 was reached in Q4 2009. This represents a total decline of 11.5% in this period. In the subsequent 11 quarters there were five falls and six rises in the GDP. Since reaching the peak value, two successive quarters of decline were first recorded in Q2 2008.

### Comparison of NI Composite Economic Index and GDP for UK and Scotland

While the performance of the UK, Scottish and ROI measures of GDP are very similar, the new economic index for Northern Ireland shows differences from these measures. In NI the maximum output was reached in Q2 2007, three quarters earlier than in the UK (Q1 2008), four quarters earlier than Scotland (Q2 2008), and two quarters earlier than the ROI (Q4 2007). Since then the NI measure has fallen in sixteen of the twenty-one quarters, and increased in five quarters; rising in Q4 2009, Q2 and Q4 2011, and Q1 and Q3 2012.

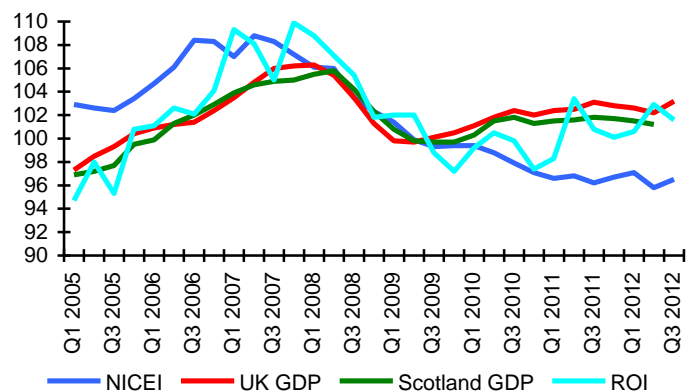
The minimum level of 95.8 was reached in Q2 2012, and the index now stands just 0.7% above the minimum value. This is in contrast to the UK, Scotland and ROI where there has been a slight recovery from their minimum levels. While the NI measure currently stands 0.7% above the minimum, GDP in the UK, Scotland and ROI at Q3 2012 are slightly more above their minimum levels reached in Q2 (3.5%, at Q3 2012), Q3 (1.5%) and Q4 (4.5%) 2009 respectively.

However, the NI maximum output of 108.8 was greater than that in Scotland (105.8) and the UK (106.3).

Hence the fall from maximum to minimum levels in the NICEI was 12.0%, higher than in the UK, Scotland and ROI where it was 6.2%, 5.8% and 11.5% respectively.

Using the current measure as a best estimate, NI first recorded 2 successive quarterly decreases in Q4 2007. This is earlier than the UK (Q3 2008), Scotland (Q4 2008) and the ROI (Q2 2008).

**Comparison of NI Composite Economic Index and GDP for UK, Scotland and ROI (2009=100)**



An overview of the data within these indices and the quarterly changes experienced is presented overleaf.

Comparison of NI Composite Economic Index with GDP for UK, Scotland and ROI (2009=100)

Year	Quarter	NI		UK		Scotland		ROI	
		Composite Economic Index	% quarterly change	GDP	% quarterly change	GDP	% quarterly change	GDP	% quarterly change
2002	4	90.4	-	91.3	-	90.2	-	88.2	-
2003	1	↑ 90.8	0.5%	↑ 91.8	0.5%	↑ 90.6	0.4%	↓ 84.9	-3.7%
	2	↑ 93.2	2.6%	↑ 92.9	1.2%	↑ 91.6	1.1%	↑ 87.9	3.5%
	3	↑ 95.2	2.1%	↑ 94.1	1.3%	↑ 93.4	2.0%	↓ 85.5	-2.8%
2004	4	↑ 96.3	1.2%	↑ 95.2	1.2%	↑ 95.1	1.8%	↑ 93.6	9.5%
	1	↑ 97.0	0.7%	↑ 95.9	0.7%	↑ 96.0	0.9%	↓ 89.9	-3.9%
	2	↑ 98.1	1.2%	↑ 96.1	0.2%	↑ 96.5	0.5%	↑ 91.9	2.3%
	3	↓ 97.8	-0.3%	→ 96.1	0.0%	↑ 97.0	0.5%	↓ 89.8	-2.3%
2005	4	↑ 101.3	3.5%	↑ 96.7	0.6%	↑ 97.2	0.2%	↑ 95.6	6.4%
	1	↑ 102.9	1.6%	↑ 97.3	0.6%	↓ 96.9	-0.3%	↓ 94.7	-0.9%
	2	↓ 102.6	-0.2%	↑ 98.5	1.2%	↑ 97.2	0.3%	↑ 98.0	3.5%
	3	↓ 102.4	-0.2%	↑ 99.3	0.8%	↑ 97.7	0.5%	↓ 95.3	-2.8%
2006	4	↑ 103.4	1.0%	↑ 100.4	1.1%	↑ 99.5	1.8%	↑ 100.8	5.8%
	1	↑ 104.7	1.3%	↑ 100.9	0.5%	↑ 99.9	0.4%	↑ 101.1	0.3%
	2	↑ 106.1	1.3%	↑ 101.2	0.3%	↑ 101.3	1.4%	↑ 102.6	1.4%
	3	↑ 108.4	2.2%	↑ 101.4	0.2%	↑ 102.0	0.7%	↓ 102.1	-0.5%
2007	4	↓ 108.3	-0.1%	↑ 102.4	1.0%	↑ 102.9	0.9%	↑ 104.1	2.0%
	1	↓ 107.0	-1.2%	↑ 103.5	1.1%	↑ 103.9	1.0%	↑ 109.3	5.0%
	2	↑ 108.8	1.7%	↑ 104.8	1.3%	↑ 104.6	0.7%	↓ 108.1	-1.1%
	3	↓ 108.3	-0.5%	↑ 106.0	1.1%	↑ 104.9	0.3%	↓ 105.0	-2.8%
2008	4	↓ 107.2	-1.0%	↑ 106.2	0.2%	↑ 105.0	0.1%	↑ 109.9	4.6%
	1	↓ 106.1	-1.0%	↑ 106.3	0.1%	↑ 105.5	0.5%	↓ 108.8	-1.0%
	2	↓ 106.0	-0.1%	↓ 105.4	-0.8%	↑ 105.8	0.3%	↓ 107.1	-1.5%
	3	↓ 103.5	-2.3%	↓ 103.5	-1.8%	↓ 104.2	-1.5%	↓ 105.4	-1.6%
2009	4	↓ 102.3	-1.2%	↓ 101.3	-2.1%	↓ 102.3	-1.8%	↓ 101.8	-3.5%
	1	↓ 101.4	-0.9%	↓ 99.8	-1.5%	↓ 100.8	-1.5%	↑ 102.0	0.3%
	2	↓ 99.9	-1.5%	↓ 99.7	-0.1%	↓ 99.8	-1.0%	↓ 102.0	0.0%
	3	↓ 99.3	-0.6%	↑ 100.1	0.4%	↓ 99.7	-0.1%	↓ 98.8	-3.1%
2010	4	↑ 99.4	0.2%	↑ 100.5	0.4%	→ 99.7	0.0%	↓ 97.2	-1.6%
	1	↓ 99.4	0.0%	↑ 101.1	0.6%	↑ 100.3	0.6%	↑ 99.2	2.1%
	2	↓ 98.8	-0.6%	↑ 101.8	0.7%	↑ 101.5	1.2%	↑ 100.5	1.3%
	3	↓ 97.9	-0.9%	↑ 102.4	0.6%	↑ 101.8	0.3%	↓ 99.8	-0.8%
2011	4	↓ 97.1	-0.8%	↓ 102.0	-0.4%	↓ 101.3	-0.5%	↓ 97.4	-2.4%
	1	↓ 96.6	-0.6%	↑ 102.4	0.4%	↑ 101.5	0.2%	↑ 98.3	1.0%
	2	↑ 96.8	0.3%	↑ 102.5	0.1%	↑ 101.6	0.1%	↑ 103.4	5.2%
	3	↓ 96.2	-0.7%	↑ 103.1	0.6%	↑ 101.8	0.2%	↓ 100.8	-2.6%
2012	4	↑ 96.7	0.6%	↓ 102.8	-0.3%	↓ 101.7	-0.1%	↓ 100.1	-0.6%
	1	↑ 97.1	0.3%	↓ 102.6	-0.2%	↓ 101.5	-0.2%	↑ 100.6	0.5%
	2	↓ 95.8	-1.3%	↓ 102.2	-0.4%	↓ 101.2	-0.3%	↑ 102.9	2.3%
	3	↑ 96.5	0.7%	↑ 103.2	0.9%			↓ 101.6	-1.3%

	NICEI	UK GDP	Scotland GDP	ROI GDP
Maximum Reached	Q2 2007	Q1 2008	Q2 2008	Q4 2007
Maximum Value	108.8	106.3	105.8	109.9
Minimum Reached	Q2 2012	Q2 2009	Q3 2009	Q4 2009
Minimum value	95.8	99.7	99.7	97.2
% fall from max - min	-12.0%	-6.2%	-5.8%	-11.5%

## Gross Value Added (GVA)

The calculation of the composite index uses annual GVA at current prices, apportioned to the private and public sectors according to the employment split between these two sectors. GVA is the difference between the value of goods and services produced (output) and the cost of raw materials and other input which are used in production (intermediate consumption); that is, the value added by any unit in production.

The following table shows annual GVA at market prices from 2001 to 2011 as reported in the UK Regional Accounts by the Office for National Statistics. Although 2011 is the latest year for which total Northern Ireland GVA is reported, 2010 is the latest year for which a split across industrial sectors is available.

At market prices, total GVA in Northern Ireland increased each year between 2001 and 2008. However, the rate of increase in 2008 (1.0%) was the lowest of any year in the period. From 2008 to 2009 it showed a decrease of 2.2% which was a higher decrease than that recorded for the UK\* as a whole (-1.6%).

GVA per head of population in NI in 2011 was £16,531 compared to £20,873 for the UK\* as a whole and was the third lowest of the UK regions. This was an increase of 2.0% from the 2010 figure, and is greater than the increase experienced by the UK as a whole (1.4%) over this period. After showing a decline of 3.0% from 2008 to 2009 GVA per head in NI rebounded with a 3.6% increase from 2009 to 2010.

\*Excluding statistical discrepancy and extra-region: off-shore contribution to GVA that cannot be assigned to any region.

### Northern Ireland GVA (at current market prices)

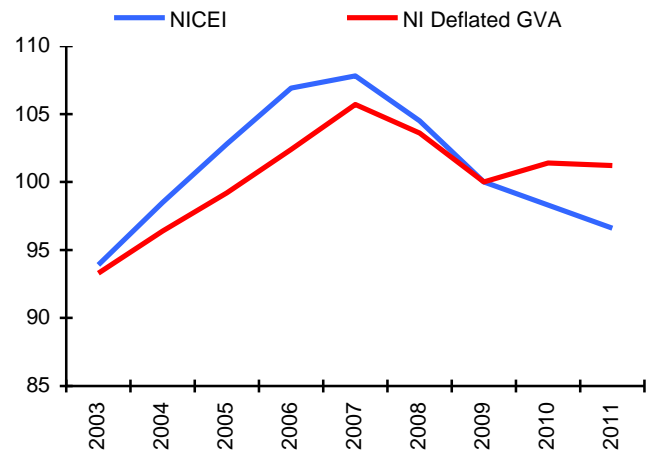
Year	All Sectors (£ millions)	All Sectors Percentage Change
2001	20,362	-
2002	21,213	4.2%
2003	22,617	6.6%
2004	23,992	6.1%
2005	25,263	5.3%
2006	26,835	6.2%
2007	28,310	5.5%
2008	28,607	1.0%
2009	27,969	-2.2%
2010	29,155	4.2%
2011	29,870	2.5%

## Comparison of NICEI with Gross Value Added (GVA) (2009=100)

For the basis of this comparison the four quarter values of the NICEI have been averaged to give a yearly figure and GVA figures have been deflated using UK GDP deflators (published September 2012) and are shown in real terms.

The pattern shown by both indices is broadly similar with both indices rising each year from 2003 until reaching a maximum in 2007, the same as that for the GVA. The maximum annual value for the NICEI was 107.8. After this they both declined in the next two years to 2009. The NICEI continued to decline in both 2010 and 2011, while GVA showed a rise in 2010 and a slight fall in 2011. In general, the value of the NICEI has been higher than that of the GVA up to 2009 but lower than GVA afterwards.

### Comparison NICEI with deflated GVA (2009=100)



It is noted that when ONS publish GVA figures in December each year there are revisions made to the previous year's published figures. In the latest GVA figures published in December 2012 the workplace based headline GVA for NI for 2010 was revised by 4.2% and for 2009 was revised by 2.8% (these included revisions due to national estimates and corrections made to offshore data).

The next GVA figures are due for release in December 2013.



## Comparison with other Labour Market Series

### Claimant Count Unemployment

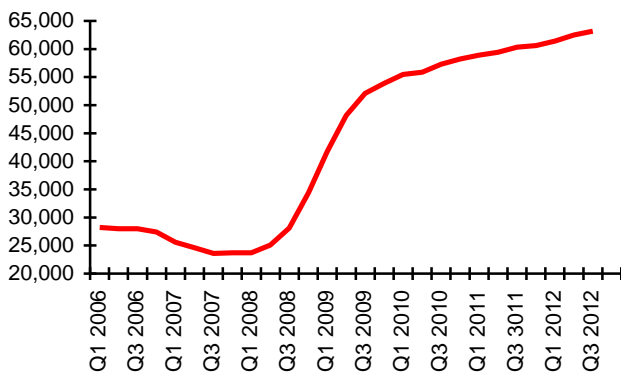
Claimant Count unemployment levels are published monthly and these have been combined into quarterly levels for comparison purposes.

The level of Claimant Count unemployment has now reached its most recent highest level of 63,200 in the current quarter Q3 2012. This follows a rise of 39,600 from their latest minimum of 23,600 reached in Q3 2007 and now stands at more than two and a half times the minimum value. However, since Q3 2009 the rise in levels has not been as steep as the preceding year. This minimum level of unemployment was reached one quarter later than the maximum level for the composite index, which means that output was falling for one quarter before it translated through to unemployment.

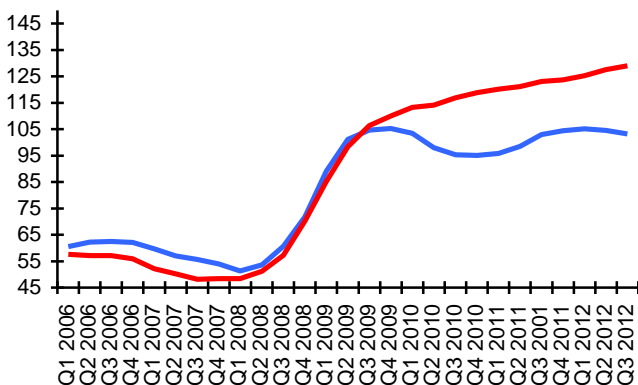
In the UK unemployment levels reached their minimum in Q1 2008 (two quarters later than in NI) and then just slightly more than doubled to the maximum in Q4 2009. From Q1 2010 to Q4 2010 levels decreased each quarter since reaching the maximum, then after this the levels increased each quarter to Q1 2012, and have been falling in the last two quarters.

In contrast, since reaching their minimum in Q3 2007 NI levels increased each quarter, while UK levels are currently close to the maximum reached in Q4 2009.

**NI Claimant Count Unemployment** — NI



**Comparison NI and UK Claimant Count (2009=100)** — UK — NI



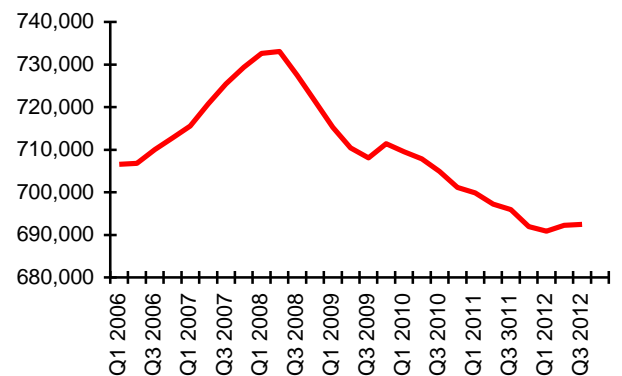
### Employee Jobs

Employee jobs (seasonally adjusted) peaked at 733,050 in Q2 2008, later than both the deterioration in the NICEI and the Claimant Count.

The number of jobs reached a minimum of 690,850 in Q1 2012, a loss of about 42,200 jobs or 5.8% from the maximum level, slightly more than the increase in unemployment. In the latest quarter Q3 2012, there was an increase of 260 jobs; this follows an increase of 1,340 jobs in Q2 2012.

However, there was a discontinuity in the series between Q3 and Q4 2009 (where there was an increase of 3,330 jobs), which the above figures do not allow for.

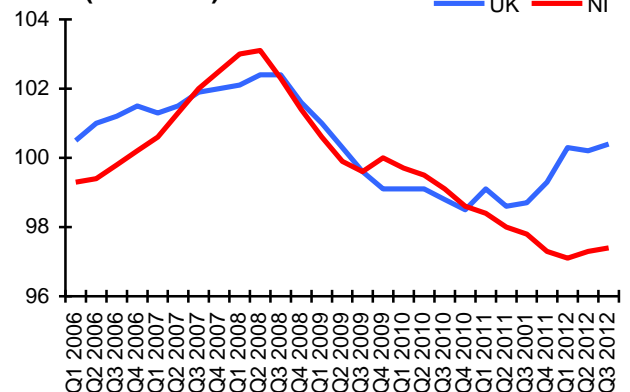
**NI Employee Jobs** — NI



In the UK employee jobs reached a maximum in Q3 2008, one quarter later than NI. Employee jobs in the UK fell by 3.8% to the minimum value reached in Q4 2010. This compares to NI where the index fell by 5.8% to its minimum value in Q1 2012.

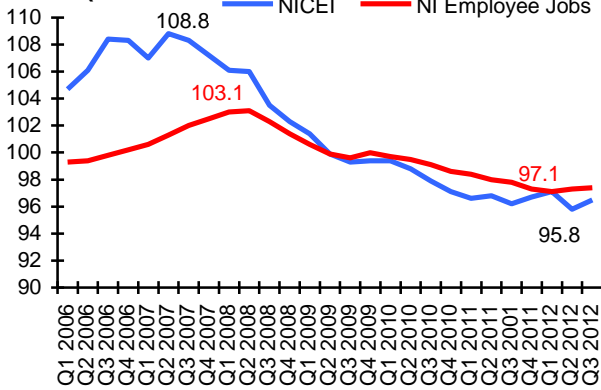
NI levels have been on a downward trend until Q1 2012 and the index is still currently below the 2009 level of 100, while in contrast UK levels have been on an upward trend since Q4 2010 with the index currently marginally above the 2009 level of 100.

**Comparison NI and UK Employee Jobs (2009=100)** — UK — NI



### Comparison NI Employee Jobs &

NICEI (2009=100)



The peak in employee jobs was reached one year after the peak in the Composite Index which means that it took 4 quarters for the fall in the NICEI to translate into a fall in employee jobs. The NICEI reached a maximum of 108.8 in Q2 2007 whilst employee jobs reached a maximum value of 103.1 in Q2 2008.

However, the employee jobs reached a minimum in Q1 2012, one quarter earlier than the NICEI.

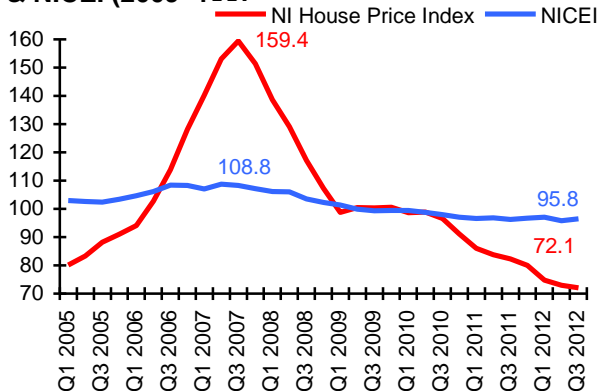
### Housing Price Index

Land and Property Services issued their latest publication of standardised indices of residential house prices in November 2012.

It shows that average house prices in Northern Ireland peaked in Q3 2007, the same quarter as unemployment reached its minimum and have been on a downward trend since (with only a marginal rise occurring in quarter 2 2009). From this maximum, prices have now fallen by over one half (55%) to the latest minimum value in Q3 2012.

The House Price Index was quicker to respond to the fall in the NICEI with it peaking in Q3 2007, one quarter after the NICEI. Both indices have been on a downward trend since reaching their maximum values.

### Comparison NI Average House Price & NICEI (2009=100)



## Summary of Q3 2012 Results

The following are summary results for the NI Composite Economic Index seasonally adjusted on a 2009 = 100 basis:-

- The composite index showed an increase of 0.7% to 96.5 in the latest quarter Q3 2012.
- Since reaching a maximum value of 108.8 in Q2 2007, the index has fallen in every quarter except five, rising in Q4 2009, Q2 and Q4 2011, and Q1 and Q3 2012.
- The index has fallen 11.4% from this maximum to the current quarter Q3 2012.
- After reaching its peak the whole Northern Ireland economy first experienced two successive quarters of decline in Q4 2007.
- The fall in the composite index for Northern Ireland started earlier in NI (Q3 2007) than in the UK (Q2 2008) as measured by quarterly GDP and has been more severe in NI than the UK, where the fall from maximum to minimum values have been 12.0% and 6.2% respectively.
- In Northern Ireland the Private sector fared worse than the Public sector, as the first fall from the latest maximum was recorded there in Q3 2007 compared with Q4 2009 (over two years later) for the Public sector. As a consequence, the percentage fall from maximum to minimum was considerably greater for the Private sector at 14.9% compared with just 5.3% for the Public sector.

## Acknowledgements

The development of this Composite Economic Index has been assisted by Quality Improvement Fund work carried out by Nigel Stuttard, ONS to whom we are grateful.

You can contact Economic and Labour Market Statistics Branch with your comments by writing to:

Economic and Labour Market Statistics Branch, Room 110, Netherleigh, Massey Avenue, Belfast BT4 2JP.

Tel: (028) 9052 9430

Fax: (028) 9052 9568

Textphone: (028) 9052 9304

Email: [statistics@detini.gov.uk](mailto:statistics@detini.gov.uk)

## Notes

### Existing Statistical Series

#### Index of Services

The Index of Services (IOS) provides a turnover quarterly measure of change in the service sector and following assessment by the UK Statistics Authority was designated a National Statistic on 5 August 2011. It is a statutory survey with a response rate of over 80%. It covers approximately 1,900 companies in Northern Ireland with an increased refreshed sample on Q2 2011 drawn on a SIC07 basis, covering sections G to S. Turnover data used in the survey is deflated to allow for price changes over time using a range of price indices available at the national level. Industry level indices are weighted together using relative shares of regional GVA on an annual basis. In line with the UK IOS it is referenced to 2009=100. The index is annually chain linked using private sector GVA estimates derived from regional accounts using the fourth quarter of the preceding year as the link period. The index is adjusted for seasonality.

#### Index of Production

The Index of Production (IOP) provides a turnover quarterly measure of change in the production sector and following assessment by the UK Statistics Authority was designated a National Statistic on 5 August 2011. It is a statutory survey with a response rate of over 90%. It covers approximately 650 companies in Northern Ireland with an increased refreshed sample on Q2 2011 drawn on a SIC07 basis, covering sections B to E comprising Manufacturing, Electricity, Gas, Water and Mining and Quarrying industries. Turnover data used in the survey is deflated to allow for price changes over time using a range of price indices available at the national level. Industry level indices are weighted together using relative shares of regional GVA on an annual basis. In line with the UK IOS it is referenced to 2009=100. The index is annually chain linked using private sector GVA estimates derived from regional accounts using the fourth quarter of the preceding year as the link period. The index is adjusted for seasonality.

#### Index of Construction

The Index of Construction Output (IOC) provides a general measure of quarterly changes in the volume and value of Construction Output in Northern Ireland. The IOC is a designated National Statistic. It is a statutory survey with a response rate of over 90%. It covers a sample of approximately 700 construction firms in Northern Ireland drawn from Divisions 41-43 (SIC 07) of the Inter-Departmental Business Register (IDBR). The sample also includes public bodies with direct labour departments. Output data in the survey is deflated to allow for price changes over time using a range of indices available at the UK level. The base year for all series published is 2005=100 and figures are seasonally adjusted using X12 Arima software. (This series is revised quarterly).

#### Quarterly Employment Survey

Estimates of the number of employee jobs are obtained from the Quarterly Employment Survey (QES), which is a voluntary survey. The QES covers all public sector employees, all employers with 25 or more employees and a representative sample of smaller firms. Updated QES results are released in mid March, June, September and December of each year.

#### Claimant Count

Claimant Count figures are derived from records of claimants held at Social Security Offices. The term 'claimants' in the claimant count is used to include those who claim Jobseeker's Allowance (JSA) and National Insurance credits. The figures include severely disabled claimants, but exclude students seeking vacation work and the temporarily stopped. The Claimant Count is a very up-to-date measure of those eligible to claim a specific unemployment related benefit and data are available for a range of geographical sub-regions within Northern Ireland.

#### Housing Price Index

The index is based on data relating to house sales on the open market in Northern Ireland from 1 January 2005 onwards. The index is standardised using multiple regression analysis to produce average values for each type of property in each District Council location, from which indices are produced.

#### References

Publications referred to in this document can be found by following the links below:

- NI Index of Production: <http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-index-of-production.htm>
- NI Index of Services: <http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-ios.htm>
- NI Quarterly Construction Output: <http://www.csu.nisra.gov.uk/survey.asp84.htm>
- NI Quarterly Employment Survey: <http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-qes.htm>
- NI Claimant Count: <http://www.detini.gov.uk/deti-stats-index/stats-surveys/stats-claimant-count.htm>
- NI Housing Price Index: <http://www.nisra.gov.uk/HousePriceIndex/hpi.html>
- Statistical Review of Northern Ireland Agriculture:  
[http://www.dardni.gov.uk/the\\_statistical\\_review\\_of\\_northern\\_ireland\\_agriculture\\_2011.pdf](http://www.dardni.gov.uk/the_statistical_review_of_northern_ireland_agriculture_2011.pdf)

## Appendix I - Summary Index Tables and Charts

The table below provides an overview of the index tables for the Composite Economic Index and its constituent indices. The arrows in the cells indicate whether the index has increased/decreased/remained constant from the previous quarter. Please note that figures are presented to one decimal place, therefore whilst it may appear that two figures are the same, an increase/decrease may be indicated due to the figures differing beyond one decimal place.

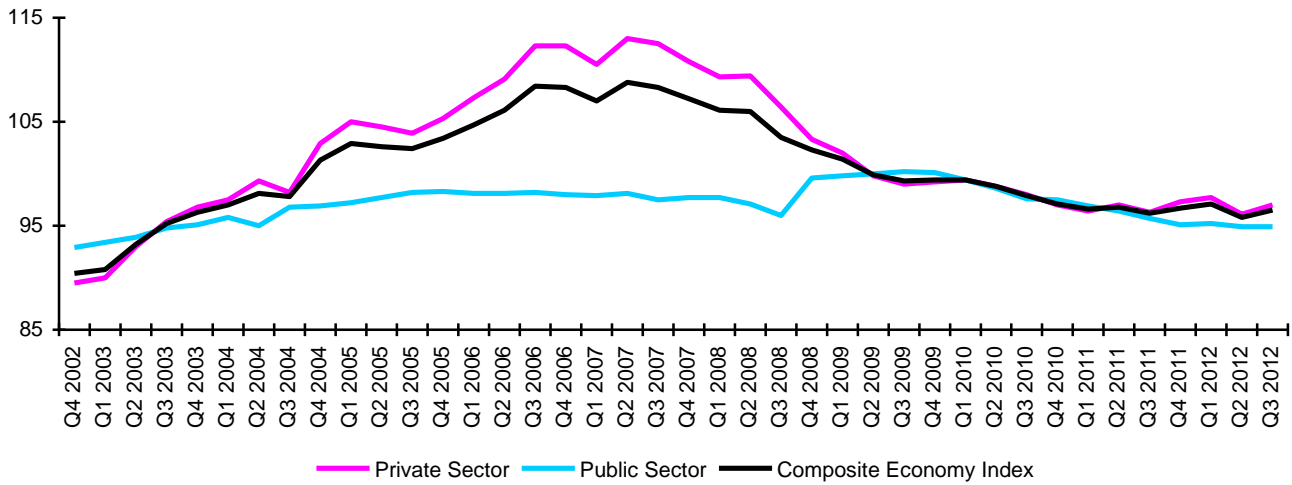
Key:	<span style="background-color: #90EE90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Maximum value reached
	<span style="background-color: #FFB6C1; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Minimum value reached

	Quarter	Composite Economic Index	Private sector	Public sector	Services	Production	Construction
2002	4	<b>90.4</b>	89.5	92.9	85.7	93.9	103.0
2003	1	↑ <b>90.8</b>	↑ 90.0	↑ 93.4	↑ 86.4	↓ 93.2	↑ 104.0
	2	↑ <b>93.2</b>	↑ 93.0	↑ 93.9	↑ 89.7	↑ 95.3	↑ 109.5
	3	↑ <b>95.2</b>	↑ 95.4	↑ 94.8	↑ 91.1	↑ 100.1	↑ 112.6
	4	↑ <b>96.3</b>	↑ 96.8	↑ 95.1	↑ 92.7	↑ 102.1	↓ 112.0
2004	1	↑ <b>97.0</b>	↑ 97.5	↑ 95.8	↑ 93.5	↑ 103.6	↓ 109.1
	2	↑ <b>98.1</b>	↑ 99.3	↓ 95.0	↑ 95.1	↑ 104.8	↑ 114.5
	3	↓ <b>97.8</b>	↓ 98.2	↑ 96.8	↓ 94.6	↓ 103.9	↓ 108.7
	4	↑ <b>101.3</b>	↑ 102.9	↑ 96.9	↑ 101.7	↑ 104.0	↑ 110.1
2005	1	↑ <b>102.9</b>	↑ 105.0	↑ 97.2	↑ 103.5	↑ 107.4	↑ 112.1
	2	↓ <b>102.6</b>	↓ 104.5	↑ 97.7	↓ 102.1	↑ 108.2	↑ 113.8
	3	↓ <b>102.4</b>	↓ 103.9	↑ 98.2	↓ 101.3	↓ 106.6	↑ 117.3
	4	↑ <b>103.4</b>	↑ 105.3	↑ 98.3	↑ 104.3	↓ 106.6	↓ 111.9
2006	1	↑ <b>104.7</b>	↑ 107.3	↓ 98.1	↑ 105.8	↑ 107.5	↑ 118.9
	2	↑ <b>106.1</b>	↑ 109.1	↑ 98.1	↑ 107.8	↑ 110.3	↓ 118.6
	3	↑ <b>108.4</b>	↑ 112.3	↑ 98.2	↑ <b>111.6</b>	↑ 111.1	↑ 124.6
	4	↓ <b>108.3</b>	↑ 112.3	↓ 98.0	↓ 111.3	↑ 111.7	↑ 124.8
2007	1	↓ <b>107.0</b>	↓ 110.5	↓ 97.9	↓ 107.9	↑ 114.0	↓ 121.5
	2	↑ <b>108.8</b>	↑ <b>113.0</b>	↑ 98.1	↑ 111.0	↑ 114.5	↑ <b>125.6</b>
	3	↓ <b>108.3</b>	↓ 112.5	↓ 97.5	↓ 110.2	↑ 117.2	↓ 119.4
	4	↓ <b>107.2</b>	↓ 110.8	↑ 97.7	↓ 107.7	↑ 118.6	↓ 115.2
2008	1	↓ <b>106.1</b>	↓ 109.3	↑ 97.7	↓ 106.2	↑ 119.5	↓ 109.4
	2	↓ <b>106.0</b>	↑ 109.4	↓ 97.1	↓ 104.9	↑ <b>120.6</b>	↑ 115.5
	3	↓ <b>103.5</b>	↓ 106.4	↓ 96.0	↓ 103.2	↓ 117.0	↓ 105.4
	4	↓ <b>102.3</b>	↓ 103.3	↑ 99.6	↓ 101.2	↓ 109.6	↓ 104.1
2009	1	↓ <b>101.4</b>	↓ 102.0	↑ 99.8	↑ 102.0	↓ 102.5	↓ 101.4
	2	↓ <b>99.9</b>	↓ 99.8	↑ 100.0	↓ 100.1	↓ <b>98.3</b>	↓ 101.0
	3	↓ <b>99.3</b>	↓ 99.0	↑ <b>100.2</b>	↓ 98.8	↑ 99.0	↓ 99.6
	4	↑ <b>99.4</b>	↑ 99.2	↓ 100.1	↑ 99.1	↑ 100.2	↓ 98.0
2010	1	↓ <b>99.4</b>	↑ 99.4	↓ 99.4	↑ 100.5	↓ 100.1	↓ 91.1
	2	↓ <b>98.8</b>	↓ 98.8	↓ 98.6	↓ 99.8	↓ 100.1	↓ 89.9
	3	↓ <b>97.9</b>	↓ 98.0	↓ 97.6	↓ 97.7	↑ 102.4	↓ 89.3
	4	↓ <b>97.1</b>	↓ 97.0	↓ 97.5	↓ 96.1	↑ 105.4	↓ 83.5
2011	1	↓ <b>96.6</b>	↓ 96.4	↓ 96.9	↓ 94.9	↑ 107.6	↓ 80.0
	2	↑ <b>96.8</b>	↑ 97.0	↓ 96.4	↑ 98.1	↓ 103.0	↓ 75.3
	3	↓ <b>96.2</b>	↓ 96.3	↓ 95.7	↓ <b>94.6</b>	↑ 109.8	↑ 76.0
	4	↑ <b>96.7</b>	↑ 97.3	↓ 95.1	↑ 96.3	↓ 109.2	↑ 76.3
2012	1	↑ <b>97.1</b>	↑ 97.7	↑ 95.2	↓ 96.0	↑ 109.9	↑ 80.5
	2	↓ <b>95.8</b>	↓ <b>96.1</b>	↓ 94.9	↑ 96.5	↓ 104.3	↓ 73.9
	3	↑ <b>96.5</b>	↑ 97.0	↓ <b>94.9</b>	↑ 98.4	↓ 104.2	↓ <b>70.5</b>

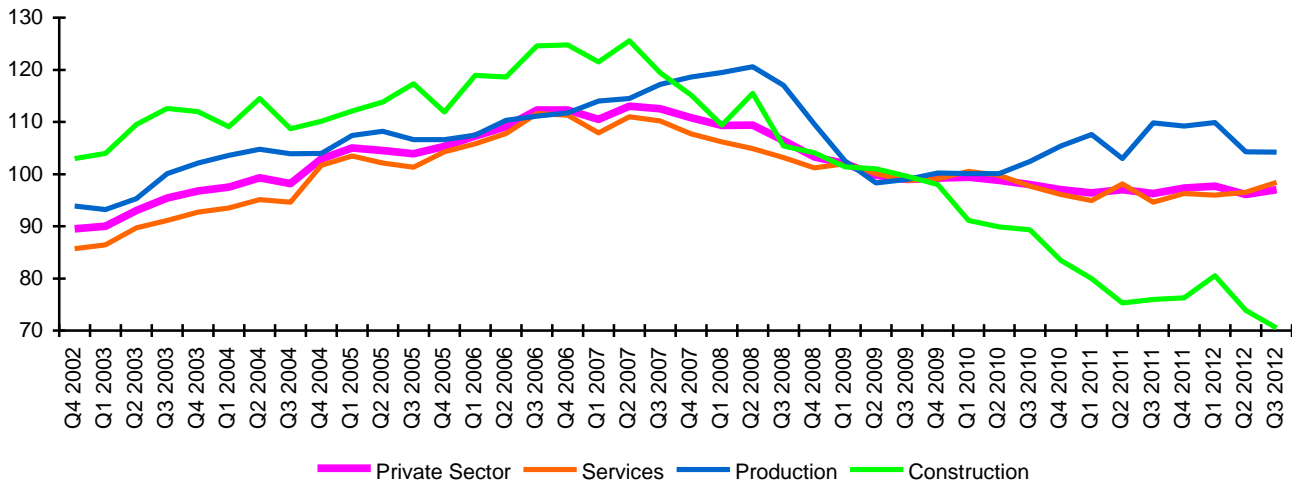
	Composite Economic Index	Private sector	Public sector	Services	Production	Construction
<b>Maximum Reached</b>	Q2 2007	Q2 2007	Q3 2009	Q3 2006	Q2 2008	Q2 2007
<b>Maximum Value</b>	108.8	113.0	100.2	111.6	120.6	125.6
<b>Minimum Reached</b>	Q2 2012	Q2 2012	Q3 2012	Q3 2011	Q2 2009	Q3 2012
<b>Minimum value</b>	95.8	96.1	94.9	94.6	98.3	70.5
<b>% fall from max - min</b>	-12.0%	-14.9%	-5.3%	-15.2%	-18.5%	-43.8%

## Appendix I - Summary Index Tables and Charts

### Overview of NICEI, Public and Private Sector Indices (2009=100)



### Overview of Private Sector Index and component indices (2009=100)



### NICEI component Indices max and min values (2009=100)

