Northern Ireland Quarterly Index of Services

Quarter 2 (April - June) 2018

Date: 13 September 2018
Geographical Area: Northern Ireland
Theme: Economy
Frequency: Quarterly

Key Points

Output estimates are calculated from the Index of Services (IOS) aspect of the Quarterly Business Survey (QBS). The IOS has a sample size of approximately 3,400, covering all businesses with 100 or more employees and a representative sample of smaller businesses.

- Services output in Northern Ireland (NI), in real terms, increased over the quarter by 1.3% and over the year by 3.4%. The services index has seen growth over each of the previous four quarters and is now at the highest point since Quarter 2 (April – June) 2008 and is 2.8% lower than the highest point since the series began (Q4 2006).

- The UK IOS reported growth in output over both the quarter and year, by 0.5% and 1.5% respectively.

- When the most recent four quarters are compared to the previous four quarters, the NI services sectors showed annualised growth of 1.9% to Quarter 2 2018, whilst the UK services sector showed slightly lower annualised growth of 1.5%.

- The NI IOS has recovered by 11.1% since the recent minimum value recorded in Quarter 2 (April - June) 2012. UK output has recovered by 14.2% over the same time period

- The quarterly increase in NI services output has been largely driven by increases in the Transport, storage, information and communications (5.7%), Other services (1.6%) and Wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sectors (0.3%).

- Similarly, the annual increase in NI services output has been driven by increases in the Transport, storage, information and communications (11.9%) and Wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sectors (2.7%).

The Index of Services (IOS) Bulletin contains the following chapters:

National Statistics

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is a producer's responsibility to maintain compliance with the standards expected of National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained, and reinstated when standards are restored.

1 Summary of Index of Services

1.1   Changes in IOS

The seasonally adjusted estimate for the NI IOS for Quarter 2 2018 showed:

- increased output by 1.3% over the quarter from the revised Quarter 1 2018 estimate.
- increased output by 3.4% over the year from the revised Quarter 2 2017 estimate.
- increased output by 1.9% when the most recent four quarters are compared to the previous four quarters.

Figure 1.1   IOS, NI & UK, Q2 2008 – Q2 2018
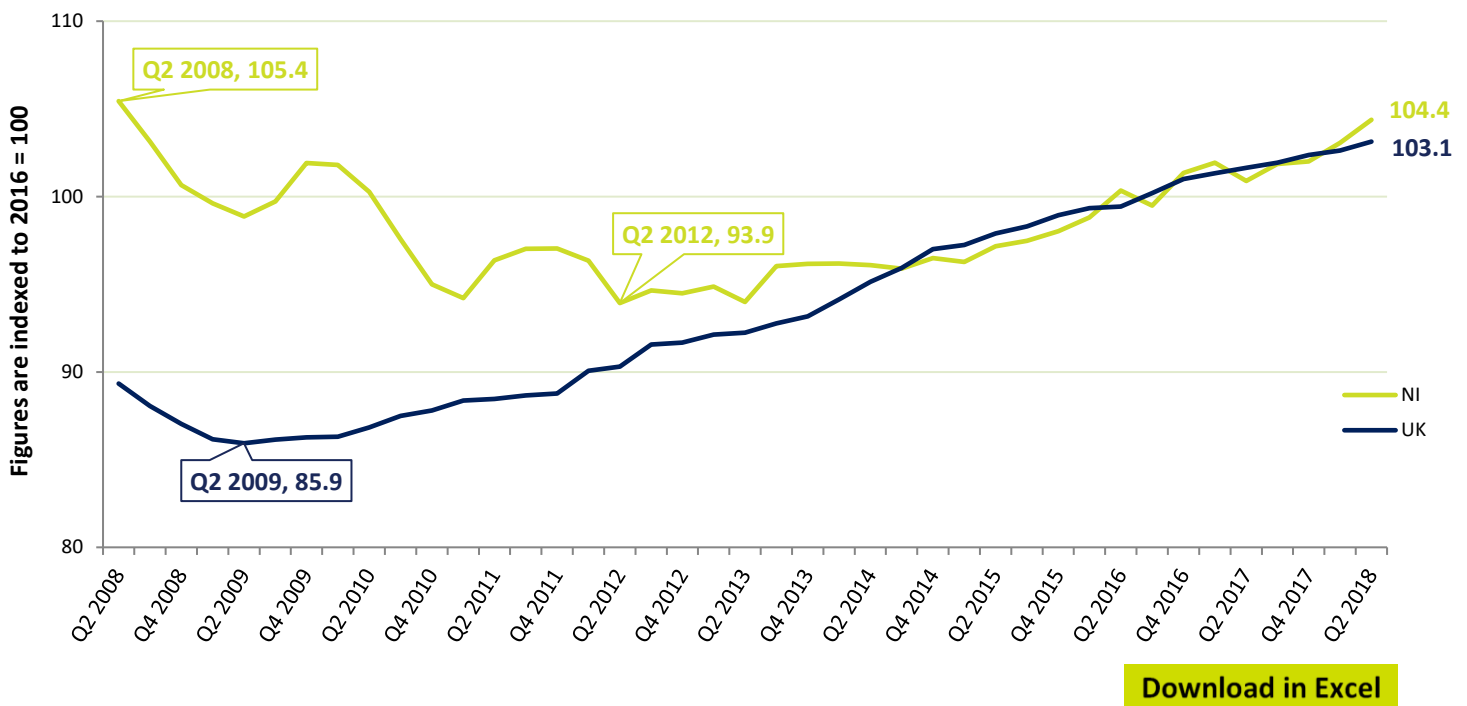

1.2   Commentary

Output in the services sector increased in real terms (1.3%) over the second quarter of 2018, to the highest point in ten years (Quarter 2 (April – June) 2008). NI output in this sector remains 1.0% lower than the highest point in ten years and is 2.8% lower than the highest point since the series began (Q4 2006). Growth over the year (3.4%) in the sector was higher than UK growth (1.5%) over the equivalent period (Quarter 2 2017 to Quarter 2 2018). The NI IOS has recovered by 11.1% since the recent minimum value recorded in Quarter 2 (April - June) 2012. The UK index has recovered by 14.2% over the same time period.

Since Quarter 3 2014, the NI and the UK indices have followed very similar trajectories and have seen comparable change. Prior to Quarter 3 2014, there were often large differences between both indices, with greater volatility in the NI index, but both series have become much more closely aligned over the past four years.

Figure 1.2   NI IOS Quarterly, Annual and Rolling Four Quarter Changes at Sector Level
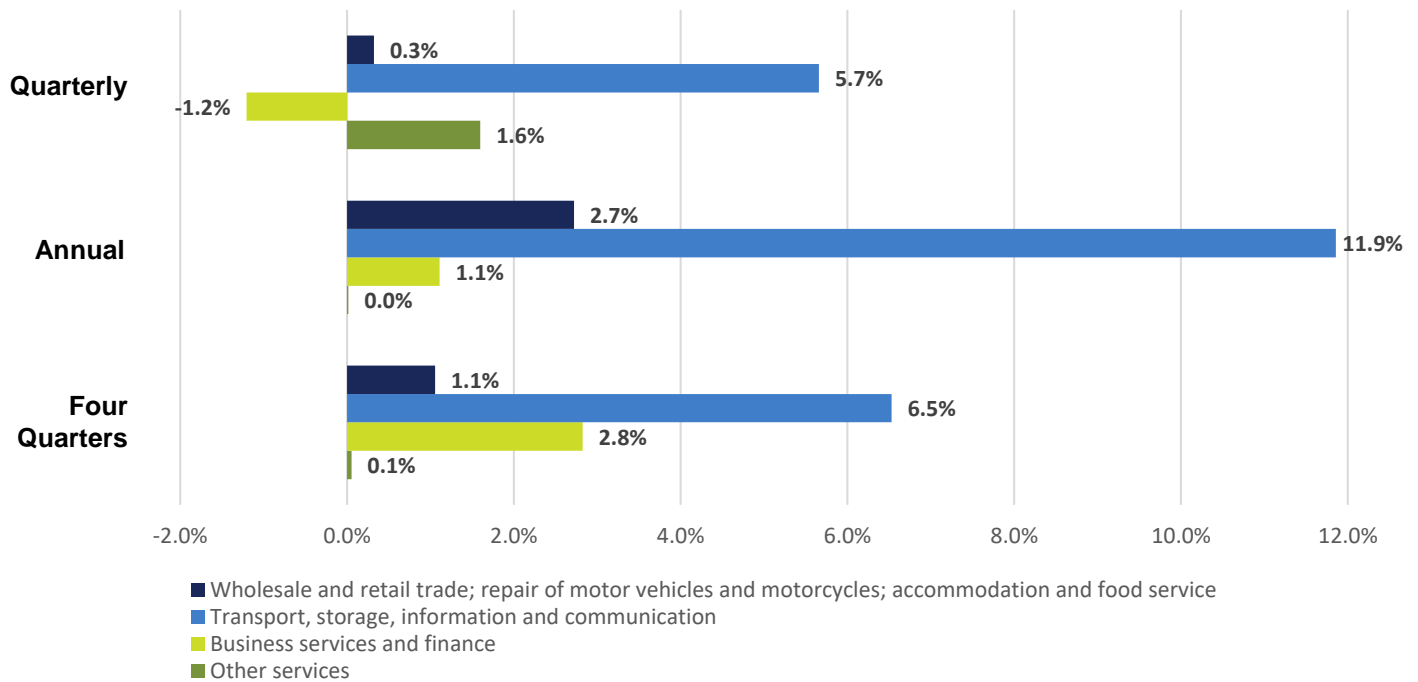
Change over the quarter

Comparing the seasonally adjusted NI IOS for Quarter 2 2018 to the Quarter 1 2018 estimate showed:

- an increase in output in the transport, storage, information and communications sector by 5.7%;
- an increase in output in the other services sector by 1.6%;
- an increase in output in the wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sector by 0.3%; and,
- a decrease in output in the business services and finance sector by 1.2%.

Change over the year

Comparing the seasonally adjusted NI IOS for Quarter 2 2018 to the Quarter 2 2017 estimate showed:

- an increase in output in the transport, storage, information and communications sector by 11.9%;
- an increase in output in the wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sector by 2.7%;
- an increase in output in the business services and finance sector by 1.1%; and,
- no change in output in the other services sector (0.0%).

Change on a rolling four quarter basis

Comparing the seasonally adjusted NI IOS for Quarter 3 2017 - Quarter 2 2018 to the Quarter 3 2016 - Quarter 2 2017 estimate showed:

- an increase in output in the business services and finance sector by 2.8%;
- an increase in output in the transport, storage, information and communications sector by 6.5%;
- an increase in output in the wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sector by 1.1%; and,
- an increase in output in the other services sector by 0.1%.

Date of next publication
The next NI IOS publication is scheduled for 13th December 2018.
Further information is available on the IOS section of the NISRA website.

1.3 Context

The IOS is an important short-term measure of change in the output of the private services sector of the economy. The contents of this report will be of interest to government policymakers, Members of the Legislative Assembly, the business community, economic commentators, academics and members of the general public with an interest in the NI economy. A summary of recent uses is available **here**.

The Department for the Economy (DfE) **Economic Commentary (Spring 2018)** provides an overview of the NI economy, setting it in context with the UK and Republic of Ireland.

The most up-to-date official statistics on the economy and labour market are available on the **Economic Overview section** of the **Economic and Labour Market Statistics (ELMS) section of the NISRA website.**

The IOS is published on a Standard Industrial Classification 2007 (SIC07) basis. IOS data prior to Quarter 2 2011 were collected on a SIC03 basis and have been converted to approximate the SIC07 coverage.

The background notes (section 3) provide detailed information on the methodology used to produce the statistics as well as information on the quality and accuracy of the data. This bulletin contains results for the service sector as a whole, for wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service, for transport, storage, information and communication, for business services and finance and for other services sub-sectors. All services sector series are seasonally adjusted on a 2016=100 basis, using X-13 ARIMA SEATS, giving data up to the most recent available quarter (Quarter 2 2018).

Comparative UK data, produced by the Office for National Statistics (ONS), are presented where these are available. Click **here** to see the latest UK IOS results.

This publication provides three measures of growth for the index.
1. The quarter-on-quarter change provides the most recent measure of how the sector is changing. It is appropriate to compare consecutive quarters as the indices are seasonally adjusted to remove the effects of changes in output as a result of the time of the year;
2. Comparisons with the same quarter one year ago; and
3. A comparison of the most recent twelve months with the twelve months before. The quarterly comparison over the year provides an additional control on the seasonal effects. The comparison of the rolling annual average is useful for identifying changes in output over a longer time period than the other two approaches.

1.4 Revisions

Results are provisional and subject to revision, which can be made for a variety of reasons. The most common include late responses to surveys, estimates being replaced by actual data, revisions to seasonal adjustment factors, methodological changes and changes to business classifications.

2   Services output by sector

Output: turnover, defined as the value of total sales generated from all NI based activity, excluding VAT. Turnover is rounded to the nearest thousand and is then deflated and seasonally adjusted.

2.1   Key Findings:

- **The NI IOS increased by 1.3% over the quarter, 3.4% over the year and 1.9% on a rolling four quarter basis.**
- **The NI IOS is now at the highest point in ten years (Quarter 2 (April – June) 2008) and is 2.8% lower than the highest point since the series began (Q4 2006).**
- **Quarterly increase in the NI IOS has been largely driven by increases in the transport, storage, information and communications (5.7%), other services (1.6%) and the wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sectors (0.3%).**
- **Similarly, the annual increase in the NI IOS has been driven by increases in the transport, storage, information and communications (11.9%) and the wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food service sectors (2.7%).**

The private service sector is comprised of four sectors but is dominated by the:
- (i)   wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food services sector; and,
- (ii)   business services and finance sector.

Together these two sectors account for approximately 70% of total private services Gross Value Added (GVA) at 2016 prices. The sectors are listed in order of importance of their contribution made to the overall IOS.

Figure 2.1   IOS private sector split, by sector (based on 2016 GVA)
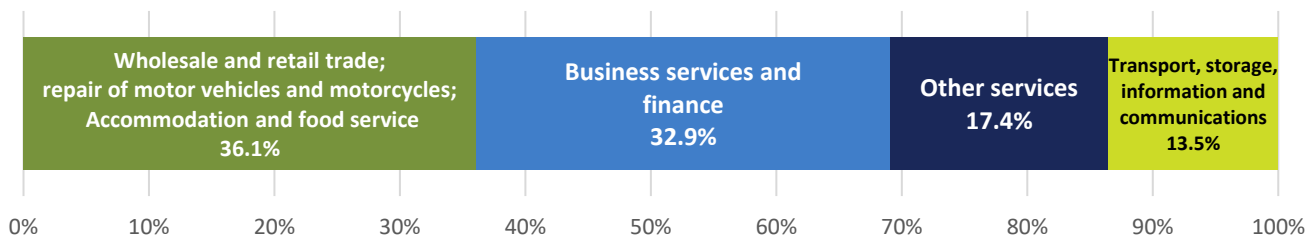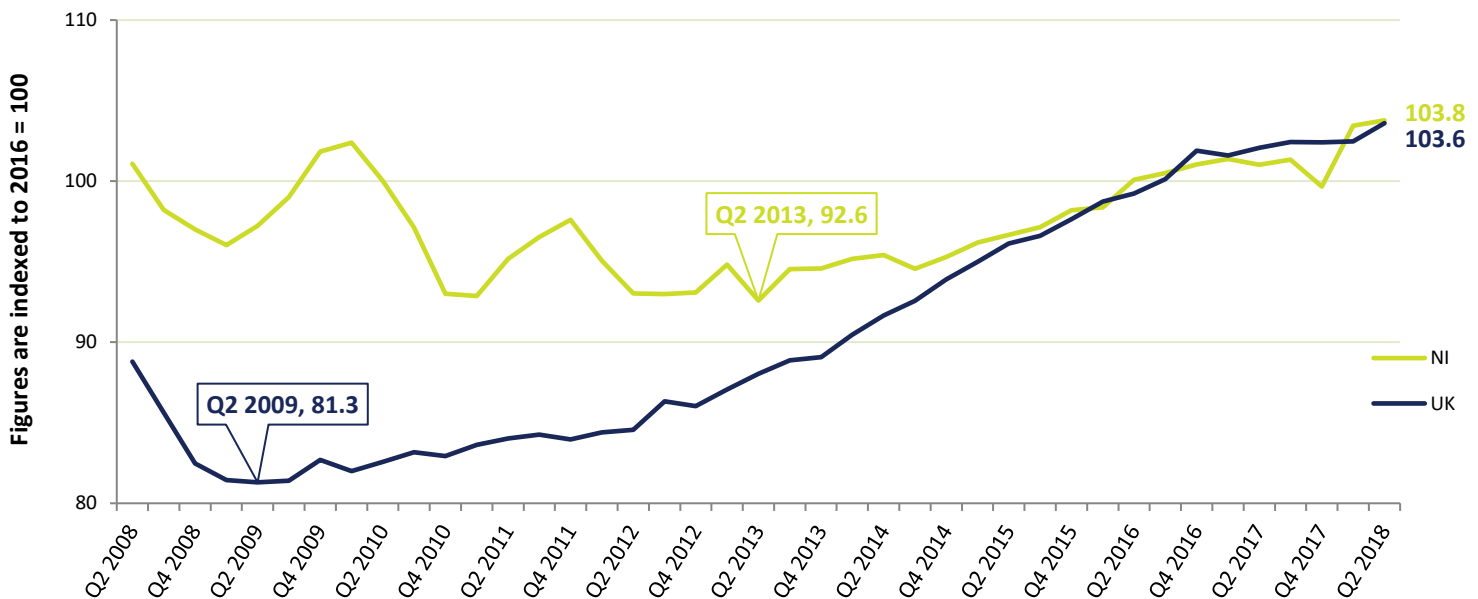
2.2 Wholesale and retail trade; repair of motor vehicles and motorcycles; Accommodation and food service sector

> **Wholesale and retail trade; repair of motor vehicles and motorcycles; Accommodation and food service sector (SIC 07 Section GI) – (weight = 36.1% of IOS):** includes the wholesale and retail sale and the supply of services incidental to the sale of merchandise as well as the repair of motor vehicles and motorcycles. This sector also includes the provision of short-stay accommodation for visitors and the provision of complete meals and drinks fit for immediate consumption.

Key Findings:
- **The NI seasonally adjusted figures showed an increase of 0.3% over the quarter to Quarter 2 2018, an increase of 2.7% over the year and an increase of 1.1% on a rolling four quarter basis.**
- **The UK seasonally adjusted figures showed an increase of 1.1% over the quarter to Quarter 2 2018, an increase of 1.5% over the year and an increase of 1.3% on a rolling four quarter basis.**
- **Overall, the UK series is slightly outperforming NI with larger increases in output over both the quarterly and rolling four quarter time periods.**
- **NI output is at its highest point recorded over the period Q2 2008 - Q2 2018.**
- **NI output is 12.1% above its lowest point (Q2 2013) recorded over the past ten years.**

Figure 2.2 Wholesale and retail trade; repair of motor vehicles and motorcycles; Accommodation and food service sector, NI & UK, Q2 2008 – Q2 2018

Commentary

The seasonally adjusted index for wholesale and retail trade; repair of motor vehicles and motorcycles; accommodation and food services shows that output increased over the quarter (0.3%). Similarly, the UK reported an increase in this sector (1.1%) over the quarter. NI output has reached the highest point recorded over the past ten years. Output increased by 2.7% over the year and by 1.1% on a rolling four quarters basis. This compares to the UK which recorded growth of 1.5% and 1.3% over the same periods. The NI index has recovered 12.1% from its lowest point recorded (Q2 2013) within the past ten years. In comparison, UK output has recovered by a greater amount (17.7%) over the same time period.
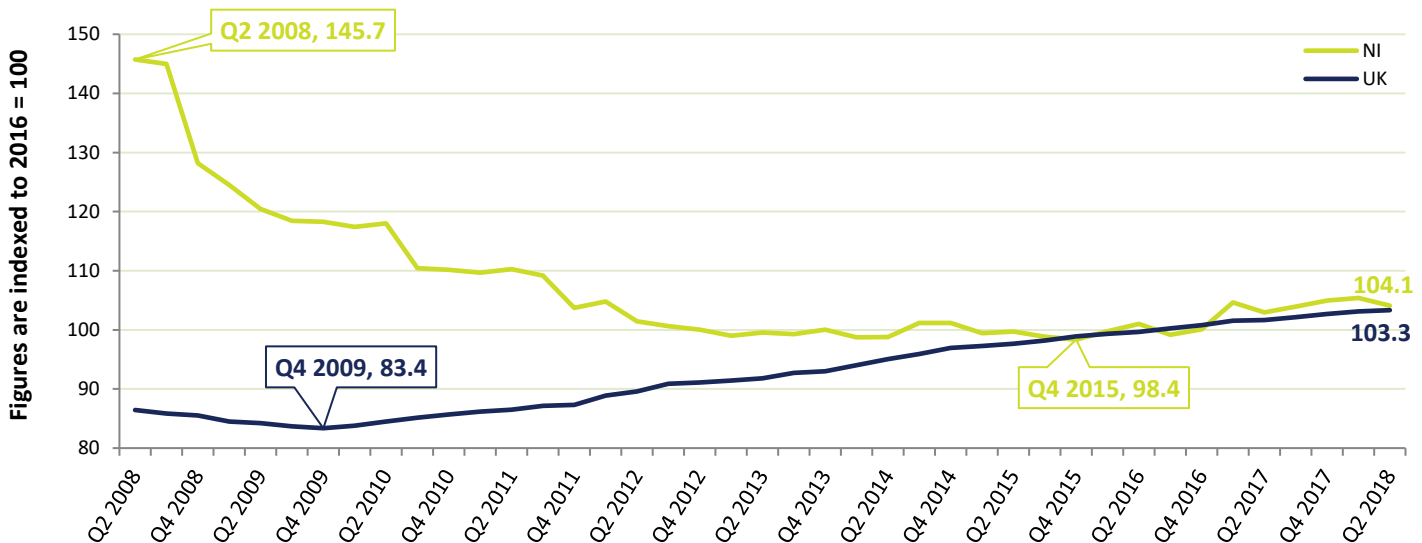
2.3   Business services and finance sector

> **Business services and finance sector – (SIC 07 Section KLMN) - (weight = 32.9% of IOS):** includes financial service activities, real estate activities, specialised professional, scientific and technical activities and a variety of activities that support general business operations.

Key Findings:
- **The NI seasonally adjusted figures showed a decrease of 1.2% over the quarter to Quarter 2 2018, an increase of 1.1% over the year and an increase of 2.8% on a rolling four quarter basis.**
- **The UK seasonally adjusted figures showed a small increase of 0.2% over the quarter to Quarter 2 2018 and increases of 1.7% over both the year and on a rolling four quarter basis.**
- **The NI series is divergent to the UK over the quarter but comparable on an annual and a rolling four quarter basis.**
- **NI output is 28.6% lower than its highest point (Q2 2008) recorded over the period Q2 2008 - Q2 2018.**
- **NI output is 5.9% above its lowest point (Q4 2015) recorded over the past ten years.**

Figure 2.3   Business services and finance sector, NI & UK, Q2 2008 – Q2 2018

Download in Excel

Commentary

The seasonally adjusted index for business services and finance shows that output decreased over the quarter (1.2%) whilst the UK reported a small increase in this sector's output (0.2%) over the quarter. NI business services and finance output increased by 1.1% over the year and by 2.8% over rolling four quarters. This compares to UK, which recorded growth of 1.7% over both the year and on a rolling four quarter basis. The NI index has recovered 5.9% from its lowest point recorded (Q4 2015) within the past ten years. In comparison, UK business services and finance output has recovered by 4.5% over the same time period.

2.4   Other services sector[1]

> **Other services sector – (SIC 07 Section PQRS) - (weight 17.4% of IOS):** includes other activities not covered elsewhere - education, health & social work, arts, entertainment and recreation and other services.

Key Findings:
- **The NI seasonally adjusted figures showed an increase of 1.6% over the quarter to Quarter 2 2018, no growth (0.0%) over the year and an increase of 0.1% on a rolling four quarter basis.**
- **NI output is 7.9% below the highest point (Q3 2013) recorded over the period Q2 2008 - Q2 2018.**
- **NI output is 4.7% above its lowest point (Q1 2015) recorded over the past ten years.**

Figure 2.4   Other services sector, NI, Q2 2008 – Q2 2018
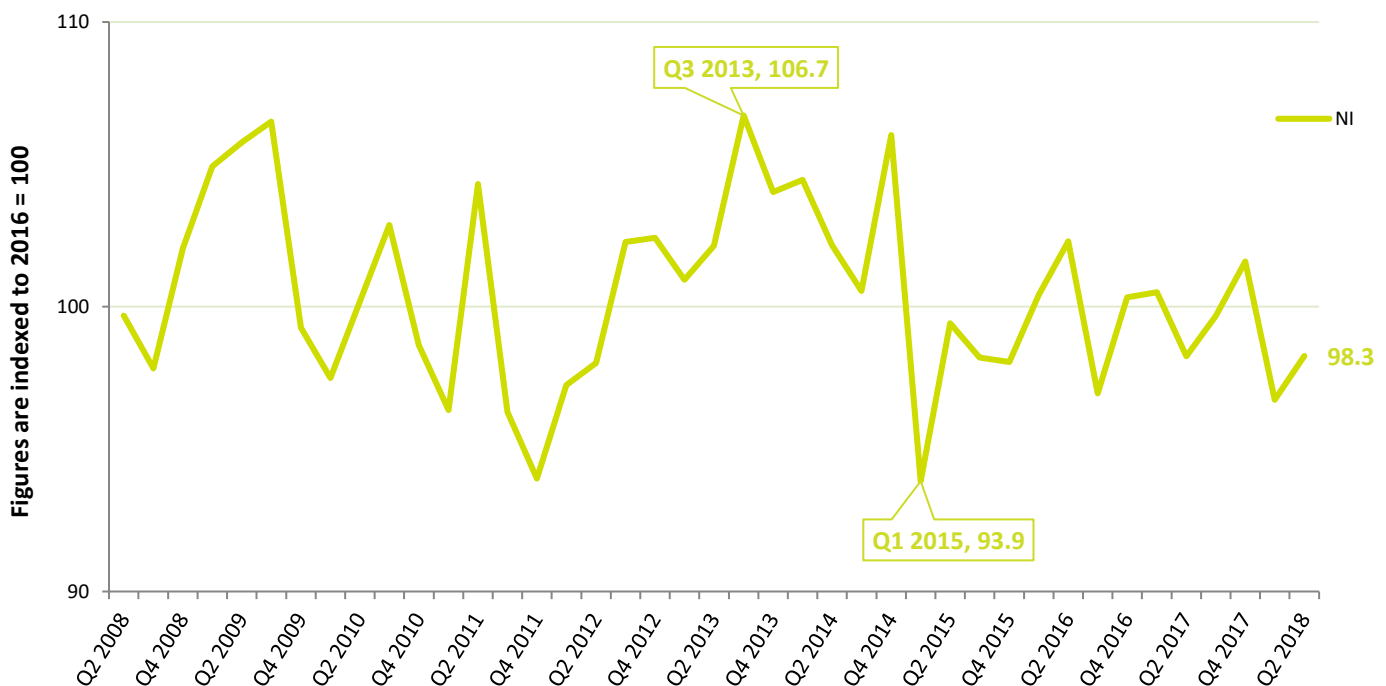
Commentary

The seasonally adjusted index for other services shows that output increased over the quarter (1.6%). NI other services output increased by 0.0% over the year and by 0.1% on a rolling four quarter basis. The NI index has recovered 4.7% from its lowest point recorded (Q1 2015) within the past ten years. The NI index is still 7.9% below its peak recorded in Q3 2013.

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[1] The UK does not publish results on the same basis as NI so there are no UK results to compare against.
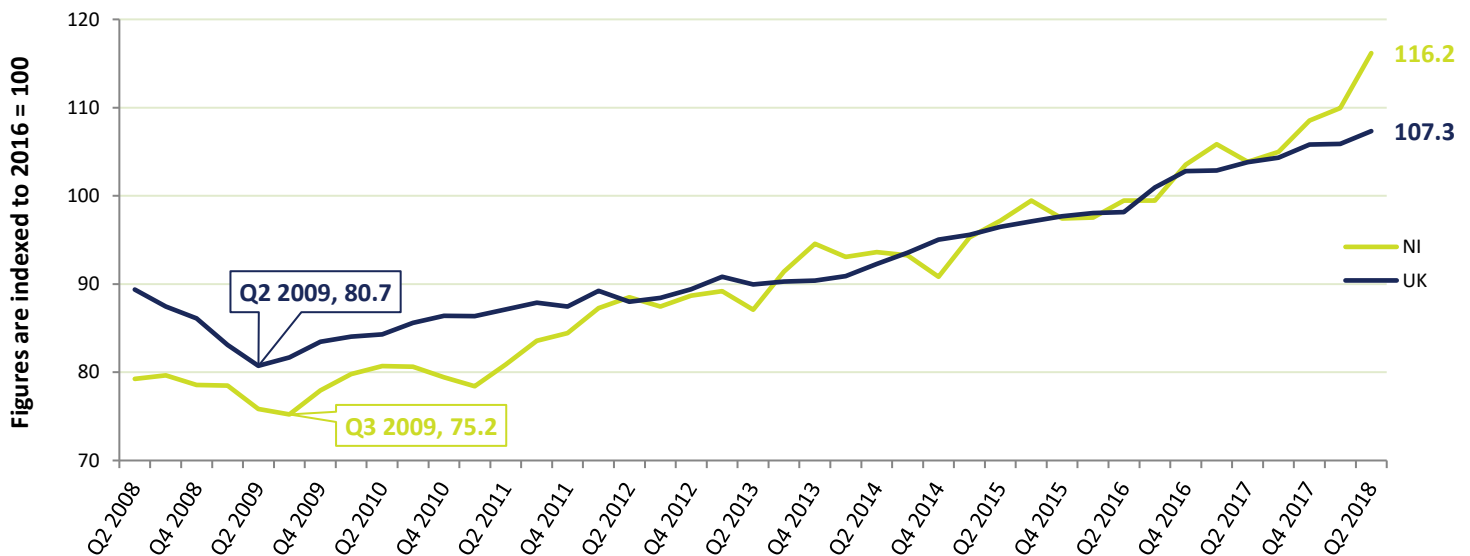
2.5   Transport, storage, information and communications sector

> **Transport, storage, information and communications sector – (SIC 07 Section HJ) - (weight 13.5% of IOS) :** includes the provision of passenger or freight transport and associated activities, postal and courier activities, the production and distribution of information and cultural products, as well as data or communications, information technology activities and the processing of data and other information service activities.

Key Findings:
- **The NI seasonally adjusted figures showed an increase of 5.7% over the quarter to Quarter 2 2018, an increase of 11.9% over the year and an increase of 6.5% on a rolling four quarter basis.**
- **The UK seasonally adjusted figures showed an increase of 1.4% over the quarter to Quarter 2 2018, an increase of 3.4% over the year and an increase of 3.2% on a rolling four quarter basis.**
- **The NI series is outperforming the UK with larger increases in output over all comparable time periods.**
- **NI output is at its highest point recorded over the period Q2 2008 - Q2 2018.**
- **NI output is 54.4% above its lowest point (Q3 2009) recorded over the past ten years.**

Figure 2.5   Transport, storage, information and communication, NI & UK, Q2 2008 – Q2 2018

Download in Excel

Commentary

The seasonally adjusted index for transport, storage, information and communications shows that output increased over the quarter (5.7%), to the highest point reported over the past ten years. The UK reported a smaller increase in this sector's output (1.4%) over the quarter. NI transport, storage, information and communications output increased by 11.9% over the year and by 6.5% on a rolling four quarters basis. This compares to UK which again recorded smaller growth of 3.4% and 3.2% over the same periods. The NI index has recovered 54.4% from its lowest point recorded (Q3 2009) within the past ten years. In comparison, UK output has recovered to a lesser extent (31.4%) over the same time period.

3 Background notes

Background

The experimental IOS was first published in NI on 18 May 2005. Following an assessment by the UK Statistics Authority, the IOS was designated as a National Statistic on 5 August 2011. It is published quarterly and is designed to provide a general measure of changes in the output of the private sector service industries in NI (this is defined as SIC07 sections G to S). Based on employee jobs, in 2016 these private sector service industries accounted for 64% of all service sector Regional GVA.

Please note that in publications up until Quarter 3 2017 indices were calculated using income based GVA for weighting purposes. From Quarter 4 2017 however, weighting is carried out using the balanced GVA approach – this balances the income and production approaches to measuring the economy into a single estimate. For more information please see **Regional GVA information**.

Index numbers

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. Index numbers have the advantage that they allow different types of data to be combined on a consistent basis, e.g. deflated current price data with volume data. The aim of the IOS is to provide a reliable indicator of short-term changes in the output of the service sector. Index numbers are a very good way of communicating this message. For example, the IOS Quarter 2 2018 value of 104.4 means that the level of output then was 4.4% higher than in 2016 which had a base year value of 100. The NI IOS is a Laspeyres volume index. The UK economic accounts are based on the European System of Accounts (ESA), which in turn is based on the UN System of Accounts (SNA). The ESA-preferred type of output indicator is one that measures deflated gross output (or turnover) for an industry. These use an approximate price change estimator to remove the effects of inflation. For this reason, we and the ONS, use a Laspeyres volume index (as opposed to Paasche, Lowe or Fisher indices). The ONS paper on the **Methodology of the Monthly Index of Services (Annex A: Mathematical Formulation of the Index of Services)** explains Index numbers theory.

Index sample

The IOS sample was refreshed for Quarter 1 2014 and was drawn on a SIC07 basis. The sample was boosted from around 1,600 businesses and it is now approximately 3,400 companies. As a statutory survey the response rate is 75% (on average). The sample of service industries is selected directly from the Inter-Departmental Business Register (IDBR), by stratifying companies by industry and company size. The sample consists of a census of dominant companies and a Neyman stratified random sample of the remaining companies. The census element consists of all companies employing 100 or more employees and those employing 0 to 99 employees and having an annual turnover of £10 million or more. It is desirable to include these high turnover low employment businesses in the sample in order to provide a more comprehensive picture of the overall economy. This sample has been designed to give sufficiently accurate results, yet keep the total costs to businesses to a minimum.

Questionnaires were issued to both the new and existing businesses on each sample, for three quarters, as a means to calculate a link factor between the old sample (up to and including

Quarter 4 2013) and the new sample (from Quarter 1 2014 onwards). With advice from ONS Methodologists, as the result of a successful Quality Improvement Fund, a methodology has been developed in order to integrate the new samples without making significant changes to the back series data, thus giving a meaningful index.

Data collection, validation and Index calculation
Survey forms are issued quarterly, immediately after the period to which they relate. For example, forms are issued in October asking for information relating to July to September. Since the beginning of 2016, a QBS form was issued to all businesses who previously received an IOS form and/or a Quarterly Employment Survey (QES) form. Companies are also asked to provide employment and turnover information at the same time. This combined survey form, coupled with the roll-out of an 'eForm' (designed to collect data electronically) has reduced the burden to businesses which had previously received two separate forms at different times.

Data validation is carried out ensuring that data falls within the expected limits, contacting the company where appropriate for clarification.

The overall IOS is calculated by weighting together industry level indices that describe the activity of an industry sector using the SIC. This is done using relative shares of regional GVA on an annual basis. The annual weights from regional GVA are more up to date and their use is in line with recommendations from ONS.

The NI IOS is annually chain-linked (chain-linking involves the linking of growth estimates between different time periods in order to produce a continuous time series) using private sector GVA estimates derived from regional accounts using the fourth quarter of the preceding year as the link period. Inaccuracies caused by the assumption of a stable relationship between GVA and turnover are reduced using this methodology. When annual weights are used the assumption only has to be maintained from one year to the next year. A paper **detailing the chain-linking process** has been published by ONS.

The standard method for linking two series (for example one based on a SIC03 sample and one based on a SIC07 sample) is to calculate the index under the old and new circumstances over some link period, and then apply the growth of the subsequent new series to the old series. As the relationship of both samples to the IDBR was known, the IDBR was used to provide the link period. Thus, the ratio of the IDBR turnover for Quarter 1 2011 and Quarter 2 2011 is known. We have the Quarter 2 2011 value (SIC07) and the Quarter 1 2011 value (converted from SIC03 to SIC07). We can, therefore, create the following link factor:

$$\text{link factor} = \frac{\text{(Q2 2011 sample estimate} * \text{IDBR Q1 2011 value)}}{\text{(Q1 2011 sample estimate} * \text{IDBR Q2 2011 value)}}$$

This can then be applied to the converted back series, thus retaining the previous growth rates.

For Quarter 1 2014 and Quarter 2 2014, questionnaires were issued to companies in both the existing sample and the new sample, thus allowing a link factor to be calculated based on the average percentage change between the two. This link factor was then applied to each of the quarterly turnover back series (grossed & deflated), in order to give a series of the same magnitude as the new sample series (from Quarter 1 2014 onwards).

Deflation

All series, unless otherwise quoted, are measured at a constant market price (2016 = 100). Deflators adjust the value series to take out the effect of price change to give the volume series. The deflators used in this document were sent directly by ONS on 4th September 2018. Details on the changes to the ONS deflators methodology can be found **here**.

Seasonal adjustment

The index numbers in this statistical bulletin are all seasonally adjusted. This aids interpretation by removing annually recurring fluctuations, for example due to holidays or other regular seasonal patterns. All IOS time series are checked on an annual basis using X-13 ARIMA SEATS for evidence of seasonality, and those series where seasonality is detected are adjusted using X-13 ARIMA SEATS in order to obtain a clear picture of the general trend. Unadjusted data are also available.

The figures presented in this publication are calculated using the X-13 ARIMA SEATS method of seasonal adjustment. ONS have provided a **guide to seasonal adjustment with X-12 ARIMA,** as an updated guide for X-13 ARIMA SEATS is currently being finalised by ONS.

Quality reporting

One indicator of the reliability of the figures in this bulletin can be obtained by monitoring the size of revisions. Previous revisions triangles are based on SIC03 data. With the move to SIC07, it is not possible to update the current revisions triangles with the data published on a SIC07 basis. Further information on the construction of SIC07 revisions triangles will be announced in due course.

Summary quality report

A summary quality report for this publication can be found on the **IOS Quality and Revisions** page of the website,

Publication of results on a SIC07 basis

A SIC was first introduced into the UK in 1948 for use in classifying business establishments by the type of economic activity in which they are engaged. The UK is required by European legislation to revise the SIC in parallel with NACE (the statistical classification of economic activities in the European Communities) so that both systems are identical down to and including the four digit class level. More information on SIC07 can be found **here** and **here**.

Status of figures in current bulletin

Figures in this publication of IOS are weighted using 2016 GVA which became available on 20th December 2017.

Results are published on a SIC07 basis and in line with ONS, the base year of the NI IOS has been moved to 2016.

All figures are published to one decimal place. Figures for annual averages and percentage changes over the previous quarter and year are based on unrounded figures and may not agree with the published constituent parts.

Results, particularly for the latest quarter, are provisional and are subject to revision as more up to date information becomes available.

Comparisons between the IOS and the Annual Business Inquiry (ABI) may not necessarily match because of definitional and coverage differences.

Planned future revisions

The IOS revisions policy can be found **here**.

The SIC 47 code of retail is scheduled to be constructed as a separate series and it is planned to publish this series in the near future.

Publications policy

All ELMS publications are available to download free of charge from the **ELMS section of the NISRA website**.

The IOS bulletin and tables from the current publication, which includes all the data from the start of the series in 2005, are available in Excel and Open Document format to download free of charge from the **IOS section of the NISRA website**.

Future IOS publications are due to be published on the same day as the IOP in March, June, September and December of each year.

The ELMS publication schedule is available **here**.

Next publication

The next bulletin is due to be published on 13th December 2018.

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