

Northern Ireland Index of Production Quarter 4 (Oct-Dec) 2015



Date: 16 March 2016
Geographical Area: Northern Ireland
Theme: Economy Statistics
Frequency: Quarterly

Key points

- Provisional results from the Index of Production for the fourth quarter (Oct-Dec) of 2015 showed that output in NI increased in real terms by 1.3% over the quarter, whereas output in the UK as a whole decreased by 0.4%.
- This growth follows two consecutive quarters of decline following the recent highpoint recorded in quarter 1 (Jan-Mar) 2015.
- Compared to the same period one year earlier, the NI index rose by 1.3% in quarter 4 (Oct-Dec) 2015. The UK index rose by 0.8% in the same time period.
- When the most recent four quarters are compared to the previous four quarters, the rate of growth for NI production industries was 1.8% in 2015. This annualised rate of growth was slower than that in 2014 (2.2%) but exceeded that of the UK production sector (1.0% in 2015).

Figure 1: Index of Production, Northern Ireland and UK



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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.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

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1

Introduction and context

This bulletin provides provisional data from the Northern Ireland Index of Production (IOP) Survey. The IOP is one of the earliest official indicators of the performance of Northern Ireland industry and, as such, represents an important short-term measure of change in a significant area of the economy. The contents of this report will be of interest to government policy makers, Members of the Legislative Assembly, the business community, economic commentators, academics and members of the general public with an interest in the state of the NI economy. A summary of uses is available on the website at <https://www.detini.gov.uk/publications/methodology-and-usage-iop>

The latest Department of Enterprise, Trade and Investment Economic Commentary (October 2015) provides an overview of the state of the Northern Ireland economy, setting it in context with the UK and Republic of Ireland. This can be found at <https://www.detini.gov.uk/publications/deti-economic-commentary>

The most up-to-date official statistics on the economy and labour market, including those published on the same day as the Northern Ireland Index of Services and Index of Production, are available on the Economic Overview page of the DETI website at <https://www.detini.gov.uk/topics/deti-statistics-and-economic-research>

The separate Northern Ireland Index of Services (IOS) provides an important short-term measure of change in the output of the private services sector of the economy. It is based on up-to-date information about the output and sales of the services industry. Provisional figures for Index of Services for the fourth quarter (Oct-Dec) of 2015 showed that output, in real terms, increased over the quarter and the year by 0.6% and 2.0% respectively. The index has recovered by 5.5% since the recent minimum value recorded in quarter 1 (Jan-Mar) 2011. Further information and results from the NI IOS can be accessed at <https://www.detini.gov.uk/topics/statistics-and-economic-research/index-services>

The Index of Production is published on a Standard Industrial Classification 2007 (SIC07) basis. This has an impact on the type of businesses classified as production sector. For example, publishing activities move from the production to the services sector and sewerage and waste disposal moves from services to the production sector. Within the production sector there are some new groupings of businesses. IOP data prior to quarter 2 (Apr-Jun) 2011 were collected on a SIC03 basis and it has been converted to approximate the SIC07 coverage. Further detail can be found in the background notes (section 8).

The background notes in Section 8 of this publication 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 detailed results for the Production Industries i.e. the Mining & quarrying, the Manufacturing, the Electricity, gas, steam and air conditioning supply and the Water supply, sewerage, waste management (inc. recycling) sectors on a 2012=100 basis. These data are seasonally adjusted (where stated).

Manufacturing is typically the main determinant of change in the production sector, representing 82.1% of the approximate Gross Value Added in the production industries. The other elements of the Index relate to Water supply, sewerage, waste management (inc. recycling) which represents around 9.0% of the Index; Electricity, gas, steam and air

conditioning supply which represents around 7.1% and Mining and quarrying which represents around 1.8%.

Comparative UK data (produced by the Office for National Statistics) are presented where these are available. The latest ONS IOP results on a comparative 2012=100 basis are available at

<http://www.ons.gov.uk/economy/economicoutputandproductivity/output/bulletins/indexofproduction/previousReleases>

Information on the manufacturing sub-sectors (e.g. Food, drink and tobacco) along with information by market sector (classifying production under one of three headings, according to the purpose for which output is intended i.e. Investment Goods, Intermediate Goods and Consumer Goods) are included in the publication.

This publication provides three measures of growth for the Index. 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, where appropriate, to remove the effects of changes in output as a result of the time of the year. We also provide comparisons with the same quarter one year ago and a comparison of the most recent twelve months with the twelve months before. The quarterly comparison over the year provides an additional control on 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.

Northern Ireland Production

Revisions

Results, particularly for the most recent quarter, are provisional and subject to revision as more up-to-date data become available (e.g. through late returns). Figures can also change as a result of the seasonal adjustment process, methodological changes or changes to classifications.

The Production Index publication has published data on a 2012=100 basis to correlate with ONS publications. SIC07 deflators with the base year 2010=100 have been applied to all series.

The IOP revisions policy can be found at <https://www.detini.gov.uk/articles/quality-and-revisions-0>

Date of next publication

The next Northern Ireland Index of Production publication is planned for 15th June 2016.

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Executive summary

Provisional results for quarter 4 (Oct-Dec) 2015

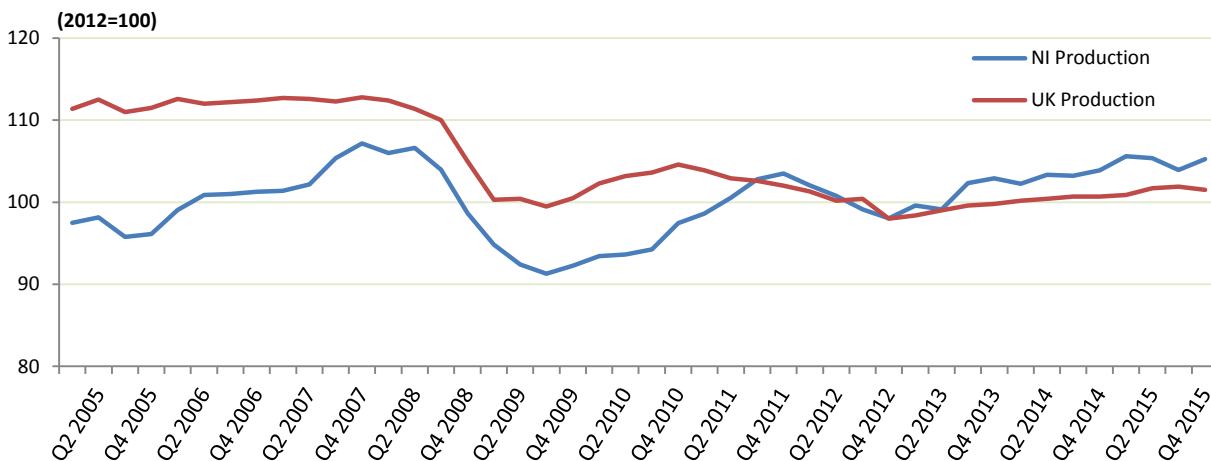
Provisional results from the Index of Production for the fourth quarter (Oct-Dec) of 2015 showed that output in NI increased by 1.3% over the quarter, whereas output in the UK as a whole decreased by 0.4%. NI output over the year rose by 1.3% in quarter 4 (Oct-Dec) 2015; UK output rose by 0.8% in the same time period.

When the most recent four quarters are compared to the previous four quarters, the rate of growth for NI production industries was 1.8% in 2015. This annualised rate of growth was slower than that in 2014 (2.2%) but exceeded that of the UK production sector (1.0% in 2015).

Table 1: Index of Production percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	1.3%	-0.4%
Same quarter one year ago	1.3%	0.8%
Most recent four quarters compared to previous four quarters	1.8%	1.0%

Figure 2: Index of Production, Northern Ireland and UK



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Output from the overall production industries (seasonally adjusted) in quarter 4 (Oct-Dec) 2015 is 1.8% below the highest levels recorded in quarter 4 (Oct-Dec) 2007 but is some 15.3% above the low point recorded in quarter 3 (Jul-Sep) 2009.

Manufacturing (Seasonally Adjusted)

Manufacturing comprises the main element (82.1%) of the production index and therefore the manufacturing index has a similar profile to the overall production index. The manufacturing index remains below (2.9%) the peak in quarter 4 (Oct-Dec) 2007.

- Manufacturing output levels increased over the quarter by 2.3% (UK: was unchanged)
- Manufacturing output levels increased by 2.1% compared to the same quarter one year ago whilst UK levels decreased by 1.1% over the same period.
- Manufacturing output levels rose by 2.4% over the most recent four quarters compared to the previous four quarters (UK: -0.3%)

Manufacturing Productivity (Seasonally Adjusted)

The index of manufacturing productivity (which provides a measure of the number of units of output produced per person per paid hour) recorded an increase (1.7%) over the quarter and was unchanged over the year.

Other Production

Water supply, sewerage and waste management (seasonally adjusted) decreased by 5.3% over the quarter and 4.4% over the year. The NI index is 17.6% below the peak recorded in quarter 1 (Jan-Mar) 2012, while the UK recorded a rise of 11.1% over the same time period.

The seasonally adjusted Electricity, gas, steam and air conditioning supply index was unchanged over the quarter and increased by 2.4% over the year. The UK reported a fall over the quarter (-2.2%) and over the year (-1.7%). The NI index is 8.7% below the peak recorded in quarter 3 (Jul-Sep) 2008, with the UK reporting a fall of 11.3% over the same time period.

Mining and quarrying (seasonally adjusted) decreased by 4.5% over the quarter and decreased by 14.2% over the year. Recovery in this index remains slow and is some 28.1% below the peak reached in quarter 4 (Oct-Dec) 2007; the UK index fell by 33.0% over the same period.

3

Production by broad industry groups

This section focuses on performance of the sub-sectors which make up the overall production sector. The main industry categories of which it is comprised are listed in order of importance of the contribution made to the quarterly change in the overall Index of Production.

Figure 3: Manufacturing¹ – SIC07 Section C (weight = 82.1%), Northern Ireland and UK



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Table 2: Manufacturing percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	2.3%	0.0%
Same quarter one year ago	2.1%	-1.1%
Most recent four quarters compared to previous four quarters	2.4%	-0.3%

Manufacturing comprises the main element (82.1%) of the production index and therefore the manufacturing index has a similar profile to the overall production index. Manufacturing output increased by 2.3% in real terms over the fourth quarter (Oct-Dec) of 2015 and rose by 2.1% when compared to the same period a year earlier. By comparison, UK manufacturing output was unchanged over the quarter and fell by 1.1% over the year.

Further detail relating to manufacturing subsectors is given in section 4.

¹ The manufacturing sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 4: Water supply, sewerage and waste management (inc. recycling)² – SIC07 Section E (weight = 9.0%) (seasonally adjusted series), Northern Ireland and UK

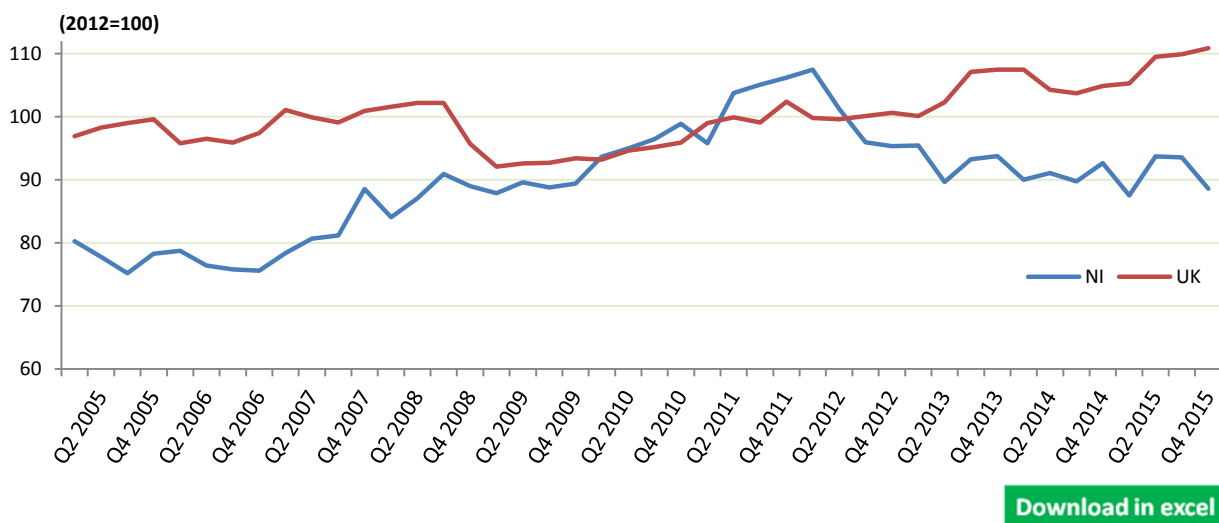


Table 3: Water supply, sewerage and waste management (inc. recycling) percentage change, Northern Ireland

	NI	UK
Percentage change compared to:		
Previous quarter	-5.3%	0.9%
Same quarter one year ago	-4.4%	5.7%
Most recent four quarters compared to previous four quarters	0.0%	3.6%

This sector is currently 17.6% below the peak reached in quarter 1 (Jan-Mar) 2012.

² The water supply, sewerage and waste management (inc. recycling) sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 5: Electricity, gas, steam and air conditioning supply³ – SIC07 Section D (weight = 7.1%), Northern Ireland and UK



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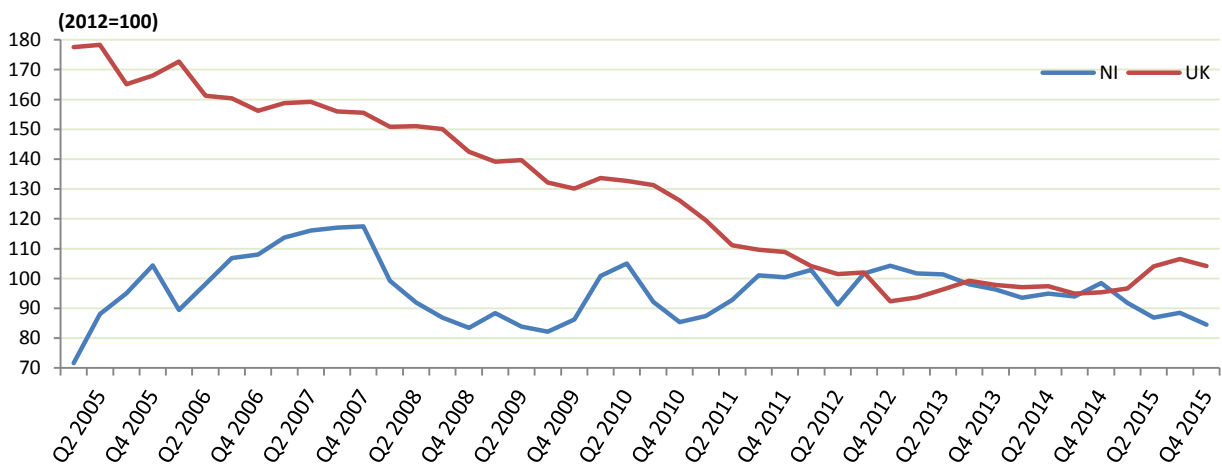
Table 4: Electricity, gas, steam and air conditioning supply, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	0.0%	-2.2%
Same quarter one year ago	2.4%	-1.7%
Most recent four quarters compared to previous four quarters	-0.8%	-0.2%

This index has fallen 8.7% since the peak recorded in quarter 3 (Jul-Sep) 2008, with the UK reporting a fall of 11.3% over this same time period. The NI index has recovered 11.8% from the low point recorded in quarter 2 (Apr-Jun) 2007 while the UK has reached a new low point for this index.

³ The electricity, gas, steam and air conditioning supply sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 6: Mining and quarrying⁴ – SIC07 Section B (Weight = 1.8%), Northern Ireland and UK



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Table 5: Mining and quarrying percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	-4.5%	-2.2%
Same quarter one year ago	-14.2%	9.2%
Most recent four quarters compared to previous four quarters	-7.7%	6.9%

Recovery in this sector remains slow and is now 2.8% above the post recession low point recorded in quarter 3 (Jul-Sep) 2009. This index is now some 28.1% below the peak reached in quarter 4 (Oct-Dec) 2007; the UK index fell by 33.0% over the same period.

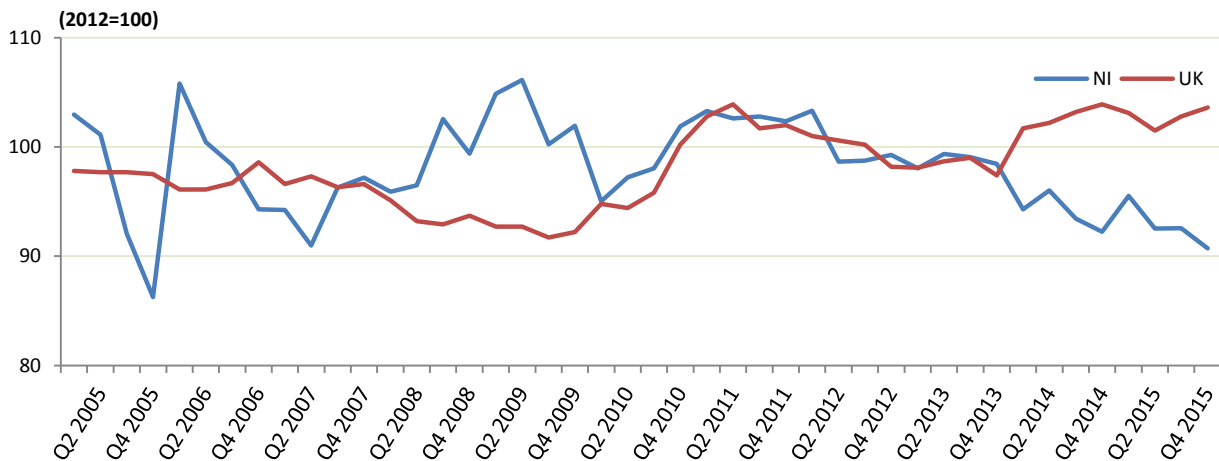
⁴ The mining and quarrying sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

4

Manufacturing subsectors

Manufacturing is the main component of the production sector accounting for some 82.1% of Regional Accounts Gross Value Added (GVA) within the overall production sector. This section focuses on performance of the sub-sectors of manufacturing. They have been listed in order of importance of the contribution made to the quarterly change in the overall Index of Production.

Figure 7: Food products, beverages & tobacco⁵ (weight = 25.0%), Northern Ireland and UK



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Table 6: Food products, beverages & tobacco percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	-2.0%	0.8%
Same quarter one year ago	-1.7%	-0.3%
Most recent four quarters compared to previous four quarters	-1.2%	0.0%

This sector has decreased by 2.0% since the previous quarter and has fallen by 14.5% from a recent high point in quarter 2 (Apr-Jun) 2009.

⁵ The food products, beverages and tobacco manufacturing sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 8: Engineering & allied industries⁶ (weight = 24.2%), Northern Ireland and UK



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Table 7: Engineering & allied industries percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	-2.2%	0.0%
Same quarter one year ago	-3.2%	-1.9%
Most recent four quarters compared to previous four quarters	2.7%	-0.6%

This sector has experienced three consecutive periods of decline falling 5.2% from the most recent high point recorded in quarter 1 (Jan-Mar) 2015. Despite this recent decline, the index is some 52.7% above its minimum value recorded in quarter 3 (Jul-Sep) 2009.

⁶ The engineering and allied industries manufacturing sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 9: Total other manufacturing⁷ (weight = 16.1%), Northern Ireland and UK



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Table 8: Total other manufacturing percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	6.0%	0.2%
Same quarter one year ago	5.7%	-1.7%
Most recent four quarters compared to previous four quarters	4.8%	-0.9%

This sector has increased by 6.0% since last quarter and is 16.6% above the low point recorded in quarter 2 (Apr-Jun) 2009. Overall recovery has been slow for this sector and it is some 15.7% below the peak of quarter 1 (Jan-Mar) 2007.

⁷ The total other manufacturing sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 10: Manufacturing of chemical and pharmaceutical products⁸ (weight = 7.5%), Northern Ireland and UK

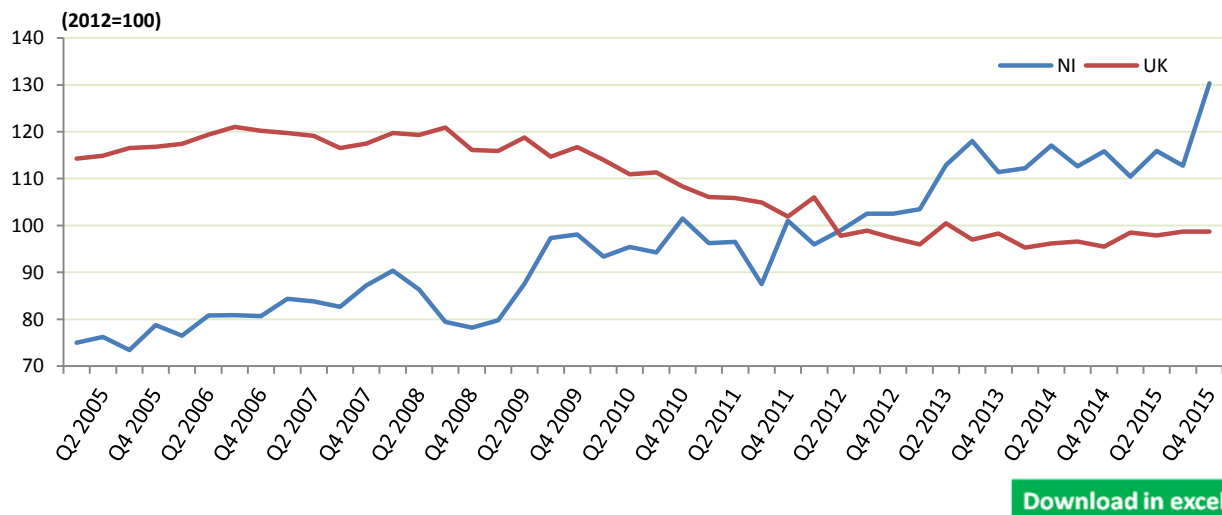


Table 9: Manufacturing of chemical and pharmaceutical products percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	15.6%	0.0%
Same quarter one year ago	12.5%	3.4%
Most recent four quarters compared to previous four quarters	2.5%	2.7%

An increase of 15.6% over the quarter means this index has now recorded a new peak level some 10.4% above the previous peak recorded in quarter 3 (Jul-Sep) 2013.

⁸ The manufacturing of chemical and pharmaceutical products manufacturing sub-sector has not been seasonally adjusted.

Figure 11: Basic and fabricated metal products⁹ (weight = 6.1%), Northern Ireland and UK



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Table 10: Basic and fabricated metal products percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	15.2%	-1.5%
Same quarter one year ago	18.4%	-3.3%
Most recent four quarters compared to previous four quarters	8.7%	0.2%

This sector has also reached a new peak recording rises of 15.2% over the quarter and 18.4% over the year.

⁹ The basic and fabricated metal products manufacturing sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

Figure 12: Textiles, leather & related products¹⁰ (weight = 3.3%), Northern Ireland and UK



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Table 11: Textiles, leather & related products percentage change, Northern Ireland and UK

	NI	UK
Percentage change compared to:		
Previous quarter	-0.3%	1.4%
Same quarter one year ago	-1.1%	4.2%
Most recent four quarters compared to previous four quarters	1.5%	-2.4%

The index has fallen 15.3% since the post recession peak in quarter 3 (Jul-Sep) 2011 and 32.2% since the peak in quarter 1 (Jan-Mar) 2005.

¹⁰ The textiles, leather and related products manufacturing sub-sector has been seasonally adjusted using X-13 ARIMA SEATS.

5

Market sector analysis

Market sector analysis classifies production under one of three headings which are derived from the main SIC classification groups.

Investment Goods – also known as Capital Goods – are the plant, equipment and inventories used to produce goods for consumption. Companies will invest further in these kinds of goods when they are looking to expand their production or upgrade existing equipment.

Intermediate Goods are those purchased by industry as inputs into the final production of goods. This category would include the materials (such as cement, rubber, plastic, chemicals and electronics) which will ultimately be used to produce a good for consumption.

Consumer Goods are the final goods produced by industry which are intended for purchase by private consumers. These goods are consumed by the mass market rather than used in the production of another good, and are therefore closely linked to consumer demand and the factors which influence this.

It should be noted that these groups are for illustrative purposes as there can be overlap where manufacturer goods could be used as capital to produce another good but will also be used for consumption (e.g. motor vehicles).

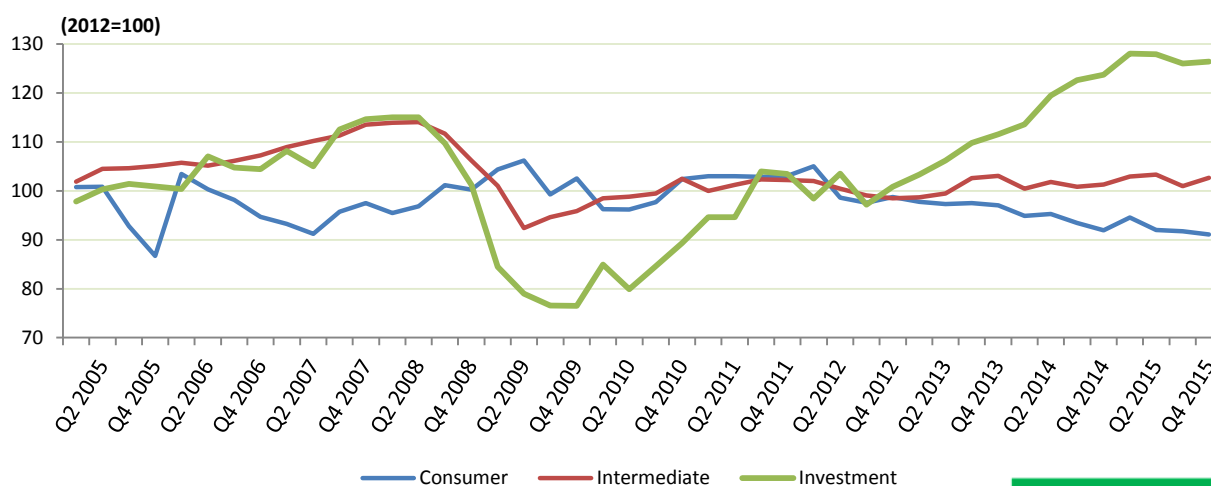
Table 12: Index of Production by Market Sector Goods¹¹ (annual data)

	Consumer Goods (42.5%¹²)	Intermediate Goods (39.6%¹²)	Investment Goods (17.9%¹²)
	Seasonally Adjusted	Seasonally Adjusted	Seasonally Adjusted
2005	95	104	100
2006	99	106	104
2007	94	111	110
2008	98	111	110
2009	103	96	79
2010	98	100	85
2011	103	101	99
2012	100	100	100
2013	97	101	108
2014	94	101	120
2015	92	102	127

¹¹ The market sector goods have been seasonally adjusted using X-13 ARIMA SEATS.

¹² The regional GVA weights relate to 2013.

Figure 13: Market Sector Goods, Northern Ireland



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Table 13: Index of Production by Market Sector Goods percentage change, Northern Ireland

	Consumer Goods	Intermediate Goods	Investment Goods
Percentage change compared to:			
Previous quarter	-0.7%	1.7%	0.3%
Same quarter one year ago	-0.9%	1.4%	2.2%
Most recent four quarters compared to previous four quarters	-1.6%	1.3%	6.0%

Seasonally Adjusted Consumer Goods (weight 42.5%)

This category has been in general decline since quarter 1 (Jan-Mar) 2012. There was a small decrease of 0.7% in output of consumer goods in quarter 4 (Oct-Dec) 2015 and a decrease of 0.9% over the year.

Seasonally Adjusted Intermediate Goods (weight 39.6%)

After experiencing a sharp fall between 2008 and 2009, this category has remained steady with the recent index being in the region of 102 quarter on quarter. Quarter 4 (Oct-Dec) 2015 is reporting an increase over the quarter (1.7%) and the year (1.4%).

Seasonally Adjusted Investment Goods (weight 17.9%)

The significant falls in output experienced from 2008 where the index fell 33.5% between quarter 2 (Apr-Jun) 2008 and quarter 4 (Oct-Dec) 2009 reflects the impact of the global recession on businesses, with many companies looking to survive as the economy contracted. The recent rises in output can be interpreted as firms recovering from the recession and investing to grow from 2011. In quarter 4 (Oct-Dec) 2015 Investment goods have seen an increase of 0.3% from the previous quarter and an increase of 2.2% over the year. The index remains 9.9% above the pre-recession peak recorded in quarter 2 (Apr-Jun) 2008.

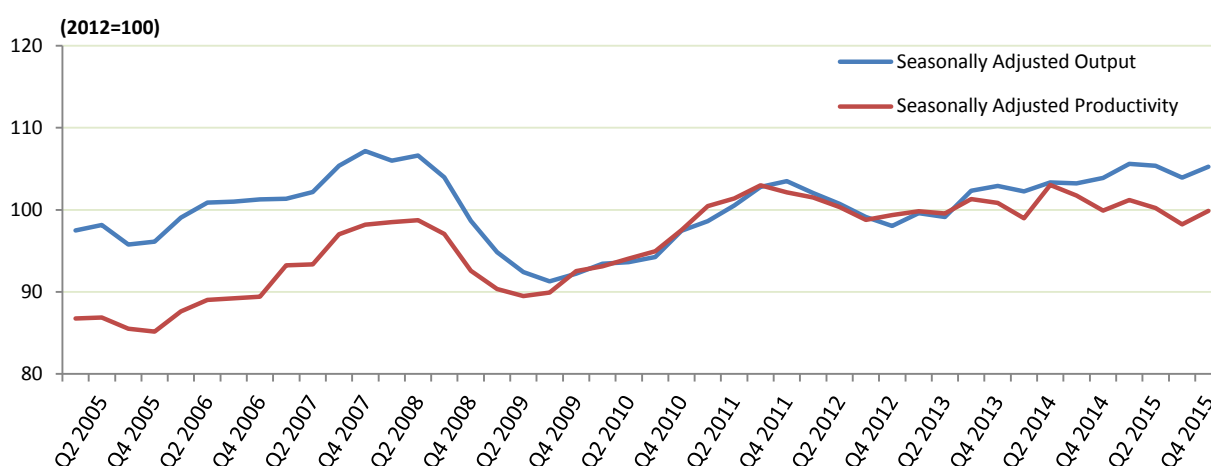
6

Seasonally adjusted index of manufacturing productivity

The seasonally adjusted index of manufacturing productivity¹³ provides a measure of the number of units of output produced per person per paid hour. The index includes seasonally adjusted employees in employment, the seasonally adjusted manufacturing index and average weekly hours (based on hours worked for full-time adult manufacturing workers including overtime from the Annual Survey of Hours and Earnings).

The index of manufacturing productivity increased by 1.7% over the quarter and was unchanged over the year. The index also reported a decrease of 1.0% over the latest four quarters compared to the previous four quarters. Since mid-2009, output and productivity have been very similar. However, since the start of 2013, output has been greater than productivity.

Figure 14: Manufacturing output & productivity, Northern Ireland



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The most recently published Quarterly Employment Survey seasonally adjusted figures for December 2015 (based on the 2007 Standard Industrial Classification) reported an increase of 0.6% over the quarter in employee jobs in the manufacturing sector and a rise of 2.2% over the year.

Table 14: Seasonally adjusted index of manufacturing productivity, Northern Ireland

Annual Average		Annual Average	
2005	86	2012	100
2006	89	2013	100
2007	95	2014	101
2008	97	2015	100
2009	91		
2010	95		
2011	102		

¹³ The index of manufacturing productivity has been seasonally adjusted using X-13 ARIMA SEATS.

Table 15: Seasonally adjusted index of manufacturing productivity percentage change, Northern Ireland

	NI
Percentage change compared to:	
Previous quarter	1.7%
Same quarter one year ago	0.0%
Most recent four quarters compared to previous four quarters	-1.0%

7

Quarterly/annual/rolling annual average changes

Table 16: Index of Production – Quarterly, annual and rolling annual average¹⁴ changes by sector, Northern Ireland

		All Production industries - Sections B, C, D, E (seasonally adjusted)				Manufacturing – Section C (seasonally adjusted) weight ¹⁵ = 82.1%				Water, supply & waste management – Section E (seasonally adjusted) weight ¹⁵ = 9.0%				Electricity, gas, steam & air conditioning – Section D (seasonally adjusted) weight ¹⁵ = 7.1%				Mining & quarrying – Section B (seasonally adjusted) weight ¹⁵ = 1.8%			
		Index	% Change			Index	% Change			Index	% Change			Index	% Change			Index	% Change		
			Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling
2005	Q1	97.5	-	-	-	102.5	-	-	-	80.2	-	-	-	92.3	-	-	-	71.6	-	-	-
	Q2	98.2	0.7	-	-	101.6	-1.0	-	-	77.8	-3.1	-	-	109.8	19.0	-	-	88.0	22.9	-	-
	Q3	95.8	-2.4	-	-	99.7	-1.8	-	-	75.2	-3.3	-	-	100.4	-8.6	-	-	95.0	8.0	-	-
	Q4	96.1	0.4	-	-	99.0	-0.8	-	-	78.3	4.1	-	-	99.6	-0.8	-	-	104.4	9.9	-	-
2006	Q1	99.1	3.1	1.6	-0.2	103.6	4.7	1.0	-1.5	78.7	0.6	-1.9	-3.4	98.0	-1.6	6.2	10.5	89.5	-14.3	24.9	31.6
	Q2	100.9	1.8	2.8	0.1	105.4	1.7	3.8	-0.1	76.4	-2.9	-1.7	-2.4	98.8	0.8	-10.1	-1.8	98.1	9.6	11.5	21.2
	Q3	101.0	0.1	5.4	2.2	105.5	0.1	5.7	2.0	75.8	-0.9	0.8	-0.6	95.8	-3.0	-4.5	-2.7	106.8	8.9	12.4	17.5
	Q4	101.3	0.3	5.4	3.8	106.0	0.5	7.1	4.4	75.6	-0.2	-3.4	-1.6	94.0	-1.9	-5.6	-3.8	108.0	1.1	3.4	12.1
2007	Q1	101.4	0.1	2.3	4.0	106.0	0.0	2.4	4.7	78.4	3.7	-0.5	-1.2	93.2	-0.9	-4.8	-6.3	113.7	5.3	27.1	13.2
	Q2	102.2	0.8	1.3	3.6	107.1	1.0	1.6	4.1	80.6	2.9	5.5	0.6	90.4	-3.1	-8.5	-5.8	116.1	2.0	18.3	14.9
	Q3	105.4	3.1	4.4	3.3	110.6	3.3	4.9	3.9	81.1	0.6	7.1	2.1	92.6	2.5	-3.4	-5.6	117.0	0.8	9.6	14.0
	Q4	107.2	1.7	5.8	3.5	111.6	0.9	5.2	3.5	88.5	9.1	17.2	7.2	95.2	2.7	1.2	-3.9	117.5	0.4	8.8	15.4
2008	Q1	106.0	-1.1	4.6	4.0	110.5	-0.9	4.2	4.0	84.1	-5.0	7.3	9.2	102.5	7.7	9.9	-0.3	99.2	-15.5	-12.8	5.4
	Q2	106.6	0.6	4.3	4.8	110.8	0.2	3.5	4.4	87.1	3.5	8.0	9.8	109.4	6.8	21.0	7.0	92.0	-7.3	-20.8	-4.3
	Q3	104.0	-2.5	-1.4	3.3	107.0	-3.4	-3.2	2.4	90.9	4.4	12.0	11.0	110.7	1.2	19.5	12.8	86.9	-5.6	-25.8	-13.0
	Q4	98.7	-5.1	-7.9	-0.2	99.7	-6.8	-10.6	-1.7	89.0	-2.1	0.5	6.8	107.5	-2.9	13.0	15.8	83.5	-3.9	-29.0	-22.1

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¹⁴ 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.

¹⁵ The regional GVA weights relate to 2013.

Table 16 (cont): Index of Production – Quarterly, annual and rolling annual average¹⁶ changes by sector, Northern Ireland

		All Production industries - Sections B, C, D, E (seasonally adjusted)				Manufacturing – Section C (seasonally adjusted) weight ¹⁷ = 82.1%				Water, supply & waste management – Section E (seasonally adjusted) weight ¹⁷ = 9.0%				Electricity, gas, steam & air conditioning – Section D (seasonally adjusted) weight ¹⁷ = 7.1%				Mining & quarrying – Section B (seasonally adjusted) weight ¹⁷ = 1.8%			
		Index	% Change			Index	% Change			Index	% Change			Index	% Change			Index	% Change		
			Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling
2009	Q1	94.8	-3.9	-10.5	-4.0	95.7	-4.1	-13.4	-6.0	87.9	-1.3	4.5	6.1	99.9	-7.1	-2.5	12.3	88.4	5.9	-10.9	-22.0
	Q2	92.4	-2.5	-13.3	-8.3	92.0	-3.8	-16.9	-11.1	89.6	2.0	2.9	4.9	104.3	4.4	-4.6	5.7	83.9	-5.1	-8.8	-19.5
	Q3	91.3	-1.2	-12.2	-11.0	90.8	-1.3	-15.1	-14.0	88.8	-0.9	-2.3	1.3	103.4	-0.9	-6.6	-0.6	82.2	-2.1	-5.4	-14.6
	Q4	92.2	1.1	-6.5	-10.7	91.9	1.2	-7.8	-13.5	89.4	0.7	0.4	1.3	103.8	0.3	-3.5	-4.3	86.2	4.9	3.3	-5.8
2010	Q1	93.4	1.3	-1.5	-8.6	92.0	0.1	-3.9	-11.2	93.6	4.7	6.6	1.9	107.2	3.3	7.3	-2.1	100.8	16.9	14.0	0.7
	Q2	93.6	0.2	1.3	-4.9	92.7	0.8	0.7	-6.9	95.0	1.4	6.0	2.6	104.2	-2.8	-0.1	-0.9	105.0	4.2	25.2	9.2
	Q3	94.2	0.6	3.3	-1.0	93.7	1.1	3.2	-2.1	96.5	1.6	8.6	5.4	105.0	0.8	1.5	1.2	92.2	-12.2	12.2	13.7
	Q4	97.4	3.4	5.6	2.2	96.9	3.3	5.4	1.3	98.9	2.5	10.6	8.0	108.3	3.1	4.4	3.2	85.4	-7.4	-1.0	12.5
2011	Q1	98.6	1.2	5.6	3.9	99.4	2.7	8.1	4.4	95.8	-3.1	2.3	6.8	99.3	-8.3	-7.3	-0.4	87.4	2.4	-13.3	4.8
	Q2	100.5	1.9	7.4	5.5	100.4	1.0	8.3	6.3	103.8	8.3	9.3	7.7	100.0	0.7	-4.0	-1.4	92.8	6.2	-11.7	-4.4
	Q3	102.8	2.3	9.1	6.9	102.6	2.1	9.4	7.8	105.1	1.3	8.9	7.8	100.6	0.5	-4.2	-2.8	101.1	8.9	9.6	-4.6
	Q4	103.5	0.7	6.2	7.0	103.2	0.7	6.6	8.1	106.2	1.0	7.4	7.0	101.6	1.0	-6.2	-5.5	100.4	-0.7	17.6	-0.5
2012	Q1	102.1	-1.4	3.5	6.5	101.8	-1.4	2.3	6.6	107.5	1.2	12.2	9.4	98.8	-2.8	-0.6	-3.8	102.8	2.4	17.7	7.3
	Q2	100.8	-1.3	0.2	4.7	101.1	-0.6	0.7	4.7	101.2	-5.8	-2.4	6.3	98.8	0.0	-1.3	-3.2	91.3	-11.3	-1.6	10.6
	Q3	99.1	-1.6	-3.6	1.5	99.2	-1.9	-3.3	1.5	96.0	-5.2	-8.7	1.8	99.7	0.9	-0.9	-2.3	101.7	11.4	0.6	8.1
	Q4	98.1	-1.1	-5.3	-1.3	97.9	-1.3	-5.2	-1.4	95.3	-0.6	-10.2	-2.6	102.8	3.1	1.2	-0.4	104.2	2.5	3.8	4.8
2013	Q1	99.6	1.6	-2.4	-2.8	99.3	1.4	-2.5	-2.6	95.5	0.1	-11.2	-8.2	105.3	2.4	6.6	1.4	101.7	-2.4	-1.1	0.4
	Q2	99.1	-0.5	-1.6	-3.2	100.3	1.1	-0.8	-2.9	89.6	-6.1	-11.4	-10.4	103.7	-1.5	5.0	3.0	101.4	-0.3	11.1	3.4
	Q3	102.3	3.2	3.2	-1.6	103.5	3.1	4.3	-1.1	93.2	4.0	-2.8	-9.0	104.6	0.9	5.0	4.4	98.0	-3.3	-3.6	2.3
	Q4	102.9	0.6	5.0	1.0	104.2	0.7	6.5	1.8	93.7	0.5	-1.7	-7.0	103.9	-0.7	1.1	4.4	96.3	-1.7	-7.6	-0.6

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¹⁶ 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.

¹⁷ The regional GVA weights relate to 2013.

Table 16 (cont): Index of Production – Quarterly, annual and rolling annual average¹⁸ changes by sector, Northern Ireland

		All Production industries - Sections B, C, D, E (seasonally adjusted)				Manufacturing – Section C (seasonally adjusted) weight ¹⁹ = 82.1%				Water, supply & waste management – Section E (seasonally adjusted) weight ¹⁹ = 9.0%				Electricity, gas, steam & air conditioning – Section D (seasonally adjusted) weight ¹⁹ = 7.1%				Mining & quarrying – Section B (seasonally adjusted) weight ¹⁹ = 1.8%			
		Index	% Change			Index	% Change			Index	% Change			Index	% Change			Index	% Change		
			Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling		Quarter	Annual	Rolling
2014	Q1	102.3	-0.6	2.7	2.3	103.6	-0.6	4.3	3.6	90.0	-4.0	-5.7	-5.5	103.4	-0.5	-1.8	2.2	93.5	-2.9	-8.0	-2.4
	Q2	103.3	1.1	4.2	3.8	105.5	1.9	5.2	5.1	91.1	1.2	1.6	-2.2	104.9	1.5	1.1	1.3	94.9	1.5	-6.4	-6.4
	Q3	103.2	-0.1	0.9	3.2	105.1	-0.4	1.6	4.4	89.8	-1.4	-3.7	-2.4	104.6	-0.3	-0.1	0.1	94.0	-0.9	-4.1	-6.6
	Q4	103.9	0.7	1.0	2.2	106.1	0.9	1.8	3.2	92.6	3.2	-1.2	-2.3	98.7	-5.6	-5.0	-1.4	98.5	4.7	2.2	-4.2
2015	Q1	105.6	1.6	3.3	2.3	108.3	2.1	4.6	3.3	87.5	-5.5	-2.8	-1.5	102.2	3.5	-1.2	-1.3	91.8	-6.7	-1.8	-2.6
	Q2	105.4	-0.2	2.0	1.8	107.9	-0.4	2.3	2.5	93.7	7.1	2.9	-1.2	103.9	1.7	-0.9	-1.8	86.9	-5.4	-8.4	-3.0
	Q3	103.9	-1.4	0.7	1.7	105.9	-1.8	0.8	2.3	93.5	-0.2	4.2	0.8	101.0	-2.8	-3.4	-2.6	88.4	1.8	-5.9	-3.5
	Q4	105.3	1.3	1.3	1.8	108.3	2.3	2.1	2.4	88.6	-5.3	-4.4	0.0	101.1	0.0	2.4	-0.8	84.5	-4.5	-14.2	-7.7

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¹⁸ 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.

¹⁹ The regional GVA weights relate to 2013.

8

Background notes

Background

The Northern Ireland Index of Production (IOP) has been produced since 1949 and figures are available in the current format back to 2002. It is published quarterly and is designed to provide a general measure of changes in the output of the production industries in Northern Ireland. (This is defined as Standard Industrial Classification 2007 sections B, C, D and E.) In 2013 these industries accounted for approximately 19% of regional Gross Value Added (GVA). More information on Regional GVA is available at <http://www.ons.gov.uk/economy/grossvalueaddedgva>

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 Index of Production is to provide a reliable indicator of short-term changes in the output of the production sector. Index numbers are a very good way of communicating this message. For example, the Index of Production quarter 4 (Oct-Dec) 2015 value of 105.3 means that the level of output was 5.3% higher than in 2012 which had a base year value of 100. The NI IOP 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 charge 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, link following, on the Methodology of the Monthly Index of Services (Annex A: Mathematical Formulation of the Index of Services) gives a good explanation of Index numbers theory. <http://www.ons.gov.uk/ons/guide-method/user-guidance/index-of-services/index-of-services-annex-a-mathematical-formulation-of-the-index.pdf>

Index sample

The IOP sample was refreshed for quarter 1 (Jan-Mar) 2014 and was drawn on a SIC07 basis. The sample was boosted from around 650 businesses and it is now approximately 1,000 companies. Due, in part, to the significant number of companies which fall into the census element, more than 60% of businesses in the new sample were also in the old sample. As a statutory survey the response rate is around 90%. The sample of production 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 40 or more employees and those employing 0 to 39 employees and having a turnover of £10 million or more. 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 (Oct-Dec) 2013) and the new sample (from quarter 1 (Jan-Mar) 2014 onwards). With advice from Office for National Statistics 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

The 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. Companies are asked to provide their turnover and exports. Historically a number of companies provided volume information rather than turnover data (e.g. litres of product rather than the turnover value of the product). From quarter 2 (Apr-Jun), 2010 these companies were asked to also provide turnover data and from quarter 2 (Apr-Jun) 2011 the IOP estimates have solely been based on turnover. In response to user demand information is also collected on the value of exports. This will be used to produce a quarterly index in due course once a sufficient back series has been established.

From quarter 1 2016, a Quarterly Business Survey form will be issued to all businesses who previously received an Index of Production form and a Quarterly Employment Survey form and companies will be 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) is intended to reduce burden to businesses currently receiving two separate forms at different times.

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

The overall Index of Production is calculated by weighting together industry level indices using relative shares of Accounts Gross Value Added (GVA) data from the most recent Regional Accounts, which is currently 2013. The IOP relative weights used to produce the aggregated industries are derived from the Regional GVA estimate, published annually by ONS. Figures in the IOP publication from Q4 2015 onwards reflect the move to using 2013 GVA published on 9th December 2015.

For practically all series, the value of sales, deflated to allow for price changes, is used as the indicator. In the remaining cases, changes in the volume of production or the number of employees are used as a proxy measure.

From quarter 2 (Apr-Jun) 2014, the individual series have been seasonally adjusted using X-13 ARIMA SEATS, which introduces improvements to the models used for seasonal adjustment. Also, during the annual seasonal adjustment review in December 2015 (from Q3 (Jul-Sep) 2015) the smoothing methodology, applied to companies with particularly volatile returns, has now been removed for the remaining few companies. The main sectors affected are the water supply, sewerage and waste management (inc. recycling) and mining and quarrying along with some of the individual manufacturing subsectors.

Further information on the methodology and impact of the seasonal adjustment changes can be found in the methodological note published at <https://www.detini.gov.uk/publications/methodology-and-usage-iop>

It is also possible to aggregate all individual series to give indices by final use of goods produced. This is known as a market sector analysis and estimates are given in Section 5 of this bulletin. It distinguishes between unadjusted Consumer, unadjusted Investment and seasonally adjusted Intermediate Goods. The latter are described as intermediate because they include materials used to produce goods for consumption.

The Productivity index provides a measure of the number of units of output produced per person per paid hour. The productivity index is based on the seasonally adjusted manufacturing index, seasonally adjusted employees in employment and average weekly hours (based on hours worked for full-time adult manufacturing workers including overtime from the Annual Survey of Hours and Earnings). An index of total employee hours is calculated based on the number of employees in employment and average weekly hours. The seasonally adjusted index of manufacturing is divided by the index of total employee hours to produce the Index of Productivity.

The seasonally adjusted Northern Ireland Index of Production 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 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 on annual chain-linking from ONS is available at <http://www.ons.gov.uk/ons/rel/regional-accounts/regional-gross-value-added--income-approach-/december-2010/stb-regional-gva-dec-2011.html>

The standard method for linking two series (for example one based on a SIC03 sample and one based on 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 (Jan-Mar) 2011 and quarter 2 (Apr-Jun) 2011 is known. We have the quarter 2 (Apr-Jun) 2011 value (SIC07) and the quarter 1 (Jan-Mar) 2011 value (converted from SIC03 to SIC07). We can therefore create the following link factor:

$$\text{link factor} = \frac{\text{Q2 (Apr-Jun) 2011 sample estimate} * \text{IDBR Q1 (Apr-Jun) 2011 value}}{\text{Q1 (Jan-Mar) 2011 sample estimate} * \text{IDBR Q2 2011 (Apr-Jun) value}}$$

This can then be applied to the converted back series along with historic quarter 1 (Jan-Mar) to quarter 2 (Apr-Jun) fluctuations, thus retaining the previous growth rates and any seasonal effects.

For quarter 1 (Jan-Mar) 2014 and quarter 2 (Apr-Jun) 2014, questionnaires were issued to companies on 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 (Jan-Mar) 2014 onwards).

Deflation

All series, unless otherwise quoted, are measured at constant market price. Deflators adjust the value series to take out the effect of price change to give the volume series. Details on the changes to the ONS deflators methodology can be found at the following link <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/economy/national-accounts/methodology-and-articles/2011-present/index.html>

Seasonal adjustment

The index numbers in this statistical bulletin are seasonally adjusted, following the annual seasonal adjustment review which was carried out in December 2015. This aids interpretation by removing annually recurring fluctuations, for example due to holidays or other regular seasonal patterns. All IOP 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. The following is a link to an ONS Guide to seasonal adjustment with X-12 ARIMA (an updated guide for X-13 ARIMA SEATS is currently being finalised by ONS) <http://www.ons.gov.uk/ons/guide-method/method-quality/general-methodology/time-series-analysis/guide-to-seasonal-adjustment.pdf>

Quality reporting

One indicator of the reliability of the figures in this bulletin can be obtained by monitoring the size of revisions. The IOP revisions policy can be found at <https://www.detini.gov.uk/articles/quality-and-revisions-0>

Summary quality report

The latest summary quality report for this publication can be found on the IOP Quality and Revisions page of the website at <https://www.detini.gov.uk/articles/quality-and-revisions-0>

Publication of results on a SIC07 basis

A Standard Industrial Classification (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 at the following links: <http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/standard-industrial-classification/index.html>

<http://www.ons.gov.uk/ons/rel/naa2/second-estimate-of-gdp/q2-2011/art---bb11-improvements-to-gdp--ios--iop.html>

Status of figures in current bulletin

Results are published on a SIC07 basis in this bulletin and all indices are produced on a 2012=100 basis.

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 subject to revision as more up to date information become available.

The overall IOP index has been produced using X-13 ARIMA SEATS seasonal adjustment. Some of the sectors and sub-sectors have also been seasonally adjusted, and those can be identified throughout the bulletin.

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

Planned future revisions

The IOP revisions policy can be found at <https://www.detini.gov.uk/articles/quality-and-revisions-0>

Publications policy

All Economic and Labour Market Statistics Branch statistical publications are available to download free of charge from the website <https://www.detini.gov.uk/topics/deti-statistics-and-economic-research>

The IOP bulletin is available at <https://www.detini.gov.uk/topics/statistics-and-economic-research/index-production>

The tables from the current publication, which include data back to 2005, are available in Excel format to download free of charge from the IOP website at <https://www.detini.gov.uk/sites/default/files/publications/deti/iop-q4-2015-tables.xlsx>

The Economic and Labour Market Statistics Branch statistics publication schedule is available at <https://www.detini.gov.uk/publications/elms-publication-schedule>

The list of people given pre-release access to this publication is available at <https://www.detini.gov.uk/publications/statistical-protocols-and-compliance-pre-release-information>

SIC 2007 definitions

Manufacturing – SIC07 Section C (weight 82.1%)

The boundaries of manufacturing and the other sectors of the classification system can be somewhat blurred. As a general rule, the activities in the manufacturing section involve the transformation of materials into new products. Their output is a new product.

Water supply, sewerage and waste management (inc. recycling) – SIC07 Section E (weight 9.0%)

This section covers activities related to the management (including collection, treatment and disposal) of various forms of waste, such as solid or non-solid industrial or household waste, as well as contaminated sites. Activities of water supply are also grouped in this section, since they are often carried out in connection with, or by units also engaged in, the treatment of sewage.

Electricity, gas, steam and air conditioning supply – SIC07 Section D (weight 7.1%)

This section includes the activity of providing electric power, natural gas, steam, hot water and the like through a permanent infrastructure (network) of lines, mains and pipes. Also included is its distribution in industrial parks or residential buildings. This therefore includes the operation of electric and gas utilities.

Mining and Quarrying – SIC07 Section B (weight 1.8%)

This section covers the extraction of minerals occurring naturally as solids (coal and ores), liquids (petroleum) or gases (natural gas). Extraction can be achieved by different methods such as underground or surface mining, well operation, seabed mining, etc.

Next publication

The next bulletin will be published on 15th June 2016.

For further information

Statistics contact:

Judith Baker/Phillip Billsborough
Economic and Labour Market Statistics Branch,
Room 120,
Netherleigh,
Massey Avenue,
Belfast BT4 2JP
Tel: (028) 9052 9228
Email: statistics@dfpni.gov.uk
Textphone: (028) 9052 9385

Media contact:

Press Office, Netherleigh, Massey Avenue, Belfast BT4 2JP
Email: pressoffice@detini.gov.uk
Tel: (028) 9052 9604
Textphone: (028) 9052 9304