



## Labour Market

### Employment Rate



71.9%

Up over the year

### Unemployment Rate



2.4%

No statistically significant quarterly or annual change

### Economic Inactivity Rate



26.2%

Down over the year

Dec-Feb 2023. Source: NISRA LMR

## Pay and Prices



NI Employee Median Pay  
**+9.2%**



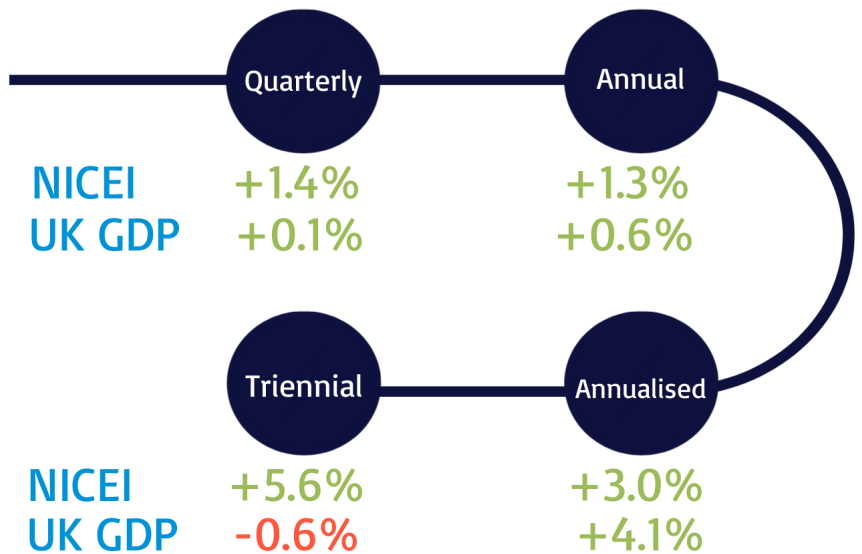
UK Employee Median Pay  
**+6.3%**



UK Inflation Rate (CPIH)  
**+8.9%**

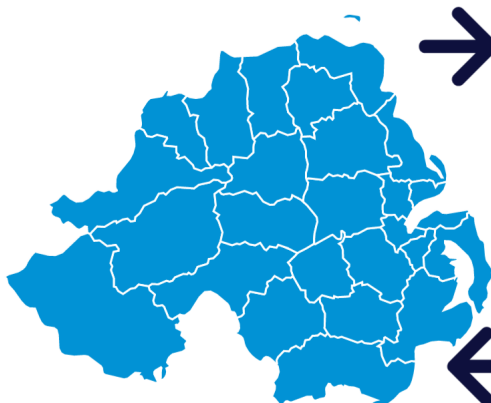
Annual changes to March 2023. Sources: NISRA LMR & ONS CPIH

## Economic Growth



Q4 2022. Source: NISRA NICEI & ONS GDP Quarterly National Accounts

## Exports and Imports of Goods 2022



→ Total Exports  
**£9.2 bn**  
Up 15.3%

← Total Imports  
**£9.5 bn**  
Up 21.4%

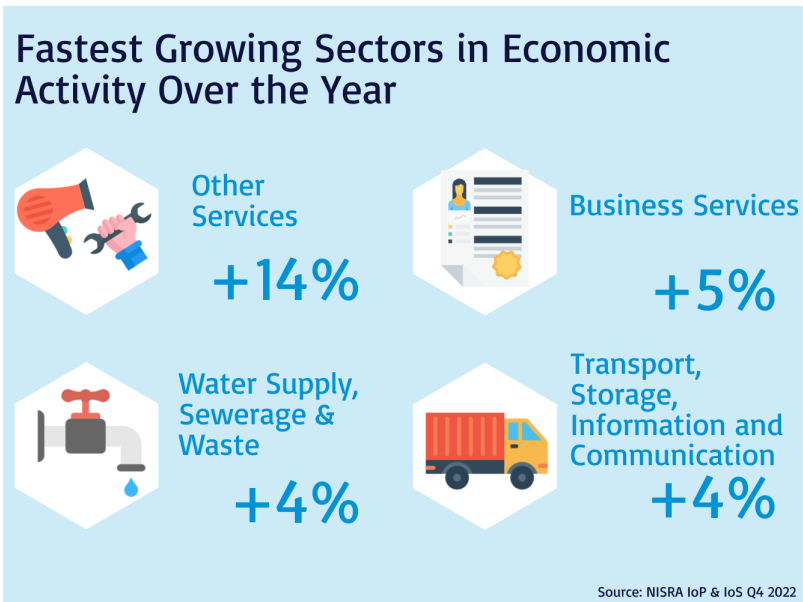
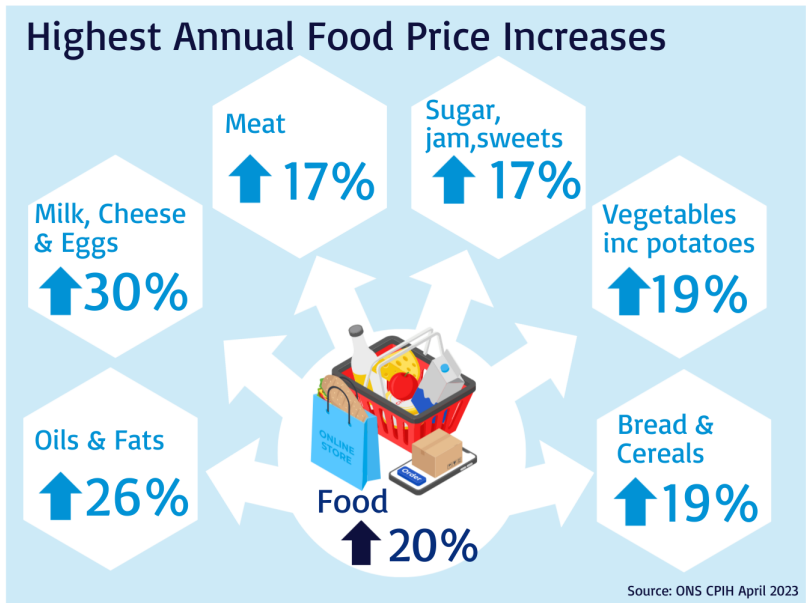
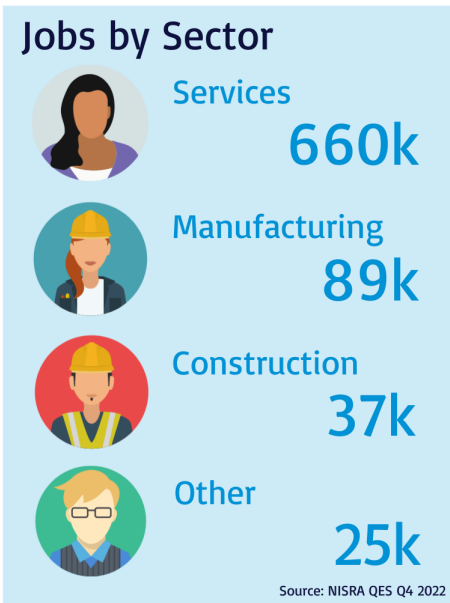
Source: HMRC Regional Trade Statistics Q4 2022

## Contents

✓ The Economy	Page 2
✓ Businesses	Page 6
✓ World Engagement	Page 9
✓ Households	Page 12
✓ Public Sector	Page 15
✓ Focus: Artificial Intelligence	Page 17
✓ Sources	Page 20

# The Economy

Over the course of the last year, the NI economy has been buffeted by severe economic headwinds, driven largely by acute inflationary pressure and leading it to enter a technical recession in Q3 2022. There are some recent signs of optimism with the economy returning to growth in Q4 2022, increased business confidence, inflation forecast to decline significantly through 2023 and the local labour market also remaining resilient. However, the latest independent economic forecasts predict that the NI economy will contract in 2023 as elevated inflation, low consumer confidence and tighter monetary policy weigh on demand.



## Economic Activity

The latest Northern Ireland Composite Economic Index (NICEI) indicated that local economic output increased by 1.4% over the quarter and 1.3% over the year, emerging from the Q2 – Q3 2022 technical recession. This recovery was largely driven by both the construction and the services sectors which contributed 0.6pps and 0.5pps respectively to the overall quarterly growth. Contributions to overall quarterly growth from the public (+0.1pps) and production sectors (-0.1pps) largely offset each other.

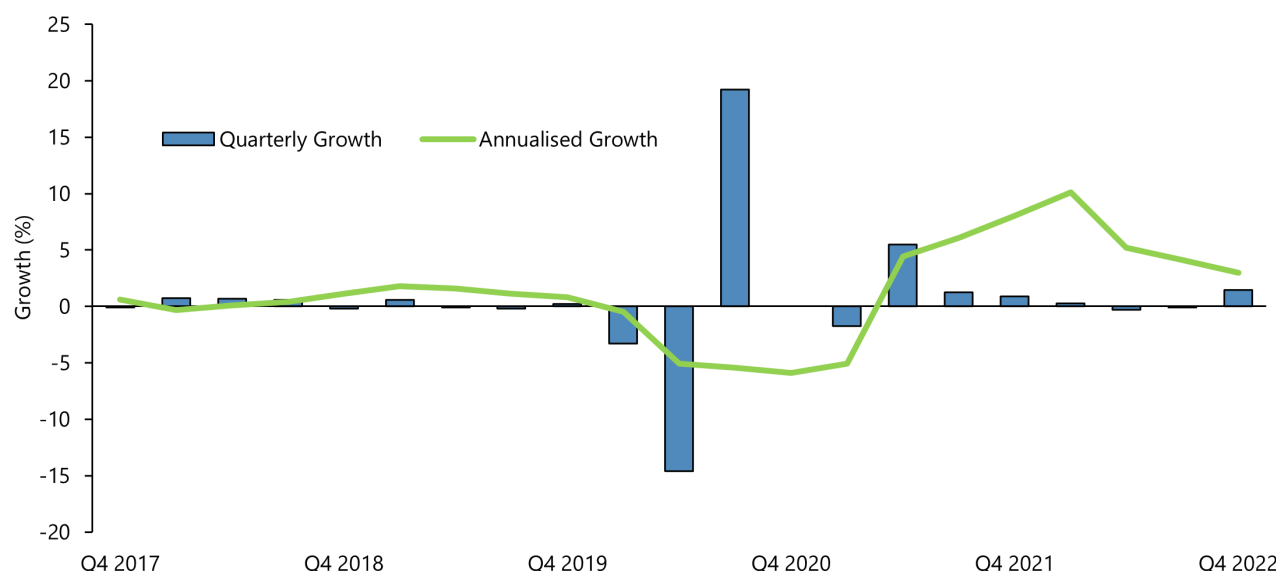
While not produced on a fully equivalent basis, UK GDP increased by 0.1% over Q4 2022, though it rose by 0.6% over the year. Over the last 10 years, the UK has reported increases in GDP in 35 of the last 40 quarters, whereas the NICEI has reported increases in economic activity in 24 of the last 40 quarters.

Economic activity in NI is now 5.6% above the pre-pandemic levels recorded in Q4 2019 (triennial change) while UK GDP remains -0.6% below the pre-pandemic level of Q4 2019. Growth measured by GNP in the ROI (a more reliable measure for ROI growth than GDP) increased by 4.7% over the quarter.

During the pandemic, the NICEI reached a series low in Q2 2020, however economic activity post pandemic has recovered substantially, with a new series high reached in Q4 2022. Economic activity is now 27.9% above the series low point in Q2 2020.

Figure 1: Economic Growth

The quarterly and annualised changes in the NICEI over the last five years of available data.

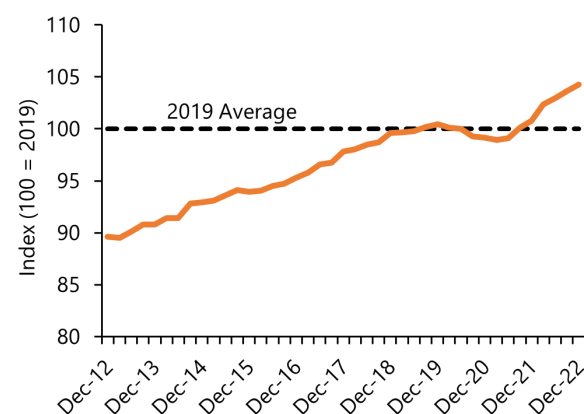


## Employee Jobs

The latest estimates from NISRA show that employee jobs reached a series high in December 2022 (810,210) marking a seventh consecutive quarterly increase in employee jobs. Employee jobs increased over the quarter (+0.6%) and year (+3.5%) compared to December 2021 and are now +29,700 (+3.8%) above the pre-pandemic level recorded in December 2019.

Figure 2: Employee Jobs

The number of employee jobs in NI over the last ten years of available data, seasonally adjusted and indexed to 2019.



Both private and public sector jobs increased over the quarter (both by +0.6%) and year (+4.0%; +2.3%), with private sector jobs reaching a series high in December 2022.

Quarterly increases in employee jobs were recorded across all four sectors in December 2022, led by the services sector (+3,360 jobs), and followed by the manufacturing (+830 jobs), construction (+250 jobs), and other industries (+20 jobs) sectors. The increases in the services and manufacturing sectors led both to reach series highs in December 2022.

Despite the various economic challenges, recruitment is still taking place with many firms continuing to report difficulties with finding staff, and a resultant upward pressure on wages. There also remain significant signs of unrest in many sectors, with ongoing instances of industrial action across the UK.

### The Private Sector

Private sector jobs reached a new series high in December 2022 (587,750), increasing both over the quarter (+0.6%) and the year (+4.0%).

Private sector activity increased by 1.6% over Q4 2022 and rose 1.0% over the year since Q4 2021, whilst on an annualised basis (2022 compared to 2021) activity grew by 3.1%. Compared to Q4 2019 (pre-pandemic) activity increased by 5.7%.

The Business Activity Index in the Ulster Bank PMI rose to 54.9 in March from 52.2 in February, representing not only the fastest expansion in a year, but also the second-sharpest rise across the 12 UK regions, behind only London. New orders also expanded at the fastest pace for a year in March, while new export orders ticked higher for a second successive month. Hiring continued

to expand due to higher new orders, a build-up in work backlogs and improved confidence, with the rate of job-creation the joint-fastest in the survey's history and the fastest seen across the 12 UK regions in March.

### Vacancies

Information gathered using Lightcast Labour Insights reveals that there were 15,780 new job postings in March 2023. This was a decrease of 9% over the year but a marked 40% increase on the previous month.

Administrative and Support Service Activities was the largest industry in terms of new job postings in March, accounting for 4,315 (almost 30%) of online job advertisements.

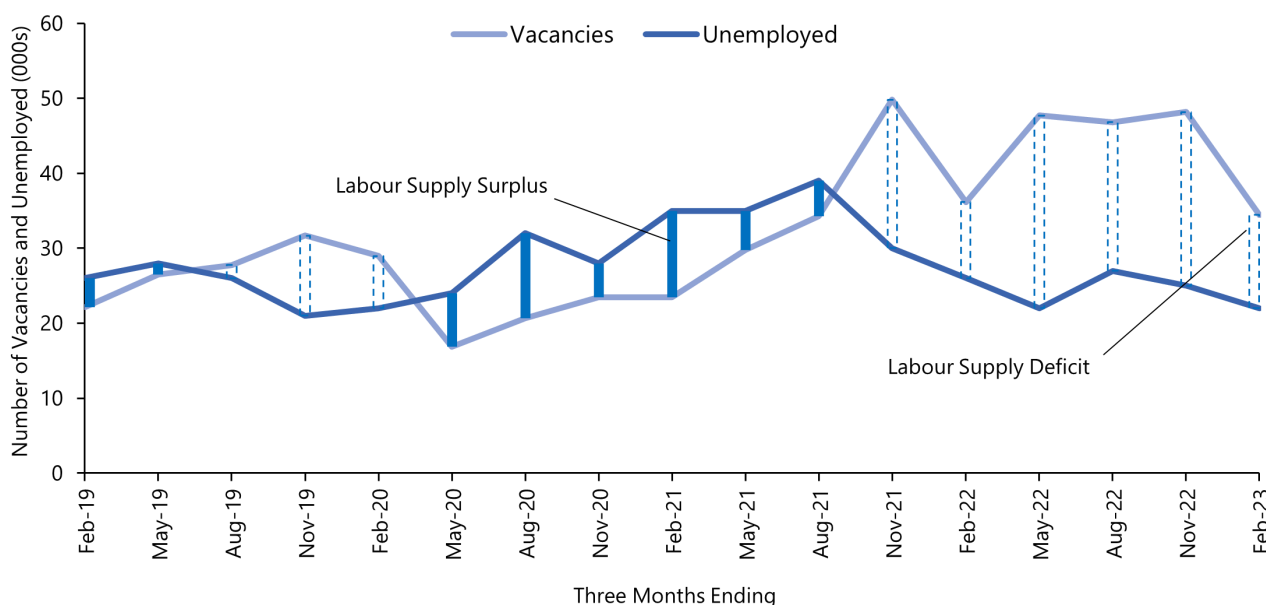
The NI Chamber & BDO Quarterly Employment Survey (QES) for Q1 2023 reported that most businesses are engaging in recruitment, with 75% of manufacturers and 73% of services recruiting. However, hiring difficulties persist with 92% of manufacturers and 82% of services finding it difficult to recruit staff.

### Prices and the Cost of Living

Recovery in demand following the pandemic combined with global supply chain bottlenecks resulted in elevated prices for goods and services across the World. These price rises were exacerbated by the Russian invasion of Ukraine and, while there are some early signs of easing, the UK's inflation rate remains stubbornly high - in March 2023, prices were 10.1% (ONS, CPI) higher than a

Figure 3: The Labour Supply Gap

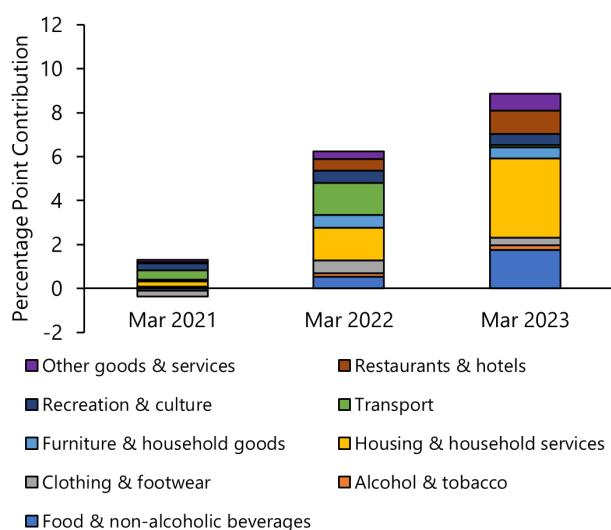
The difference between the number of vacancies (online job postings) and the estimated number of unemployed people (aged 16 and over) in NI over time.



year previous and well above the Bank of England’s 2% target. The two main contributing factors to the high rate of inflation are higher energy and food prices with the ONS reporting that annual food and non-alcoholic beverages inflation is at its highest rate in over 45 years. PwC estimated that the average weekly food shop in NI would cost the same as London (£109), making NI and London the most expensive locations in the UK. As wages have largely been unable to keep up with these price increases thus far, elevated prices are squeezing household finances meaning households purchasing power is eroded, with the potential to negatively impact on living standards and hinder the local economy, particularly those sectors dependent on discretionary spending.

Figure 4: The Drivers of Consumer Price Inflation

Percentage point contributions to the 12-month change in the UK Consumer Price Index including owner occupier housing costs (CPIH).



In the 2023 Spring Budget the UK government announced one of its main priorities was to halve the rate of inflation. Some of the measures announced include the extension of the Energy Price Guarantee to June 2023 and a freeze on fuel duty. In a bid to curb inflation, the Bank of England has increased the base rate 12 times since December 2021 and it now sits at 4.5%. This has led to increased borrowing costs for both businesses and households, but it is hoped that it will begin to cool down demand. Both the Bank of England and the Office for Budget Responsibility (OBR) expect the annual rate of inflation to ease by year-end 2023, with forecasts of 5.1% and 2.9% respectively.

## Productivity

The Northern Ireland Productivity Dashboard 2022

provides an in-depth analysis of the region’s productivity levels. The analysis shows that NI has the lowest productivity performance of any region in the UK and lagging some 17% behind the UK average. According to the research, NI also lags behind the Republic of Ireland, where productivity is around 29% higher than the UK average.

Business innovation, entrepreneurial activity, and employer provided training are all cited as areas where improvement is needed if productivity is to be raised. Relatively low levels of FDI were also highlighted as a factor, while the current political uncertainty was found to negatively affect the local business environment.

However, significant progress within skills was highlighted, including a reduction in the brain drain, and a drop in the number of individuals with no or low skills. Access to Gigabit-capable internet services is also the best within the UK, reflecting recent investment.

There are some drivers where NI performs better than most other UK regions, including export intensity, R&D per job, and gross fixed capital formation per job.

## NI Economic Outlook

Although the latest outlooks for the NI economy still anticipate negative growth for 2023, recent near-term economic indicators and intelligence have been relatively positive of late, with PwC’s latest UK economic outlook estimating that NI economic growth was second only to London in the three months to February 2023.

The latest Quarterly Sectoral Forecast (Q1 2023) by Danske Bank has revised growth expectations upwards to forecast a 0.3% contraction for 2023 which means that while the economy is still forecast to shrink, this will be by less than the 1% previously anticipated. The bank states that this is because the economy has proven to be more resilient than previously anticipated and highlights that with the labour market in a relatively robust position, the average number of employee jobs increased by 3.6% in 2022. While Danske Bank expects the rate of jobs growth to slow sharply this year, they forecast that the annual average number of employee jobs will increase by around 0.2% in 2023 and by about 0.3% in 2024. They also forecast that the unemployment rate in Northern Ireland will average around 3.2% in 2023, before increasing to an annual average of about 3.5% in 2024.

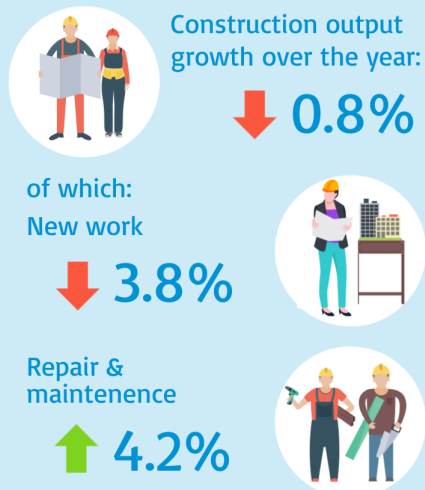
Business confidence has also begun to rise with both the Ulster Bank PMI and latest NI Chamber of Commerce Quarterly Survey showing that firms are growing more optimistic about the year ahead and PwC highlighting that increasing certainty about NI’s relationships with GB and the EU is expected to help growth in NI.

# Businesses

The Index of Services reached a new series high in the final quarter of 2022 and despite a marginal decline of the Index of Production over the quarter, NI's production output in 2022 was higher than in 2021. Construction output, driven by residential work, rebounded strongly over the quarter to Q4 2022, contributing significantly to the return to growth of the local economy. Inflationary pressures remain a pressing concern for businesses and is creating a degree of uncertainty for future planning.

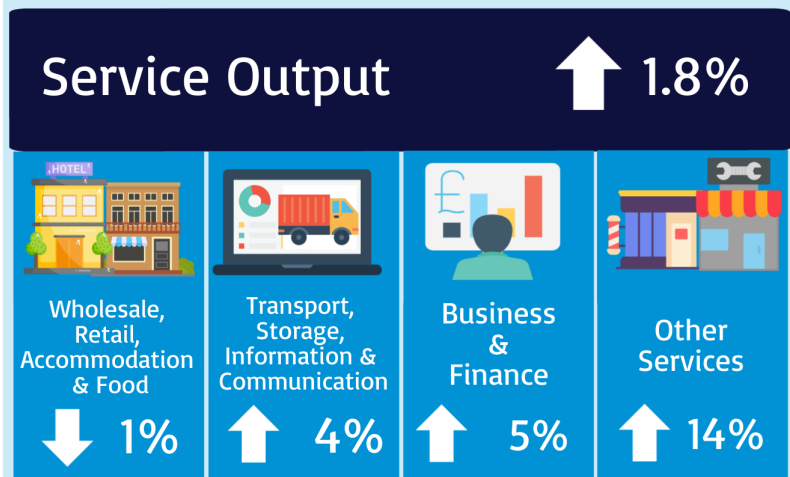


## Construction Output



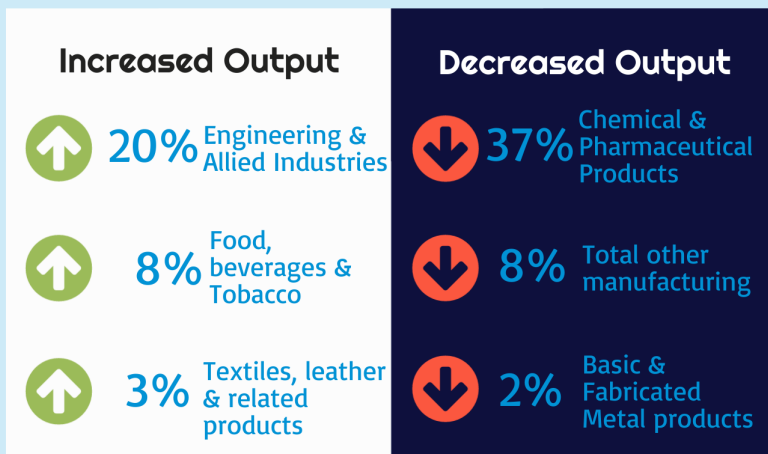
Source: NISRA Construction Output Q4 2022

## Services - Annual Output Changes



Source: NISRA IoS Q4 2022

## Manufacturing Sub-Sectors Output over the year



Source: NISRA IoP Q4 2022

## InterTradeIreland

Business position of NI firms:



Source: InterTradeIreland All-Island Business Monitor Q4 2022

### Business Overview

NI Chamber & BDO reported signs of stabilisation in the first quarter, with most key indicators positive. Inflation continued to be the dominant concern, while concerns around rising interest rates were increasing. Recruitment difficulties remained significant, with 87% of firms finding it difficult to find staff. Rising labour costs are becoming much more of a concern and are contributing to expectations to raise prices.

Results from the ONS BIC Survey suggest that recruitment difficulties are being driven by a low number of applications and a lack of qualified applicants. The main concerns reported by businesses in NI and in the UK overall are shown in Figure 5.

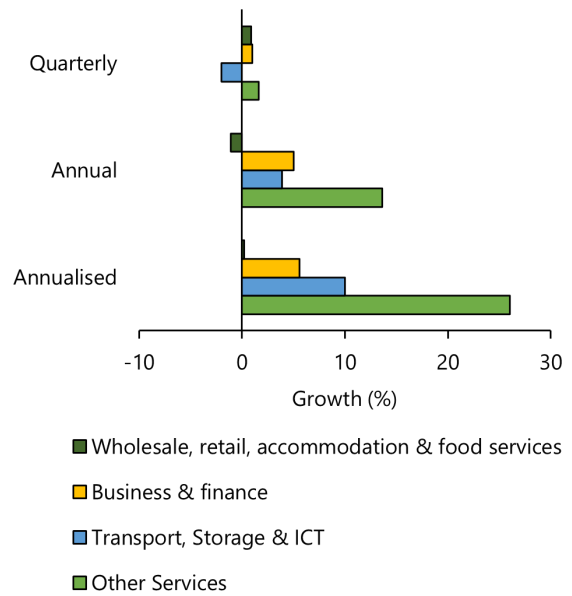
While challenges remain, the Future Activity Index of the latest Ulster Bank PMI showed that all sectors were confident that output would increase over the coming year, with recent improvements in economic conditions expected to be sustained, while the latest findings from the NI Chamber showed that 60% of respondents were confident that turnover would increase in the next 12 months while 55% believed their business would grow in 2023. Clearly though, not all businesses are experiencing similar sentiment, with some 33% believing their business would contract this year.

### Services

Following an upward trend since the pandemic recovery in mid-2021, output in the NI services sector reached a series high by the final quarter of 2022, increasing by 1.8% over the year.

Figure 6: Growth of Service Subsectors

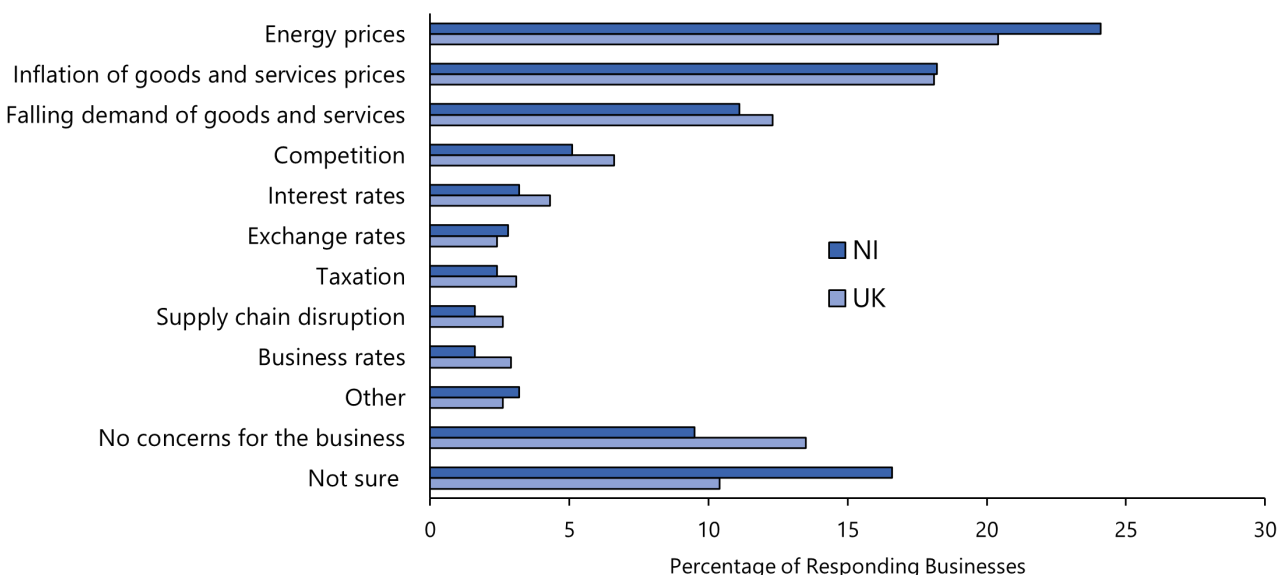
Output growth of broad service subsectors in Q4 2022 on quarterly, annual and annualised bases. 'Other services' refers to education, health & social work, arts, entertainment & recreation and activities not covered elsewhere.



The latest NI Chamber & BDO Quarterly Survey noted a strong start to 2023 for the NI services sector. All key indicators were positive in Q1 2023, with NI ranked as the top performing UK region in 9 of the 11 key reporting areas, notably those relating to employment and recruitment intentions. However, inflationary pressures remained a concern for the sector, with higher labour and utility costs putting the greatest pressure on

Figure 5: Main Concerns of Businesses

The main concerns of businesses in May 2023 based on responses to the ONS BIC Survey.



firms to raise prices.

### Retail and Hospitality

Output across the broad sector (wholesale, retail, accommodation and food services) reached a series high in Q3 2021, following the easing of pandemic restrictions and a surge in consumer demand. It has since followed a mostly downward trend, before ticking up by 0.9% in Q4 2022, to a level 1.0% above the pre-pandemic position.

The NI Retail Sales Index recorded a relatively strong quarterly increase of 2.2% in Q4 compared to Q3 2022. The Ulster Bank PMI indicates that the recent rebound in NI retail continued into the new year, aided by shoppers from the ROI and the £600 energy grant easing pressure from energy bills. In March 2023, retail posted the fastest increase in output and new business of the four sectors covered by the PMI (manufacturing, construction and services not including retail).

However, Danske Bank forecasts suggest that growth may be short-lived - output in the wholesale & retail sector is projected to decline by more than in any other sector in 2023, as inflationary impacts on household spending power, along with relatively low consumer confidence, are expected to negatively weigh on consumer-focused parts of the economy in 2023. Other consumer-focused sectors – such as accommodation & food services and arts, entertainment & recreation – are expected to be similarly affected, with output in both sectors forecast to decline by 1.7%.

### Production

Output of NI's production industries decreased in three of the four quarters of 2022, and most recently fell by 0.6% between Q3 and Q4. Despite the marginal decline, 2022 production was 2.6% higher than 2021.

### Manufacturing

Manufacturing output helped to offset the annual decreases in NI production as, despite a marginal quarterly decline (0.1%) in Q4 2022, NI manufacturing sector output increased by 2.3% over the four quarters of 2022.

NI Chamber & BDO observed an improved situation for NI manufacturers in Q1 2023, noting increased confidence and an improved regional position. Cashflow balances, while remaining negative at -4%, increased significantly from previous quarters and although the costs of labour, raw materials and utilities remained a significant pressure, there were signs that inflationary pressures may be easing. The latest Ulster Bank PMI indicates that of the four surveyed sectors,

manufacturing experienced the slowest increase in both input and selling prices in March 2023.

Danske Bank project a 1.0% decline in NI manufacturing output in 2023 due to the effects of weaker household spending on demand for consumer goods, high energy prices, skills shortages and a softer outlook for investment.

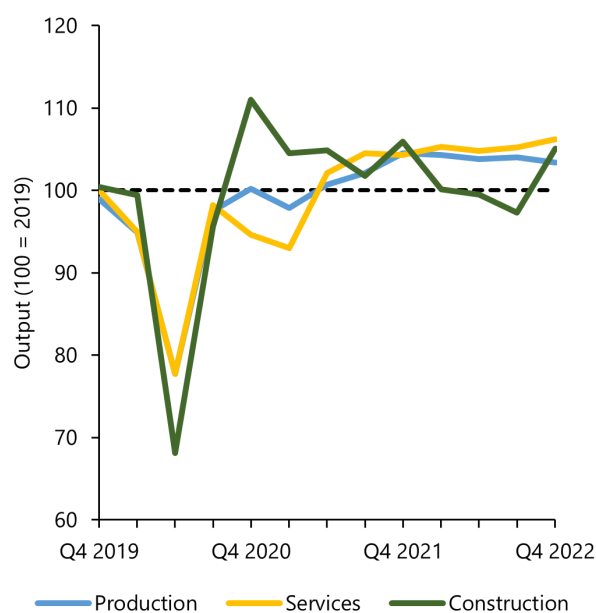
### Construction

Driven by residential work, construction output increased strongly (8.0%) in the final quarter of 2022 though the medium-term trend is less positive. Output remained lower than the recent peak in Q4 2020 and has declined by 3.6% on an annualised basis. The construction sector's decline was a main driver of NI's recent technical recession, and the rebound in output in the final quarter accounts for much of the return to economic growth.

CEF Construction Survey results suggest that significant challenges remained for the sector going into 2023, chief among these being the increased cost of materials. Danske Bank forecasts construction output to decline by 0.4% this year, though there remains an element of uncertainty in the sector's outlook. The AECOM Ireland Annual Review notes that growth in 2023 will depend on UK Government capital spending, medium-term implications of inflation and how much interest rates continue to rise.

Figure 7: Production, Services and Construction

Output growth in the three main broad private sectors in NI over the last four years.

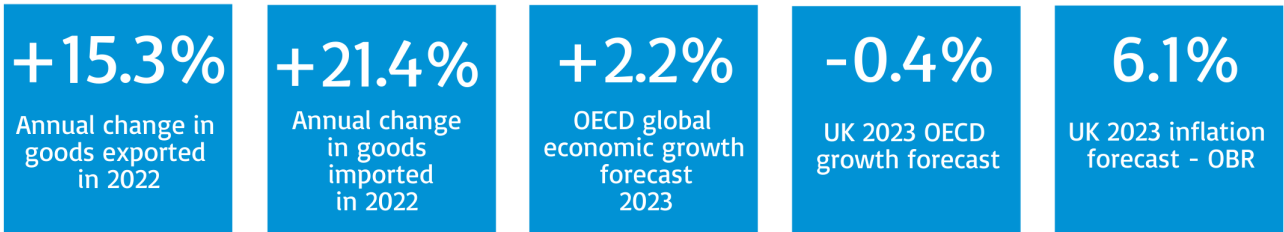




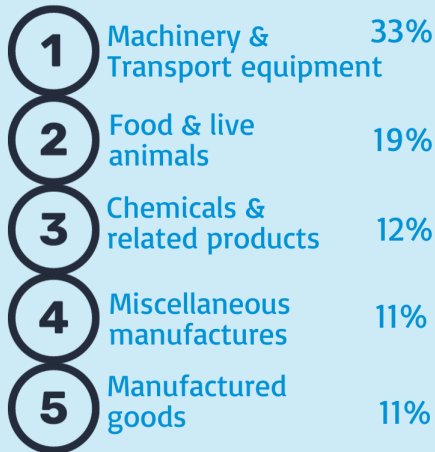
# World Engagement

The global economy continues to be buffeted by several headwinds including inflationary pressures, higher interest rates, and the ongoing conflict in Ukraine. However, the IMF anticipates that most countries will see lower headline inflation this year compared to last year.

There are positives in the tourism industry with some clear signs of a rebound in activity. A growing number of NI firms also report that they are successfully adapting to NI's post-EU exit trading arrangements.



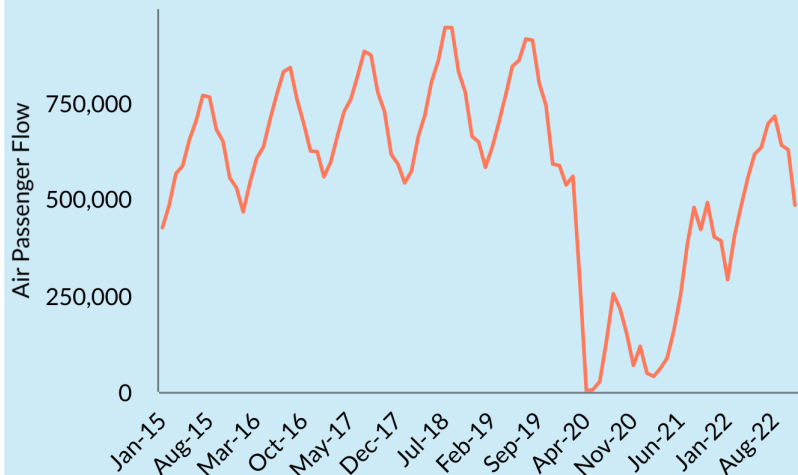
## NI's Top 5 Exporting Commodities



Percentage of all exports. Source: HMRC RTS 2022

## NI Airport Passenger Flow

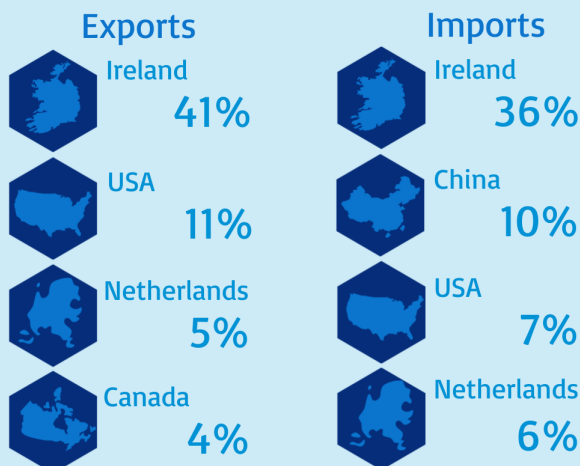
January 2015 - November 2022



Source: NISRA NI Air Passenger Flow Statistics

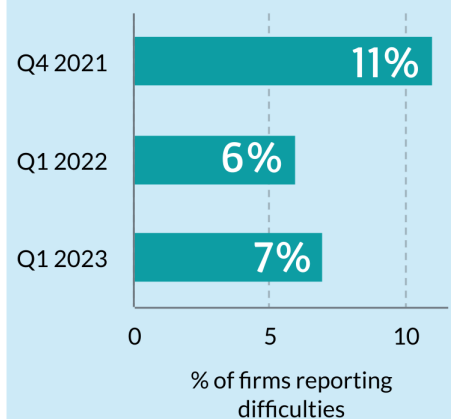
## NI's Top Trading Partners

as a proportion of total NI trade in goods



Source: HMRC RTS 2022

## Firms facing significant challenges adapting to post EU Exit trading arrangements



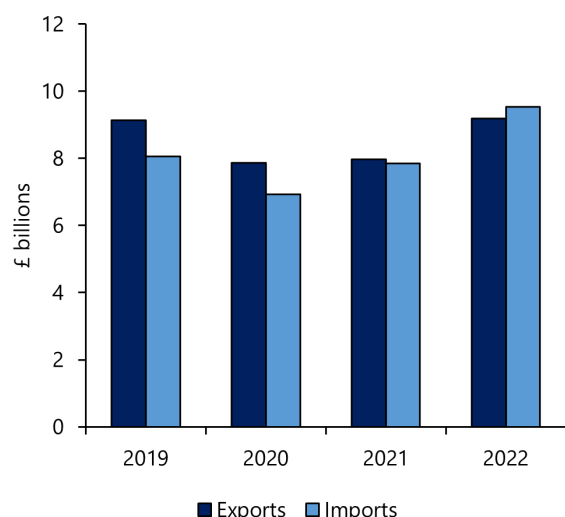
Source: The NI Chamber of Commerce & Industry QES Q1 2023

## International Trade

According to the latest HMRC Regional Trade Statistics, NI exports increased 15% between 2021 and 2022 with £9.2bn worth of exports recorded in 2022. Over the same period, imports to NI expanded 21% , amounting to £9.5bn in 2022.

Figure 8: International Trade in Goods

The value of NI’s international imports and exports of goods from 2019 to 2022.



Northern Ireland’s top-five international trading partners, shown in Figure 9, accounted for 64% of total trade in goods in 2022, matching 2021’s percentage share. The ROI remained the top trading partner for Northern Ireland, while the US was the second largest export market and China was the second largest import

Figure 9: NI’s Top Five International Trade Partners

Export and import values of NI’s top five trading partners (in international trade in goods) in the year to Q4 2022.



market.

Machinery & transport equipment was NI’s most traded commodity type, accounting for almost a third of exports in 2022. Food & live animals was the second largest commodity category for Northern Irish exports, increasing 29% from 2021 to 2022.

Trading arrangements have remained an ongoing concern for NI businesses post-Brexit, though progress has been made in recent months with Britain and the EU reaching agreement on a number of key issues resulting in the Windsor Framework. NI businesses will need to continue to adapt to the new processes and technologies in place, and while many businesses report that they are successfully adapting to these changes, some still report that they are encountering challenges. The NI Chamber & BDO NI’s latest QES for Q1 2023 reports that roughly one in six businesses are continuing to find new trading arrangements difficult or significantly challenging, albeit this is down from roughly one quarter of businesses in Q4 2021.

## Global Outlook

Worldwide growth is forecast to fall from an estimated 3.4% in 2022 to 2.8% in 2023 according to the IMF’s World Economic Outlook, while the OECD project a slightly slower rate of global growth at 2.6%. The increase in central bank rates to fight rising inflation coupled with the war in Ukraine are continuing to weigh heavily on economic activity. Both the IMF and the OECD expect the UK to record negative growth in 2023 (Table 1), reflecting tighter fiscal and monetary policies, while elevated energy prices continue to act as a drag on household spending.

Headline inflation has started declining, with the IMF noting that around 84% of countries are expected to record lower headline inflation in 2023 than in 2022 - nevertheless, inflationary pressures remain and could linger for an extended period, hampering economic prospects. The OECD raises the concern of rising financial vulnerabilities globally, including in financial institutions, housing markets and low-income countries.

Table 1: International Economic Growth Forecasts

The OECD and IMF's latest economic growth (in Real GDP) forecasts for selected countries in 2023, in percentage terms.

Region	OECD	IMF
UK	-0.2	-0.3
Euro Area	0.8	0.8
US	1.5	1.6
China	5.3	5.2
World	2.6	2.8

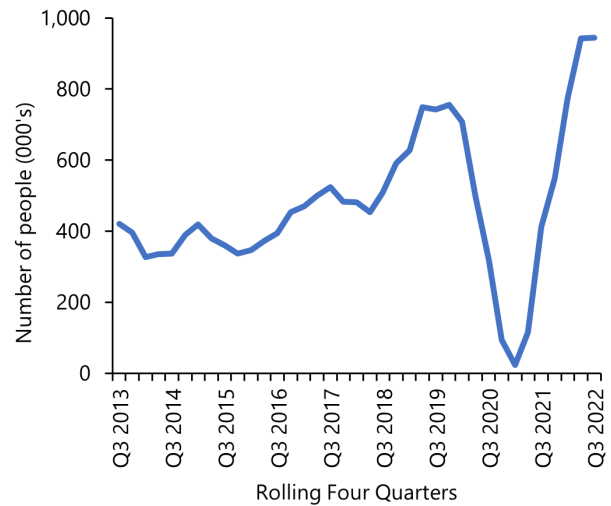
### Tourism

While the tourism industry was disproportionately impacted by the Covid-19 pandemic, it has been proactive in the aftermath of the pandemic and there are clear signs of a rebound in activity. There were an estimated 2.3 million rooms sold in Northern Irish hotels in the 12 months to February 2023, equaling pre-COVID levels when 2.3 million rooms were sold in the 12 months to February 2020. There were an estimated 576,000 rooms sold in small service accommodation in the 12 months to February 2023, peaking higher than pre-pandemic numbers and Northern Ireland also received an estimated 944,000 overnight trips from ROI residents in the 12 months to September 2022, marking the highest level on record.

TourismNI's latest Consumer Sentiment Analysis provides an encouraging outlook for the industry despite the challenging economic climate. The December 2022 survey noted that the number of respondents saying that they expect to be "significantly" affected by cost of living has dropped by 14 percentage points (40%) compared to the previous report in October 2022. The analysis also found that the focus on reduction in spending is less than when tested in October, while a third of respondents said they feel optimistic about 2023 and one quarter said they feel excited.

Figure 10: NI Overnight Trips by ROI Residents

The number of ROI residents taking overnight trips to NI.



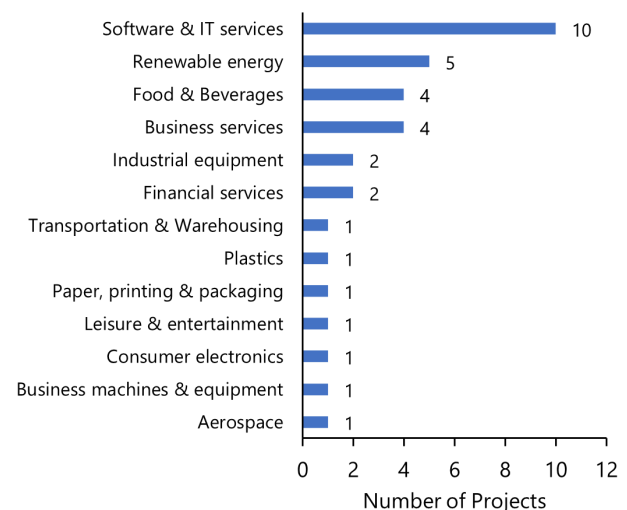
### Foreign Direct Investment

According to fDi markets there were 34 foreign direct investment (FDI) projects to Northern Ireland announced by 30 different companies in the year to February 2023.

The US was the main source market for investment with 11 projects, accounting for over 30% of the total projects. Ireland and Spain were also important source markets with 9 and 3 projects respectively. Software & IT Services was the main industry sector receiving investment with 10 projects, followed by Renewable energy with 5 projects, while Business Services and Food & Beverages both had 4.

Figure 11: Inward FDI Projects by Sector

The number of announced inward FDI projects to NI in the year to February 2023.



# Households

Households finances continue to be under pressure, with inflationary stresses and rising interest rates eroding spending power. While energy prices remain the main contributor to inflation, food and non-alcoholic beverages price increases reached a 45 year high. NI's labour market has remained robust with increasing trends of hours worked. House prices fell slightly over the quarter and while they remain above 2021 prices, there are some signs that the market is cooling. Consumer Confidence increased modestly for the first time since Q2 2021, however levels remain considerably below those reported in Q4 2021.

**-1,200**  
Annual change in claimant count (March 2023)

**-0.6pps**  
Annual change in unemployment rate

**+10.2%**  
Annual change in house prices

**9.2%**  
Annual change in median monthly PAYE pay

**-21.2%**  
Annual change in NI discretionary income (ASDA)

### Pay - April 2022

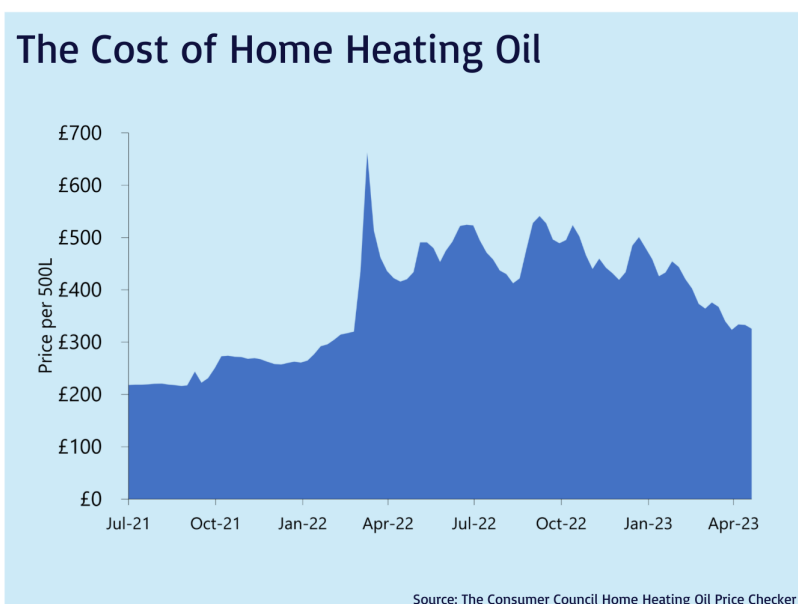
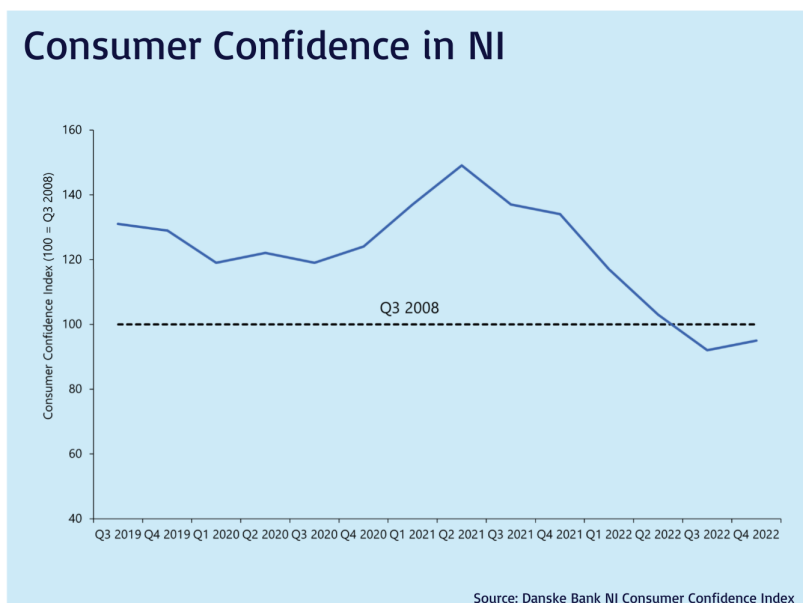
#### Annual Change in Median Gross Weekly Earnings

NI	UK
↑ 2.9%	↑ 5.0%

#### Annual Change in Real Gross Weekly Earnings

NI	UK
↓ 4.5%	↓ 2.6%

Source: NISRA ASHE 2022



### House Prices

	Detached £269k	↑ 12%
	Semi-Detached £170k	↑ 10%
	Terrace £122k	↑ 8%
	Apartment £128k	↑ 8%

Source: NISRA House Price Index Q4 2022 - Annual Change

### Unemployment and Inactivity

Recruitment difficulties remain a pressing concern for NI businesses, with many reporting issues recruiting and retaining staff and with rising labour costs becoming a more significant concern. Most businesses reported remaining active in some level of recruitment, which has coincided with a steady reduction in the local unemployment rate.

The Labour Force Survey (LFS) NI unemployment rate (16+) for December to February 2023 was estimated at 2.4%, falling over both the quarter and the year and bringing it to 0.1% below the pre-pandemic position. The overall UK unemployment rate for the same period was 3.8%, with NI reporting the second lowest unemployment of all 12 UK regions.

The number of people claiming unemployment benefits increased by 800 over the month to 36,200 in March 2023 (3.7% of the workforce), however this remains 1,200 less over the year. While the claimant count is significantly below the recent peak in May 2020, it remains 21.2% higher than the pre-pandemic count of March 2020. In March 2023, the claimant count for the UK was marginally higher than NI at 3.9% of the workforce.

NI's economic inactivity rate for December to February 2023 fell over the quarter and year to 26.2% though continues to be the highest of the UK regions, with the overall UK rate sitting at 21.1%. Although both NI and UK rates remain higher than the pre-pandemic period, NI has seen a larger decrease over the year, falling by 2.2pps, whilst the UK rate has decreased by 0.3pps over the same period.

The number of young people (aged 16-24) in Northern Ireland who were not in employment, education, or training (NEET) during October to December 2022 was 18,000. This equates to an NI NEET rate of 9.0%, which is below the UK rate of 11.6%.

### Employment

The number of people aged 16+ in employment during December to February 2023 was estimated at 871,000, an increase of 35,000 over the year. The overall NI employment rate (for 16–64-year-olds) was 71.9%, which, while representing an increase over both the quarter and year, remains below the UK employment rate of 75.8%, and is the lowest among the 12 UK regions. Both the UK and NI employment rates remain below pre-pandemic levels.

The annual increase in employment rate was driven by a 3.4pps rise in male employment with a smaller 1.8pps increase in female employment.

HMRC PAYE shows the number of payrolled employees in NI was 790,600 in March 2023 – 2.3% higher than March 2022. Between March 2020 and March 2023, NI recorded the largest increase (5%) in payrolled employees among the UK regions.

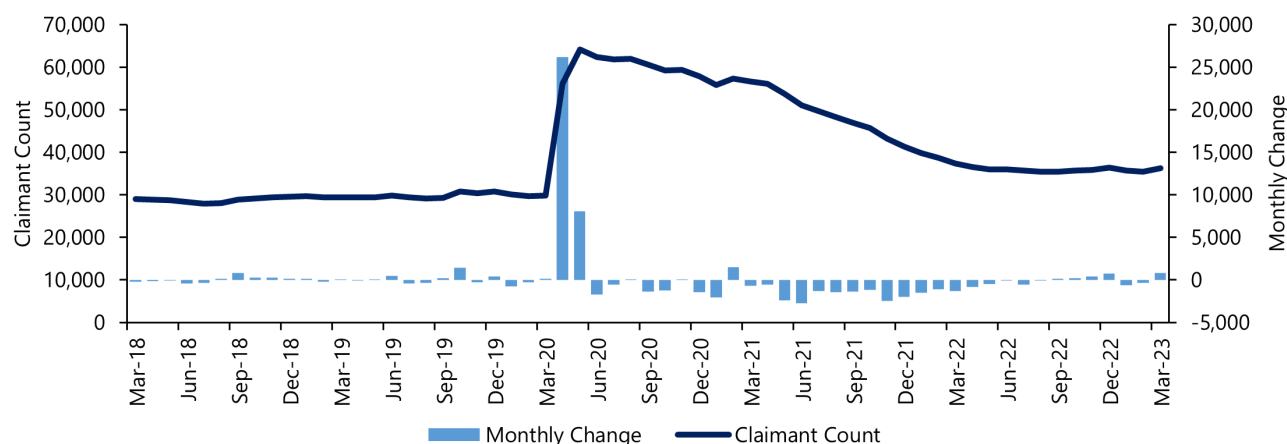
The total weekly hours worked in NI increased by 5.6% over the year to December-February 2023, to an estimated 27.8 million hours per week. This continues a generally increasing trend for hours worked over recent months, but remains below pre-pandemic levels.

### Home Energy Costs

The Consumer Council's Home Energy Index was 233.89 at the end of February 2023, relative to the base period of January 2016, down 8.13 points over the month, due to a fall in home heating oil prices, while gas and electricity prices remained the same. The Consumer Council estimate 34% of NI households are in fuel poverty - spending more than 10% of net annual household income on energy. The cost of 500 litres of home heating oil is down by 22.5% over the last year (£420.28, April 2022; £325.53, April 2023) and has fallen significantly from the March 2022 peak of £662.86.

Figure 12: The Claimant Count

The number of people (and monthly change in people) claiming unemployment related benefits in NI, seasonally adjusted.



## Pay and Consumer Confidence

### HMRC PAYE Real Time Information

The median monthly pay in NI for March 2023 was £2,110 - an increase of £56 over the month and £177 over the year. NI had the largest annual increase of the 12 UK regions and now has the sixth highest median earnings in the UK. (UK median £2,207).

### SMMT New Car Sales

Sales of new cars in NI in March 2023 totalled 5,153, an increase of 23.1% on March 2022 with growth in new car sales in NI outpacing that of England (19.3%), Scotland (11.2%) and Wales (5.2%) over the period. This represents 8 consecutive months of growth in the UK New Car market as supply chain challenges continue to ease.

### Danske Bank - Consumer Confidence Index

The Consumer Confidence Index (CCI) increased for the first time since Q2 2021, albeit modestly to 95 in Q4 2022, up from 92 in the previous quarter although it is considerably below that of Q4 2021 (134), as higher prices continue to weigh on household finances. Confidence is thus still lower than the base index period of Q3 2008. Compared with Q3 2022, respondents were more confident about future finances and expected spending on expensive items but were less confident about current finances and job security.

### ASDA Income Tracker

The ASDA Income Tracker for Q1 2023 reported that NI discretionary incomes experienced an annual contraction of 21.2% with family spending power down by £27 per week. Whilst this was the largest drop of any region, it was smaller in magnitude than Q2, Q3, and Q4 2022. NI discretionary income showed a slight improvement on a quarterly basis, exceeding £100/week for the first time since Q1 2022. This strong annual decline in spending power was driven by weaker gross income growth, NI being amongst the worst performing regions in Q1 2023 for this metric. While Energy prices remain the main contributor to inflation, food and non-alcoholic beverages were a key contributor with prices up 19.2%, representing a 45 year high. Transport however was the main contributor to the slowdown in inflation (ONS, CPI), with price growth at 0.8% in March 2023, down from a peak of 14.9% in June 2022.

### NI Household Expenditure Tracker

The latest NI Household Expenditure Tracker from the Consumer Council reported that in Q4 2022, NI's lowest earning households suffered a 10.5% squeeze on the

amount of discretionary income available compared to the previous quarter. Over the year, the Tracker estimated that the same households had experienced a 47.2% decline in their discretionary income. This has been driven by higher prices present in categories that are more difficult for such households to cut back on, such as food and energy.

### Cost of Living Support

Government support with cost of living and energy costs continues and the payment schedule for 2023/24 cost of living support has been announced.

The first payments are due to be paid between 25 April and 17 May 2023 and further information on Cost of Living Payments and eligibility can be found on NI Direct.

### House Prices

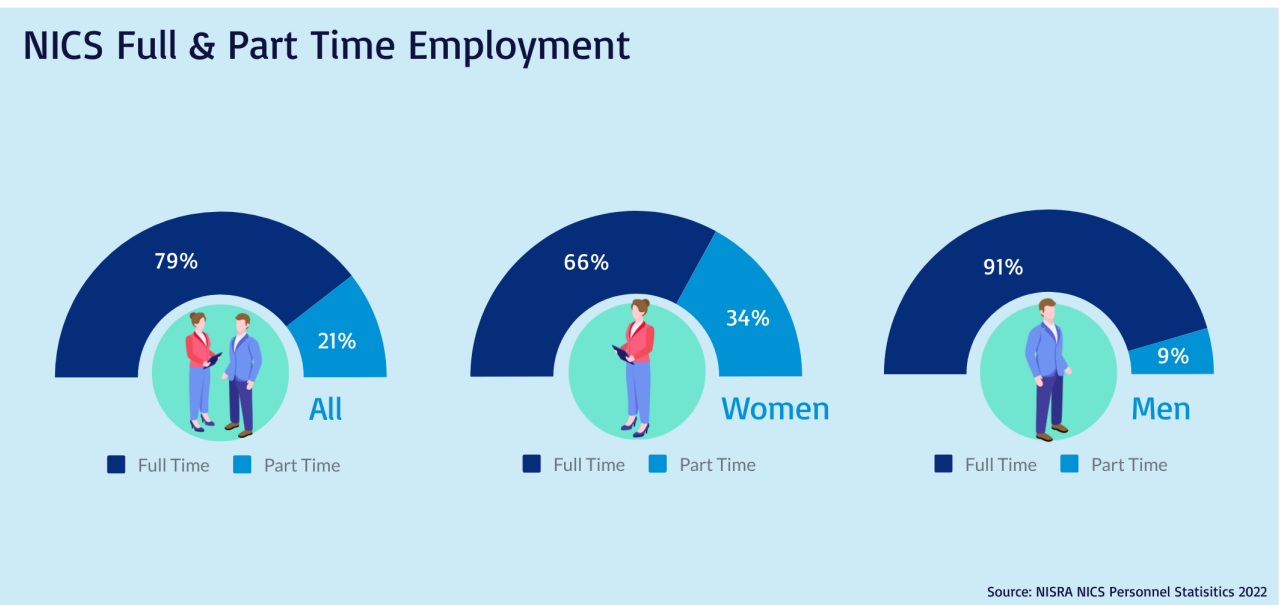
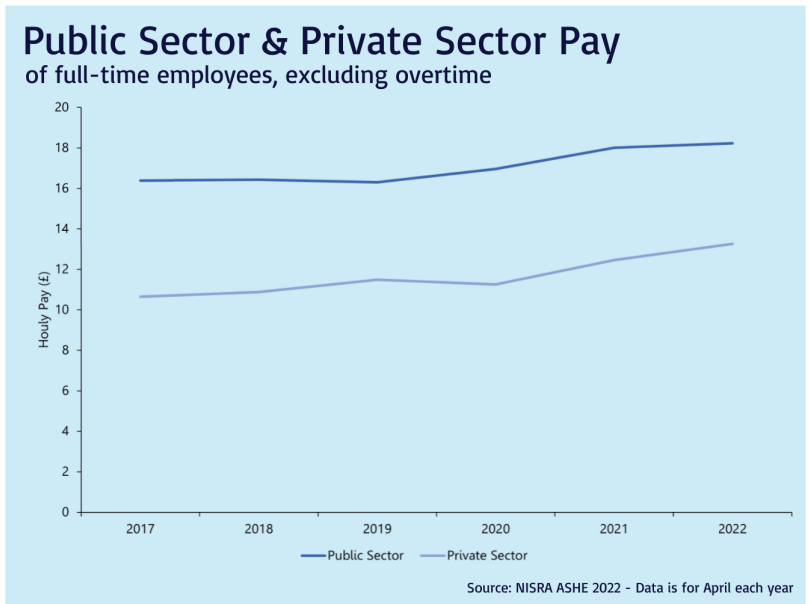
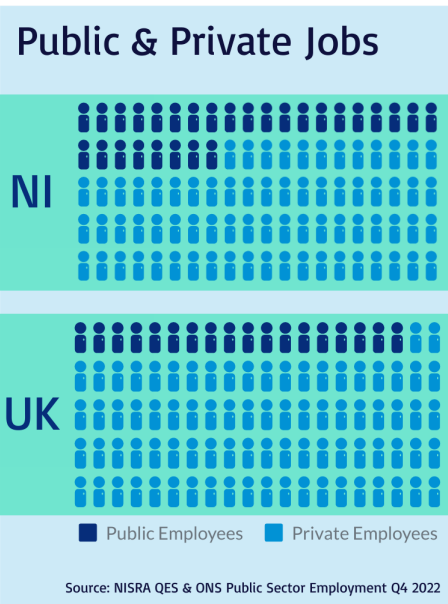
Average house prices in NI fell slightly in Q4 2022, down 0.5% over the quarter but up 10.2% over the year. Only 4 council areas saw quarterly increases in average prices while the remaining 7 experienced falling prices. All council areas saw yearly increases in average prices, however.

The average house price in NI was £175,234, just over £70,000 more than in Q1 2012. Average house prices by Local Government District ranged from £153,244 in Derry City & Strabane to £208,333 in Lisburn & Castlereagh. There were also variances by property type as shown below. The largest annual increase was for detached properties while the largest quarterly decrease was for apartments, although, semi-detached and terrace houses saw similar quarterly decreases.

Recent data from HMRC showed that the number of house sales in Northern Ireland was down 19% in the first quarter of 2023, with 5,400 housing transactions in the first three months of the year, compared to 6,670 in the same period of 2022. This is reflective of wider housing market cooling across the UK, with rising interest rates pushing up the cost of mortgages and will likely feed into the housing price fall forecast in OBR's latest Economic and Fiscal Outlook in March – the report highlights low consumer confidence, the squeeze on real incomes, and the expectation of mortgage rate rises to come as factors expected to contribute to continued falls in house prices and a reduction in housing market activity. OBR's central forecast is that UK house prices will drop by 10% from their high in Q4 of 2022, over the next two years.

# Public Sector

Public Sector employment continued to expand in Q4 2022. This further extends the run of growth in public sector jobs observed since mid-2017, with figures reaching a 12-year high, though staffing levels are still below the peak public sector employment levels of late 2009.



### Public Sector Employment

In Q4 2022 the number of public sector jobs rose over the quarter by 0.6%, this was an increase of 1,350 jobs. While over the year, public sector jobs rose by 2.3% (5,010 jobs). The private sector saw the same level of jobs growth over the quarter at 0.6% (+3,450 jobs) as the public sector but outpaced the public sector over the year with job growth of 4.0% (22,640 jobs). This caused the public sector’s share of total employee jobs to fall marginally to around 27.5%. Historically, the public sector has accounted for a relatively large proportion of employment in NI compared with the UK overall, where around 19% of the workforce are public servants. Of the approximately 5,000 net recruitment in the public sector over the year, around 59% were staff in education institutions (or in the Education and Library boards).

The Northern Ireland Civil Service (NICS) expanded by around 305 personnel (or 1%), of which over half went to the Department of Agriculture, Environment and Rural Affairs (DAERA). A significant increase of around 14% of staffing levels was recorded in The Executive Office (TEO).

There has been continual growth in the number of public sector jobs between September 2017 and December 2022, however, there are still 5,180 (-2.3%) fewer public sector jobs than the series peak in September 2009.

Table 2: Public Sector Employment

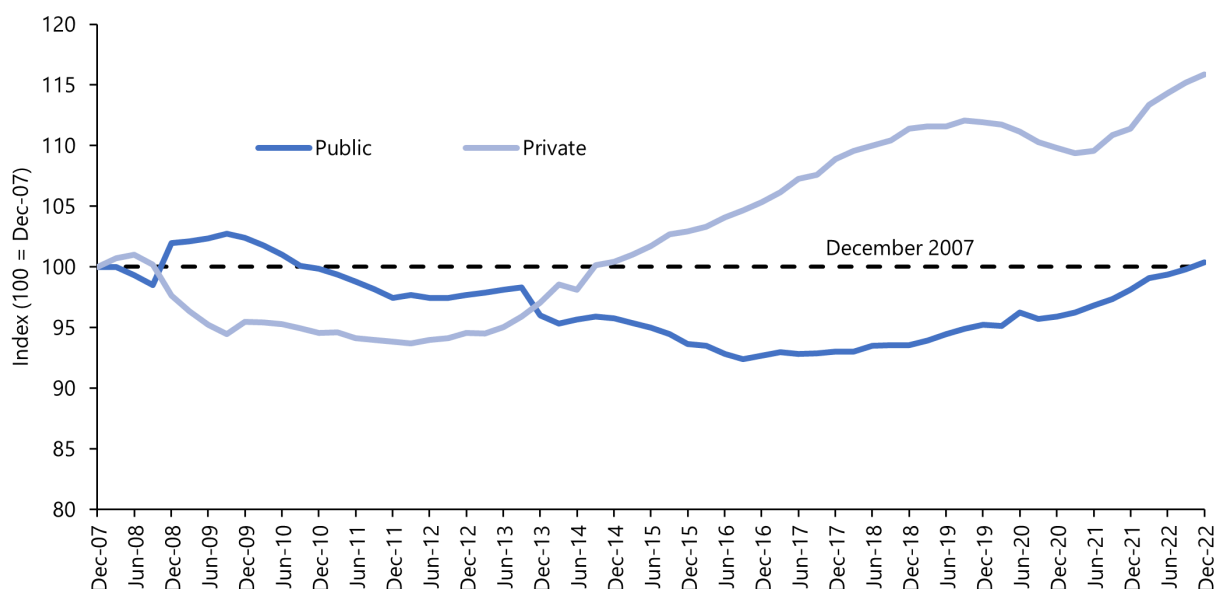
A breakdown of the NI public sector employment structure, with annual changes, in December 2022.

	Jobs		Annual Change	
	Dec-22	No.	No.	%
<b>NI Central Government</b>	<b>115,667</b>	<b>1,402</b>	<b>1.2%</b>	
of which NICS	24,527	305	1.3%	
of which NHS Trusts	77,540	1,205	1.6%	
other NI Central Government*	13,600	-108	-0.8%	
<b>UK Central Government</b>	<b>4,270</b>	<b>391</b>	<b>10.1%</b>	
<b>Local Government (District Councils)</b>	<b>11,501</b>	<b>228</b>	<b>2.0%</b>	
<b>Public Corporations</b>	<b>6,511</b>	<b>113</b>	<b>1.8%</b>	
<b>Bodies under Aegis of NI Central Government</b>	<b>85,771</b>	<b>2,895</b>	<b>3.5%</b>	
of which education staff**	72,267	2,948	4.3%	
other Bodies under Aegis***	13,504	-53	-0.4%	
<b>Total</b>	<b>223,719</b>	<b>5,029</b>	<b>2.3%</b>	

\*Includes Fire Service, NI Audit Office, NI Assembly, Police Service NI, BBC and Agri-Food & Bioscience Institute. \*\*Teaching and Non Teaching staff in Schools, Colleges and Education and Library boards. \*\*\*Arm’s Length Bodies and Partners of the nine government departments.

Figure 13: Public vs. Private Sector Employee Jobs

Public and private sector employee jobs in NI over the last 15 years of available data, indexed to December 2007.





# FOCUS: Artificial Intelligence

Vangelis Marangudakis, Analytical Services Division


This Focus Piece provides a brief overview of what Artificial Intelligence (AI) is; the different types of AI; how it may affect us; how governments have responded; and what may be next.

## What is Artificial Intelligence?


Artificial Intelligence (AI) refers to the development of computer systems that can perform tasks which would typically require human intelligence, such as visual perception, speech recognition, decision-making and language translation. AI technology has the potential to revolutionize the way we live and work, and is being used in a growing number of fields, including healthcare, transportation, finance, and manufacturing.

## Four main types of AI

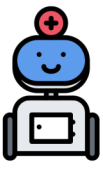
- 1.** Reactive machines: relatively simple and follow strict rules




**Reactive machines** are designed to perform a specific task based on a given set of rules without any ability to form memories or use past experiences to inform future decisions. Examples include Deep Blue (a chess-playing computer) and AlphaGo (a computer program designed to play the board game Go).
- 2.** Limited Memory AI: can use past experiences to inform future decisions



**Limited Memory** can store data for a short period of time. These AI systems use past experiences to inform future decisions. Self-driving cars are an example of limited memory AI systems.
- 3.** Theory of Mind AI: understands human behaviour and thought allowing more natural interactions with humans



**Theory of Mind** is designed to understand human emotions, beliefs, and thought processes, and to use that understanding to interact with humans more naturally. This type of AI is still largely in the experimental phase, but it has potential applications in fields such as mental health care and education.
- 4.** Self-aware AI: conscious and able to understand its existence (unknown if achievable)



**Self-Aware AI** have consciousness and the ability to understand their own existence. This type of AI is still largely hypothetical, and there is much debate within the scientific community about whether it is even possible to create such an AI.

## How could AI affect you?

AI has the potential to cause significant changes to peoples' lives in multiple ways. One of the main ways in which AI could affect people is by transforming the job market.

In the same way that for hundreds of years automation has replaced physical labour jobs, AI now has the potential to do the same thing with more cognitive-based jobs. A major reason AI has garnered a lot of attention recently is because of the potential it has to disrupt large proportions of the labour market in a very short time scale.

As AI systems become more sophisticated, they are likely to replace more tasks currently performed by humans and by extension replace some or many jobs that humans currently have. There are concerns that this could lead to significant economic disruption through adverse labour market impacts. However, AI could also create new job opportunities.

It should be remembered that up until now, technologies that have replaced workers have not led to higher unemployment in the long run for societies. Rather, they have contributed to sustained improvements in living standards for humans.

## How AI is anticipated to affect labour markets

A recent study by Goldman Sachs has found that 300 million full time jobs globally could be affected by AI. This research states that roughly two-thirds of current jobs are exposed to some degree of AI automation while generative AI (AI that can generate text, images or other media in response to prompts) could substitute up to a quarter of current work.

However, it should also be noted that predictions about the impact and timescale of AI have been wrong in the past, such as a 2013 University of Oxford study which found that 47% of US jobs could be eliminated by AI over the next 20 years.

Although, many AI and tech experts believe a sea-change has occurred recently, especially in the wake of Chat GPT's release and when considering the type of exponential growth computer processing has experienced in the past several decades.

### What is the government strategy?

The UK Government published a 10-year strategy on AI in September 2021 with the intention of making the UK 'a global AI superpower'. Actions outlined in this strategy come under three broad headings: supporting the AI ecosystem; ensuring AI benefits all sectors and regions; and AI governance/regulation.

The UK Science and Technology Framework sets out UK government's strategic vision and identifies AI as one of five critical technologies. The UK Government has opted for a "pro-innovation" approach to regulating AI as detailed in its White Paper published in March 2023.

This means the government has opted for a relatively loose approach to regulating AI. While this is likely to be positive for the speed of its development, it also comes with the trade-off of less mitigation for the risks that come with AI (see the adjacent section on regulation for more detail).

The 2021 Leading Innovation report found that NI lags the UK average in terms of the attainable economic impact of AI and that NI has a high and increasing proportion of tech vacancies in comparison to other regions in the UK. AI research in Northern Ireland is present but is less tightly focused or differentiated than in some other UK clusters. Current venture capital investment in NI in emerging tech and AI specifically is also lower than in other regions.

At the same time, the Department for the Economy's 10X strategy outlines "Software engineering and AI" as one of 8 enabling technologies that are the foundation of our future growth in NI.

The Department for the Economy outlined £2m of additional funding in its Economic Recovery Action Plan to develop proposals to implement an AI centre of excellence.

### How is it being regulated? Should it be regulated?

The scope and scale of AI and its rapidly improving capabilities has the potential to pose significant challenges in terms of developing a tailored and responsive regulatory framework.

At the same time many prominent figures within the AI community have signed an open letter calling on AI labs to immediately pause the training of AI systems more powerful than GPT-4 for at least 6 months due to the destabilizing effects they may have on societies and the small potential for spill over into Artificial General Intelligence (AGI: self-aware AI). A flood of false information and harmful media, automation of too many jobs, and the development of "minds" that could outsmart humans and make us obsolete are some of the concerns that are listed.

The open letter calls for the development of robust AI governance systems and has over 27,000 signatures that include significant figures such as Stewart Russell (an internationally acclaimed AI scientist), Steve Wozniak (co-founder of Apple) and Valerie Pisano (CEO of the Quebec AI Institute).

This comes as Italy has ordered Chat-GPT to temporarily stop processing Italian users' personal data over alleged violations of laws such as GDPR. Concurrently, major legal questions exist over who has ownership and the rights to AI outputs.

Although the EU is currently working on the world's first legislation on AI, consumer advocacy groups are concerned that it could take years before the AI Act takes effect, leaving consumers at risk of harm from a technology that is not sufficiently regulated.

The exponential nature of AI advancement means that how the technology is regulated could have material impacts on the scope and scale of an economy's future AI aspirations and the extent and nature of its use. This has led to a wide range of views from governments, regulators and proponents as to what the correct balance looks like.

## What might the future hold?

The power of AI to transform the way we live and work presents many opportunities and risks.

Microsoft co-founder Bill Gates has stated that AI will radically change people’s lives as much as computers, the internet, and mobile phones have.

It is likely that most jobs will incorporate some level of AI into their tasks, without necessarily getting rid of every human worker. This means that workers will be more productive and that relatively less labour will be required for the same task. This is typical of labour-saving technologies that generate productivity gains. For instance, a recent paper (not yet peer reviewed) from MIT researchers randomly assigned ChatGPT to half of the participants in occupation specific, incentivised writing tasks. Their results found that use of this AI software significantly increased productivity, increased test scores and benefited low-ability workers more – reducing inequality across workers (please see Figures 14 & 15 for more detail).

From basic tasks such as playing chess, more complicated work generating written or visual outputs, and extremely complex and beneficial work advancing scientific discovery, increasing agricultural efficiency, or improving breast cancer screening, AI is having, and will continue to have, huge impacts on how we work, interact, and live our lives in the future.

And, if you’re thinking that this all sounds a little far-fetched, or that AI could never replace/contribute to tasks performed by humans, you should probably know that it wrote parts of this article...

Figure 14: ChatGPT Reduces Average Time Spent on Tasks

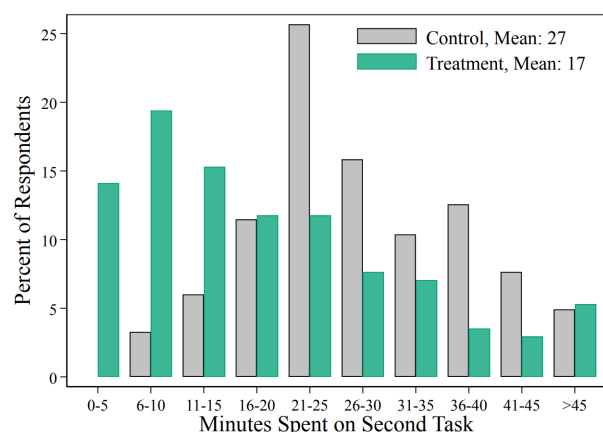
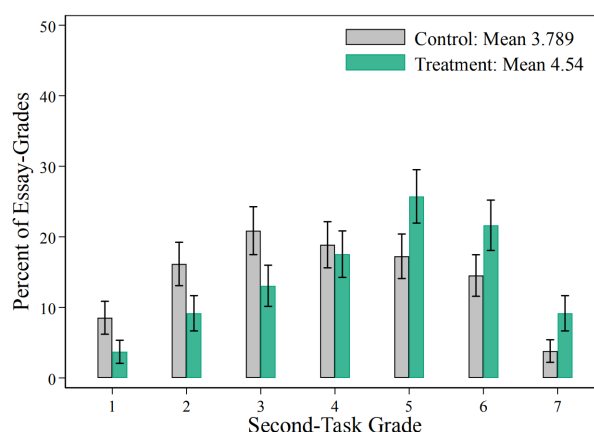


Figure 15: ChatGPT Improves Average Grades of Workers



Notes:

Figures 14 & 15: ‘Control’ refers to the control group which did not have access to ChatGPT, while ‘Treatment’ refers to the treatment group which did have access to Chat GPT. Figures were sourced from [Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence \(Noy and Zhang\) - 2023](#).

The sections: What is Artificial Intelligence (AI)?; Four main types of AI; and How could AI affect you? were written in assistance with ChatGPT. These sections were then edited and independently verified by the human author.

# Sources and Contact

## Sources

### Cover Page

[Labour Market Report \(NISRA\) - April 2023](#);  
[NICEI \(NISRA\) - Q4 2022](#);  
[UK GDP quarterly national accounts \(ONS\) - October-December 2022](#);  
[UK Consumer Price Inflation \(ONS\) - March 2023](#);  
[UK Regional Trade in Goods Statistics \(HMRC\) - Q4 2022](#).

### The Economy

[NICEI \(NISRA\) - Q4 2022](#);  
[Quarterly Employment Survey \(NISRA\) - Q4 2022](#);  
[UK Consumer Price Inflation \(ONS\) - March 2023](#);  
[NI Quarterly Sectoral Forecasts \(Danske Bank\) - Q1 2023](#);  
[Index of Production \(NISRA\) - Q4 2022](#);  
[Index of Services \(NISRA\) - Q4 2022](#);  
[Regional Gross Domestic Product \(ONS\)](#);  
[Ulster Bank PMI - March 2023](#);  
[Lightcast Labour Insight](#);  
[NI Chamber & BDO Quarterly Economic Survey - Q1 2023](#);  
[Labour Market Report \(NISRA\) - April 2023](#);  
[UK Economic Outlook 2023 \(PwC\) - January 2023](#);  
[Spring Budget 2023 \(HM Treasury\)](#);  
[Monetary Policy Report \(Bank of England\) - May 2023](#);  
[Economic and fiscal outlook \(OBR\) - March 2023](#);  
[NI Productivity Dashboard 2022 \(The Productivity Institute\)](#);  
[UK economic outlook 2023 \(PwC\) - April 2023](#).

### Businesses

[Index of Services \(NISRA\) - Q4 2022](#);  
[Index of Production \(NISRA\) - Q4 2022](#);  
[NI Construction Bulletin \(NISRA\) - Q4 2022](#);  
[Quarterly Employment Survey \(NISRA\) - Q4 2022](#);  
[InterTradeIreland All-Island Business Monitor - Q4 2022](#);  
[NI Chamber & BDO Quarterly Economic Survey - Q1 2023](#);  
[BICS \(ONS\)](#);  
[Ulster Bank PMI - March 2023](#);  
[Ulster Bank PMI - January 2023](#);  
[Retail Sales Index \(NISRA\) - Q4 2022](#);  
[NI Quarterly Sectoral Forecasts \(Danske Bank\) - Q1 2023](#);  
[NICEI \(NISRA\) - Q4 2022](#);  
[CEF Construction Survey - July-September 2022](#);  
[Ireland Annual Review 2023 \(AECOM\)](#).

### World Engagement

[UK Regional Trade in Goods Statistics \(HMRC\) - Q4 2022](#);  
[OECD Economic Outlook - March 2023](#);  
[Economic and fiscal outlook \(OBR\) - March 2023](#);  
[NI Air Passenger Flow \(NISRA\) - November 2022](#);  
[NI Chamber & BDO Quarterly Economic Survey - Q1 2023](#);  
[IMF World Economic Outlook - April 2023](#);  
[Hotel occupancy survey \(NISRA\) - February 2023](#);  
[Household Travel Survey \(CSO\) - Q4 2022](#);  
[Tourism NI's Consumer Sentiment Analysis - December 2022](#);  
[fDi Markets](#).

### Households

[Labour Market Report \(NISRA\) - April 2023](#);  
[NI House Price Index \(NISRA\) - Q4 2022](#);  
[Asda Income Tracker - April 2023](#);  
[ASHE \(NISRA\) - 2022](#);  
[Danske Bank Consumer Confidence Index - Q4 2022](#);  
[Home Heating Oil Price Checker \(The Consumer Council\)](#);  
[NEET \(NISRA\) - Q4 2022](#);  
[The Consumer Council's Home Energy Index - February 2023](#);  
[NI New Car Registration Data \(SMMT\), reported by the Belfast Telegraph](#);  
[NI Household Expenditure Tracker \(The Consumer Council\) - Q4 2022](#);  
[Cost of Living Payments \(NI Direct\)](#);  
[UK monthly property transactions \(HMRC\) - March 2023](#);  
[Economic and fiscal outlook \(OBR\) - March 2023](#).

### Public Sector

[Quarterly Employment Survey \(NISRA\) - Q4 2022](#);  
[ASHE \(NISRA\) - 2022](#);  
[UK Public Sector Employment \(ONS\) - December 2022](#);  
[Personnel Statistics for the NICS - 2022 \(NISRA\)](#).

### Focus Piece

[7 Types of Artificial Intelligence \(Forbes\)](#);  
[Generative AI could raise global GDP by 7% \(Goldman Sachs\)](#);  
[Oops: The Predicted 47 Percent of Job Loss From AI Didn't Happen \(ITIF\)](#);  
[The future of employment: How susceptible are jobs to computerisation? \(Frey and Osborne\) - 2013](#);  
[Pause Giant AI Experiments: An Open Letter \(Future of Life Institute\)](#); [National AI Strategy \(UK Government\)](#);  
[UK Science and Technology Framework \(UK Government\)](#);  
[AI regulation: a pro-innovation approach \(UK Government\)](#);  
[10X Economy - an economic vision for a decade of innovation \(DfE\)](#);  
[Italy curbs ChatGPT, starts probe over privacy concerns \(Reuters\)](#);  
[UK rules out new AI regulator \(BBC\)](#);  
[Ownership, liability, patentability, and creative issues in artificial intelligence \(Bisoyi\) - 2022](#);  
[Regulatory framework proposal on artificial intelligence \(European Commission\)](#);  
[ChatGPT banned in Italy over privacy concerns \(BBC\)](#);  
[The Age of AI has begun \(Gates Notes\)](#);  
[Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence \(Noy and Zhang\) - 2023](#).

## Contact

For any queries, or to be added to the distribution list for the DfE Economic Commentary or related research publications, please contact Analytical Services at:

[analyticalservices@economy-ni.gov.uk](mailto:analyticalservices@economy-ni.gov.uk)