

Article

Industry-to-industry payment flows, UK: 2016 to 2023, experimental data and insights

An experimental UK industry-to-industry payment flows dataset based on anonymised and aggregated Bacs Direct Debit and Direct Credit payments.

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1 . Main points

- Using Bacs Direct Debit and Direct Credit payments data between January 2016 and October 2023, we derive an experimental dataset on industry-to-industry payment flows within the UK that has potential to provide granular insights about UK supply chains.
- Bacs payments are part of the larger UK payment methods system and the data used in the article are not exhaustive of all UK industry-to-industry payment flows.
- We invite user feedback on these experimental data, which are under development with further improvements expected over the next 12 months on data quality and sample coverage.
- The experimental dataset shows that the total value and number of Bacs payments have generally been increasing since January 2016, although a temporary drop was seen in 2020 at the start of the coronavirus (COVID-19) pandemic.
- Large values are seen for payments within the same industry, while public administration and defence, wholesale trade, and financial service activities account for the largest values of payment flows between industries.
- Medium energy-intensive industries, such as manufacturing, real estate, and arts and entertainment, have been impacted the most by the shock to electricity and gas prices in 2022, and experienced the largest increases in their shares of electricity and gas payments out of total payments.

Results presented in this article are experimental and may be subject to revision. The dataset is in development and future releases might differ from the current version.

2 . Overview of industry-to-industry payments data

In the UK, payments between individuals and organisations can be made using one of the following methods: cash, cheques, payment cards, and interbank transfers.

Interbank transfers can take place via one of the three UK payment systems, which cater for different transaction needs. The first system is the Bacs Payment System which processes Bacs Direct Credits, widely used to pay salaries, benefits, dividends and supplier payments directly into bank accounts, and Direct Debits, which automate the collection of regular payments such as utilities and other bills. The second system is the Faster Payment System (FPS), which facilitates real-time payments between UK bank accounts up to a certain limit. The third system is the Clearing House Automated Payment System (CHAPS), which is the sterling high-value payments system operated by the Bank of England.

Many transactions between businesses and organisations take place over the Bacs and FPS because of the services they offer relative to other payment methods.

The Office for National Statistics (ONS) is collaborating with our partners at Pay.UK and Vocalink, respectively the operator of and infrastructure provider to the UK's retail interbank payment systems including Bacs and FPS, to develop experimental economic indicators using payment systems data. The Direct Debit indicators developed as part of the collaboration are already published regularly in our [Economic activity and social change in the UK, real-time indicators bulletin](#).

In this article, a sample of anonymised and aggregated Bacs Direct Debit and Direct Credit payments data are provided to the ONS to develop an experimental indicator on industry-to-industry payment flows within the UK. The main innovations of this indicator are the presence of both source and destination industries in the payments made, and its monthly data time series covering January 2016 to October 2023.

The current sample consists of payments within the UK between approximately 117,000 known organisations referred to as Bacs Service Users, who are companies, groups of companies, charities and governmental organisations that are registered to use Bacs services for the clearing and settling of Direct Debits and Direct Credits. This means that payments involving overseas accounts, personal accounts and accounts of organisations not known as Bacs Service Users are excluded. This sample is not exhaustive of all Bacs payments but captures about 24% (£1.2 trillion) of all Bacs payments value in 2022.

As part of our data development project with Pay.UK and Vocalink, over the next 12 months we aim to improve the quality of the experimental data by, where possible:

- increasing the sample size to include all Bacs payments between all business and organisations (that is, not just Bacs Service Users) and adding FPS transactions
- improving the current industry classification algorithm and providing more industry granularity
- developing regional breakdown

We invite users' feedback over the experimental dataset and its development.

In the following sections, we use the current version of the experimental dataset to explore its dimensions and show analytical insights.

3 . Total payment flows

Bacs payments between industries have been increasing in general over time. In Quarter 3 (July to Sept) 2023, the total value and number of Bacs industry-to-industry payments are respectively 45% and 25% (non-seasonally adjusted) higher than Quarter 3 2016. This compares with a roughly 36% increase in gross domestic product (GDP) over a similar period on the same market prices, non-seasonally adjusted basis.

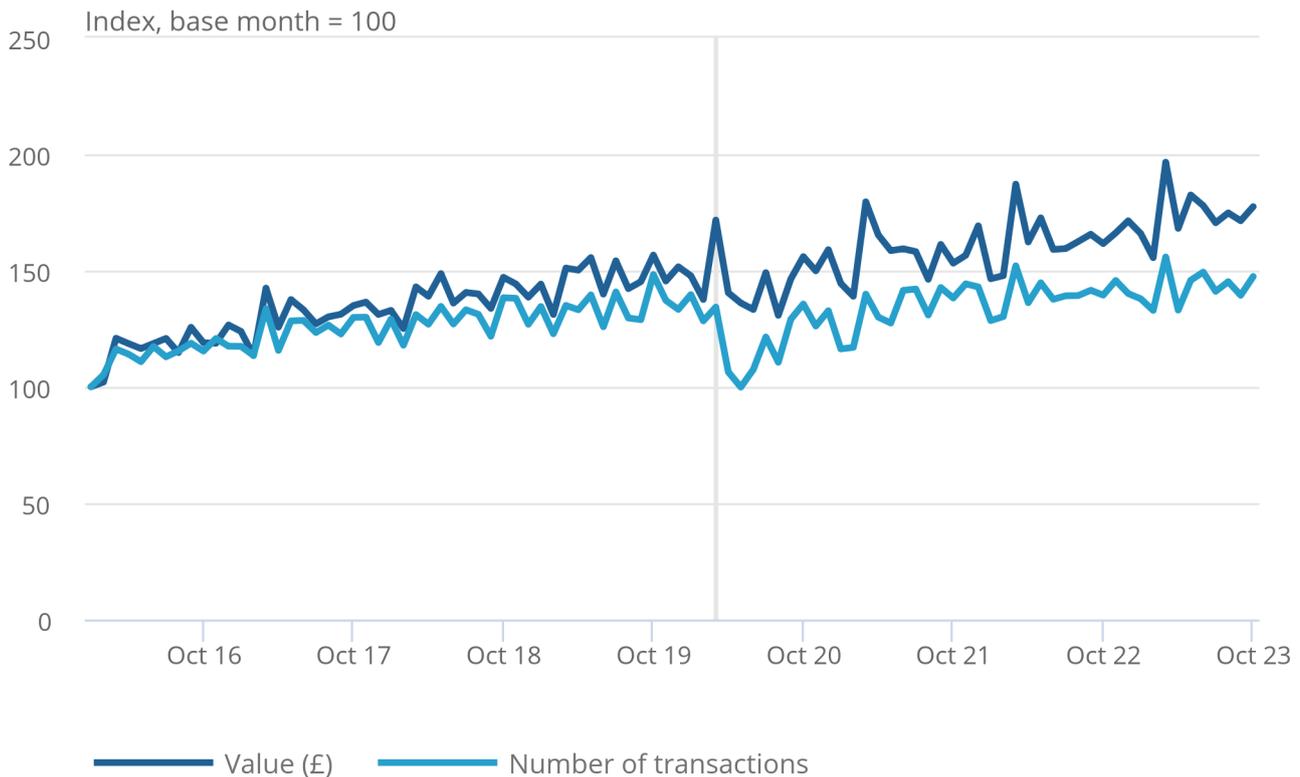
The long-term trends in Bacs industry-to-industry payments may have been influenced by a number of factors in addition to economic growth and inflation, such as changes to payment preferences for Direct Debits and Direct Credits over cash, cheques and other methods, and changes in the complexity of supply chains.

Figure 1: Total value and number of payments have been increasing since January 2016, but a temporary decrease in the volume of transactions is registered in early 2020

Total indexed value and number of Bacs payments between industries, non-seasonally adjusted, UK, January 2016 to October 2023, January 2016=100

Figure 1: Total value and number of payments have been increasing since January 2016, but a temporary decrease in the volume of transactions is registered in early 2020

Total indexed value and number of Bacs payments between industries, non-seasonally adjusted, UK, January 2016 to October 2023, January 2016=100



Source: Office for National Statistics, Vocalink, Pay.UK

Notes:

1. Bacs payments data are derived by adding Bacs Direct Debit and Direct Credit payments. The figures are not seasonally adjusted and are in nominal terms. Changes to payment preferences and entry and exit of organisations from the Bacs Payment System can influence long-term trends.

A temporary decline in the value and number of payments can be seen in the first half of 2020. This is because of disruptions in supply chains, where organisations faced challenges in maintaining customary operations during the coronavirus (COVID-19) pandemic, coupled with lower demand for goods and services because of coronavirus restrictions.

Payments began recovering from late 2020, likely because of a combination of the economic support packages available to businesses during the pandemic and a return to normality subsequently. More recently, since 2021, the total value of payments has increased more than the number of payments, likely reflecting the effect of high inflation in [input and output producer price indexes](#), whose annual rates reached peaks of 24% in June 2022 and 20% in July 2022, respectively.

4 . Industry-to-industry payment flows

Using the from-whom-to-whom nature of the experimental dataset, we can explore the interconnectedness of UK industries and how the network of industries changed over time.

The industry codes in this article are consistent with the current [UK Standard Industrial Classification \(SIC 2007\)](#), except for the code 00, which represents Bacs Service Users that are not yet assigned to an industry or have an invalid industry code under the current classification method. In the current version of the experimental data, payments are aggregated to the two-digit SIC (SIC2) level, or groups of SIC2 industries in instances where that would help with passing statistical disclosure control. Subject to successful data development, future release of the data may include further industry granularity.

Figure 2: Large values of Bacs payments are observed for intra-industry payments. Wholesale Trade, Financial Service Activities and Public Administration and Defence account for the largest values of payment flows

Industry-to-industry Bacs payments, non-seasonally adjusted, UK

Notes:

1. Figures are not seasonally adjusted and are in nominal terms. Changes to payment preferences can influence long term trends. Industry misclassification can exist in the data.

This counterparty analysis gives several insights. Firstly, a significant amount of Bacs payments take place between organisations within the same industry, as shown by the diagonal pattern in Figure 2. In October 2023, 17% of the total value of payment flows were within the same SIC2 (excluding "unknown"). This figure rises to 23% if SIC2 industries are aggregated up to the SIC letter or industry section level.

Secondly, the presence of intermediary industries significantly shapes the industry-to-industry payment flows. High payment amounts are seen involving wholesale trade, except of motor vehicles and motorcycles (industry division 46) and financial service activities, except insurance and pension funding (industry division 64). They reflect the role of the wholesale trade industry in the distribution of goods and the financial intermediation role played by the financial services activities.

Also, a concentration of Bacs payments involving public administration and defence, compulsory social security (industry division 84) can be seen in the data. Organisations in this industry are likely to be public bodies that interact with other industries through intermediate and final consumption, as well as tax collections and subsidies payments. It is important to consider in future data development how economic transfers can be separated from value-adding economic activities.

5 . The impact of high electricity and gas prices on different industries

To show the potentials of the data, we explore how recent high electricity and gas prices have affected businesses and organisations.

The total value of payments to the electricity, gas, steam and air conditioning supply industry (industry 35) increased sharply after Russia's invasion of Ukraine. It peaked in March 2023 before stabilising more recently at levels that are 90% higher than two years ago (average index value of 259 between April and October 2023 compared with 161 between April and October 2021). On the other hand, the number of Bacs payments to this industry has remained roughly unchanged from two years ago. The gap can be attributed to higher electricity and gas prices for a similar level of activities and is indicative of higher running costs for businesses and organisations.

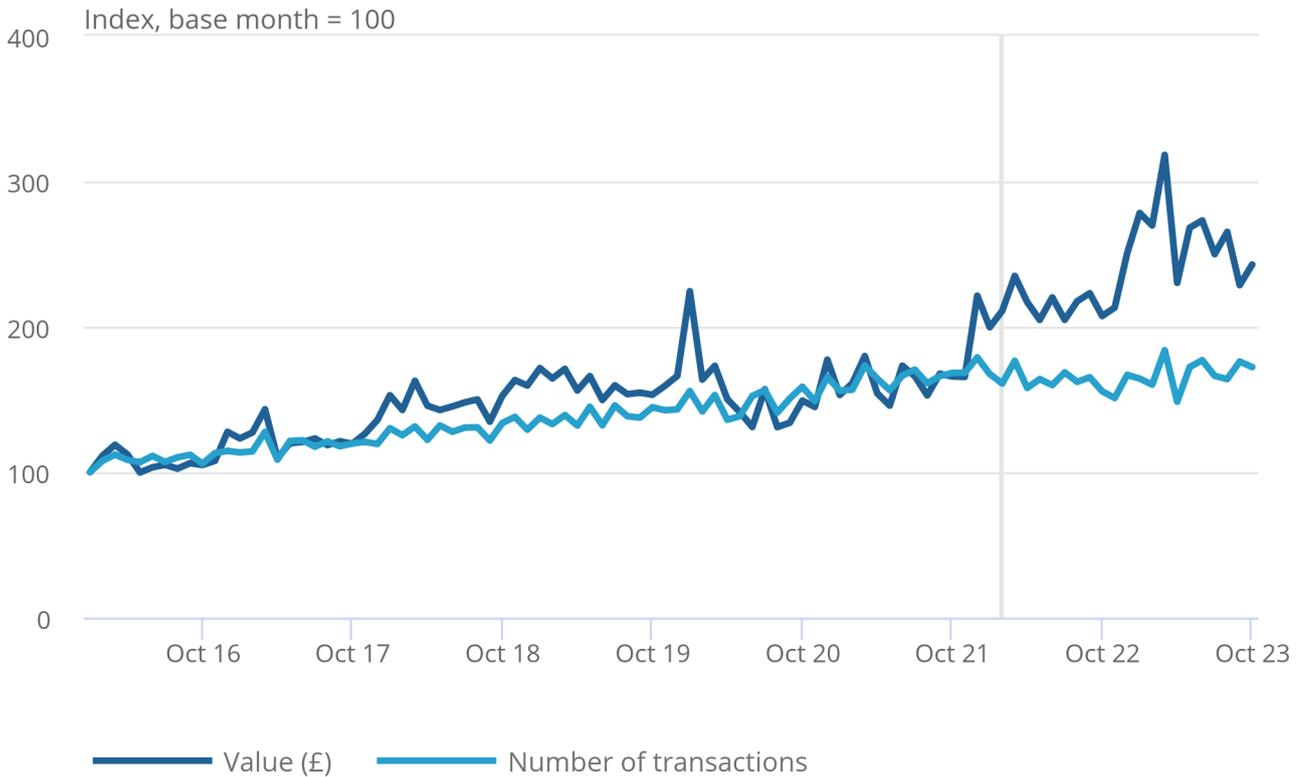
Figure 3: Total value of payments to the electricity and gas industry increased sharply in the last two years while the number of payments stayed similar

Total indexed value and number of Bacs payments made to the electricity, gas, steam and air conditioning supply industry, non-seasonally adjusted, UK, January 2016 to October 2023, January 2016 = 100

Figure 3: Total value of payments to the electricity and gas industry increased sharply in the last two years while the number of payments stayed similar

Russian invasion of Ukrai

Total indexed value and number of Bacs payments made to the electricity, gas, steam and air conditioning supply industry, non-seasonally adjusted, UK, January 2016 to October 2023, January 2016 = 100



Source: Office for National Statistics, Vocalink, Pay.UK

Notes:

1. Figures are not seasonally adjusted and are in nominal terms. Changes to payment preferences and entry and exit of organisations from the Bacs Payment System can influence long-term trends.

With this experimental dataset, a proxy of "energy intensity" by industry can be created by calculating the share of payments made to the electricity and gas industry as a proportion of the total value of payments. Note that this measure does not take into account payments for petroleum and petroleum products, which are part of the much larger wholesale trade industry and cannot be isolated within the Standard Industrial Classification (SIC2) structure presented in this article.

Such a payments-based measure compares quite well with [another experimental measure on energy intensity by industry previously published by the Office for National Statistics \(ONS\) based on the Annual Business Survey 2019 and the Annual Purchases Survey 2018](#). For example, the electricity, gas, steam and air conditioning supply, and the water supply, sewerage, waste management and remediation activities industries are identified as in the top three most energy-intensive industries in both data sources before 2020. Accommodation and food service activities, education, and agriculture, forestry and fishing are also high-ranking in both measures. However, there are some differences in where transportation and storage rank (high in survey, low in payments data- likely because of the exclusion of payments of petroleum in the payments measure) and arts, entertainment and recreation, and manufacturing (both high in payments data, low in survey).

Tracking energy intensity by industry before and after the electricity and gas prices shock, we see that medium energy-intensive industries such as manufacturing, arts and entertainment, real estates, accommodation and food, education and agriculture, have experienced the largest increases in their shares of electricity and gas payments on average since March 2022. On the other hand, industries on both the high and low ends of the energy intensity spectrum have experienced smaller increases, or even decreases in some cases, in their average shares of electricity and gas payments after the price shock.

Figure 4: Medium energy-intensive industries have experienced the largest increases in their share of electricity and gas payments after the shock to electricity and gas prices in 2022

Average energy intensity by industry, defined by the share of payments to the electricity and gas industry out of total payments, before and after March 2022

Notes:

1. The energy intensity measure is calculated as the share of payments made to the electricity, gas, steam and air conditioning supply industry divided by total Bacs payments, by industry. The result is shown in percentages. Industry misclassification can exist in the data. Figures are not seasonally adjusted and are in nominal terms. Changes to payment preferences and entry and exit of organisations from the Bacs Payment System can influence long-term trends.

6 . Monthly industry-to-industry payments data

Industry-to-industry payment flows, UK, experimental data and insights Dataset | Released 6 December 2023
The datasets published alongside the UK industry-to-industry payment flows, 2016 to 2023: experimental data and insights article.

7 . Glossary

Bacs Service User

A company, group of companies, charity, and so on, that uses one or more Bacs services for the clearing and settlement of Direct Debit and Direct Credit.

Bacs Direct Debit

Bacs Direct Debit allows organisations to electronically collect payments from their customers (both business customers and consumers) directly from their payment service provider (PSP) account for agreed amounts and on agreed dates.

Bacs Direct Credit

Bacs Direct Credit allows organisations to make payments by electronic transfer directly into payment services provider (PSP) accounts.

Bacs payments data

Aggregated and anonymised Bacs Direct Debit and Bacs Direct Credit data.

Payments service provider

An institution that offers payment services to customers, whether they are businesses or retail consumers, such as banks and building societies.

8 . Data sources and quality

We are developing an industry-to-industry flow of funds monthly indicator derived from aggregated and anonymised Bacs Direct Debits and Direct Credits payments data between organisations (that is, excludes payments by personal accounts). The current sample of payments is not exhaustive and captures 24% of Bacs total payments value in 2022.

Industry classification used in our indicator is consistent with Standard Industrial Classification (SIC) 2007. This has been derived by applying a combination of deterministic and probabilistic approaches to match Bacs Service Users' names to Companies House and other information, meaning that some misclassification might be present in the current data. An "unknown" industry captures payments involving organisations for which it is not possible to assign a valid SIC code under our current approach.

We do not apply weights to the data and they are not directly comparable with other industry-to-industry statistics, macroeconomic indicators and payment statistics.

Figures presented in the dataset are not seasonally adjusted and are in nominal terms. This means that regular monthly patterns in payments are not adjusted for, and trends in total value are not adjusted for price increases over time. It is possible that long-term trends are impacted by changes in payment preferences, and sample composition can change over time because of entry and exit of organisations from the Bacs Payment System.

For more information on data sources and quality, see the [Quality and Methodology Information document](#).

User feedback is invited over the experimental dataset and its development.

9 . Future developments

The dataset used in this article is under development and in the next 12 months, we aim to improve the quality of the experimental data by, where possible:

- increasing the sample size to include all Bacs payments between organisations (that is, not just Bacs Services Users) and adding Faster Payment System (FPS) transactions
- improving the current industry classification algorithm
- developing regional breakdown

We are publishing this experimental dataset as a one-off publication to invite feedback from users. Pending user feedback and successful data development, we aim to publish such data monthly in a timely fashion.

We are also [working with researchers at the Alan Turing Institute](#) to develop new statistical methods and applications based on this dataset, such as [Mantziou and others \(2023\)](#), where they may be incorporated into future publications.

10 . Related links

[Industry-to-industry monthly payments, UK QMI](#)

Methodology | Released 6 December 2023

Quality and Methodology Information for UK industry-to-industry monthly payments, non-seasonally adjusted dataset, detailing the strengths and limitations of the data, and the methods used.

11 . Cite this article

Office for National Statistics (ONS), released 6 December 2023, ONS website, article, [Industry-to-industry payment flows, UK: 2016 to 2023, experimental data and insights](#)