



Economic contribution of card payments to the UK economy





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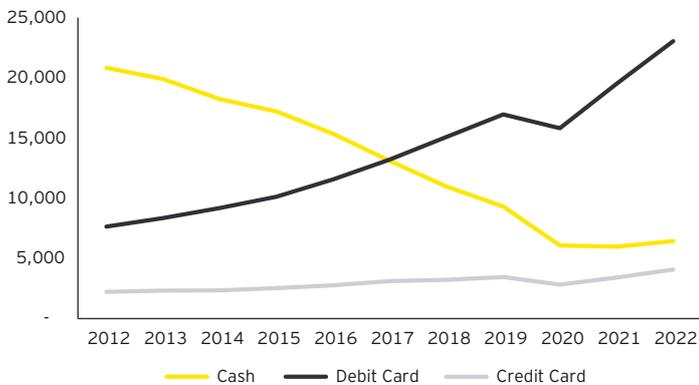
Summary

Cards and card payments have become a significant enabler of economic activity in the UK

Card payments have been a part of British society for over 50 years, with the introduction of credit cards in 1966, and debit cards in 1987.¹ Since that time, they have grown into the main payment method (57% of consumer spending²) in the UK economy, facilitating spending both physically and online. The card industry has continued to innovate, introducing the first contactless cards in 2007, and more recently payments by card on mobile devices through digital wallets.

Figure 1: Total Payment Volumes (millions), by payment type³

Source: UK Finance, UK Payment Statistics 2023



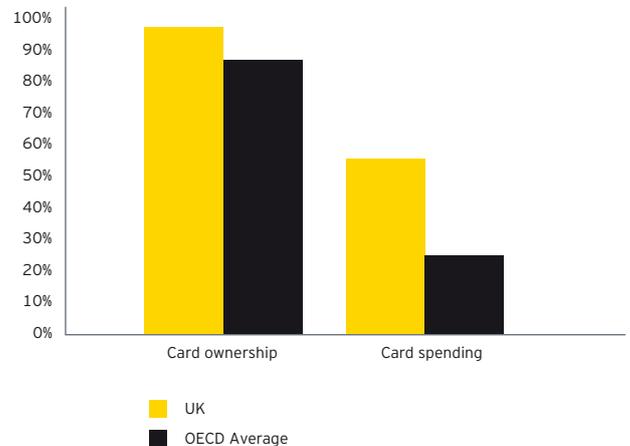
This has contributed to facilitating and increasing economic transactions in the UK, enabling consumers to make payments more easily and have more visibility of their finances. It has also enabled businesses to take payments with less friction and use the data to better understand their customers, supporting their growth.

The UK is a world leader in card payment infrastructure and adoption

Card payments have been increasing as a proportion of overall consumer spending (referred to as card penetration) since their introduction, partly accelerated by the COVID-19 pandemic. On a global scale, the UK is a leader, both in ownership of cards (97% vs. 88% in the OECD), as well as card spending as a proportion of overall expenditure (57% vs. 27% in the OECD).

Figure 2: UK Card Adoption vs. OECD, 2021⁴

Source: UK Finance, ONS, BIS, ECB



¹ <https://www.bankofengland.co.uk/museum/whats-on/2019/325-years-exhibition/payments-through-time>.

² UK Finance for Office of National Statistics (ONS).

³ Note all payment statistics from UK Finance cover card payments across all major card networks operating in the UK.

⁴ Bank for International Settlements, OECD, ONS, UK Finance data from 2021. Card spending as a portion of overall household final consumption expenditure.



Economic benefits of card payments

Card payments have become part of everyday life. They are used for small spontaneous transactions due to their ease of use, and for larger purchases for the consumer protection they can offer. This facilitates additional spending, and more efficient business operations which can support economic growth and employment.

High card penetration supports consumer satisfaction and the competitiveness of the UK economy, by reducing payment

frictions and ensuring the security, stability, and transparency of the payment network.

The high adoption of card payments compared to other OECD countries supports the UK's status as a Fintech hub, with small and medium-sized enterprises (SMEs) offering consumers more innovative and technologically superior solutions⁵. 65% of adults use online banking, while 57% use mobile banking, providing a broad base of consumers for innovative companies.⁶

<p>The use of card payments facilitates and enables greater economic activity, both at the consumer and business level.</p>	1	Ensuring security, stability, and transparency in the payment network, giving consumers the confidence to spend in an accessible and inclusive way.
	2	Driving business innovation through greater access to data.
	3	Removing barriers to operation and entry, and providing access to financing for small businesses, increasing productivity.
	4	Reducing payment frictions and increasing consumers' access to markets, leading to greater consumption and therefore economic growth.



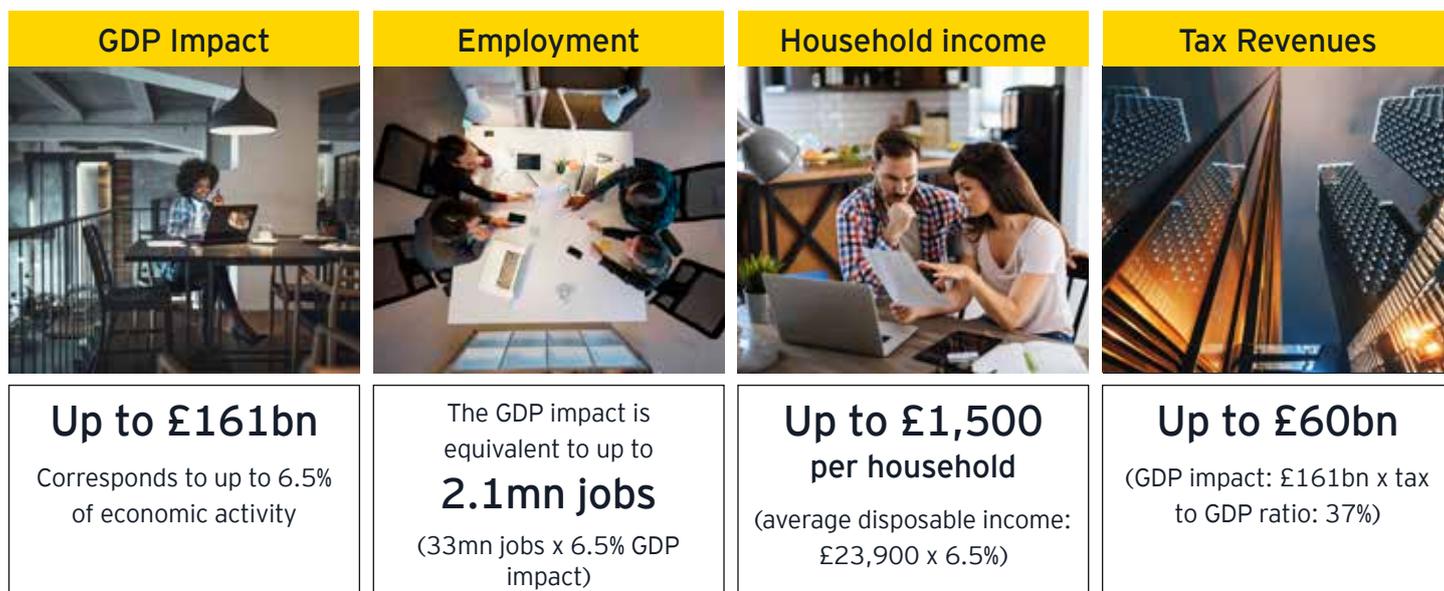
⁵ Fintech – [great.gov.uk](https://www.great.gov.uk) international. The UK is the top-ranking destination for investment in Europe, and second globally.

⁶ UK Finance. Data as of 2022.

This report provides a quantitative estimate of the impact of card penetration on UK Gross Domestic Product (GDP). Highlights of the report are as follows:

- ▶ Econometric modelling based on the historical relationship between card payment volumes and economic activity suggest that every 1% increase in card penetration⁷ has been on average associated with a 0.12% increase in GDP per capita across the group of OECD countries.
- ▶ In the UK, with card penetration of 57%, this suggests that card payments facilitated up to an estimated 6.5% of GDP in 2022, or up to £161bn. That is equivalent to the Gross Value Add (GVA) of the construction sector.⁸
- ▶ As the UK is a leader in card adoption, and the econometric model is estimated based on a wide range of countries over the last 20 years of data, it is possible the coefficient may be less representative of the impact in the UK than for other countries with a lower level of card penetration.
- ▶ Greater card penetration leads to higher GDP via two mechanisms:
 - ▶ Cards lower the costs to consumers from transacting, leading to increased consumer spending and hence additional economic activity.
 - ▶ Cards can increase the productivity of existing workers, due to the time savings and efficiency improvements facilitated by card payments.
- ▶ The additional GDP generated is sufficient to sustain up to two million additional jobs (6.5% of employment), equivalent in scale to the number of people employed in the financial, insurance and real estate sectors combined.⁹ Alternatively, it could be positioned as delivering an equivalent increase in productivity to the existing workforce.
- ▶ Further, applying the current tax to GDP ratio (37%) to the economic impact suggests card payments contribute up to £60bn to tax receipts, almost double the government spending on defence.¹⁰
- ▶ The impact of card payments is not limited to its quantified macroeconomic impacts. As evidenced by case studies, card payment infrastructure is helping to boost financial inclusion among consumers and provide a platform for SMEs to grow through increased efficiencies and a better understanding of their customers.
- ▶ An increased role for card payments can lead to a smaller shadow economy, by formalising payments in sectors that are cash based, helping to reduce the incidence of crime.

Impact of the use of card payments on the UK economy in 2022



⁷ Card penetration is measured as the proportion of household final consumption expenditure for which cards are used.

⁸ ONS, Regional GVA by industry 2021, £120bn.

⁹ ONS, EMP13 employment by industry April-June 2023, 1.5mn.

¹⁰ Defence spending for 2023/24 of £32bn. [A brief guide to the public finances – Office for Budget Responsibility \(obr.uk\)](https://obr.uk).

Background

EY was commissioned by Mastercard to assess the contribution of payment cards¹¹ to the UK economy. Payment cards do not directly generate economic activity in the same way as other sectors of the economy, but rather facilitate increased activity, primarily through a reduction in barriers for both consumers and businesses, which supports consumer and business spending throughout the economy. Card payments are also associated with interchange fees levied on transactions with cards. These fees cover handling costs, risk of fraud, risk of bad debt, and risk of payment failure.

Three metrics are used to quantify the economic contribution of card payments:

GDP

- ▶ Also known as value added, and comparable to profit margin on a commercial basis, this refers to the difference between receipts or revenues and the cost of goods sold.

Employment

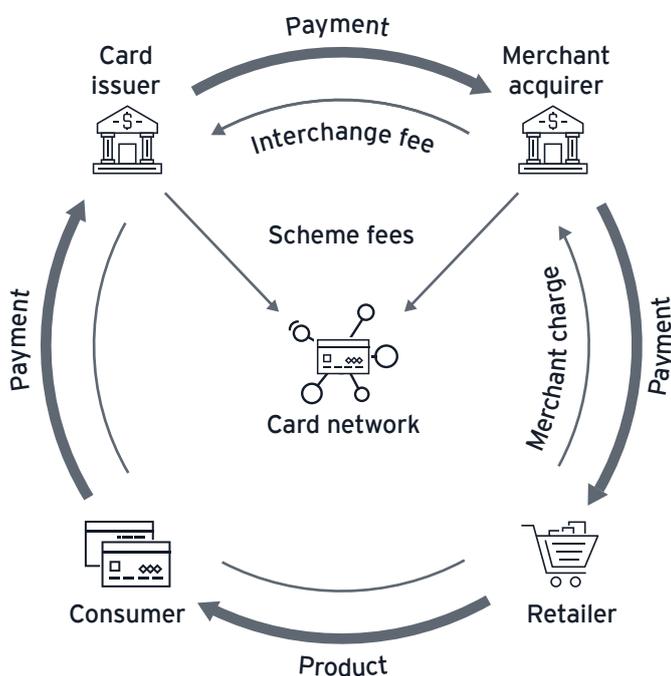
- ▶ Jobs supported by part-time and full-time employees or the self-employed.

Household final consumption

- ▶ The additional spending of households as a result of card payments.

The rest of this report is structured as follows:

- ▶ Section one introduces cards, their characteristics, trends and uses.
- ▶ Section two quantifies the macroeconomic contribution from the perspective of GDP, employment and household consumption that is sustained by card payments.¹²
- ▶ Section three presents the socioeconomic contributions from card payments, including security, convenience, and financial inclusion.



11 For the purpose of this study, payment cards are considered to include credit, debit, charge, and payment cards. The use of cards through digital wallets is also included. Online payments using card are also included within this definition.

12 The data sources and methodology used in the quantitative analysis are discussed in Appendix A.

Introduction

Card payments and the UK economy

Card payments in the UK account for 57% of all consumer expenditure.

Card payments support the effective functioning of the UK economy, underpinning both consumer and business spending. The adoption of cards in various forms over the past few decades has transformed how consumers pay for goods and services and how firms start, grow and manage their businesses.

Transmission mechanisms for additional economic activity:



Consumers

The ease and lack of payment frictions allow for consumers to pay for goods and services in an efficient way, often with protections and access to integrated banking services.



Businesses

Cards enable businesses to collect and manage proceeds in more efficient ways and scale their activities nationally and internationally.



Innovators

Many businesses have been established based on their ability to derive value from the data provided by card usage, and can provide a platform that can generate additional economic activity and innovation including in the fintech sector.



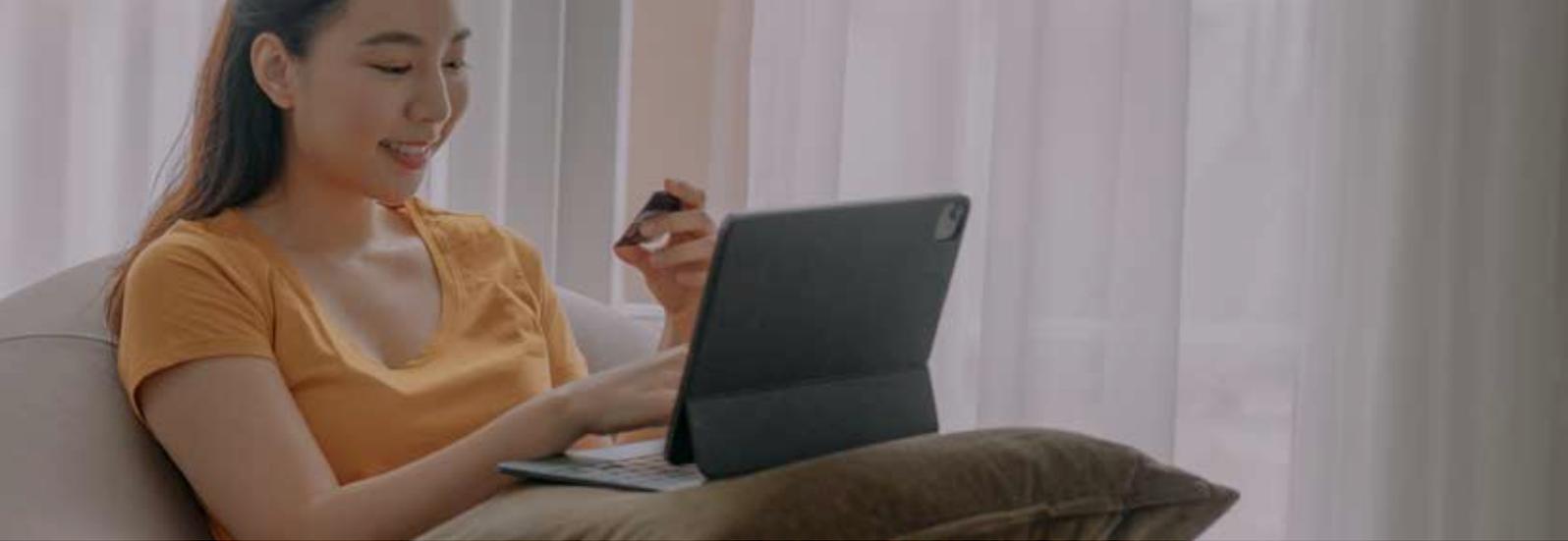
Governments

The transparency of card payments reduces the size of the shadow economy, leading to better information, more efficient tax collection, and improved decision making.

Cards provide consumers with convenient and secure access to their funds, reduce risks associated with cash handling for merchants, and expand the pool of customers. Importantly, they facilitate greater financial inclusion, often providing unbanked and underbanked individuals options to transact easily in the digital economy, including via prepaid cards, and giving young people an introduction to formal financial

services. Card payments also provide governments a greater ability to collect tax revenue by reducing the number of unreported transactions in the economy.

The consequence of this is increased spending on goods and services in the economy. That, in turn, creates an economic cycle where increased consumption translates into increased production, more jobs and greater economic prosperity.

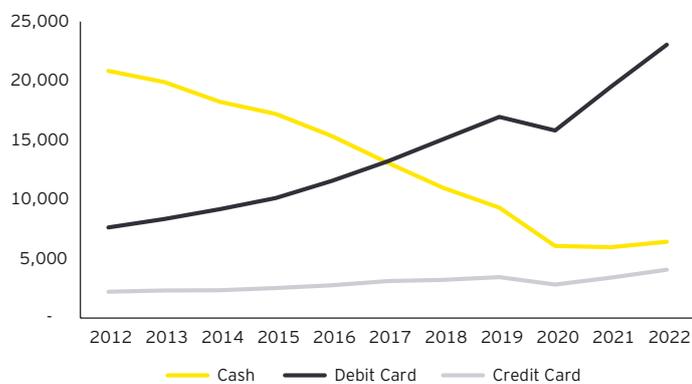


Disruption and innovation in payments technology

Card payments are at the centre of the ongoing payments revolution. Advancements in technology over the past decade have transformed the payments industry. Cards payments are now the most common method used to pay for goods and services in the UK, with the number of debit card transactions overtaking cash transactions for the first time in 2017.¹³

Figure 3: Total Payment volumes (millions), by payment type

Source: UK Finance, UK Payment Statistics 2023

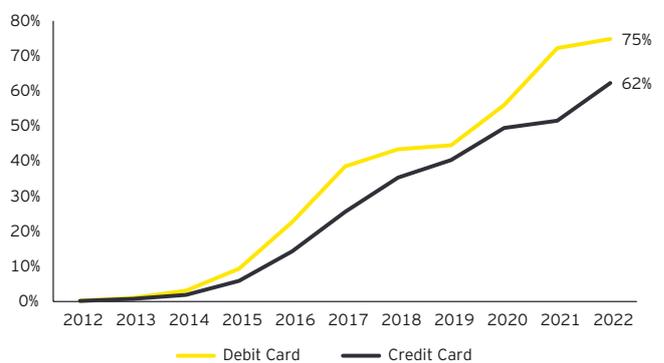


At just over 80% of all card transactions, debit cards account for the bulk of card payment volume, while also driving much of the recent growth. Payment cards are the fastest growing cashless payment mechanism, with the number of transactions increasing by 50% in the last 5 years, more than doubling in the last decade.¹⁴

This growth has been further fuelled by the introduction of contactless cards in recent years. Contactless payments now account for over 60% of all credit card and 70% of all debit card transactions.¹⁵ The number of contactless cards in circulation has risen by more than two-fold over the past 12 years, while the average transaction value has more than doubled from £7.25 to £15 over the same period.

Figure 4: Proportion of spontaneous payments that are contactless, by payment type

Source: UK Finance, UK Payment Statistics 2023



Indeed, due to their convenience, contactless payments have provided an even stronger incentive to use electronic payments at the point of sale and has replaced a substantial number of low-value cash transactions.

¹³ Payments through time | Bank of England.

¹⁴ UK Finance – UK Payment Statistics, Payment Card Transaction Volumes.

¹⁵ UK Finance - UK Payment Statistics 2023.

Figure 5: Payment methods for low value expenditure

Source: UK Finance, UK Consumer Payments 2022

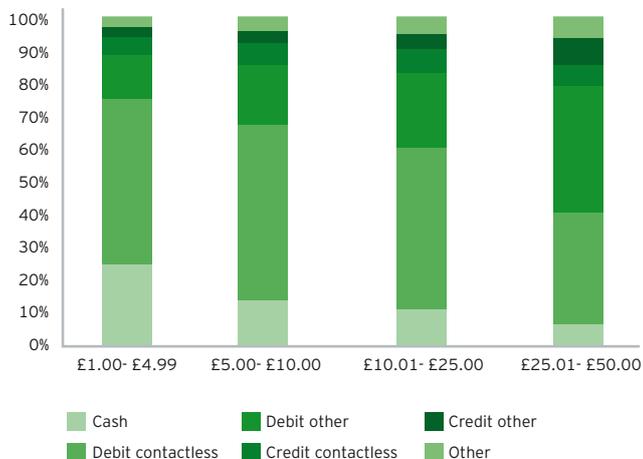
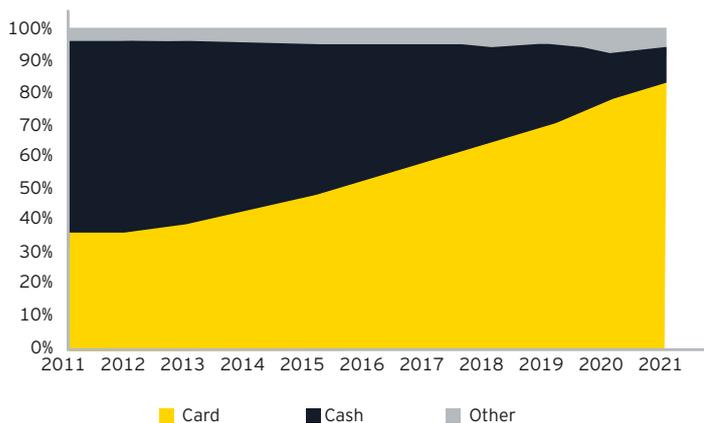


Figure 6: Payment methods for spontaneous (non-regular) expenditure¹⁶

Source: UK Finance, UK Consumer Payments 2022



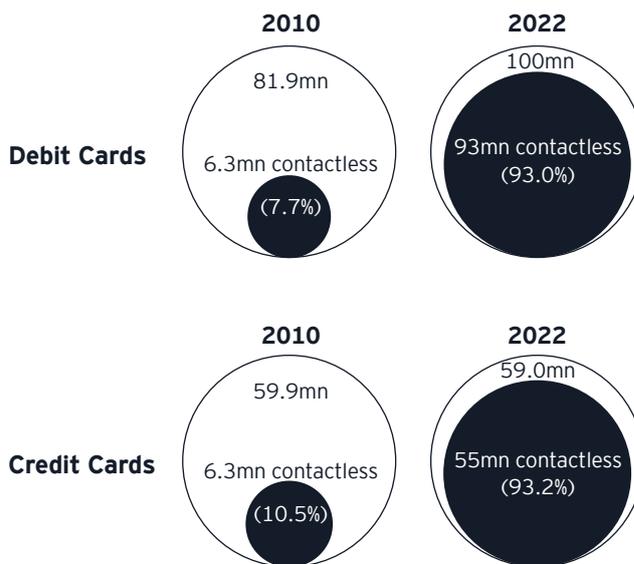
Card payments have also enabled recent shifts in consumer behaviour:

- ▶ Mobile taxi apps take payment primarily through cards, with close to instant settlement, reducing risk and increasing confidence on both sides of the transaction.
- ▶ The uptake of rental cars, e-scooters, and bikes where access is granted based on card payments.
- ▶ Mobile subscriptions take payment by registered cards.

The Covid-19 pandemic accelerated the shift towards card payments – particularly online transactions, which are up 32% compared to their 2019 average (vs. a 3% fall for the overall volume of retail sales).¹⁷

Recognising the potential to ease frictions and improve customer experience, a number of Fintech firms continue to drive disruption and innovation in the sector, further enhancing the payment ecosystem with new products – and generating a wide array of benefits to end user consumers and businesses.

UK residents' cards in issue



Source: UK Finance UK Consumer Payments 2021, and UK Payment Statistics December 2022



¹⁶ UK Finance, Consumer Payments 2022. Spontaneous payments are defined as all non-regular/subscription payments. The majority of these payments are for goods and services at retail outlets, but also include internet purchases, payments for travel and entertainment.

¹⁷ Retail sales, Great Britain – Office for National Statistics (ons.gov.uk).

Card usage by geography, age, and income groups

Card usage is high across the UK compared to other OECD countries, with most regions having approximately a 100% card ownership rate according to UK Finance data. This is key to supporting consumption and economic growth across geographies, as all regions have seen adoption increase. The majority of cards held are debit cards, with high adoption across all regions of the country. This remains true for other types of cards, with over 68% of UK households owning a credit or charge card. The variability across regions is slightly greater for credit cards, with Northern Ireland enjoying the highest ownership rate at 81% and the lowest at 65% in the Northwest of England. The high rates of ownership across the country supports the ability of consumers to spend without friction, and for businesses to be flexible in how they locate.

It is a similar story across age and income groups, with at least 92% of people owning debit cards in all age groups. However, data shows that credit card ownership is higher in higher income groups, as well as with over 45s.

Figure 7: Card ownership by region

Source: UK Finance, UK Consumer Payments 2022

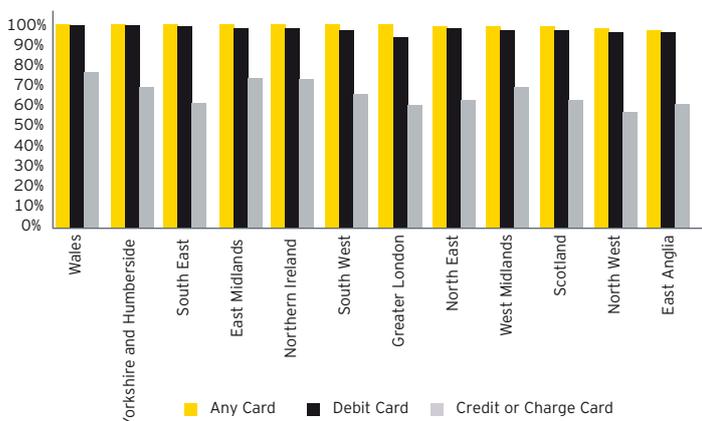
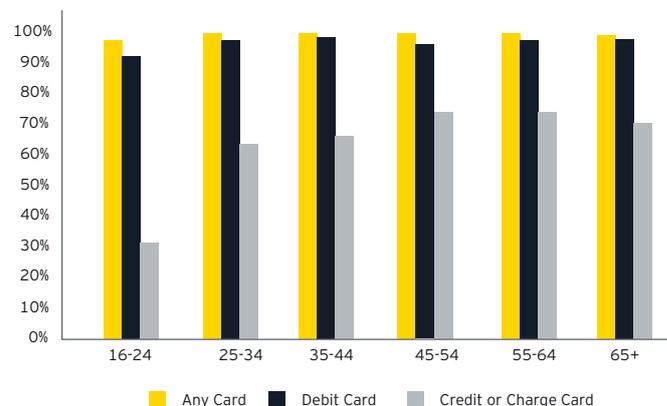


Figure 8: Card ownership by age group

Source: UK Finance, UK Consumer Payments 2022

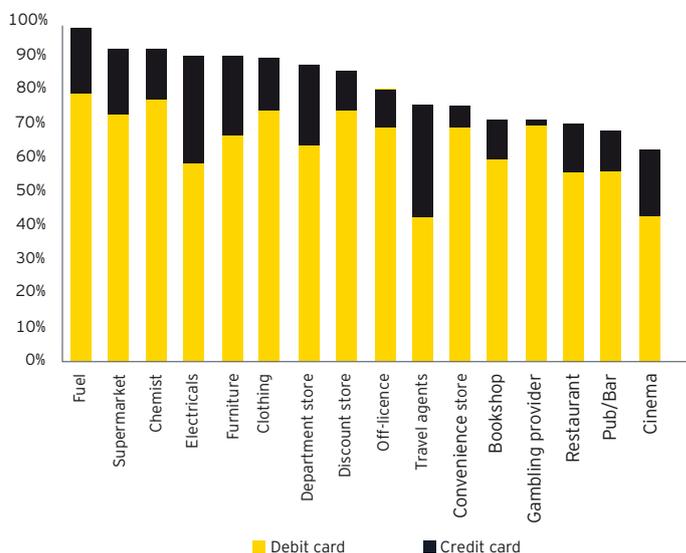


Card usage by sector

Data on card use by sector reveals that usage is highly dependent on the type of spend. For example, supermarket spend is almost entirely card based. In contrast, spending at smaller establishments, such as off-licences, newsagents and bookshops still receive a significant portion of revenue by other forms of payment.¹⁸ Meanwhile, spending in electricals and department stores, where average spend is likely to be higher, has a particularly high credit card share.

Figure 9: Sector spend, proportion card based

Source: UK Finance, UK Consumer Payments 2022



¹⁸ Note that "Other" payment includes online payment, app-based payment, PayPal, and vouchers.

Macroeconomic contribution of card payments to the UK economy

Evidence from other studies

Card payments can be an enabler for consumption, productivity, and innovation throughout value chains. There is evidence that cards are both an enabler and driver of economic growth, with multiple academic research studies finding positive impacts on macroeconomic outcomes.

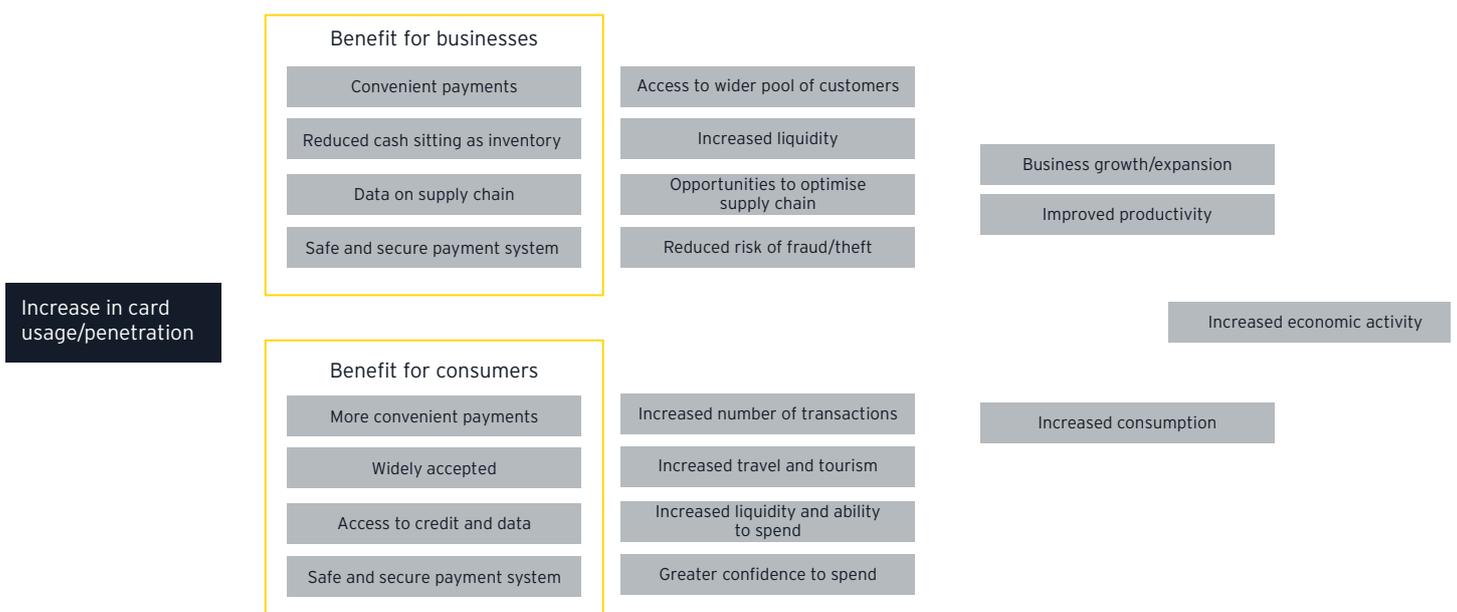
The use of card payments can have benefits for both consumers and businesses, making the process of conducting economic activity easier. This can be through reducing frictions to make paying for goods and services more straightforward, and by providing confidence to spend with a safe and secure payment system. The availability of data and

transparency can also support businesses with optimising both supply chain and strategy, to offer products that consumers most value.

Research from Moody's¹⁹ found that countries with the greatest increases in card usage experienced the largest contributions to economic growth, with positive impacts across both developed and emerging economies.

BCG research suggested that economies that switch to digital payments can increase their GDP by about three percentage points.²⁰ There is further research from central banks around the world of the benefits that card payments can have for both consumers and merchants.^{21, 22}

The macroeconomic modelling undertaken for this study estimates the economic impact of cards via several benefit channels:



¹⁹ [The Impact of Payment Cards on Economic Growth \(visa.com\)](https://www.visa.com).

²⁰ [How Cashless Payments Help Economies Grow \(bcg.com\)](https://www.bcg.com).

²¹ [Consumer And Merchant Benefits Of Cardholding And Use | Reform of Credit Card Schemes in Australia: II Commissioned Report | RBA](https://www.rba.gov.au).

²² [Retail payments and the real economy \(europa.eu\)](https://www.europa.eu).



Safe and secure payment system

Card offers several benefits, including added security and transparency. For businesses in particular, cards reduce the need to hold cash, reducing cash-related risks like theft, and potentially a reduction in security-related costs. Further, cards add an additional layer of protection to enable consumers to spend with confidence. For example, fraud prevention methods and recourse to recover money spent on goods that have been mis-sold. Payments made with cards provide an audit trail and are therefore more transparent than equivalent payments with cash, as it is possible to evidence spend and provide guarantees where needed. This gives consumers and businesses confidence to transact, increasing consumption, and enabling business growth by supporting investment.

While generally beneficial from a safety perspective, cards do create the opportunity for fraud, including through physical card cloning and online fraud.

Reducing barriers to operations

Card payments increase the ease of doing business in comparison to cash payments, particularly for SMEs: through reducing barriers, they ease the cost of doing business. They allow full and almost immediate access to the money received from customers, and for payment to be made securely through the supply chain. Some small firms see cards as a mechanism to support business expansion in the early stages, enabling employees to possess corporate cards to make purchases on behalf of the company. Cards with credit or overdraft functionality provide instant access to liquidity, which is key for many small businesses when managing cash flow, as well as enabling access to wider markets, including outside of the UK.

Reducing payment frictions

Cards provide timely and easy access to money, providing the ability to spend whenever and wherever needed. In effect, the primary role of cards is to reduce payment frictions for consumers, facilitating access to markets. Contactless payments can take as little as half a second to complete, making for a more streamlined process for both customer and vendor. At the same time, credit cards allow businesses and households to smooth consumption over time.

Security benefits from card transactions – particularly credit card transactions – may give households and business managers greater peace of mind, thus encouraging higher spending on higher ticket items.

There are potential downsides associated with easy card payments. Card payments come with interchange fees paid to recover costs associated with the payment networks. The ease with which consumers can spend money, particularly on credit cards, does create the risk that consumers can build up debt.

Boosting innovation

Cards boost innovation via numerous channels. The extensive data collected by companies that use cards gives firms valuable information about their consumer base that can be used to improve products and services on offer, subject to confidentiality and data protection restrictions in place. Better and more targeted products and services generate more sales as they are more attractive to their consumers. Cards also enable new business models and products and have been a factor in innovation such as mobile wallets, and the rise of challenger banks and fintechs in the UK, leading to a more competitive market, and better outcomes for consumers.



Impact on UK GDP and employment

Modelling methodology

To quantitatively estimate the contribution of card payments to the economy, statistical modelling has been conducted based on data on card adoption and penetration in OECD countries between 2000 and 2019.²³

The modelling seeks to understand whether there is evidence that a higher level of card penetration has led to higher levels of economic activity, in particular GDP.

Evaluating this relationship in the correct causal direction is key, as it can be argued both that card penetration drives GDP, but also that growth in GDP drives card penetration, through greater disposable incomes and discretionary spending increasing the value of frictionless payment. The modelling uses econometric techniques to avoid this two-way causation between card adoption and economic growth, and uses variation in card adoption to provide an estimate of the scale of causal impact. In particular it uses an econometric technique of instrumental variables,²⁴ based on a panel dataset to provide an estimate of the causal impact. Additional variables, for example output gap (a measure of where GDP is within an economic cycle), indices reflecting the level of governance and regulation, and the capital stock of an economy are used to control for additional factors that may also drive GDP growth.

It is not possible to determine precise causation in models such as this, particularly splitting card payments out from highly correlated drivers like digital payments more widely, so the estimates should be interpreted as an indication of the scale of impact that card payments have, rather than a precise estimate.

The statistical analysis estimates that a one percentage point increase in card penetration has been associated with a 0.12% increase in GDP per capita. Card penetration in this instance is defined as the share of household final consumption expenditure that uses card payments. For the UK this is approximately 57%.²⁵

The coefficient combined with the current card penetration in the UK suggests that up to 6.5% of GDP may be facilitated by the use of card payments, equivalent to up to £161bn. This estimate reflects the value of activity supported by card payments compared with a counterfactual of there being no card payment infrastructure.

²³ The methodology excludes data from the pandemic period of 2020 and 2021 where both changes in card penetration, consumer spending and economic activity were significantly distorted by government policy. These years saw an increase in card penetration and limited growth in GDP, as the relationship was altered by temporary exogenous factors.

²⁴ Instrumental variables estimation is an econometric technique used to estimate causal relationships when there are correlations between the explanatory variables and unobservables (i.e., the error term of the statistical model), for example using lags of the dependent variables.

²⁵ Note that there is a large segment of the payment market that is not card or cash, but other forms of digital payments, like direct debits.



Increase in UK economic activity:



Impact of the use of card payments on the UK economy in 2022



GDP impact	Up to £161bn Corresponds to up to 6.5% of economic activity
Employment	The GDP impact is equivalent to up to 2.1mn jobs (33mn jobs x 6.5% GDP impact)
Household income	Up to £1,500 per household (average disposable income: £23,900 x 6.5%)
Tax revenues	Up to £60bn (GDP impact: £161bn x tax to GDP ratio: 37%)

Application of the estimate to the UK market

The statistical estimate of the contribution cards made to GDP is backward-looking (i.e. based on historical data) and covers OECD countries over the period between 2000 and 2019. The estimated coefficient is therefore most applicable at approximately the average rate of card penetration in the OECD over that period.

As presented earlier in the report, card adoption in the UK is at the upper end of the OECD range, and card penetration throughout the OECD has increased significantly in the last 10 years, as most countries have now moved through the stage of mass adoption, with card payments now embedded in society. This means that while the coefficient effectively estimates the average historical relationship, this is likely to have become weaker over time as most of the benefits of card adoption have already accumulated.

Given how embedded card payments are in general economic activity in the UK in 2023, it is likely that the marginal benefits to GDP per capita of increased card adoption will be lower than the 0.12% estimate, as sectors with the greatest potential benefits have already adopted the technology, while non-card consumer spending will be in sectors where the benefits are smaller.

In the UK, non-digital payments have a limited role in terms of consumer and wider business spending, and most of what is not paid through the card network, has an alternative digital solution, for example direct debit or direct credit, reducing any potential benefit of moving to card payments.

The results should therefore be seen as an upper bound on what the potential impact of card payments are. It is not possible with current data to accurately estimate what this relationship is like for the UK in its position at the top end of the distribution of card penetration.

Estimated regional breakdown

All regions in the UK have high levels of card adoption. However, there is insufficient data on consistently defined card spending as a proportion of household final consumption at a regional level to precisely estimate regional impacts. As a proxy, using UK Finance estimates of the proportion of people within each region regularly using cards, the national impacts can be scaled and applied to the regions. As an example, the North East has a relatively low proportion of people using cards, at 88% of the population, compared to the UK average of 93%. Scaling the national 6.5% of GDP impact by a ratio of 88% to 93% suggests 6.3% of GVA in the North East is facilitated by the use of card payments, equivalent to £4.3bn.



Regions	GVA Impact of Card Payments £bn	% of GVA
North East	4.3	6.2%
North West	15.4	6.4%
Yorkshire and Humberside	11.0	6.7%
East Midlands	9.5	6.5%
West Midlands	11.6	6.4%
South West	11.9	6.4%
East	13.4	6.4%
Greater London	37.8	6.3%
South East	24.6	6.6%
Wales	5.9	6.9%
Scotland	12.0	6.5%
Northern Ireland	3.8	6.7%

The high card adoption across the country means that all 12 regions benefit from the value that card payments bring, and compared to many other economic metrics, this is not a significant disparity between regions. However, the relationship would imply that additional economic activity could be facilitated if card penetration increased. While the potential impacts are uncertain, as an illustration, if all regions with lower-than-average penetration increased to the current UK average of 93%, this would generate an additional £2bn in GVA based on the previous model estimate.





Socioeconomic importance of card payments

Card payments generate socio-economic benefits to the UK economy, some of which may not be fully accounted for by the quantitative estimates in the previous section, due to either being difficult to quantify, or not included as part of metrics like GDP. This section uses a combination of existing research, case studies and stakeholder interviews to demonstrate the benefits that card payments provide three stakeholder groups: households, SMEs, and the government.

Benefits to SMEs

SMEs make up 99.9% of all private sector businesses in the UK, employing 16.3 million people, or 60% of the UK's private sector workers and are vital to the economy. Indeed, SMEs also earn 52% of the turnover of the overall UK business population, equivalent to £2,300 billion.²⁶

SMEs generally have very few employees (less than three per company on average),²⁷ with many only having a handful of full-time workers. The administrative burden of running a business is proportionally more onerous in comparison to larger businesses with dedicated staff. Cards provide benefits that can reduce frictions at both point-of-sale and back-office, freeing up staff to work on more core activities, and reducing the risks that traditional cash-based businesses might be exposed to.

SMEs are at the forefront of a shift away from traditional bank-centric payments. Incumbent payment services providers are under pressure from Fintech's as well as big tech firms, who offer consumers and businesses more innovative and technologically enhanced solutions, increasing competition and providing SMEs with choice in how they make and receive payments.

Safety and security

The safety and security features of card payments are particularly important for SMEs, which are less able to absorb the negative cashflow events that can occur due to theft. Reducing the amount of cash held on premises lowers the risks involved in standard cash handling activities, and enables employees to have responsibility for greater sums of money, to pay suppliers or receive from customers. The impact of on-premises theft if it does occur is lower, as less cash is stored physically, while there are separate mechanisms in place to protect SMEs from fraud.

Reduced payment frictions

The rise of contactless payments has further reduced the frictions around purchases, with customers able to pay for goods in retail settings more quickly. According to data from UK Finance, the number of contactless cards (debit and credit) in circulation rose by 75% between 2015 and 2021, increasing their share in total cards in circulation from 50% to 90% over the same period.

The rise in contactless limits from £30 to £45 and most recently to £100 has facilitated an increase in the average value of contactless transactions, from just over £9 in 2019 to £15 in January 2023. That means more convenient purchasing by households. For SMEs, it means reduced queue times and hence fewer lost baskets and greater customer satisfaction.

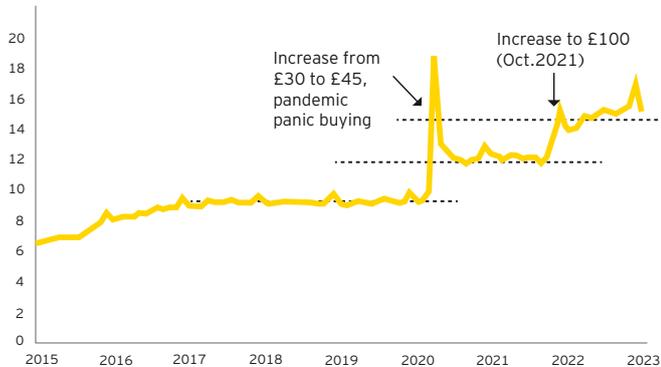
²⁶ BEIS small and medium enterprises (SMEs) action plan: 2022 to 2025 (accessible webpage) – GOV.UK (www.gov.uk).

²⁷ Business population estimates for the UK and regions 2021: statistical release (HTML) – GOV.UK (www.gov.uk).



Figure 10: Average value of contactless transactions

Source: UK Finance



Meanwhile, multiple behavioural economics studies support the idea that customers' willingness to pay for goods and services is higher if a credit card is used.²⁸



Case study Gower Lavender

Gower Lavender is a family run business in south Wales, launched in autumn 2019, producing home-made soaps, creams, sprays, and syrups made from locally sourced lavender. They sell products in markets, on a website, as well as business-to-business. Card payments are key part of their overall business, making up a significant income stream, covering all online takings, and most of their income through markets.

To Gower Lavender, cards and card payments are about keeping the sales process frictionless, making it easy for customers to spend money with them. Disrupting the sales process by being unable to accept cards leads to lost baskets.

Cards enable them to sell to a wide range of customers, including many older customers who have adopted card payments, with people paying by phones connected to cards becoming more frequent.

Cards support their general business activity, linking to accounting software, and avoiding the need to bank cash. There are wider strategic benefits as well, cards can facilitate tracking what sells, both to know what to make, as well as maintain cash flow and plan ahead.

²⁸ Always Leave Home Without It: A Further Investigation of the Credit-Card Effect on Willingness to Pay -Drazen Prelec and Duncan Simester, professors at Massachusetts Institute of Technology.

Scale up and optimise supply chains

For SMEs, scaling is often an ambition, and a mature card payments infrastructure is an important pillar in this regard. Safe cross-border transactions allow SMEs to source inputs from overseas, and sell into new markets. With card payments and associated infrastructure, this can be done without bricks and mortar stores or employees overseas. Some banks now also offer the ability for companies to offset their carbon emissions directly within their accounts, boosting their Environmental, Social, and Corporate Governance (ESG) credentials.



Case study: Soldo²⁹

Soldo is a spend management platform founded in 2015, that employs over 350 people and serves thousands of businesses. The platform is designed to simplify elements of procurement processes and internal finance, by using cards with pre-set authorisation to enable employees to spend company money with less time required for administrative activities.

Many teams in both small and large business have discretionary budgets and complex procurement processes, that hinder their ability to do business at the speed they would like. Soldo cards enable companies to remove the need for petty cash, with pre-authorised cards for specific types of expenditure assigned to either teams or individuals to eliminate the need for out-of-pocket expenses for employees.

One example of the use of cards within the Soldo platform is for marketing. Marketing teams work within quarterly budgets and associated targets and need to spend money efficiently to have the greatest impact. Cards provide agility and flexibility to the marketing team, implementing budgets that are either pre-authorised or have a digital, multi-layer authorisation process meaning teams can spend as and when needed, without long procurement lead times. The platform is then integrated with the company accounting software, freeing employees from lengthy spend admin to carry out more productive activities.

Importance of card payments during COVID-19

The Covid-19 pandemic further emphasised the importance of card payments. Lockdowns resulted in large parts of the economy shutting down for a period of time. Many businesses also switched to home working, reducing expenditure on travel and spending in city centres. The fall in consumer and business confidence saw consumers reduce discretionary spending, while lower levels of business investment resulted in GDP falling by 9.8% in 2020.

While all these factors contributed to the fall in total payment volumes, 2020 also saw changes to how people and businesses conducted transactions. This included people making greater use of contactless, online, and mobile wallet channels, largely at the expense of cash payments. For example, the Bank of England finds that ATM withdrawal values are down by a fifth compared to where they would have been had the pandemic not happened.³⁰

While it is still too early to say if this is a permanent change to people's behaviour, as in many other parts of people's lives, the pandemic has also affected UK payment markets.

The UK's card infrastructure allowed more spending to be shifted online and away from non-card payment methods. Critically, this allowed purchases of items such as consumer staples to continue during the lockdowns. With the Covid-19 pandemic accelerating card penetration, it has reinforced the role that providers play in supporting the economy and society.

²⁹ Soldo: [Prepaid Company Cards & Automated Business Expenses](#).

³⁰ [Knocked down during lockdown: the return of cash | Bank of England](#).

Benefits to households

Access to financial services/Enabling financial inclusion

Access to financial services is a key socioeconomic benefit of card use for consumers. Survey data from the Financial Conduct Authority (FCA) suggest that while most UK adults have access to a bank account and own a debit card, there are small groups including some in the more vulnerable communities like the homeless and the elderly with neither.

The FCA's May 2022 Financial Lives Survey found that 2.1% of adults in the UK were unbanked (i.e., no current account with a bank, building society, credit union or e-money account institution). While that is a small figure, groups most likely to be unbanked include Muslims (10%), the unemployed (7%), those with no educational qualifications (7%) and those with learning difficulties (6%). Similarly, demographic groups most likely to be "heavy cash" users³¹ are the digitally excluded (26%), those with no educational qualifications (21%), those aged 85+ (19%), those unemployed (15%) and those in poor health (15%).

Many card payment providers are at the forefront of efforts to boost financial inclusion and address these financial inequalities, particularly when there are cultural barriers that make using traditional banking services difficult. Other stakeholders are seeking to work with the government to try to tackle specific barriers to access. For example, not having the required documentation to open an account is identified as a problem for many unbanked individuals in the FCA survey.

Prepaid cards are one of the ways in which the sector is supporting inclusion, providing those unbanked or underbanked with the ability to transact and engage with the digital economy, building digital skills and confidence. Cards can also provide access to specific features, like the ability to access salary early, provide protections for those with illness or disabilities, or help track and offset a users' carbon footprint.

Case study: Algbra³²

Algbra is a challenger-bank and Fintech platform with a focus on ethical and inclusive banking. Cards and card payments are crucial to Algbra's retail and business customers, which is the only fully Sharia compliant and B Corp certified FCA registered EMI in the UK. Cards play an important role for Algbra to provide a solution that aligns with people's values and lifestyles, particularly looking to support groups that have underutilised cards and card payments because of an absence of values alignment.

Algbra's cards form part of a broader approach, underpinned by their Values and Ethics Policy, which ensures all funds flows connected to Algbra are not exposed to industries that can be considered unethical, unsustainable, or non-sharia compliant. Cards also provide the flexibility that allows Algbra to offer virtual/disposable/single-use cards, which encourages the sustainable utility of cards that reduces plastic waste and removes delivery miles, but also helps address historical deficits of trust of the financial system that exists across some communities.

Cards and the features and data that come with them further enable Algbra to better understand their customers spend and provide them with catered offerings. For example, the data could be used to understand if customers are in financial trouble and help with managing money and wellbeing, or nudge people to do the right things and be more sustainable. From the app connected to the card, Algbra offers the ability to be more ethical, for example a user can track and offset their carbon footprint, and donate to charities directly from the app.

31 Heavy cash users are defined by the FCA as using cash to pay for all or most things in the previous 12 months. 6% of UK adults surveyed by the FCA reported to be heavy cash users under this definition.

32 [We are not a bank. We are a movement. – Algbra](#)



1.1 million
unbanked people

Increased security and purchase protection

Cards add an additional layer of security to consumers too. Section 75 protection is one fraud prevention method that has seen consumers benefit (see box). Payments made with cards are more transparent than equivalent payments with cash, an audit trail is possible to evidence spend, provide guarantees where needed, including the ability to get restitution. This provides peace of mind to households as protection against some of the risks cards can pose, like online fraud.

Section 75 Protection and Chargeback Rights³³

A chargeback is a mechanism which enables a consumer to recover payments made using a credit or debit card if certain conditions are met, e.g.:

- ▶ Goods not matching the description
- ▶ Goods that never arrived
- ▶ Goods that were defective
- ▶ Refunds that were not received

Credit cards provide additional protection under Section 75 of the Consumer Credit Act 1974. This enables a consumer to make a claim against their bank for a break of contract or misrepresentation by a supplier.

Budgeting

Card payments can be helpful for budget management, especially when integrated with budgeting mobile applications. That gives households the tools to feel more financially secure and sustainable, boosting quality of life and their long-term financial resiliency.

Many banks – particularly challenger banks – make use of this ability by creating innovative apps with user interfaces that present information to customers in new and engaging ways, enabling them to better understand and manage their spending. The additional data incorporated in card payments also means that banks are better able to support customers who are getting into financial difficulty and provide nudges and guidance about how to get back on track.

Additional features and perks

As well as allowing consumers to smooth spending between periods, many credit cards offer rewards programs that provide a range of benefits, from cash back to travel points. This in turn enables further economic activity and consumer spending e.g., on flights and holidays.

Card payments provide details to banking institutions of how their customers are spending their money, and can support the banks in providing a better service to consumers, e.g., targeted offers and incentives, and presenting the most appropriate products or services to the customer that they are most likely to benefit from, rather than a raft of unsuitable promotions.

Cards also allow for access to cash even without the availability of ATMs, with stores offering non-purchase cashback options, which are becoming increasingly popular as the number of ATMs in some regions decline.

Case study: Monese

Monese is a pan-European fintech that offers smart money services to millions of consumers across Europe.

Monese accounts offer both physical and virtual cards, combined with mobile payment services.

A significant proportion of Monese's customers reside in the UK, however many of these individuals have moved country for work, study or travel. Cards and the surrounding infrastructure enable Monese to support these customers, by enabling them to open accounts with an associated card without many of the barriers of the traditional banking system. This helps to reduce the problems of the unbanked population and supports financial inclusion by reducing barriers and friction for people moving between countries. The reduced friction and cost has benefits for the wider UK economy, with increased travel and tourism as cards offered through Monese enable users to withdraw cash in local currency and spend to support local and regional economies.

The data and transparency that is facilitated by card payments support Monese in presenting data in an intuitive way to users, enabling consumers to understand and track their spend, and budget more conveniently with nudges like a round-up tool that makes building up savings pots easier.

³³ FAQs – Chargeback rights and Section 75 | UK Finance.

Benefits to the government and wider society

Lower crime rates

Higher card penetration rates are associated with smaller shadow economies, which in turn are often associated with lower rates of crime and other illicit activities such as terrorism. Moreover, additional government revenue can be generated from increased tax collection from a smaller shadow economy. Previous research conducted by EY for Mastercard³⁴ found that an increase of 1% in the total value of card payments as a percentage of GDP led to a decrease of 0.037% of GDP in the shadow economy in Europe.



Travel and tourism

Cards are unique in their ability to allow people to travel across the world and pay for goods and services in the same way and with the same ease as in their home country. Without the need to carry local currency cash, it increases the amount that travellers are able to spend and removes a constraint that allows for greater flexibility in activities they take part in.

This is particularly important for countries and local areas that attract a lot of international visitors, like the major cities in the UK. It also benefits the wider domestic economy, making visits to other regions of the UK more accessible.

Access to data

The data generated by card payments can benefit consumers, businesses, governments, and society as a whole. A world of open data could put households and businesses in control of their information and enable them to share in the value generated by it.

Fintech firms are demonstrating the value of gathering and analysing data at scale to understand trends and predict demand. Innovative businesses are using novel sources and big data generated in part by card payments operators to understand customers better and deliver a more tailored user experience.

There are concerns from consumers around the data generated, and the potential for unauthorised access. While data breaches are rare, they can have a significant impact when they occur. Privacy concerns are also high on the agenda of many consumers, which is important to address as cards and personalised banking become more central to the financial system.



³⁴ [ey-report-2016-reducing-the-shadow-economy-through-electronic-payments.pdf](#).

Appendix A: Methodology

Econometric estimation of the impact of card payments on GDP

Our econometric analysis is based on a panel data set for 36 countries (OECD countries and EU member states), using annual data between 2000-2019. Since the economic effects might vary by the level of economic development, there is an argument that the results based on international data may sometimes not be adequate for a specific country. We reduce such a risk by re-performing an international analysis for a limited set of countries that are at a similar level of economic development as the UK to ensure the results do not change significantly.

In order to obtain the necessary econometric estimates, we use an econometric technique called a System General Method of Moments (GMM) estimator that allows us to handle the likely problem of two-way causation of card payments with respect to GDP. As card payments increase, it is expected to drive an increase in GDP, but the reverse is also true, higher GDP leads to higher card penetration. Where these occur at the same time it can be difficult to differentiate the two impacts. This particular econometric technique, and the cross-country data being used enables us to address this problem by using additional variables as instruments.

A simplified version of the panel model used is outlined below, explaining log GDP per capita in country i in year t with card penetration, controlling for a number of additional economic factors.

$$\log(\text{GDP})_{it} = \mu_i + \gamma \log(\text{GDP})_{it-1} + \beta_1(\text{card penetration})_{it} + \sum_{k=2}^K \beta_k(\text{control variable } k)_{it} + \varepsilon_{it}$$

In this model, the dependent variable $(\log(\text{GDP}))_{it}$ ³⁵ stands for the natural logarithm of gross domestic product per capita, expressed in purchasing power standards (to assure comparability of the GDP figures for different countries in terms of the underlying price levels), in real terms (to assure comparability over time). The model is dynamic and includes a lag of the explained variable on the right-hand-side of the equation.

A similar approach is taken in the academic literature, including Hasan (2013),³⁶ where the impact of card payments on log real GDP per capita is estimated. It is also commonly used when looking at financial development, e.g., in a study of Van et al. (2019).³⁷

Card penetration (*card penetration*) $_{it}$ is the key independent, or explanatory variable, defined as the value of electronic payments made with domestic cards at point-of-sale terminals and via e-commerce both domestically and abroad, expressed as a percentage of household final consumption expenditure.

The rest of the equation $\sum_{k=2}^K \beta_k (\text{control variable } k)_{it}$ is a joint term describing any other explanatory variables included in the econometric models, which are referred to as control variables (K is the total number of explanatory variables, excluding lagged GDP variable and the country-level individual effects). Those variables describe the macroeconomic factors explaining GDP growth, as well as the institutional factors that change over time. The model has been tested with factors including human capital, trade openness, price level, interest rates or the education level.

Finally, ε_{it} is the idiosyncratic shock affecting GDP in a particular country i in period t .

35 We take the logarithm of this variable in order to reduce the problem of heteroskedasticity.

36 Hasan I., De Renzis T., Schmiedel H. (2013), Retail Payments and the Real Economy, ECB Working Paper Series, Working Paper No. 1572.

37 Van L. T.-H., Vo A. T., Nguyen N. T., Vo D. H. (2019), Financial Inclusion and Economic Growth: An International Evidence, Emerging Markets Finance and Trade.



Translating econometric results into the impact on the UK economy

The econometric result is the coefficient that describes the impact of the card penetration ratio on GDP per capita, which has the following interpretation: an increase in the card penetration ratio by one percentage point increases GDP per capita by 0.12%, with all other factors unchanged.

The additional derived impacts are calculated as follows:

GDP impact

The result of econometric modelling is the impact of the card penetration ratio on log GDP per capita (in Purchasing Power Standards, 2011 prices). This means that the impact in percentage terms does not depend on the current population level or price level. The resulting percentage change in GDP is calculated using the following formula:

$$(\% \text{ change in GDP}) = -\exp(\beta_1 \Delta (\text{card penetration ratio})) + 1$$

where β_1 is the econometric coefficient for the card penetration ratio variable estimated in the baseline econometric model. We apply the resulting percentage change in GDP, to GDP level in 2022 to obtain the contributions of the expansion of card payments in different horizons to the GDP level in 2022 (expressed in 2022 prices).

Employment impact

In order to calculate the impact of card payments on employment, we use the changes in GDP driven by card payments expansion (as calculated above) and divide them by labour productivity ratios (GDP divided by employment in 2022, calculated based on Office of National Statistics (ONS) data). Next, we divide the results by the total employment level in 2022 to obtain the impact in relative terms.

Individual income impact

To obtain the impact of card payments expansion on the average individual income, we multiply the contribution of card payments to the GDP level in 2022 (as calculated above) by the average individual income in 2022 (based on data from the ONS). By doing so, we assume that the individual income and GDP changes due to card payments were proportionate.

Tax impact

To calculate the effects for tax revenues, we use publicly available data on taxes and social security contributions (i.e., national insurance) for the government. The taxation data was sourced from the OECD. We calculate the effective tax revenues rate by dividing tax revenues by GDP (due to lack of data for 2022 we used data from 2021 in the numerator). We obtain the impact on tax revenues by multiplying the impact of card payments use on GDP at the national level by the ratio of tax revenue as a proportion of GDP.

Regional impact

The estimates for regional impacts are based on the national GDP impact, with the percentage impact (6.5%) scaled based on the relative usage of cards in each region. A proxy for regional card penetration is based on UK Finance data on the proportion of people in each region that regularly use either a debit or credit card. The 6.5% national impact is then scaled for each region based on the card penetration compared to the UK average.

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