Covid-19 Lending Support and Regional Levelling Up: Evidence from UK Loan Guarantee Schemes

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Abstract

The economic consequences of Covid-19 were severe with restricted economic activity generating a liquidity crisis for many firms. To address the systemic impact of this liquidity shock, Governments around the world rapidly introduced a range of loan guarantee schemes. In the UK, more than one million businesses accessed these schemes. Using a novel, comprehensive, dataset this paper explores the regional distribution of access to these schemes and how this was mediated by regional differences in lending institutions. Our results show that while the schemes were national and unaligned with regional policy, access favoured firms in poorer regions, and regional differences in lending institutions had a significant influence on the nature of lending.

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1. Introduction

Economic crises that constrain economic activity, such as financial crises, pandemics and wars, can generate a systemic liquidity crisis as incomes collapse faster than outgoings for so many firms in the economy. Importantly, the resulting risks are not easy to diversify by lenders. The systemic nature of such shocks creates textbook conditions for Government intervention, and, around the world nations have adopted a range of support schemes to mitigate against the impacts of Covid-19 (Feyen, Gispert, Kliatskova, and Mare 2020). A key, widely used policy tool used in the Covid-19 pandemic was the Loan Guarantee Scheme, and they had proven their value during the Global Financial Crisis. Loan Guarantee schemes are simple, well-understood policy instruments that exploit the superior risk management capabilities of states (Moss, 2001) to socialise systemic risks and address numerous imperfections in the market for finance for smaller firms.

As national policy tools with no regional variation, it is not clear at first that they would have important geographic and spatial consequences. However, the issues that they address – lack of access to capital, lower economic resilience, profitability and productivity, lack of assets for collateral, sectoral and industrial structures with more small, new and vulnerable firms, are very unevenly distributed. Firms in peripheral regions often have more need for supported lending, but less access to it. Yet prior evidence also suggests that national policies can also have negative effects when assessed in terms of their regional and local consequences and entrench existing inequalities. For example, Hauptmeier, Holm-Madulla, and Nikalexi (2020) find pronounced heterogeneity in monetary policy shock transmission across Europe to the detriment of poorer and peripheral areas.

This static inequality, in turn, also drives a dynamic effect that can structure and reinforced regional economic inequality through a “Matthew Effect” in which rich regions get richer and poor regions get poorer: regions with less (more) economic activity, have less (more) effective financial provision and fewer (more) assets to put up as collateral, get fewer (more) loans, leading to less (more) investment and less (more) economic activity. For the UK, this was, in part, attributed to the

methodology for appraising infrastructure investment and other public projects set out by Her Majesty's Treasury that required minimum economic returns that favoured wealthy areas to the disadvantage of poorer areas (Coyle and Sensier, 2020).

The impact of LGS on regional economic inequalities is not easy to predict from theory as while demand may be higher in peripheral areas, supply is mediated by significant regional differences in the institutions involved in the provision of financial services, who are likely to vary in their ability to effectively allocate different kinds of schemes. These questions are important given the scale of these schemes. In the UK alone, for example, LGS covered 94% of SME lending during the Covid pandemic, and the portfolio was backed by resources nearly two thirds the size of the entire US Marshall Plan for post-war European reconstruction (Cowling et al, 2022).

To understand the regional impact of lending support in more detail, in this paper we explore their impact in the UK. The large economic impact of the pandemic in the UK, its' very concentrated banking structure and unevenly distributed banking provision, strong reliance on national banks using data-driven rather than relationship lending, significant regional inequalities and a policy concern about 'levelling up' to address regional economic inequality, make the UK an informative extreme case to explore these issues. A long history of market driven policy making, centralised government and limited regional or state-level finance policy or differences in regulation, make it a 'clean' site to explore how policy can address market failures in a regional context.

Specifically, we explore two of the UK government's three large-scale loan guarantee schemes that were focused on small firms where the major market failures exist (Bounce Back Loans, Coronavirus Business Interruption Loans). The third scheme - Coronavirus Large Business Interruption Loans (CLBIL) is, as the name suggests, focused on larger firms where there are fewer market failures and less regional variation. Their introduction was driven by the deterioration in revenues during the economic lockdown and strong evidence that the liquidity position of many firms going into Covid-19 was weak (Cowling, Brown, and Rocha, 2020).

The economic consequences of the lockdown policy that was introduced to reduce the spread of Covid-19 was not uniform across UK regions due to differences in their sectoral composition, as some sectors were allowed to continue to trade. These regional differences were further exacerbated by a shift to a local lockdown strategy guided by location-based Covid-19 infection and death rates (Gathergood et al, 2021). Brown and Cowling (2021), in an analysis of Covid-19 business failure risk estimates across the largest 100 towns and cities of the UK, found: "a clear and unequal impact on poorer northern and peripheral urban areas of the UK, indicative of weak levels of regional resilience".

Long standing regional differences in economic performance and resilience are well documented in the UK (Reference- levelling up policy rationale). Given these regional differences, we might expect that pandemic policies would have a disproportionate take-up by, and benefit to, firms located in poorer and more peripheral regions where businesses are less well capitalised, have negative perceptions on their ability to access finance (Lee and Drever, 2014) and face historical problems accessing external finance (Cowling, Lee, and Ughetto, 2020). However, this is not obvious, and there is empirical evidence from the GFC that capital city dominance exacerbates crisis effects and can lead to lower post-crisis growth (Dijkstra, Garcilazo, and McCann, 2015).

Moreover, impacts of policy are mediated by significant differences in the structure and composition of capital markets at the regional level. These differences are widespread (Remola and Shim, 2015; Moore, Karaska, and Hill, 1985) and are found in the UK (Calabrese and Cowling, 2021). They help explain why firms in some regions struggle to access both debt and equity finance (Gamidullaeva, Vasin, and Wise, 2020; Wilson, Kacer, Wright 2019). We focus our research attention these issues in this paper, drawing on both the work of Lee, Clark, Pollard, and Leyshon (2009) who emphasise that financial markets should not be separated from wider economic geography relations and Klagge and Martin (2005) who find the very centralised UK financial system constrains access to finance for new and small firms in peripheral regions. Linking these two ideas and using a unique, comprehensive

Covid-19 loan guarantee data set comprising of 1,048,575 loans across the three schemes, we explore whether or not there was regional proportionality in access to the UK Covid-19 loan guarantee schemes and whether this was influenced by the structure of capital market institutions who were the conduit, and in the case of CBILS and CBILS the arbiter, of access to loans.

The rest of the paper is organised as follows. In Section 2 we set out the key literatures relating to small business financing and the key spatial features in the relationships between smaller firms and their regional capital markets and institutions. In Section 3 we present the core data for analysis and the sample demographics at the regional level. Section 4 reports on our econometric analysis. We draw wider policy lessons in Section 5 and conclude in Section 6.

2. Literature review

The seminal paper by Ang (1981) argued that the stylized theoretical view that the firm is assumed to have access to external capital markets for debt and equity is not appropriate for understanding small firms. Small firms do not trade securities publicly, and have owners with undiversified portfolios. They are prone to irrational risk-taking behaviours, have incomplete management teams, and often lack the legal protection of full limited liability (Ang, 1981). The impact of these features of small businesses on their financing decision-making informed Myers and Majluf (1984) Pecking Order Theory, which states that firms do not have a defined capital structure and that the capital structure we observe is the result of hierarchical financing decisions over time. Smaller firms have a very clear pecking order in their preferences for how they finance day-to-day working capital and investment. For many the absolute, and often only, preference is to use internally generated funds (Ghosh and Kai, 1999; Watson and Wilson, 2002). Only *in extremis* do they then seek external capital and then they clearly prefer debt-based instruments such as lines of credit, bank loans, and invoice financing (Serraqueiro, Armada, and Nunes, 2011). External equity is a minor and rarely used specialist source of finance as its owners share legal ownership (Zeidan, Galil, and Shapir, 2018).

These preferences are shaped by problems caused by asymmetric information as there is typically insufficient business and financial information available for potential lenders to properly assess risk (Stiglitz and Weiss, 1981). As a result, external capital is less readily available to smaller (and younger) firms (Kirshenmann, 2016; Levenson and Willard, 2000) and, when it is available, is more expensive than internal funds (Rice and Strahan, 2010; Cowling, Ughetto, and Lee, 2018).

So how and where does geography fit into small business financing? Pollard (2003), in her landmark paper on small firm finance and geography, argued that there was a need for geographers to re-focus on the micro foundations of financial markets relevant to smaller firms. This would facilitate a better understanding of how the behaviour of financial institutions and capital markets might produce and sustain uneven economic development and spatial inequality. This is the key issue explored in this paper: the context of the work is the economic disruption caused by the Covid-19 crisis and the empirical focus is on two large loan guarantee schemes designed to alleviate the economic crisis in the small business sector caused by a liquidity shock. In short, the focus is on whether access to the UK Covid-19 loan guarantee schemes was equal and proportionate across the regions of the UK. This analysis helps determine whether existing inequalities in access to finance for small businesses persist or are levelled-up in the post-Covid-19 world (Pergolova and Angulo-Ruiz, 2014).

Over the last two decades previous research has tackled these spatial issues in small business financing and identified three ways in which regional financial institutions benefit smaller firms. Firstly, spatial proximity to customers can overcome some of the information asymmetries associated with small business lending through a local knowledge effect. This effect spans entrepreneurs' networks, firms, and the local environment (Pedrosa and Do, 2011) and can improve the quality of bank lending (De Young, Glennon, and Nigro, 2008). A recent UK study of local not-for-profit lenders found similar "tangible benefits associated with local finance provision" (Cowling, Nadeem, Foster, and Baranova, 2020: page 133). Secondly, spatial proximity enables the transfer of

softer information between lenders and borrowers, and allows financiers to collect real time information about local economic conditions (Degryse and Ongena, 2005). Thirdly, when local business and financial networks are present, it may deter opportunistic behaviour (Presbitero and Rabellotti, 2014; Millo and Pasini, 2010). The benefits of spatially fragmented financial markets must be set against the reality of the UK financial system that is centralised (Klagge and Martin, 2005), scale intensive and concentrated. Lending decisions are data rather than relationship driven, and are often disconnected from regional economies (Lee et al, 2009) and biassed towards big cities (Lee and Luca, 2019) and away from small, new and innovative firms (Cowling et al, 2021).

Given this context, loan guarantee schemes are a policy instrument that helps mitigate the impact of credit rationing (Cowling, 2010) and support access capital for firms with good investment opportunities who struggle to access loans due to a lack of track record (newness) or lack of assets to secure loans against (asset poverty). The issue of relative asset poverty has particular relevance in the UK given significant regional differences in housing and asset prices and wealth (Holmes and Grimes, 2008).

In the UK, the government offers a guarantee to the lending bank who issues the loan, typically covering between 75% and 80% of the total outstanding loan at the point of default. In return for underwriting the risks, the UK government charges an interest rate premium, which is typically between 2% and 2.5% (Ughetto, Scellato, and Cowling, 2017). In the context of loan guarantee schemes, geography is important on the demand-side as there are substantial differences in business start-up rates across regions (Wagner and Sternberg, 2004; Andersson and Koster, 2011), differences in assets and wealth (McCann, 2020), and differences in economic opportunities which require capital to realise (Di Cataldo and Monostiriotis, 2018). On the supply-side there are also significant differences in the number and type of lending institutions across regions, which influences the availability of debt for smaller firms (Burghof, Gehring, and Schmidt, 2021; Calabrese, Cowling, and Lee, 2021). Such gaps in financial provision are not fixed, and recent regulatory changes

and financial innovations have created new opportunities for English regional and Scottish banks (Marshall, Dawley, Pike, Pollard, and Coombes, 2019).

In general, the demand for loan guarantees increases during economic crises as fewer funding proposals meet banks' stricter lending requirements (Cole and Damm, 2020; Cowling, Liu, and Ledger, 2012). As a result, we might expect that smaller and younger firms located in poorer regions will suffer disproportionately during a crisis (Wamba, Hikkerova, Sahut, and Braune, 2017) as they are less able to meet new lending criteria and have fewer assets to secure against lending. Such firms also had lower profitability in the pre-crisis period which reduces their ability to build up cash reserves as a buffer against unanticipated shocks (Brown and Cowling, 2021).

To understand how LGS might mitigate these spatial biases we need to understand the precise nature of each of the three Covid-19 loan guarantee schemes as they each have very different characteristics and lending processes. The smallest scheme, in terms of the cash value, is the Bounce Back Loan scheme (BBL), which had a floor loan size of £2,000 and a ceiling of £50,000, making it particularly relevant for the youngest and smallest firms. A 100% guarantee was provided at a fixed 2.5% interest rate for the lending bank with a 0% government interest premium. These low interest rates meant that BBL loans were much cheaper than pre-Covid-19 loan guaranteed lending and conventional bank lending. Firms could borrow up to 25% of average annual sales over the preceding three years, and had a 12-month repayment holiday where the government paid the loan interest but not the principal. There was limited screening given the need to address the immediate severity of the Covid-19 lockdown and prevent mass business failures. A total of £32.7bn was lent on the BBL scheme to 971,302 small firms with an average loan size of £32,754.

The Coronavirus Business Interruption Scheme (CBILS), had a higher ceiling of £5m and was intended to facilitate lending to all SMEs. It guaranteed coverage of 80% of the outstanding loan and allowed lenders to take collateral to cover their remaining 20% exposure. The lender was able to conduct formal due diligence and set its own loan interest rate according to its assessment of obligor risk.

Total lending on CBILS was £26.4bn to 76,704 firms with an average loan size of £264,496. There was also a third scheme, the Coronavirus Large Business Interruption Scheme (CLBILS), which, as the name suggests supported large corporates and is not explored here given the focus on smaller firms. Total lending under CLBILS was £7.1bn to 569 large corporates with an average loan size of £7.1m.

[INSERT TABLE 1 HERE]

In Table 1 we present three hypotheses which we test against the Covid-19 loan guarantee lending data. Each hypothesis has a specific focus based on related literature and the importance of place and geography. H1 considers diversity in the financial system and allows for a special role for smaller banks and a specific UK financial institutional form called 'responsible finance providers' that are rooted in place and use softer types of relational information in their lending processes. H1 reflects their experience in lending to small, local firms who are the most likely to face problems accessing conventional bank loans. H2 considers the differential impacts of the Covid-19 formal lockdowns on firms in different industry sectors. This captures the fact that essential industries were largely allowed to trade through the crisis and lockdowns whilst public facing service sectors were subject to the most stringent lockdowns and closures. H3 reflects the fact that in the lead up to Covid-19 firms situated in more buoyant regional economies, on average, had higher earnings driven by higher consumer demand and hence were more capable of retaining cash in the business and had a stronger liquidity position. Running out of cash was identified as the single major risk to survival for smaller firms in any crisis, and Covid-19 was particularly severe.

3. Data and Methodology

To analyse these issues, we use data on the full population of UK government guaranteed loans issued under the three Covid-19 special loan guarantee schemes, the Bounce Back Loan Scheme

(BBL), the Coronavirus Business Interruption Scheme (CBILS), and the Coronavirus Large Business Interruption Scheme (CLBILS) for large firms, which we do not explore further. This provides loan level data for 1,048,575 loans across the three schemes. These are split across the three schemes as follows. The BBL scheme has issued 971,302 loans totalling £32.7bn. The CBILS scheme has issued 76,704 loans totalling £26.5bn, and the CLBILS scheme 569 loans totalling £7.1bn. The respective average loan sizes across the three schemes are £32,754, £264,496 and £7.1m over the period March 2020 until July 2021.

For comparison 1,895 loans were issued under the previous pre-crisis Enterprise Finance Guarantee (EFG) scheme in 2019 with an average loan size of £123,213. The 2.5% interest rate on BBL loans compares to an average of 5.93% on EFG, and the BBL has 100% guarantee coverage rather than the 75% on EFG, making it particularly attractive to both firms and lenders, and especially the smallest, youngest firms.

Table 2 provides detailed descriptive statistics at the regional level for all Covid-19 guarantee schemes, proportional lending by big banks and respective business population and Gross Value Added (GVA) shares. In London, for example, 212,610 firms borrowed £7.5bn from the BBL scheme under guarantee, and 12,865 firms borrowed £4.3bn from the CBILS scheme, with big banks issuing 85.1% of BBL loans and 58.2% of CBILS loans. In Northern Ireland, by contrast,27,315 firms accessed £0.87bn of BBL loans and 1,714 firms accessed £0.54bn of CBILS loans, but only 40.1% and 16.9% of BBL and CBILS loans were issued by big banks.

TABLE 2 HERE

The regional proportionality of guaranteed lending can be assessed using two measures: the region's share of total UK Gross Value Added (GVA) and region's share of the total UK business population. The first captures the regional economic contributions and the second captures the relative stock of firms that constitute the pool of potential recipients of a loan guarantee.

[INSERT FIGURE 1 HERE]

Figure 1 shows regional lending shares out of the UK total cash volume of lending under the three schemes compared to each region's share of UK Gross Value Added (GVA). The East and West Midlands, and Northern Ireland have a relative over-representation while only the South East has a lower share than their respective GVA share. With the CBILS scheme, there was more regional variation with the East of England, East Midlands, North West, Northern Ireland, Wales, and Yorkshire & Humber all having a greater share than their equivalent GVA share while in the South East, Wales and the West Midlands the share was lower. With the CLBILS scheme, the North West, Scotland and the West Midlands all had a higher proportional cash share of loans and Northern Ireland, Yorkshire & Humber, and the South West all had a proportionately lower share. Overall, it appears that the East of England and the North West received more guaranteed lending and Scotland less, than might be expected. However, the picture is generally mixed with many regions relatively overrepresented on one scheme but under-represented on the other.

[INSERT FIGURE 2 HERE]

Figure 2, uses the regional share of the total business population to understand the uptake of loans relative to the local stock of firms out of the UK total business population. In the North West and South West of England, both peripheral regions, scheme take-up was disproportionately high across three schemes. In the South East of England, a wealthy region closest to London, take-up was proportionately low on the CLBILS and BBL schemes.

The most interesting regional case was London, where take up of the smallest (BBL) and largest (CLBILS) loan guarantee schemes was higher than their share of the business population, while take-up of the mid-range scheme, (CBILS) was significantly lower. As London, and the South East, are the UKs wealthiest regions the contrasts between the two are intriguing as we might expect that, on average, their businesses would be better capitalised as the country entered the Covid-19 crisis, but we find opposite take-up for BBL and CLBILS specifically. Over the UK as a whole, the North West

appears to be the biggest net 'beneficiary' in terms of accessing Covid-19 loan guarantee schemes and the South West the biggest net 'loser'.

Given this complexity in uptake, the second element of this research explores whether (or not) access to Covid-19 loans was influenced by regional differences in capital markets (Molyneux, 1989). Previous research has established that the structure and composition of local and regional capital markets exerts a strong effect on their willingness to meet the demand for loans (Williams and Gardener, 2003; Liu, Molyneux, and Wilson, 2013; Calabrese and Cowling, 2021). In general, smaller firms find it easier to access loans when there are more alternative financial institutions compared to large multinational banking groups. Thus, given an exogenously determined demand for loans, the supply of loans is higher when there is a greater diversity of lending institutions in that locality and when the share of activity accounted for by large banking groups is smaller.

[INSERT FIGURE 3 HERE]

Figure 3 shows the total share of BBL loans issued by big banks is 88.18%. However, there is considerable variation across regions and Northern Ireland stands out as a significant outlier with only 40.10% of BBL loans issued by big banks, while small banks issued 59.81%. By contrast, the small bank share is only 4.89% in Wales. The UK has a very concentrated banking structure, with the dominant big-4 banks even more dominant in issuing BBL loans than they are in the wider market for business accounts and lending. It seems the big banks were able to roll out BBL loans very quickly and efficiently to their millions of existing small business customers.

Regions where there were some notable differences in the scale of BBL provision from alternative lending institutions were London which had a higher share of BBL loans issued by invoice financiers, small banks and other types of lending institutions. The North West of England was the only region 'responsible finance providers' were prominent in the issue of BBL loans. This is interesting as responsible finance provision has increased significantly across the UK since regional investment funds were put in place to help support SME borrowing.

[INSERT FIGURE 4 HERE]

From Figure 4 we see that the UK share of CBILS guaranteed loans accounted for by the big-4 banking groups was 52.84%. This is significantly lower than the share of BBL loans issued by big banks. As with BBL loans, there is considerable regional variation with Northern Ireland again standing out as having a unique and more diverse capital market structure and a tiny relative proportion of loans under CBILS guarantee issued by big banks, and the absolute majority of CBILS loans issued by small banks (50.84%) and the remainder spread across other lending institution.

Regions with a relatively high share of big bank issued CBILS guaranteed loans are Scotland, London, the South West, and South East. In contrast, Yorkshire & Humberside and the North East were characterised by relatively low big bank CBILS loan shares. These gaps were taken up by asset financiers in Yorkshire & Humberside, Wales and the East of England, and responsible finance providers in East Midlands, North East, West Midlands, and Yorkshire & Humberside.

In summary, the larger loan scheme, CBILS, had a more diverse set of financial institutions issuing guaranteed loans than was apparent on the BBL scheme targeting smaller firms. However, it is also clear that the lending institutions engaged in issuing guaranteed loans varied considerably across regions on both schemes. So, while diversity in regional capital market structure is important, so are exogenously determined levels of demand for guaranteed loans and differences in the willingness of different types of lending institutions to meet that demand.

On the demand side, there does not appear to be a clear and consistent relationship between the regional resilience of the respective business populations, their liquidity position, and their access to guaranteed loans or indeed a wider relationship between regional economic inequality and demand for loans. On the supply-side it appears that alternative lending institutions were more favourably disposed to issuing CBILS guaranteed loans than BBL loans. So even regional financial diversity has a context and this has been less well understood to date. However, the uniqueness of the BBL may explain some of the reluctance of alternative providers as they were not allowed to charge fees and

the loan interest rate of 2.5% would be roughly 1/3rd to ¼ of their standard loan rates for lending to kinds of smaller firms who accessed BBL guaranteed loans.

4. Econometric Analysis and Results

In this section we estimate some econometric models to identify what the specific regional factors were that were associated with accessing BBL and CBILS Covid-19 guaranteed loans. The study is by nature exploratory as the full consequences of the Covid-19 guarantee schemes are yet to be fully established and the virus is still impacting on the UK population. These are presented in full in Table 3. We exclude CLBIL given the geographic distribution of large corporate firms is concentrated in London, and our focus is on smaller firms who are most constrained in capital markets. The baseline models are estimated at the individual scheme level and include region characteristics including business population and GVA shares (and their squared terms to allow for non-linear effects), type of lending institution and industry sector on the right-hand side of the models. Our dependent variables are the log of the regional counts of loan guarantee loans on the BBL and CBILS schemes. The explanatory variables used reflect the potential influence of business density and relative productivity differences across regions, both of which may shape the demand for finance and the willingness of lenders to offer it. We also include the industry sector as this has been shown to be an important factor in the demand for external finance, the presence of assets to secure loans against, and the variability of cash flows, and has particular resonance in the Covid-19 pandemic when lock downs disproportionately impacted on retailing and hospitality. Finally, we include the type of lending institution as this has been a central feature of spatial studies relating to small business financing. The study is exploratory in nature and is an attempt to understand the immediate impact of the Covid-19 pandemic on regional business activity in an environment that is still unfolding.

TABLE 3 HERE

4.1 BBL

Figure 5 answers the question about whether small (large) regions get their 'fair share' of BBL loans and shows that there is evidence of proportionality in terms of regional loans issued on the BBL scheme in respect of either relative shares of the UK business population. In relation to equi-proportionality across regions using our business population measure, we find that regions with relatively small business populations have secured a fairly equal share of BBL loans. In contrast, regions with intermediate scale business populations have an over-representation of BBL loans in the sense that slightly larger shares of their firm populations accessed guaranteed loans. London stands out as the region with the largest business population and its share of BBL loans is less than proportional.

[INSERT FIGURE 5 HERE]

Using the GVA measure, we find a similar regional relationship with the BBL loan issue. Here firms located in regions with a relatively low share of GVA are beneficiaries of BBL loans and firms located in intermediate GVA regions are the largest net beneficiaries. In contrast, London based firms have the greatest deficit in terms of their relative share of BBL loans. These findings are consistent with firms outside of the most economically prosperous regions entering the Covid-19 crisis in a worse liquidity position on average and therefore have a greater need for new capital to manage their way through the crisis and lockdown. On this measure the evidence supports a modest regional 'levelling-up' in the sense that firms outside of the most prosperous regions had greater support from BBL and this is likely to have bolstered their liquidity position relative to firms in more prosperous regions or at least reduced the gap.

Our results also suggest that alternative types of lending institutions played a different role in issuing BBL loans. In particular, responsible finance providers (local and regional not-for-profit lenders) are over-represented as BBL lenders. This contrasts with small banks which are under-represented. These results suggest diversity in regional financial markets is good as different types of institutions

compensate for one another. However, the growing responsible finance sector is particularly relevant in regions with the most financially constrained small businesses. Big banks continue to leave under-served pockets of small businesses that were most in need of public support during crises, but small banks played a modest role supporting them compared to other lending institutions.

Our analysis also allows us to explore regional differences in the composition of the local economy. The analysis shows industry sector effects are important and there is considerable variation across the full range of sectors. As expected, the sectors most impacted by the Covid-19 lockdown policy, which severely constrained economic activity, such as wholesale and retail, hotels & catering, transport, and arts & entertainment were among the highest users of BBL guaranteed lending, however the highest – users were healthcare and real estate. This suggests that the immediate impacts of the Covid-19 crisis were more widely felt across industries than is often perceived, and that broader economic issues that existed prior to Covid-19 are important for understanding the regional distribution of BBL loans.

4.2 CBILS

Looking at the regional estimates for the CBILS scheme, Figure 6 answers the question about whether small (large) regions get their 'fair share' of CBILS loans and shows considerable disproportionality. In relation to equi-proportionality across regions using our business population measure, we find that regions with relatively small business populations and GVA have secured a fairly proportionate share of CBILS loans. In contrast, regions with intermediate scale business populations have an over-representation of CBILS loans up to and including the North West of England. The South East and London stand out as wealthy and highly (business) populated regions and their shares of CBILS loans are less than proportional to their business population and GVA shares. For CBILS the effect is of greater magnitude than for the BBL scheme.

[INSERT FIGURE 6 HERE]

As for BBL loans, the type of lending institution mattered. We again observe a small but important role for responsible finance providers and factoring institutions and a lesser role for small banks. This suggests that local responsible finance providers may have the clearest pathway to reaching the most severely under-capitalised firms during the crisis as this is their core business in business-as-usual times. Understanding why small regional banks are not able to replicate this role merits future investigation. However, it may relate to their relative cost of capital, certainly on the BBL scheme where loan interest rates are fixed at 2.5% but also on CBILS where lenders can set their own loan rates. If a small bank's cost of capital is higher than large banks then it follows that their lending rates would be higher too.

Industry sector was also an important feature of CBILS. Again, whilst industry sectors that were subject to lockdowns had a higher demand for guaranteed loans in general, the highest represented industry sectors included public administration, manufacturing, wholesale & retail, and financial services. This might be, at least in part, explained by the UK Government introducing a Furlough scheme, officially called the Coronavirus Job Retention scheme, which provided support for wages, and was arguably more important in service-based industries where labour costs typically represent a larger share of total costs and pay is comparatively low.

4.3 Predicted regional shares and 'levelling-up'

From our four models we are able to predict regional numbers of BBL and CBILS loans having considered regional differences in the lending market, industries, business populations and GVA based on the estimated coefficients in each model using the post-estimation prediction estimator. This may provide us with the clearest picture of whether the two largest Covid-19 crisis UK loan guarantee schemes offered disproportionate or proportionate support to (largely) smaller businesses distributed across the regions of the UK.

[INSERT FIGURE 7 HERE]

From Figure 7 and Figure 8 we can see that on both BBL and CBILS schemes a high and disproportionate access to guaranteed loans was most evident for firms located in Wales, Northern Ireland, and the North East of England once their unique regional characteristics had been accounted for. These regions of the UK would be considered relatively less wealthy and productive on most economic measures. In contrast, we observe a very striking deficiency in terms of accessing BBL and CBILS loans in London and the South East of England (and for CBILS the East of England). These regions are significantly wealthier and more economically vibrant than the rest of the UK. Overall, this is reasonably strong evidence that the Covid-19 guarantee schemes did offer more support to smaller businesses in the less wealthy regions of the UK.

[INSERT FIGURE 8 HERE]

5. Wider Policy Lessons

The UK has a very unequally spatially distributed economy, with economic activity heavily biassed towards London and the South East. Half the UK population lives in regions poorer than the two poorest US States (Mississippi and West Virginia) with productivity levels equal to, or lower than, the poorest regions of former East Germany (McCann, 2016). These differences are long standing and partly reflect the pull, and economic sorting effects, driven by having a large global city as its capital, which is larger than the next eight city agglomerations combined (ONS, 2011). The pull of London is reflected in education levels – 65% of the population of London has a degree compared to 39% in Manchester – and also in the provision of financial services. While London is a global financial centre, regions outside the UK often have less access to banking services (Lee and Brown, 2017).

The UK banking system is particularly biassed against smaller, younger firms that lack the track record used by the data-driven lending systems used by large UK banks. Firms in less developed regions are further constrained by their relative asset poverty (given the differences in house prices noted earlier). This has potential to create a dynamic structuring effect in which poorer regions get less investment as a consequence of being poorer. Given this long-standing problem, access to

finance has been a major policy issue for nearly a century, and has been part of the UK's most recent policy initiatives associated with the 'levelling up' agenda.

While there has been extensive discussion of regional SME financing, in this paper we provide evidence that a national scheme, with no regional nuance, was effective at channelling financial support to the smallest firms in the most deprived regions. Covid-19 policy was explicitly designed to stop significant numbers of businesses from failing during the lockdown and subsequent reduced trading environment. As such it was designed as a national policy, open to (virtually) all businesses who faced liquidity issues.

An effective levelling up agenda will require very specific and differentiated local and regional responses, given the economic inequalities noted earlier. However, as an unintended consequence, the national Covid-19 loan guarantee schemes have disproportionately benefited businesses in poorer regions of the UK. Why? Most obviously, it was because they started behind their peers in wealthier regions and hence were more susceptible to an unanticipated, exogenous shock. Loan Guarantee Schemes are effective because they are simple, well understood by lenders and borrowers, and address a clear and well understood market failure, and effectively socialise and transfer risks from economic agents unable to manage them – small firms – to agents with excellent risk management capabilities (Moss, 2001) – the State. Further, the estimated default costs suggest that loan guarantee schemes, even in the most severe crisis the UK has faced, are quite modest and that as a policy instrument they are relevant, have great traction with the small business community, and are likely to generate significant economic returns in the long-run.

6. Conclusion

We set out to establish if the UK governments Covid-19 loan guarantee schemes were equally distributed across the regions of the UK once we had adjusted for differences in the relative size of the business populations and their contribution to GVA. We also questioned whether the schemes were generally supporting the government's stated policy of 'levelling-up' regional economies to

reduce the very substantial inequalities apparent between the Southeastern region and the rest of the UK. Our initial argument was based on three tenets. Firstly, that in general firms in less economically buoyant regions were at a relative disadvantage going into the Covid-19 crisis and this meant that their financial position was weaker and they were less able to survive the initial Covid-19 lockdown without access to government loan guarantees. Secondly, that the diversity of the financial system, and specifically the presence of smaller local and regional lenders would promote greater access to loans during the crisis as the types of firms most at risk were precisely those firms that were supported in normal times by smaller relational lenders. Finally, it is evident that the crisis had an unequal effect across industry sectors and this should be mirrored in greater numbers of loan guarantees issued to firms in those largely customer facing service industries.

On equality or proportionality, we observe that intermediate regions in terms of their relative business populations and shares of total UK GVA had the highest share of guaranteed loans across the BBL and CBILS schemes. Poorer and smaller regions had their 'fair' share of guaranteed loans and London (and the South East for CBILS loans) had proportionately lower shares of scheme lending. Whilst this is not quite the 'levelling-up' that was envisaged, it is the case that most regions outside of the wealthy South East were at least no worse off and, in many cases, better off in terms of having access to the capital necessary to manage their way through the Covid-19 crisis.

On the role of different types of lending institutions, we found some intriguing results. A group of local and regional not-for-profit lending institutions collectively called 'responsible finance providers' were found to play a modest but important role in regional guaranteed lending during the crisis perhaps due to their experience of lending to informationally opaque small businesses and their focus on relational lending practices. But this was not mirrored by small local and regional banks and we thought that this may relate to their cost of capital which was too expensive for crisis hit small firms. It is, of course, still true that big banks will always be the single largest supplier of loans to all businesses, but we have found evidence that a diverse set of lenders including responsible finance

providers, invoice discounters, factoring institutions and others does make a difference to smaller businesses, and particularly in crises.

On the industry question, we found diversity across industry sectors in loan guarantee issuance, but it was not the case that lending was dominated by firms in consumer facing service sectors. This may relate to the Coronavirus Job Retention Scheme which provided a large wage subsidy to workers in sectors that faced restricted trading conditions with service industries characterised by a relatively high labour contribution and generally lower wage rates which fell under the CJRS subsidy ceiling of £2,500 per calendar month.

In terms of our three starting hypotheses, our results show that our economic hypotheses related to relative deprivation, a poorer 'starting position' going into the crisis, and lower asset prices were supported by the evidence. Diversity in banking structure was supported with the caveat that small local and regional banks played an under-stated role. Finally, our industry sector 'lockdown' hypothesis was the nearest to a clear rejection, although we offered a potentially plausible explanation for this.

There are always important caveats that must be considered. We are very early into the repayment cycle as most firms are only finishing their 12-month repayment holiday and Covid-19 is still very prevalent in the UK. In this respect we do not know how high default rates will be and this represents a considerable contingent liability to the UK Treasury which may limit the new funds available for the levelling up agenda. Further, the guarantee scheme funding may have simply kept firms alive but when the economy returns to normal many will face the same issues around access to finance that they already did – only now they will have significant outstanding debt which may further weaken their borrowing position.

This adds some ambiguity to the question of how positive this unintended levelling up consequence of the Covid-19 guarantee schemes have been. But it also provides a clear steer as to where future research might focus. Firstly, on how lending banks view small businesses that have Covid-19

guarantee scheme debt. If they take an unfavourable view then this may lead to even more finance constrained small businesses than usual and this will disproportionately impact on businesses in poorer regions. Secondly, research might usefully question whether the Covid-19 contingent liability arising from guarantee schemes and other wage support policies has effectively blown the levelling up budget. There is already anecdotal evidence to suggest this, for example, the 'modification' of the High Speed 2 train line project.

On balance, we are drawn to confirm one obvious and one important conclusion: first that the Covid-19 crisis had an extremely deleterious effect on the majority of smaller firms in the economy and second that the government response of using enhanced loan guarantee lending schemes to sustain them through the crisis was clearly appropriate as a textbook solution to a textbook market failure. In their absence many small firms would have failed. However, we are also able to confirm findings that are both non-obvious and important: differences in the relative distribution of guaranteed loans across the regions of the UK did appear to support firms outside of the wealthy South East of England to a greater degree. In that sense whilst it is clearly not enough to claim 'levelling-up' at least smaller businesses in the rest of the UK will still be alive and trading as the Covid-19 crisis recedes.

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Table 1: Hypotheses and rationale

Hypothesis	**Rationale**
Regional Financial Structure H1: Smaller lenders and responsible finance providers will account for a greater share of BBL loans in poorer regions and big corporate banks a larger share of CBILS loans in wealthier regions	Smaller regional lenders and responsible finance providers are better at lending to local informationally opaque businesses as they have greater experience at small scale unsecured lending and the 100% guarantee offers them full protection against default. Large corporate banking groups are efficient processors of larger scale standard loans.
Regional Sector Composition H2: Differences in the industry sector composition across regions will determine the number of loan guarantees issued	The Covid-19 lockdown had disproportionate effects on the ability of firms in certain sectors to trade and generate income (particularly consumer facing services industries such a hotels & catering).
Regional Economics H3: There will be an inverse relationship between firms use of loan guaranteed lending and regional economic performance	The strength of regional economies shapes the ability of firms to earn income and profit. And this influences their abilities to build cash reserves as a buffer against unanticipated shocks. If the relationship was inverse then this would be indicative of 'levelling up'. If it was proportionate then this would imply a maintenance of the status quo. A positive relationship would be indicative of firms in stronger regional economies widening the existing gap.

Table 2: Descriptive Statistics by Region

	Regional Share %					BBL	CBILS			Number of Loans		
	Businesses %	GVA %	BBL	CBILS	CLBILS	Big Bank %	Big Bank %	BBL £	CBILS £	BBL	CBILS	CLBILS
East Midlands (England)	6.60	5.7	6.18	7.38	6.33	91.86	50.59	1,922,732,072	1,384,269,610	60,001	5,652	66
East of England	10.00	8.5	9.54	10.72	9.14	89.41	50.83	3,064,990,719	2,003,188,627	92,629	8,173	101
London	19.00	23.7	21.90	16.82	22.50	85.10	58.23	7,516,973,804	4,325,824,566	212,610	12,865	226
North East (England)	2.70	2.8	2.79	2.86	2.46	91.08	48.86	855,717,342	545,664,540	27,096	2,197	0
North West (England)	9.40	9.5	10.24	10.84	14.24	90.96	50.52	3,223,932,037	2,198,553,661	99,402	8,301	108
Northern Ireland	2.50	2.1	2.81	2.25	0.88	40.10	16.85	868,528,792	537,222,881	27,315	1,714	29
Scotland	6.20	7.5	6.30	5.87	5.80	88.37	58.41	1,821,188,273	1,114,258,918	61,229	4,472	66
South East (England)	15.60	14.8	13.92	15.28	12.83	89.64	56.15	4,425,046,341	2,937,125,656	135,206	11,757	0
South West (England)	9.40	7.3	7.34	8.42	7.03	91.51	57.83	2,264,857,218	1,582,417,021	71,231	6,454	78
Wales	3.50	3.4	4.15	3.09	4.04	94.97	50.63	1,139,322,437	106,992,846	40,313	2,391	0
West Midlands (England)	8.10	7.3	7.98	8.40	8.26	91.74	51.10	2,556,843,183	536,423,839	77,494	6,465	0
Yorkshire and The Humber	7.10	6.5	6.74	7.73	5.27	92.67	47.92	2,110,983,528	1,618,012,007	65,484	5,927	0

Table 3: Regional BBL and CBIL loans issue

	BBL + Business Population			BBL + GVA			CBILS + Business Population			CBILS + GVA		
	Coeff	**T-stat**	**Prob**	**Coeff**	**T-stat**	**Prob**	**Coeff**	**T-stat**	**Prob**	**Coeff**	**T-stat**	**Prob**
Lender												
Factoring												
Big Bank	**-0.020**	-2.160	0.031	-0.012	-1.430	0.153	-0.001	-0.530	0.598	-0.003	-1.940	0.052
Invoice	**-0.025**	-2.230	0.026	-0.013	-1.270	0.205	**0.004**	3.090	0.002	**-0.013**	-5.680	0.000
Other	-0.012	-1.290	0.197	-0.013	-1.600	0.109	**0.009**	5.860	0.000	**0.011**	4.230	0.000
RFP	**0.131**	10.680	0.000	**0.052**	4.790	0.000	**0.027**	7.290	0.000	**0.050**	8.010	0.000
Small Bank	**-0.038**	-4.140	0.000	**-0.032**	-3.980	0.000	**-0.006**	-5.100	0.000	**-0.010**	-5.000	0.000
Industry												
Agriculture												
Mining	**0.040**	11.210	0.000	**-0.046**	-14.650	0.000	**-0.015**	-2.350	0.019	**-0.029**	-2.700	0.007
Manufacturing	**0.026**	30.840	0.000	**0.029**	38.590	0.000	**0.025**	6.910	0.000	**0.044**	7.550	0.000
Utilities	**0.026**	9.200	0.000	**0.008**	3.110	0.002	-0.005	-0.640	0.520	0.005	0.410	0.681
Water	**0.024**	13.930	0.000	**0.026**	17.350	0.000	**0.015**	3.560	0.000	**0.023**	3.260	0.001
Construction	**0.025**	33.030	0.000	**0.027**	40.210	0.000	**0.015**	4.090	0.000	**0.024**	4.050	0.000
Wholesale&Retail	**0.037**	48.230	0.000	**0.035**	51.600	0.000	**0.024**	6.660	0.000	**0.034**	5.820	0.000
Transport	**0.038**	44.170	0.000	**0.038**	50.880	0.000	**0.025**	6.840	0.000	**0.034**	5.530	0.000
Hotels&Catering	**0.032**	40.290	0.000	**0.024**	33.460	0.000	**0.012**	3.250	0.001	0.007	1.150	0.252
Info& Comms	**0.029**	33.750	0.000	**0.029**	38.230	0.000	**0.022**	5.830	0.000	**0.028**	4.460	0.000
Finance	**0.031**	22.280	0.000	**0.031**	25.900	0.000	**0.029**	6.780	0.000	**0.037**	5.230	0.000
Real Estate	**0.041**	48.890	0.000	**0.035**	47.080	0.000	**0.023**	5.720	0.000	**0.026**	3.920	0.000
Prof Scientific	**0.031**	40.490	0.000	**0.029**	42.590	0.000	**0.025**	6.900	0.000	**0.029**	4.850	0.000
Admin Services	**0.032**	39.120	0.000	**0.032**	44.620	0.000	**0.022**	6.200	0.000	**0.025**	4.300	0.000
Public Admin	**0.036**	10.020	0.000	**0.033**	10.370	0.000	-0.001	-0.040	0.967	**0.062**	2.150	0.032
Education	**0.032**	30.710	0.000	**0.030**	32.350	0.000	**0.019**	4.270	0.000	**0.025**	3.490	0.000
Health	**0.033**	37.620	0.000	**0.036**	45.760	0.000	**0.020**	5.130	0.000	**0.025**	3.940	0.000
Arts&Entertainment	**0.026**	26.670	0.000	**0.025**	28.150	0.000	**0.016**	3.970	0.000	**0.025**	3.780	0.000

Other Services	**0.037**	43.990	0.000	**0.027**	36.590	0.000	**0.019**	4.790	0.000	**0.024**	3.690	0.000
Household	**0.030**	6.910	0.000	**0.021**	5.290	0.000	0.021	0.780	0.435	-0.042	-0.960	0.338
Regional												
Business Pop	**0.179**	1564.000	0.000				**0.290**	899.850	0.000			
Business Pop Sq	**-0.003**	-669.470	0.000				**-0.008**	-631.030	0.000			
GVA				**0.197**	2563.580	0.000				**0.257**	648.680	0.000
GVA Sq				**-0.004**	-1608.680	0.000				**-0.007**	-501.940	0.000
Constant	**9.939**	1078.600	0.000	**9.935**	1220.540	0.000	**6.938**	1764.440	0.000	**7.168**	1146.600	0.000
No. Obs	970,040			970,040			76,449			76,449		
Prob>F	0.00001			0.00001			0.00001			0.00001		
Adj R2	0.9632			0.9712			0.9714			0.9225		

Notes: Gross Value Added (GVA) and Business Population Shares are used to standardise estimates at the regional level.

Figure 1: Regional Proportionality in Cash Volume of Covid-19 Loan Guarantees

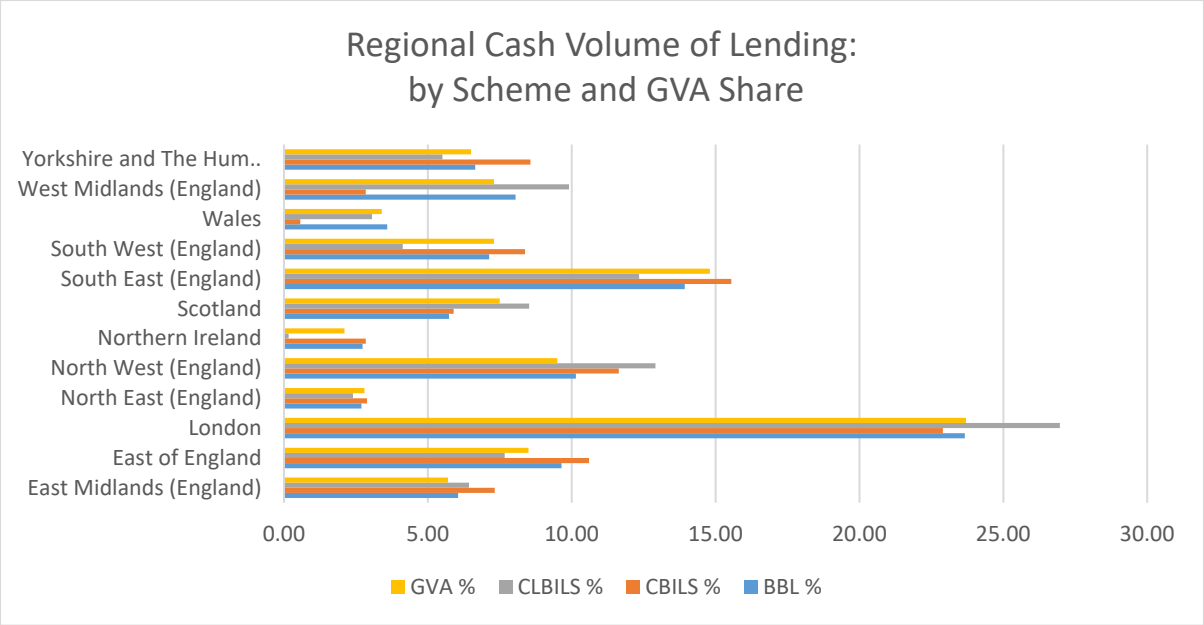

Figure 2: Regional Proportionality in Covid-19 Loan Guarantee Scheme Take-Up

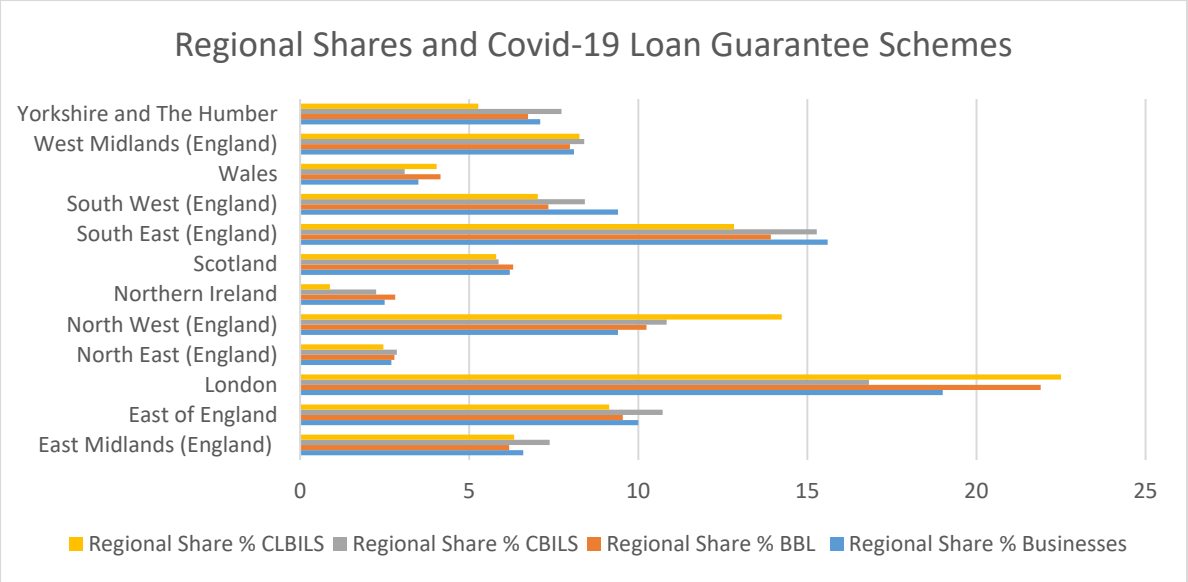

Figure 3: Big Banking Group Regional Shares of BBL Lending

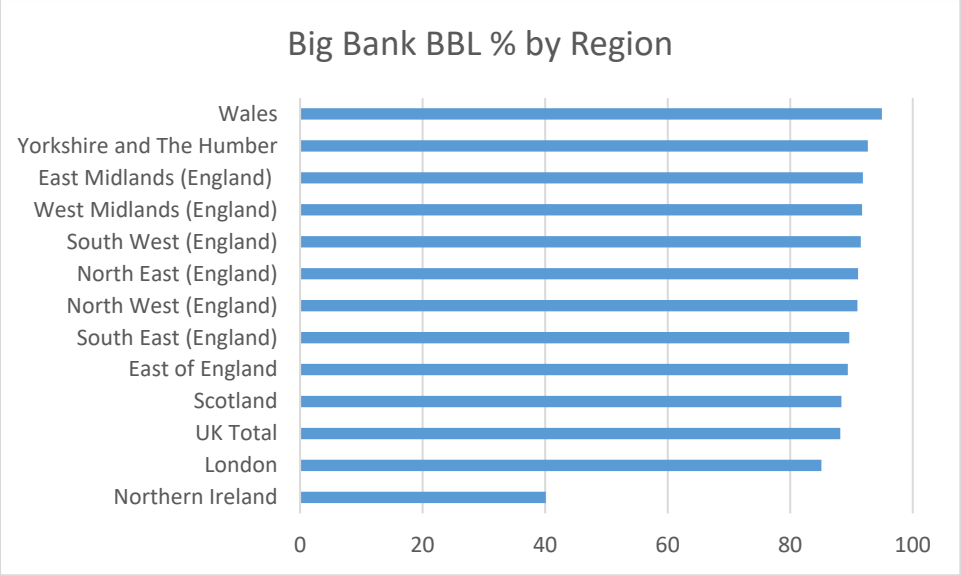

Figure 4: Big Banking Group Regional Shares of CBILS Lending

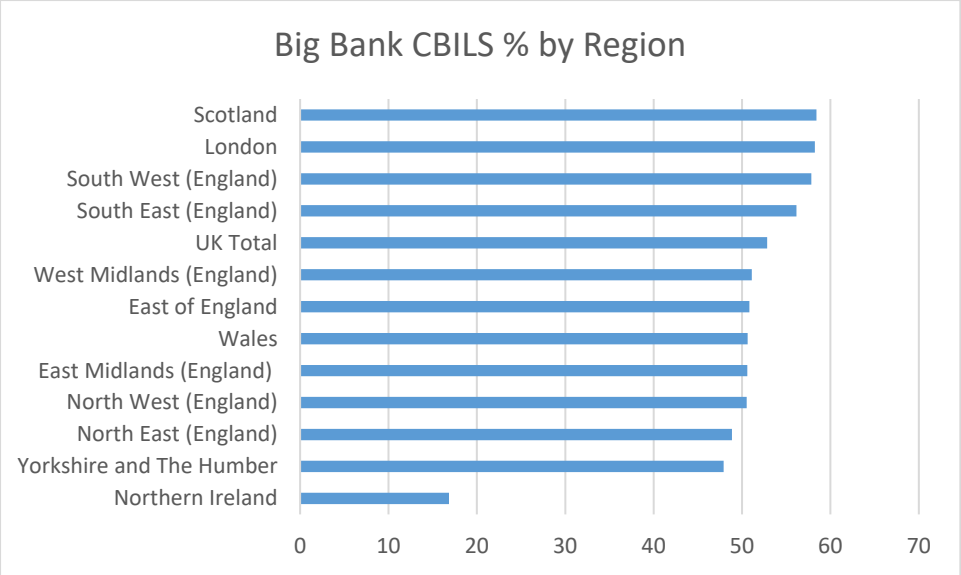

Figure 5: Regional equality and BBL loans

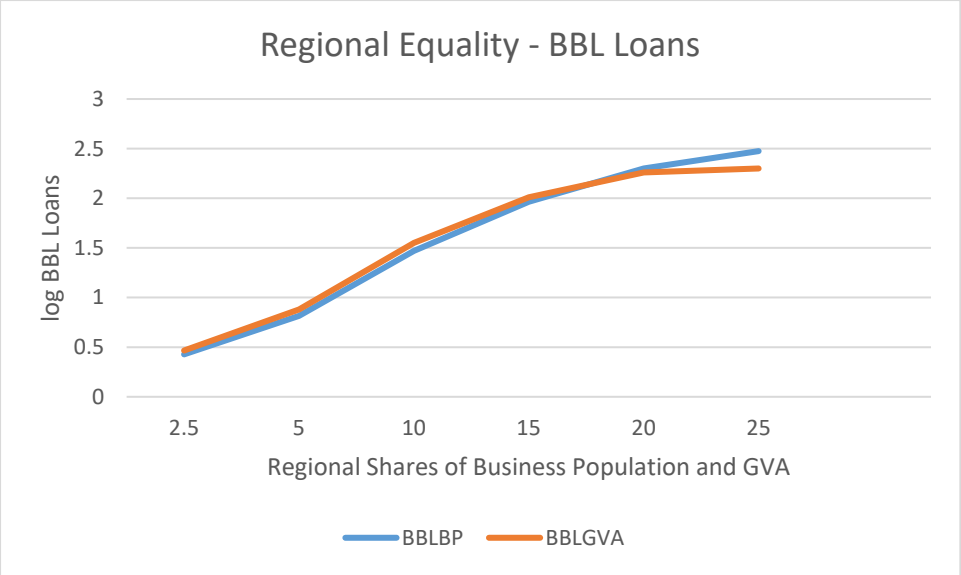

Figure 6: Regional equality and CBILS loans

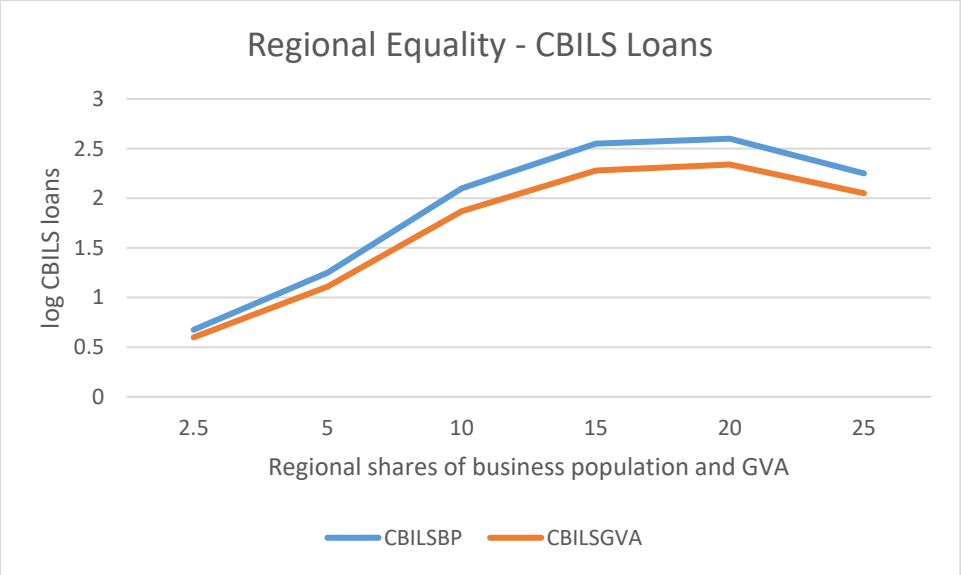

Figure 7: Predicted (log) BBL and CBILS loans compared to regional business population shares

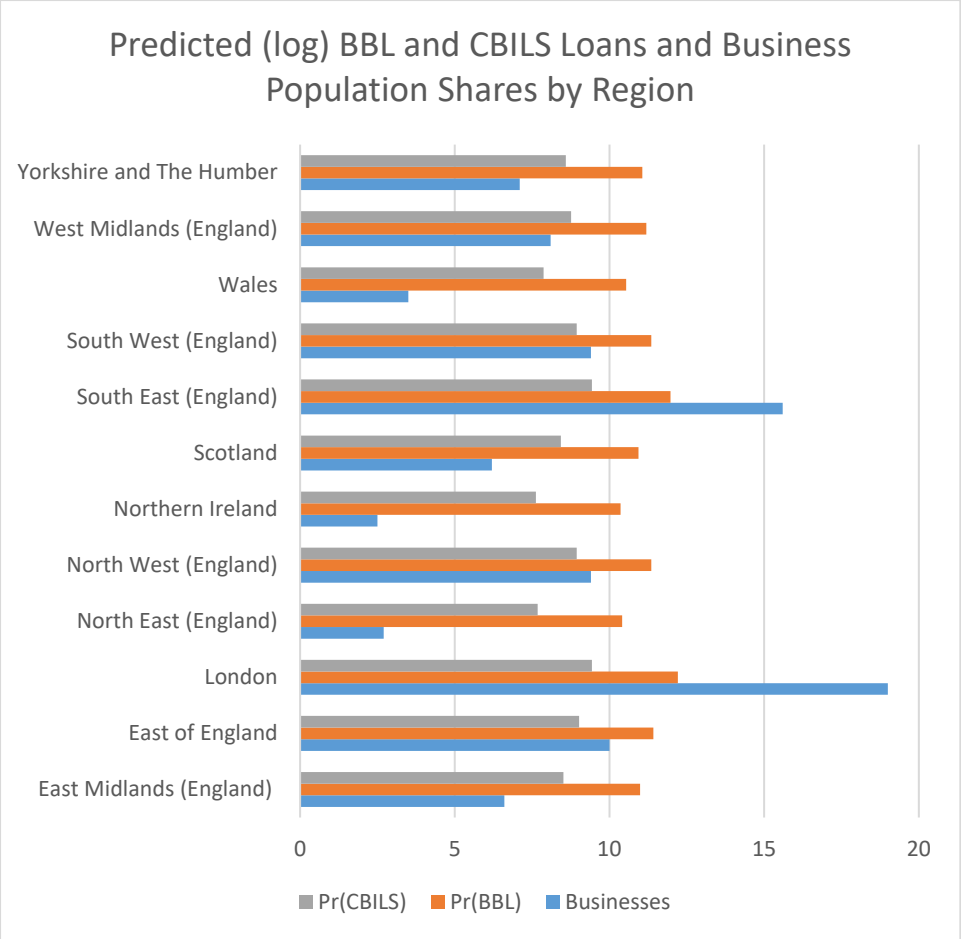

Figure 8: Predicted (log) BBL and CBILS loans compared to regional GVA shares