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Mapping Schumpeterian Outcomes in the UK Small Business Population over Time – The Effect of Social and Environmental Orientation on Innovation, Exporting & Growth

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ABSTRACT

This report charts the Schumpeterian outcomes — innovation, exporting, and job creation (employment growth) — of socially and commercially orientated UK small businesses over time. Analyses also consider the effects of location (of being located in a deprived area) and the impact of the COVID pandemic. We conduct an econometric analysis of the Longitudinal Small Business Survey (LSBS) waves 2017, 2019, and 2021. We find that UK small business' social and financial goals are both beneficial for innovation, but only financial goals stimulate exporting over time. More specifically we find that goal alignment, i.e., businesses prioritising both high levels of social and financial goals, benefits innovation. In contrast, goal misalignment — high levels of financial and low levels of social goals — increases the likelihood of exporting. The effect of social and financial goals on Schumpeterian outcomes did not differ across levels of deprivation but were impacted by the COVID pandemic. The positive effect of social and financial goals on innovation was no longer significant when businesses were negatively impacted by COVID. Socially orientated businesses were also negatively affected in terms of the COVID pandemic suppressing their likelihood of radical innovation. The COVID pandemic affected mostly businesses that were less likely to export. In terms of employment growth, 2017 – 2021 has been a period of relative stagnation or even relative degrowth across UK small businesses and was unaffected by small business' social and financial goals.

EXECUTUVE SUMMARY

Small businesses are the backbone of the UK economy and can improve it through business activities which we term Schumpeterian, namely innovation, exporting, and job creation (employment growth). A growing number of small businesses are socially orientated, that is placing high importance on the attainment of strategic social goals such as improving economic and social inclusion, communities, or tackling issues of health and aging. In the UK, around 30% of businesses are socially orientated (Social Enterprise Market Trends, 2017). These businesses are key to developing an economy which is simultaneously competitive and inclusive by addressing ambitious social objectives. In this research, we examine the Schumpeterian characteristics of UK small businesses and how these change over time, as well as how they are impacted by location (relative deprivation) and by the COVID-19 pandemic, considering their social and commercial orientation. Understanding their Schumpeterian outcomes across time can offer insights on how to navigate future crises.

This report analyses data from the Longitudinal Small Business Survey (LSBS), waves 2017, 2019, and 2021 to develop policy-relevant robust evidence about the economic behaviour of UK small firms 2017-2021. The LSBS is a unique large-scale data set, as it includes relevant information about business' social and financial goals, i.e., their social and commercial orientations.

This project address three main research priorities: (I) to understand how UK small business social and commercial orientation relates to Schumpeterian outcomes of innovation, exporting, and growth over time; as well as (II) to examine how geographical disparities (relative deprivation) and (III) the COVID-19 pandemic impact the relationship between business' social and commercial orientation and their Schumpeterian outcomes.

Sections 1 and 2 introduce key elements and structure of the report, as well as outlining the background to the research. Section 3 presents a detailed discussion of the sample and subsamples used, the variable definitions, methods applied, as well as a preliminary descriptive analysis. Section 4 provides the central results of the econometric analysis and highlights the importance of social goals for key Schumpeterian outcomes. The section discusses results for innovation, radical innovation, exporting, and employment growth. Each of these outcomes is considered across time; in terms of regional disparities; and with respect to the impact of the COVID pandemic. The Appendix documents further analyses and robustness check.

The analysis leads to the following insights:

Schumpeterian outcomes

Innovation

- The likelihood that a UK small business will innovate has decreased from 48% in 2017 to 35% in 2021. Radical innovation, a subset of innovation where businesses introduce products or services or processes that are new to the market rather than only new to the firm, has also decreased across years from 15% in 2017 to 11% in 2021%. These trends are probably due to this period being characterised by exogenous economic shocks and economic slowdown in the UK.

- The strength of both social and financial goals have significant positive effects on innovation, which persist across time. The effect of social goals on innovation increases across time. Additionally, there is a goal alignment effect, whereby jointly high levels of social and financial goals are beneficial for innovation. Thus, we find synergies between social and commercial orientation resulting in greater innovation.

- Socially orientated small businesses are not more likely to introduce radical innovation. Socially oriented businesses are often located in deprived areas and appear to grapple with resource constraints, which may hamper radical innovation as a more resource-intensive form of innovation. We need greater understanding of when socially orientated businesses undertake radical innovation to further introduce an innovation policy mix to support them.

- Location in terms of relative deprivation does not impact (moderate) the effect of business' social and commercial orientation on innovation, but regional disparities matter for radical innovation. For small businesses located in the 10% most deprived areas, low financial goals support radical innovation.

- Results for the overall effect of the COVID pandemic show that businesses that report negative impacts of COVID have an increased likelihood of innovation. Thus, the impact of COVID on innovation was positive, spurring innovation, likely out of necessity to adapt to the economic challenges related to the COVID pandemic. Put differently, the COVID pandemic appears to act as a challenge stressor, where small businesses innovate to survive, as opposed to innovating to achieve their goals.

- The positive relationship of social and financial goals with innovation is undermined by the impact of the COVID pandemic. The positive effect of social and financial goals on innovation only exists for businesses not affected by COVID. For businesses negatively affected by COVID, social and financial goals no longer have any significant effect on those business's likelihood of innovation.

- For radical innovation, COVID masked the positive effects of social goals on radical innovation. We see an increased likelihood of radical innovation for socially orientated businesses not affected by COVID, but a decrease in the likelihood of radical innovation for businesses negatively impacted by COVID. In sum, the impact of COVID is to reduce the likelihood of radical innovation for firms which otherwise might have undertaken it.

Exporting

- The likelihood that a small firm export has been relatively more stable across years but also shows a slight downward trend to 23% in 2021 vs. 25% in 2017 and 2019.

- The social orientation of UK small businesses is associated with a lower likelihood of exporting over time, while business' commercial orientation (their prioritization of financial goals) increases the likelihood of exporting over time. There is a goal misalignment effect between social and financial goals in relation to the likelihood of exporting, whereby jointly high levels of social and financial goals are detrimental to exporting, i.e., the likelihood of exporting is highest for businesses with strong financial but low social goals.

- In terms of the impact of relative deprivation, we do not find evidence that small businesses located in deprived areas have either a higher or lower likelihood of exporting. There is also no significant interaction effect of the index of multiple deprivation, i.e., businesses located in the 10% most deprived area, with social and financial goals on exporting.

- COVID reduced the likelihood of exporting for socially orientated businesses. The negative relationship between social goals and the likelihood of exporting is more pronounced for UK small businesses that were negatively impacted by COVID. Conversely, for businesses that report not to have been negatively affected by COVID, social goals appear to benefit exporting. Thus, the shock of the COVID pandemic seems to have affected mostly businesses that were less likely to export and masks a positive relationship of social goals with exporting.

- These results suggest scope for export support policies specifically targeted at socially orientated businesses, as opposed to introducing one-size-fits-all interventions. Socially orientated businesses tend to focus on the local level; thus, they may require different support to incentivise exporting.

Employment growth

- In terms of employment growth, 2017 – 2021 has been a period of relative stagnation or even decline across UK small businesses. On average, UK small businesses grew by less than 1%. External socio-economic shocks such as Brexit and the COVID pandemic may have posed greater barriers to grow business.

- Socially orientated businesses shrank less but also grew more slowly than commercially orientated businesses over 2017 – 2021 time period.

- The low variation in employment growth meant it was not statistically feasible to test for moderation effects of relative deprivation and the COVID pandemic on small businesses in relation to employment growth.

Further findings on Regional Disparities and COVID Impacts

- We find that more socially orientated businesses are located in the 10% most deprived areas. 14% of businesses with high social goals are located in the 10% most deprived areas compared to 6% for businesses with both high financial and social goals. This finding is in line with previous research on social enterprises being more prevalent in deprived areas.

- We found that 62% of small businesses perceived COVID to be a major obstacle to the success of their business and a greater percentage of socially orientated UK small businesses perceive that COVID had a negative impact on their business.

- This report provides information relevant for government agencies, academic institutions, small business owners, and key stakeholders in the third sector, on the innovation, exporting, and growth behaviour across time of the UK's small business population. The report offers new insights on how the social orientation of UK small businesses – often in synergy with their commercial orientation – can support innovation. For radical innovation and exporting, the positive effects of social orientations on facilitating these Schumpeterian outcomes seems to have been masked by the shock of COVID. The analysis provides insight and a basis for discussion towards policy dedicated to support Schumpeterian outcomes in a way that may help to mitigate the UK's social and economic disparities.

CONTENTS

1. INTRODUCTION

Schumpeterian entrepreneurship – characterized by innovation, exporting, and job creation (employment growth) (Schumpeter, 1980, also Estrin et al., 2022) – is an important driver of the economic competitiveness of countries. Small businesses are the backbone of the UK economy and understanding their Schumpeterian characteristics and how they change over time and were impacted by the COVID-19 crisis can help inform how to address the current economic downturn and weather future crises. When we consider major societal challenges such as increasing social inequality, Schumpeterian entrepreneurship alone may not be sufficient to achieve ambitious objectives like narrowing economic and social disparities. However, socially orientated small businesses can play an important role in attaining such objectives, and social businesses that pursue Schumpeterian entrepreneurship may be especially significant in the pursuit of a competitive economy which is inclusive (OECD, 2022a; Stephan et al., 2017). Despite this, there is as yet only limited understanding about how, whether, and when socially orientated UK small businesses pursue Schumpeterian entrepreneurship.

Socially orientated businesses are one element in the broader social economy. These businesses are characterised by their raison d'être, to address social needs and pursue social goals which relate to the wellbeing of society (Zahra et al., 2008). Such goals differ from the traditional financial goals of commercial firms, which can be regarded as concerning in the first instance the economic wellbeing of the owners of the business (Besley and Ghatak, 2017). Additionally, the distinct business models of socially orientated firms enable collaboration at the local level (OECD, 2022a). An important example of such businesses are social enterprises, a growing number of which operate in the UK economy, and with increasing significance: i.e., in 2015 41% of social enterprises had created new jobs as compared to 22% in commercial businesses (OECD, 2019). Note, however, that socially orientated businesses and in fact, the social economy is not solely composed of social enterprises, but can also encompass so-called mission-orientated small businesses that are committed to a social purpose but do not principally reinvest their surplus to further this social purposes (Social Enterprise Market Trends 2017/ Stephan et al., 2017).

The aim of this research is to analyse the Longitudinal Small Business Survey (LSBS) waves 2017, 2019 and 2021, to build policy-relevant robust evidence about the following three research questions:

(1) How does the social orientation of UK small businesses impact their innovation, exporting and growth over time?
(2) How do regional disparities impact the ability of socially vs. financially (commercially) orientated UK small businesses to pursue Schumpeterian outcomes (innovation, exporting, growth) over time?
(3) How has the COVID-19 pandemic affected the innovation, exporting and growth of socially vs. financially (commercially) orientated UK small businesses?

This report presents new evidence on these three research priorities and significantly advances our understanding *of* Schumpeterian entrepreneurship - innovation, exporting, and growth – by socially orientated small businesses.

Innovation — the introduction of new or significantly improved products, services, and processes (OECD) — has long argued to be essential to stimulate growth (Ahlstrom, 2010; Baumol and Strom, 2007) and is closely related to exporting. In turn, exporting — the sale of goods and services across national borders (Francioni et al., 2016) — has been associated with businesses' growth (Francioni et al., 2016; Leonidou et al., 2007). Firm growth is the main source of job creation, increases competition, and stimulates productivity and innovation (Lui et al., 2020). Innovation, exporting, and growth are intertwined. Innovation is considered a measure of business performance and high-performing businesses export more often (Castellani, 2002). In turn, exporting positively effects business performance (Dhanaraj and Beamish, 2003), and both innovation and exporting contribute to growth. Growth orientated businesses create jobs and add value for the economy (Parker, 2018).

Although there is widespread recognition of these outcomes as key indicators of success in commercially orientated small businesses (Estrin et al., 2020), little is known about these outcomes in small businesses that pursue social goals. Yet, small businesses are increasingly pursuing social goals (Battilana et al., 2022; Haugh et al., 2021; Haugh, 2022). In the UK in 2017, approximately 30% of small businesses were identified as having a social- orientation[1] (Stephan et al., 2017).

[1] Including an environmental orientation.

This report focuses on socially orientated small businesses, that is, businesses which use market-based mechanisms to achieve their social goals (Mair et al., 2012; Mair and Martí, 2006) and thus pursue both social and financial goals simultaneously (Santos, 2012; Zahra et al., 2009). In our previous analysis conducted using data from the 2017 Social Enterprise: Market Trends, we found that socially orientated small businesses innovate more than their financially orientated counterparts: controlling for alternative explanations, they were 78% more likely to innovate and 107% more likely to introduce radical innovation. However, the LSBS is an annual large-scale survey, which comprises information about the UK small business population across time. Using the LSBS therefore allows us to understand whether socially orientated small businesses introduce persistently innovate more. We are also able to consider their performance with respect to exporting and employment growth over time.

Overall, the first aim of this research is to contribute to policy by providing robust evidence of key Schumpeterian indicators over time in UK small businesses differentiated according to their goals (social and commercial). The close relationship between innovation, exports, and growth (Estrin et al., 2020), and the importance of these indicators for national competitiveness, suggest the need to explore their development over time. Compared to using cross-sectional data, findings using a longitudinal panel dataset can identify whether a relationship is more likely to be causal, and this is also facilitated by the richness of the information in the LSBS data. In so doing, our research offers a deeper empirical understanding of the UK small business population.

Our research also speaks to *geographical disparities between businesses* (Lumpkin et al., 2017; Seelos et al., 2011; Stephan et al., 2016). Multiple deprivation in the UK refers to resource deficiencies preventing the attainment of living conditions, such as access to health services, education, income and job stability, etc., which are considered customary in a given society (Mabughi and Selim, 2006) Deprivation in general reflects geographical disparities and social and economic exclusion (Duffy, 1998). For instance, in metropolitan areas, disparities are observed across neighbourhoods, as being 'spatialised' and creating city divides between richer and poorer areas. Disparities can be viewed as a spatial concentration of a variety of social and economic issues in deprived locations (Berrone et al., 2016). A large body of research highlights that socially orientated entrepreneurship is embedded in local contexts (Lumpkin et al., 2017; Stephan et al., 2016) of poverty or deprivation, as these businesses aim to solve social issues where there is greater social need (Lumpkin et al., 2017; Seelos et al., 2011). Yet, our findings from previous analyses, based on 2017 data, showed that socially orientated small businesses innovated less in more deprived areas (vs. non deprived ones).

Policy implications stemming from this research shed light on how to support the work of socially orientated small businesses in deprived areas. A large proportion of socially orientated small businesses are located in the most deprived areas; however they might need further support than those in less deprived ones to innovate, export, and grow.

Finally, our research also addresses the need to explore *the impact of COVID-19 on socially and financially orientated businesses.* There is some evidence suggesting resilience of socially orientated (vs. financially orientated) businesses in response to crisis such as the 2008 financial crisis (Stephan and Huysentruyt, 2016). In turn, previous research suggests that socially orientated small businesses directly contribute to community resilience (Hertel et al., 2019) and can generate a strong sense of collective purpose during times of crisis (Bacq et al., 2020). Thus, exploring the impact of the COVID pandemic in socially orientated small businesses can guide policy and policymakers to learn from the COVID pandemic to be able to prepare better for future crises.

Using the data from the LSBS, we conduct an econometric analysis employing a series of techniques: linear, logistic, and polynomial regressions with response surface analysis. With respect to Schumpeterian outcomes across time, our findings show that both stronger social and financial goals increase business' levels of innovation, both cross-sectionally and over time. However, this does not extend to radical innovation for social goals: we do not find that business with more pronounced social goals engage in more radical innovation. With regards to exporting, we find that it is more pronounced financial rather than social goals that increase the likelihood of exporting. This indicates that socially orientated businesses may operate more at the local level. We also find a misalignment effect – businesses with both high levels of social and financial goals are less likely to export, whereas those with strong financial but low social goals had the highest likelihood of exporting. We are unable however to identify any significant relationships between small business goals and growth. We interpret this as indicating that differences in firm objectives do not materially affect growth performance during a period of stagnation or degrowth for small businesses in the UK between 2017 – 2021, though we find that socially orientated businesses shrink less than commercially orientated businesses.

Furthermore, we find little evidence that local deprivation impacts the relationship of small businesses' social and commercial orientation on Schumpeterian outcomes, namely innovation, radical innovation, and exporting. However, more socially orientated businesses are located in the 10% most deprived areas. This finding is in line with previous research on social enterprises being more prevalent in deprived areas.

Finally, the relationship between social and financial goals on Schumpeterian outcomes, innovation, radical innovation, and exporting is affected by the impact of the COVID pandemic. We find the impact of COVID as an obstacle to the success of businesses, to supress the positive effect of social and financial goals on innovation. Additionally, COVID has a negative effect on radical innovation, and exporting, for socially orientated small businesses. In contrast, when COVID is not an obstacle, higher emphasis on social goals in small businesses increases the likelihood of innovation, radical innovation, and exporting, compared to lower emphasis on social goals.

These findings have important policy implications for interventions to support small businesses; to reduce the gaps in social deprivation; and to mitigate the impact of the COVID pandemic. More generally, our findings are relevant to the current UK government's levelling up agenda.

Next we present further information about the background of this study and how it links to policy efforts to support an inclusive economy. This is followed by a description of the methods applied in this analysis descriptive analysis of the main variables used, and, thereafter the findings.

2. BACKGROUND

Subsequent UK governments tried to foster the social orientation in businesses through a variety of interventions, including the introduction of novel legal forms to support the sector (Haugh et al., 2021). Parallel to the support towards the social sector is the government's levelling up agenda, which seeks to narrow geographical dipartites across the UK, in part by encouraging job creation through innovation and business growth (Harari et al., 2022). Small businesses are considered key as they represent an important source of jobs and innovation (Einiö and Overman, 2020). Furthermore, businesses that are socially orientated can develop broader positive externalities for society, as they operate to innovate and deliver public goods and services through the market (OECD, 2019, 2022a; Vickers et al., 2017).

The idea that the sole priority of firms is to maximise profit and achieving financial goals has been evolving (Battilana et al., 2022; Shubik, 1961). Financial goals relate to the economic wellbeing of the owners of the firm (Besley and Ghatak, 2017) and differ from social/environmental goals, which relate to the wellbeing of society (Zahra et al., 2008). Businesses emphasising a combination of financial and social goals often face trade-offs and tensions between them (Battilana et al., 2015).

It has been found that the pursuance of social goals acts to enhance a business' ability to innovate and its innovation performance i.e. the economic returns derived from innovation (Stephan et al., 2019). The current policy debate around the social impacts and consequences of innovation have emphasised the need to foster the social aspect of innovation, i.e., on job creation and inclusivity (Gabriel and Ollard, 2021; OECD, 2018). Thus, there are strong reasons to explore the innovation behaviour of socially orientated businesses, as well as other Schumpeterian characteristics, i.e., exports and growth, that contribute to achieving key national objectives.

There have been several attempts to support the exporting activity of socially orientated businesses. The 2015 *Exporting is Great* programme included a section dedicated to support the exporting of UK social enterprises (Gov.uk, 2015). More recently, in 2021 the OECD launched a strategic research partnership to develop insights into the exporting behaviour of female-led organisations in the social economy (OECD, 2022b). This proposed specific ways to strengthen exporting, in particular paying attention to the challenge of addressing local needs in a foreign territory.

The prevailing ideas around the impact of business goals have also been affected by recent external shocks. The COVID19 pandemic highlighted underlying social and environmental concerns and the business sector increased its engagement in addressing social and environmental challenges. Small businesses can become key players in this changing landscape (OECD, 2022b).

3. METHODOLOGY

This section details the sample and subsample datasets used, as well as the methods used, in the analysis. We explore different aspects of Schumpeterian entrepreneurship, namely, innovation, radical innovation, exporting and growth in UK small business population from 2017 to 2021. Section 3.1. outlines details of the sample and subsamples used in each stage of the analysis. Section 3.2. provides definitions of the main variables, including the four dependent variables, innovation, radical innovation, exporting, and growth. The section also provides detailed definition of predictor variables, notably business' social and financial goals, as well as definitions of the index on multiple deprivation and COVID as an obstacle, which are moderating variables in the analysis. In section 3.3. we present the descriptive statistics and information about the estimation techniques. For the most part, we use logistic and linear regressions to estimate the likelihood of Schumpeterian outcomes in small businesses, as predicted by their business's social and financial goals.

3.1 Data sample and subsamples

We use longitudinal survey data, from the LSBS panel, which is a representative sample of the UK small business population. The LSBS is based on a telephone survey commissioned by UK government Department for Business, Energy and Industrial Strategy (BEIS), and collects annual data from business managers and owners, since 2015. There are, as yet, seven waves of cross-sectional data included in the dataset, which include several repeat observations across years, known as the 'full panel'(BEIS, 2020). Each wave includes a number of top-up cases, to account for the annual decrease in response rates. Sampling for top-up interviews follows a stratification strategy within each UK country. Sampling targets are set according to national employment size and sectors. Two data sources are used in this process, the Inter Departmental Business Register (IDBR), for registered businesses and a private provider, Experian, for unregistered businesses (BEIS, 2020). The dataset includes other grouping and subset panels called cohorts. For instance, to reduce the length of the interview, questions related to Brexit and COVID were asked only to a subsample of the panel. Respondents were divided into three cohorts, A, B, and C, each of which had a separate weight, based on the 2020 Business Population Estimates (BEIS, 2020). Each cohort responded to different sets of questions, which were in turn related to specific topics, i.e., Cohort A responded to questions in relation to the green transition/energy efficiency; Cohort B responded to questions in relation to the COVID pandemic; and Cohort C responded to questions in relation to uses of technology and other tax related questions.

Our analysis is based on two main subsample datasets. For the main part of the analysis, we use a panel of businesses across 2017, 2019 and 2021– this includes all cohorts (A, B & C). Specifically, we use a sub-sample because the 2017, 2019, and 2021 cross-sectional surveys include a section dedicated to business goals, which provides an estimate of the number of small UK businesses and their financial, social, and/or environmental goals, based on the survey questions in the 2017 Social Enterprise: Market Trends report. The total sample size of this panel is 1,343 small businesses. Further information about their business characteristics is presented in the descriptive statistics. For the analysis regarding the impact of the COVID pandemic, a smaller subsample of our panel was used, a weighted sample based on Cohort B, drawing on respondents who answered the survey questions related to the COVID pandemic. The size of this subsample includes 458 cases. We apply a weight for representativeness of the UK small business population, when analysing this sub-sample.

3.2 Main variables

Innovation is measured as a binary variable, with values equal to *1* if an enterprise innovated in the last 3 years, or *0* otherwise. The measure of innovation used is consistent with the OECD Oslo Manual (2005) and as used in the European Union's Community Innovation Surveys and widely used in the innovation literature (see: Laursen & Salter, 2006). Specifically, an enterprise has innovated if it has introduced "a new or significantly improved product or service over the past 3 years […] or introduced a new process for producing or supplying goods or services" (Stephan et al., 2017).

Radical Innovation refers to having introduced a product or service or process that is new to the market as opposed to being only new to the organization. This measure is consistent to industry OECD and academic literature (see: Laursen & Salter, 2006). Its values are also dichotomous, whereby *1*= radical innovation, *0*= *no radical innovation*. This measure is a subset of the previous sample: *innovation*.

Exporting is measured with a binary variable, equal to *1* if an organization sold any goods or services to an individual or organisation based outside of the UK in the 12 months leading to the survey, and *0* otherwise. This includes transactions with any branch or subsidiary located outside of the UK, i.e., commissions, royalties and licenses (Stephan et al., 2017).

Growth of the business is measured in terms of the growth of employment. It is defined as the difference between the natural logarithm of number of employees reported during the most recent wave of the LSBS survey, 2021 minus the natural logarithm of number of employees reported during the first wave in our panel, 2017 (Delmar et al., 2003).

Social / financial goals are our main predictor variables representing different types of firms defined by their organisational goals. We created two scale variables, which capture the degree of importance of strategic social and financial goals by UK small businesses. Survey questions asked respondents to rate the importance their businesses placed on six different goals. We recoded the scale categories and organised them in ascending order, from 1 'not relevant', 2 'low importance', 3 medium importance', and 4 'high importance. The six strategic goals to be rated are listed in Table 1 along with a summary of the results of this procedure. We computed an index to capture the importance a business places on different social goals (Andries et al., 2018; Stephan et al., 2019). Previous research has used a similar approach to measure a firm's attention to social and financial goals (Carroll, 1979; Stevens et al., 2015). We further conducted an exploratory factor analysis using SPSS 28 and maximum likelihood

estimations to validate and measure factors of economic and strategic social goals (Stephan et al., 2019). (Andries et al., 2018; Stephan et al., 2019)(Carroll, 1979; Stevens et al., 2015)

The factor analysis revealed two factors whereby environmental goals cross-loaded with both financial goals and social goals. We, therefore, discard environmental goals from the analysis (DeVellis, 2003) and extract only one factor related to social goals and a single item for financial goals to obtain unidimensional measures of social and financial goals. The social goals factor explained 41.6% of the total variance. Factor loadings ranged between 0.7 to 0.8 (Table 1). The KMO measure of sampling adequacy was at a good level of 0.8 (Field, 2018), and Cronbach's a showed high-scale reliability above the common 0.7 thresholds, 0.76 (DeVellis, 2003; Tabachnick and Fidell, 2019). The resulting goals variables are (I) *social goals*, composed of the mean average of social goals, with values ranging from 1 to 4. And (II) a single item *financial goals,* to account for financial goals, measured in the same scale range, 1 through 4.

Table 1: Rotated component matrix

	Component	
Item	1	2
Financial and environmental goals		
Financial goals (1 low – 4 high importance)	-.071	**.922**
Environmental goals (1 low – 4 high importance)	**.456**	**.532**
Social goals		
Health-aging goals (1 low – 4 high importance)	**.727**	.077
Economic-social exclusion goals (1 low – 4 high importance)	**.820**	.001
Civic-community engagement goals (1 low – 4 high importance)	**.783**	.085
Mutual-cooperative-sports goals (1 low – 4 high importance)	**.684**	.116
Total variance explained	41.576	19.326

Kaiser–Meyer-Olkin: .766. Approx χ2: 1510.846. Sig.: p < .000. N = 1323. Values in bold represent factor loadings.

The *index of multiple deprivation* is a binary variable which we use to measure the regional disparities across the locations of the UK small business population. Businesses' postcodes are paired with the local level of deprivation, according to the index of multiple deprivation. Depravation in the UK is measured at the lower layer super output areas (LSOAs), which are census data of geographical areas comprising a mean population of 1,500. Each of the LSOAs is ranked across seven dimensions: health, employment, income, education, crime, living environment and barriers to housing and services (Jones, 2019; Teljeur et al., 2019). In our analysis, the variable is equal to *1* if the enterprise is located in one of the 10% most deprived areas in the UK and 0 if otherwise located.

COVID as obstacle is a binary variable equal to *1* if respondents expressed COVID was a major obstacle for the success of the business and 0 if COVID was not said to be a major obstacle. In order to reduce the length of the survey, COVID questions were asked only to a subset of the sample in 2021 (also asked on wave 2020, which is not included in our panel). As mentioned above, respondents were divided into three subsamples, Cohorts A, B, and C. Cohort B was asked questions about COVID. We use cohort B as the sample group weight used in the analysis regarding the COVID-pandemic.

3.3 Analysis

We commence with a preliminary discussion of descriptive statistics . The first section 3.3.1. presents an analysis of the UK small business characteristics assessed in this research, these include our dependent variables, predictors, moderators, and control variables. The section presents tables with descriptive statistics, as well as a Pearson correlation matrix. The second section, 3.3.2. outlines the estimation techniques applied.

3.3.1 Descriptive analysis

Table 2 reports the descriptive statistics of the variables in our estimated models. The main predictor variables are social and financial goals. As one might expect, financial goals are typically of high importance to the businesses in the sample (mean = 3.5, median = 4, where 1 = not relevant, 2 = low importance, 3 = medium importance 4 = high importance), but a significant minority of firms also place emphasis on social goals, though often also attaching less weight to them (mean = 2.1, median = 2, where 2 = low importance). Figures 1 and 2 below show the distribution of small businesses based on the importance these place on social and financial goals. For Figure 2, we count as 'high' importance only cases which had a value of 4 = *high importance*, towards social or financial goals. Else are all other categories (1

through 3) aggregated in a category we name ‘low’ importance. This categorisation allows us to analyse the distribution of small businesses based on their ‘high’ emphasis on social and financial goals.

Our models include a number of standard control variables. The descriptive statistics in Table 2, show that the mean firm size is 21 employees, with a frequent size of 7 employees as the median. In terms of age, small businesses are older, based on a larger mean of 0.606 in the dummy variable for the category capturing *more than 20 years*. A larger proportion of businesses operate in the businesses sector, based on dummy category showing a mean of 0.3496. Seeking for external knowledge is included as a common predictor of innovation.

Tables 3 and 4 present Pearson correlations of our samples. For our main sample, aside from the correlations between repeated measures, i.e., innovation and 2017 and 2021, our relatively highest correlation is .227 between social goals and size indicting that larger businesses are more likely to endorse social goals. In the COVID sub-sample shows a higher correlation between social and financial goals, however correlations in general are low and do not signal multicollinearity.

Figure 1: Average distribution of business goals in UK small businesses[2]

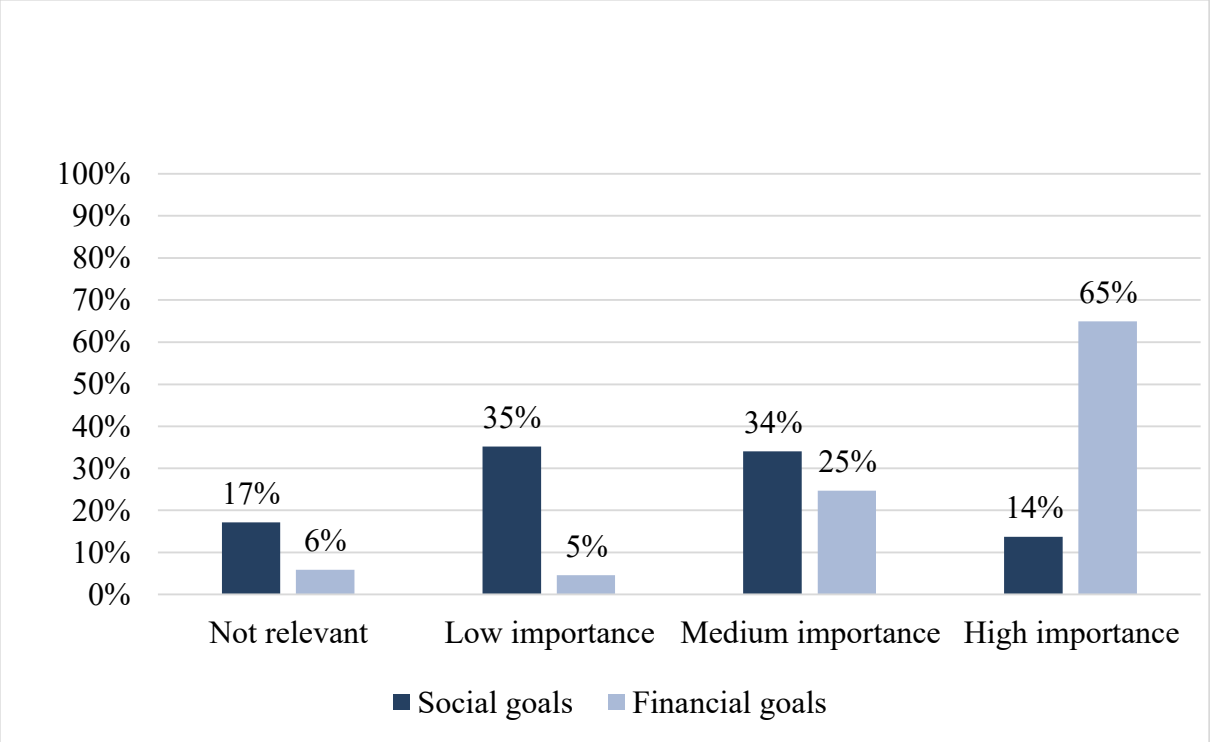
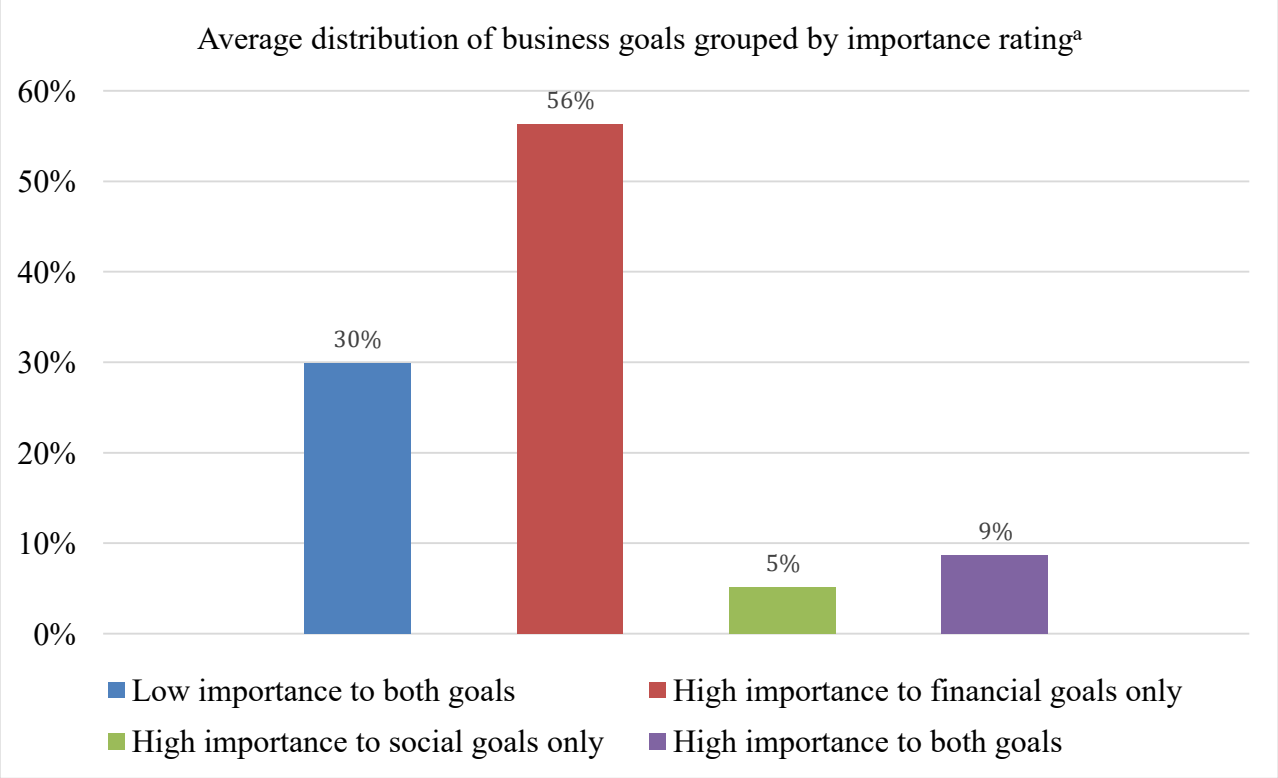


Figure 2: Average distribution of business goals grouped by importance rating



[2] LSBS data from T1, 2017.

Table 2: Summary statistics for variables used across the whole report.

Descriptive statistics	N	Missing	Mean	Median	Std. Deviation	Minimum	Maximum
Social goals	1343	0	2.1231	2	0.82593	1	4
Financial goals	1343	0	3.4895	4	0.83217	1	4
Innovation (2017)	1342	1	0.4763	0	0.49963	0	1
Innovation (2021)	1342	1	0.3484	0	0.47664	0	1
Radical innovation (2017)	1335	8	0.1475	0	0.35474	0	1
Radical innovation (2021)	1338	5	0.1117	0	0.31511	0	1
Exports (2017)	1340	3	0.2502	0	0.43328	0	1
Exports (2019)	1343	0	0.2526	0	0.43468	0	1
Exports (2021)	1341	2	0.2312	0	0.42174	0	1
Employment growth, compared to the last five years (2021)	1343	0	0.0096	0	0.52546	-3.04	2.83
Size by employees (2017)	1343	0	21.5278	7	38.37398	1	400
Age 0 - 5 years (2017)	1343	0	0.0692	0	0.25384	0	1
Age 6 - 10 years (2017)	1343	0	0.115	0	0.31919	0	1
Age 11 - 20 years (2017)	1343	0	0.2098	0	0.4073	0	1
Age More than 20 (2017)	1343	0	0.606	1	0.48882	0	1
Sector - Production and construction (2017)	1343	0	0.2526	0	0.43468	0	1
Sector - Transport, retail and food service/ accommodation (2017)	1343	0	0.2331	0	0.42295	0	1
Sector - Business services (2017)	1343	0	0.3496	0	0.47703	0	1
Sector - Other services (2017)	1343	0	0.1647	0	0.37101	0	1
Index of multiple deprivation (2021)	1343	0	0.0625	0	0.24223	0	1
External Knowledge sourcing (2017)	1336	7	0.3500	0	0.47714	0	1
External knowledge sourcing (2019)	1336	7	0.2744	0	0.44637	0	1
External knowledge sourcing (2021)	1340	3	0.2826	0	0.45043	0	1
COVID as an obstacle	459	0	0.62	1	0.48675	0	1

Table 3: Pearson correlations, full panel 2017, 2019 & 2021.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Social goals (2017)	1																
2	Financial goals (2017)	.070*	1															
3	Innovation (2017)	.112**	.177**	1														
4	Innovation (2021)	.101**	.129**	.414**	1													
5	Radical innovation (2017)	-0.012	.084**	.439**	.286**	1												
6	Radical innovation (2021)	-0.029	.126**	.275**	.490**	.390**	1											
7	Exports (2017)	-.104**	.147**	.213**	.175**	.200**	.245**	1										
8	Exports (2019)	-.136**	.139**	.210**	.185**	.196**	.270**	.768**	1									
9	Exports (2021)	-.098**	.120**	.187**	.197**	.173**	.269**	.727**	.760**	1								
10	Employment growth (2021)	-0.036	.060*	0.044	.072**	.064*	.060*	0.051	0.048	0.037	1							
11	Firm size (2017)	.227**	.082**	0.047	.065*	-0.035	0.014	0.012	0.017	0.018	-.075**	1						
12	Age (2017)	.071**	-.071**	-.063*	-.064*	-.109**	-.087**	0.033	0.032	0.023	-.151**	.154**	1					
13	Industry sector (2017)	.186**	-.127**	0.034	.099**	0.001	-0.035	-.115**	-.115**	-.087**	0.009	.100**	-.069*	1				
14	10% most deprived areas (2021)	.055*	-0.003	-0.043	-0.034	-0.047	-0.024	-0.028	-0.009	-0.016	-0.007	0.017	0.04	-0.034	1			
15	External knowledge sourcing (2017)	.112**	.101**	.167**	.167**	.096**	.126**	.093**	.086**	.117**	0.024	.162**	0.012	0.045	-0.003	1		
16	External knowledge sourcing (2019)	.063*	.110**	.086**	.144**	0.037	.092**	.095**	.082**	.065*	.063*	.177**	0.038	0.039	-0.015	.304**	1	
17	External knowledge sourcing. (2021)	.092**	.104**	.149**	.177**	.058*	.112**	.136**	.112**	.125**	.084**	.135**	0.025	0.053	-0.039	.268**	.335**	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 4: Pearson correlations, COVID weighted sample, 2021.

		1	2	3	4	5	6	7	8	9	10	11	12
1	Social goals (2017)	1											
2	Financial goals (2017)	.343**	1										
3	Innovation (2021)	.133**	.103*	1									
4	Radical innovation (2021)	-0.012	.146**	.551**	1								
5	Exports (2021)	-.127**	0.027	0.088	0.084	1							
6	Growth (2021)	-0.068	-0.061	-0.032	-0.088	0.036	1						
7	Firm size (2017)	0.056	.094*	0.068	0.042	0.05	0.071	1					
8	Age (2017)	0.081	-0.014	-0.076	-.192**	-0.042	-.110*	0.073	1				
9	Industry sector (2017)	0.037	-0.077	.180**	-0.048	.145**	0.038	0.015	-.105*	1			
10	10% most deprived areas (2021)	.095*	.105*	-0.071	-0.014	0.056	-0.045	0.045	0.014	-0.062	1		
11	External knowledge sourcing. (2021)	0.046	.178**	0.046	0.021	.094*	0.088	.095*	0.019	.115*	-0.064	1	
12	COVID as obstacle (2021)	.243**	.165**	.192**	.113*	0.013	-.116*	-0.02	-0.02	0.01	0.039	0.057	1

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

3.3.2 Estimation

We use three methodological approaches in our analysis.

First, we use logistic regression to explore the likelihood of innovation, radical innovation, and exporting in small businesses across time, as predicted by their business goals in 2017. Logistic regressions are used because the dependent variables in these cases are zero-one dummies, which necessitates the use of limited dependent variable estimators. We undertake both cross-sectional and panel data logistical analysis; the former being undertaken on data from 2017 (T1, henceforth) and the latter on all three available waves simultaneously. In the latter regressions, the dependent variable is lagged by two or four years (2019 (T2) and 2021 (T3)) to take account of potential endogeneity and to help establish causality in the underlying relationships. In this regression, the measures of social and financial goals are also drawn from the 2017 wave, as well as the controls for age and sector. We enter all other variables into the regression contemporaneously, that is, for the year of the dependent variable in each model.

Second, we use polynomial regression and response surface analysis to explore the impact of goal alignment/misalignment on innovation, radical innovation and exporting across years. Polynomial regressions analyse the extent to which the combination of two predictor variables relates to a given outcome (Shanock et al., 2010). In contrast to moderation analysis, which analyses if the combination of two variables can relate to an outcome, polynomial regression and response surface plot analysis analyse how two variables combine and relate to an outcome jointly and consider both linear and non-linear effects (Nestler et al., 2019). A prerequisite to conduct polynomial regression and response surface analysis is that the sample must comprise a sufficient number of non-aligned cases. Table 5 shows the distribution of aligned vs. misaligned cases in our panel sample. We convert the predictors social and financial goals to Z values, then created categories for cases scoring half a standard deviation above, below and around the mean (Stephan et al., 2019; Shanock et al., 2010).

Table 2: Alignment cases

Agreement Groups	Frequency	Percent
Stronger financial goals	615	47%
Aligned	**430**	**31%**
Stronger social goals	286	22%
Not aligned	**901**	**69%**

Note. A higher number of not aligned vs. aligned cases will allow for Polynomial regression.

Finally, we use a linear regression model to estimate models of small business growth across time explained by entrepreneurial social and financial goals. moderators and the control variables. Further, we use a conditional change graph to further explain our regression results.

4. RESULTS AND DISCUSSION

This section presents the results derived from analysing a panel made up of small businesses from the LSBS data set. The section is divided into four main subsections, one for each Schumpeterian outcome: innovation, radical innovation, exports and growth. In each we address the following research questions:

(1) Measuring Schumpeterian Outcomes Across Time
(2) Regional disparities across time, in relation to each Schumpeterian outcome
(3) Analysing the impact of the COVID pandemic

In all subsections, we first analyse Schumpeterian outcomes in small businesses across time, categorised according to small businesses' social and financial goals and the alignment/misalignments of those goals. We go on to examine the impact of regional disparities by exploring the moderating effect of the index of multiple deprivation, i.e., whether small businesses are located in one of the 10% most deprived UK areas. Finally, we explore the impact of the COVID pandemic on innovation in small businesses.

4.1 Innovation

Figure 3 shows that the likelihood that a firm will innovate (represented as a percentage, i.e., the mean value of innovation dummy multiplied by 100) has decreased over the sample period in small businesses, from 48% in 2017 (T1) to 35% in 2021 (T3). This result is probably a consequence of the fact that the period 2017–2021 has been characterised by exogenous

economic shocks and economic slowdown in the UK. Figure 4 shows the likelihood of innovation by the group of businesses according to the importance attached towards social and financial goals. Businesses displaying high importance of social goals decreased their likelihood of innovation from 47% in T1 to 30% in T2; and increased again to 47% in T3. The lowest level of innovation is shown in the group of businesses with low importance to both goals, across all waves.

Figure 3: Average innovation in UK small businesses across years

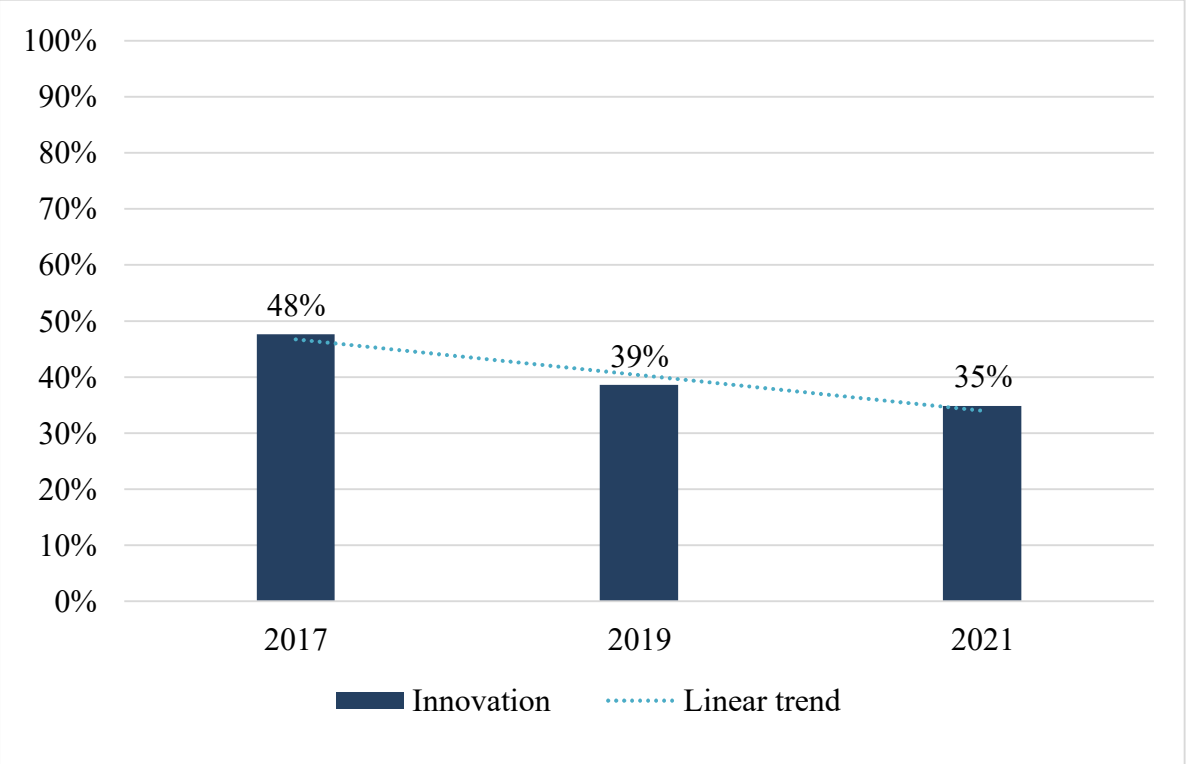
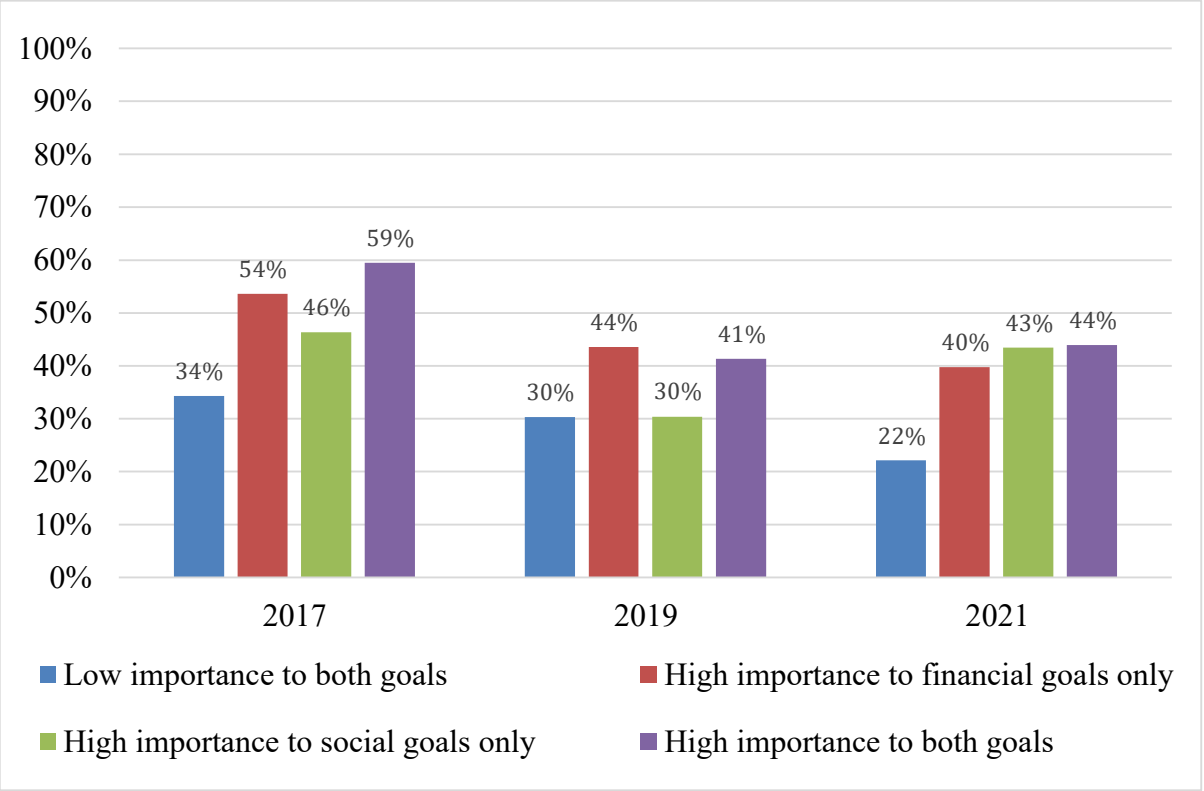


Figure 4: Average proportion of innovation in UK by businesses goals across years



4.1.1 Measuring Innovation Across Time

In Table 6, models 1 and 2 provide results for the likelihood of innovation as a function of the importance of social and financial goals across time. We observe that the odds ratios for both social and financial goals of small businesses are positive and significant and thus that both strong social and financial goals positively impact the likelihood of innovation. Small businesses placing a high importance on social goals in 2017 increased their odds of innovating in 2021 by 25%, relative to those with a low importance. Small businesses with a high importance towards financial goals in 2017 had a slightly higher increase in the likelihood of innovating in 2021, 33%. The regression results suggest high levels of both types of firm goals are important for innovation across time. Thus, in general business goals are important for innovation, regardless of whether goals are social or financial. The same results are found in cross section for 2017 (Appendix table A1).

Analyses of the interaction between the two types of businesses' goals indicate the importance of alignment between financial and social goals for the likelihood of innovation. This means firms which place a high importance jointly on financial and social goals are more likely to innovate than those which place high importance on one of these goals alone or do not place strong importance on either goal. This is tested through polynomial regression and visualised

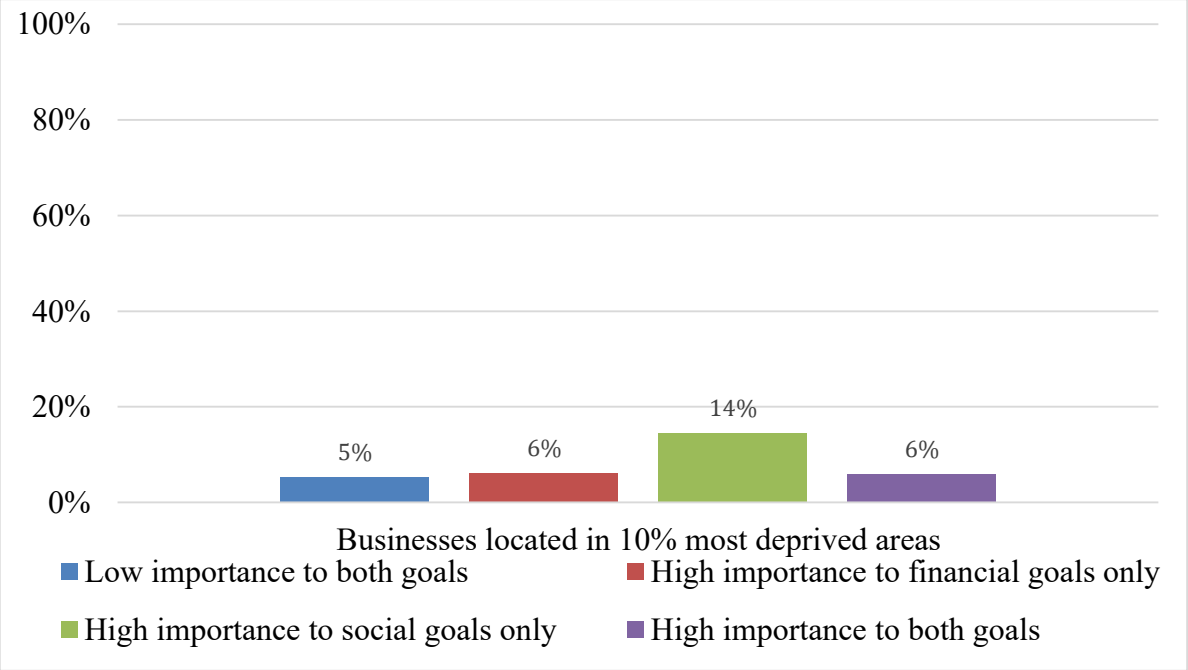
via a surface plot shown in Figure 6 (overall regression is significant at the 95% level, $p < .001$, model A5 in appendix table A2). Figure 6 tests the slopes and curvatures at a_1, a_2, a_3, and a_4. We found a positive and significant result in a_1, the slope along $x = y$, whereby social goals plotted in the x axis are high, and financial goals plotted in the y axis are also high. This result is positive and significant ($p = .002$) and supports an alignment effect, whereby both high levels of social and financial goals are beneficial for innovation. Additionally, there is a positive significant curvature along the line $x = -y$, at a_4 ($p = .014$). This result shows that, when there are misalignments, the direction of discrepancy matters. Figure 8 shows that the likelihood of innovation also increases when moving away from the center towards either the right or left side of the graph. Specifically, the likelihood of innovation increases as a focus on a single goal emerges (either high financial and low social goals on the right side of the graph or focus on high social and low financial goals on the left side of the graph). This reflects cases of goal non-alignment.

In table 6, results estimating the effects of control variables in models 1 through 3 provide additional information, which can support future innovation policy. There is often a tendency to support innovation in larger rather than smaller firms. However, the regression results for business size shown in models 1 and 2 provide no evidence that size is associated with the likelihood of innovation. Alternatively, results for age show that younger businesses tend to have a higher likelihood of innovation. Additionally, results for seeking external knowledge, i.e., businesses which have sought advice in relation to a particular topic, provide evidence of the importance of external information sourcing for innovation.

4.1.2 Regional Disparities Across Time, in Relation to Innovation

Figure 5 shows that more socially orientated businesses, which place high importance to social goals, are located in the 10% most deprived areas (14% for business with only high social goals and 6% for businesses with both high financial and social goals). This finding is in line with previous research.

Figure 5: Average proportion of small UK businesses' location in deprived areas by business goals[b]



Next, we look at how do regional disparities impact the ability of socially vs. financially orientated UK small businesses to pursue innovation by interacting our measure of deprivation with the measures of social and financial goals. The regression results in model 3, Table 6 show that there is no significant moderating effect on the association of social and financial goals with the likelihood of innovation for businesses located in the 10% most deprived area. To test the robustness of this result, we conducted the same analysis using different measures of deprivation. We used variables measuring, whether businesses were located in the 15% most deprived areas, used deprivation organised in ventiles, and 40% most deprived areas. In all cases, our results stand – we find no significant moderation effect for deprivation on the relationship of social and financial business goals with innovation. Note also that the measure of deprivation does not have a statistically significant direct effect on innovation in models 1 and 2 in Table 3.

A possible interpretation of these results may derive from the level of aggregation of the index of multiple deprivation (IMD). The IMD, which is used as measure of regional disparities in our analysis, is measured at the LSOAs (Lower Layer Super Output Areas) level of geographical aggregation (McLennan et al., 2019). These represent small geographical areas with mean populations of around 1,500 (McLennan et al., 2019). Future analyses could examine the effects of regional disparities at higher levels of aggregation to attempt to identify whether

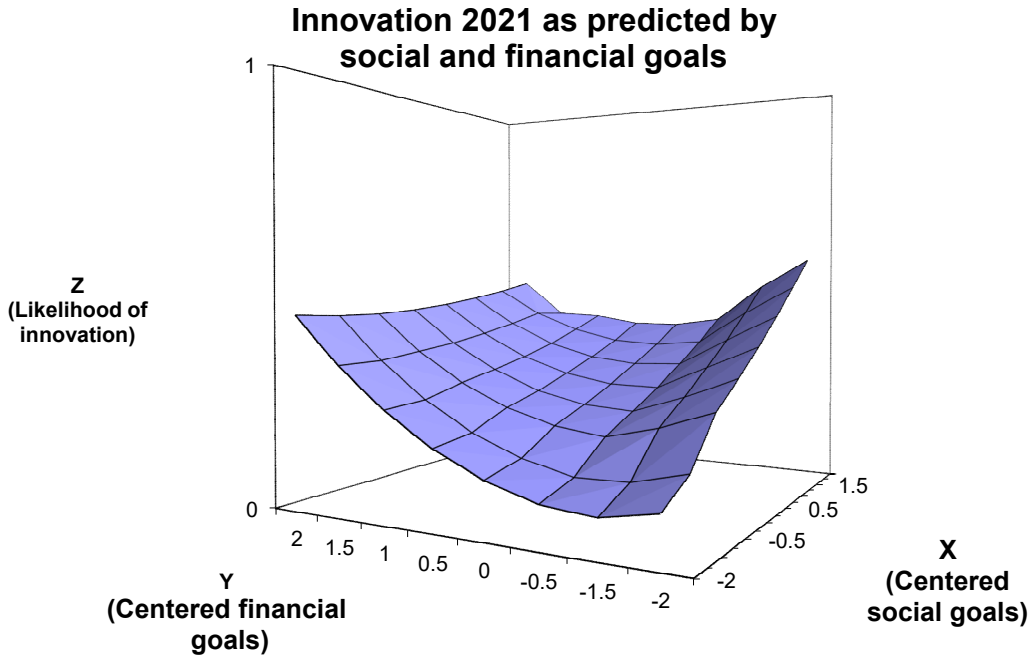
there are moderating effect of regional disparities, measured as the level of deprivation of a particular area.

Table 3: Regression results for innovation 2021 as predicted by firm goals in 2017.

	Model 1				Model 2				Model 3			
	B	S.E.	P-value	Exp (B)	B	S.E.	P-value	Exp (B)	B	S.E.	P-value	Exp (B)
Firm size [a]	0.108	0.043	0.013	1.114	0.048	0.045	0.294	1.049	0.049	0.046	0.283	1.050
Age[b]	-0.147	0.064	0.021	0.863	-0.129	0.065	0.046	0.879	-0.130	0.065	0.044	0.878
Industry sector[d]			<.001				<.001				<.001	
Production and construction	-0.298	0.19	0.117	0.742	-0.314	0.203	0.122	0.731	-0.308	0.203	0.130	0.735
Transport, retail and food service/ accommodation	-0.202	0.191	0.290	0.817	-0.234	0.202	0.247	0.791	-0.232	0.202	0.250	0.793
Business Services	0.346	0.176	0.050	1.413	0.319	0.19	0.093	1.376	0.321	0.190	0.091	1.379
Index of multiple deprivation[c]	-0.192	0.256	0.453	0.825	-0.219	0.258	0.396	0.803	-0.931	1.722	0.589	0.394
External knowledge sourcing	0.718	0.129	<.001	2.050	0.678	0.131	<.001	1.970	0.676	0.131	<.001	1.965
Social goals[b]					0.224	0.078	0.004	1.251	0.217	0.080	0.007	1.243
Financial goals[b]					0.290	0.084	<.001	1.337	0.286	0.086	<.001	1.331
Social goals by Index of multiple deprivation									0.136	0.315	0.666	1.145
Financial goals by regional disparities									0.109	0.383	0.776	1.115
Constant	-0.570	0.269	0.034	0.566	-1.981	0.414	<.001	0.138	-1.950	0.421	<.001	0.142
Chi-square	71.860				94.544				94.774			
Cox & Snell R Square	0.052				0.068				0.068			

N= 1336.
a Size is measured by number of employees, in logs.
b Age, Industry sector, and goals are time constant variables for year 2017.
c Index of multiple deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d Base category is, other services

Figure 6: Surface analysis plot for likelihood of innovation 2021



4.1.3 Analysing the Impact of the COVID Pandemic on Innovation

Figure 7 shows that 62% of small businesses perceived COVID to be a major obstacle to the success of their business. We see in Figure 8, that the perceived negative impact of COVID was more common for socially orientated businesses (88% for high social goals, and 66% for both high social and financial goals, in Figure 5).

Figure 7: Average proportion of UK small businesses facing COVID as an obstacle in 2021.

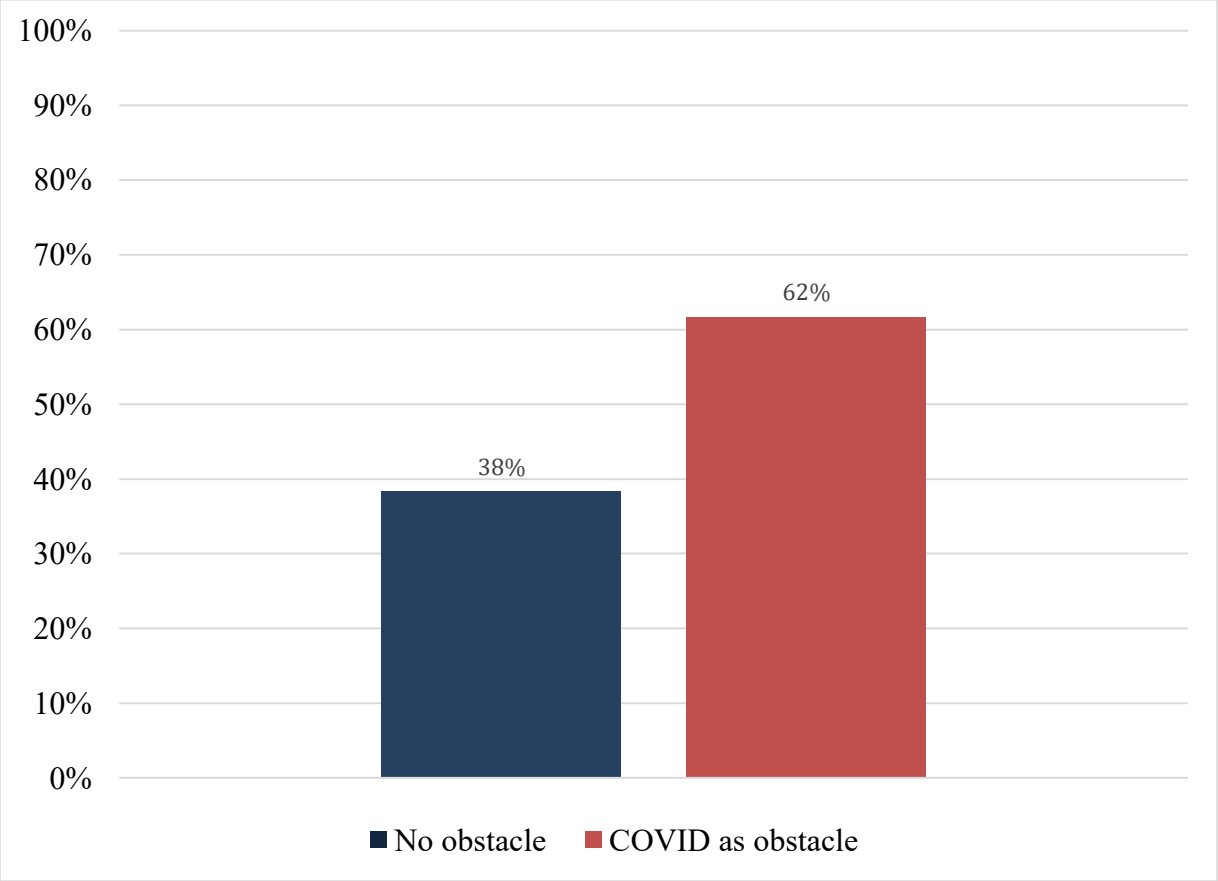
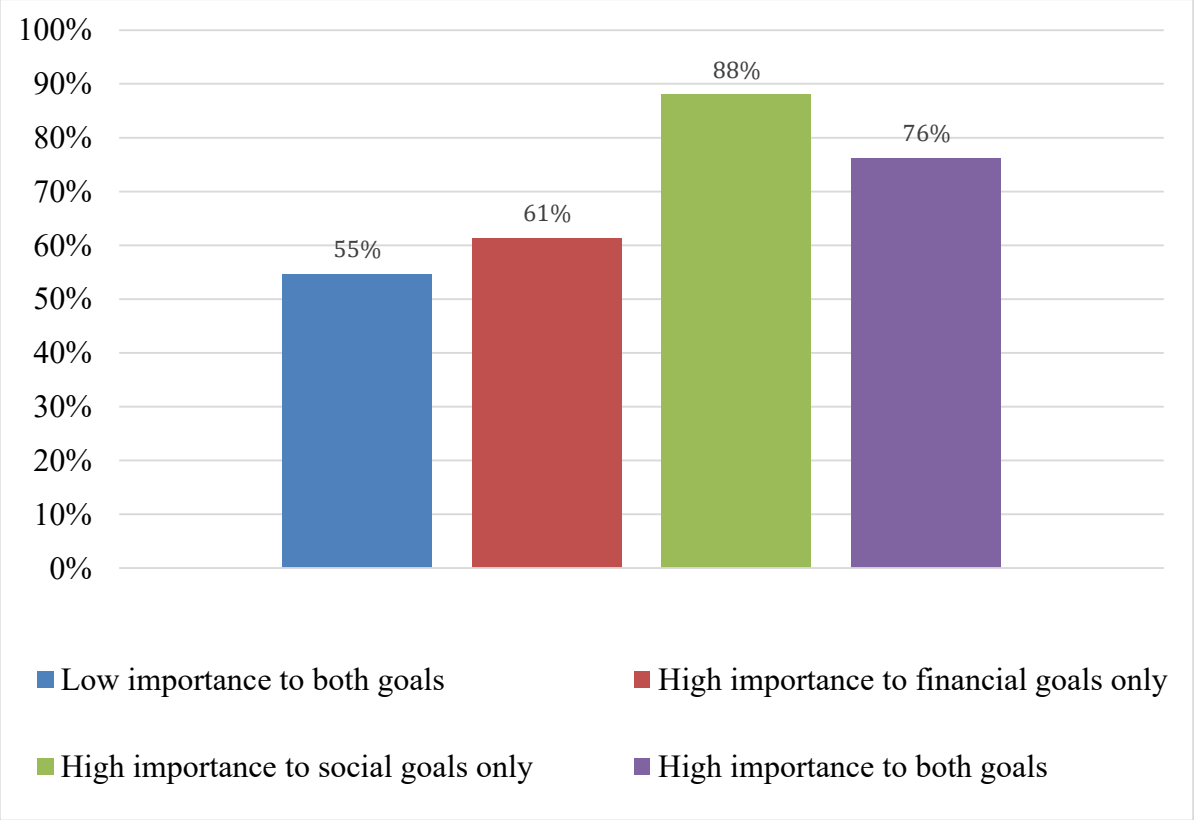


Figure 8: Average proportion of businesses facing COVID as an obstacle by business goals[a]



Models 4 through 6 in Table 7 explore the relationship between business' innovation and the impact of the COVID pandemic. Table 1 indicates that 63% of small businesses reported the COVID pandemic being a major obstacle for the success of their business. Results for the overall effect of COVID show that businesses that report COVID to be an obstacle for their success (henceforth 'COVID' for short) have an increased likelihood of innovation (model A7 in appendix Table A3). Thus, the impact of COVID on innovation was positive, spurring innovation. This is consistent with research on entrepreneurial responses to the COVID pandemic which indicates that businesses negatively affected by the pandemic engaged in pivoting, agility, opportunity scanning and similar behaviours (Kuckertz et al., 2020; Stephan et al., 2023).

The moderating effect of COVID on the relationship of social goals with innovation is negative and significant (Odds Ratio = .293, p = 0.002) (Model 4). Figure 9 plots this effect: The positive effect of social goals on innovation only exists for businesses not affected by COVID. For businesses negatively affected by COVID, social goals no longer have any significant effect on those business's likelihood of innovation. We find the same pattern of effects for financial goals: COVID moderates the relationship of financial goals with innovation (Model 5)

negatively (Odds Ratio = .283, p = 0.004). Figure 10 again shows the marginal effects plot results for this interaction effects. The positive effect of financial goals on innovation only exists for businesses not affected by COVID. For businesses negatively affected by COVID, financial goals no longer have any significant effect on those business's likelihood of innovation.

Table 4: Regression results for innovation 2021 as moderated by COVID as major obstacle for the success of the business.

	Model 4				Model 5				Model 6			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.381	0.129	0.003	1.464	0.382	0.127	0.003	1.465	0.374	0.128	0.004	1.453
Age[b]	-0.159	0.107	0.138	0.853	-0.122	0.107	0.254	0.885	-0.108	0.108	0.315	0.897
Industry sector[d]			0.003				0.002				0.004	
Production and construction	-1.304	0.364	<.001	0.271	-1.338	0.374	<.001	0.262	-1.282	0.372	<.001	0.277
Transport, retail and food service/ accommodation	-0.747	0.383	0.051	0.474	-0.821	0.389	0.035	0.44	-0.773	0.388	0.046	0.461
Business Services	-0.554	0.352	0.116	0.575	-0.544	0.361	0.132	0.58	-0.529	0.361	0.142	0.589
Index of multiple deprivation[c]	-1.366	0.676	0.043	0.255	-1.116	0.681	0.101	0.328	-1.174	0.674	0.081	0.309
External knowledge sourcing	-0.178	0.313	0.569	0.837	-0.15	0.312	0.63	0.86	-0.165	0.312	0.597	0.848
COVID	3.515	0.908	<.001	33.608	5.365	1.652	0.001	213.814	6.796	1.885	<.001	893.908
Social goals	1.271	0.379	<.001	3.563	0.206	0.14	0.143	1.228	1.001	0.384	0.009	2.72
Financial goals	0.131	0.139	0.346	1.14	1.209	0.426	0.005	3.352	1.091	0.458	0.017	2.976
Social goals by COVID	-1.229	0.401	0.002	0.293					-0.936	0.411	0.023	0.392
Financial goals by COVID					-1.262	0.444	0.004	0.283	-1.113	0.475	0.019	0.329
Constant	-3.609	0.969	<.001	0.027	-5.321	1.648	0.001	0.005	-6.608	1.87	<.001	0.001
Chi-square	66.174				67.813				73.439			
Cox & Snell R Square	0.136				0.139				0.150			

N= 457.
a Size is measured by number of employees, in logs.
b Age, Industry sector, and goals are time constant variables for year 2017.
c Index of multiple deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d Base category is, other services.
Covid – business owner/manager reported that business success was negatively impacted by Covid (1=negative impact of Covid, 0= no impact of Covid)

Figure 9: Interaction effect Plot COVID*Social goals

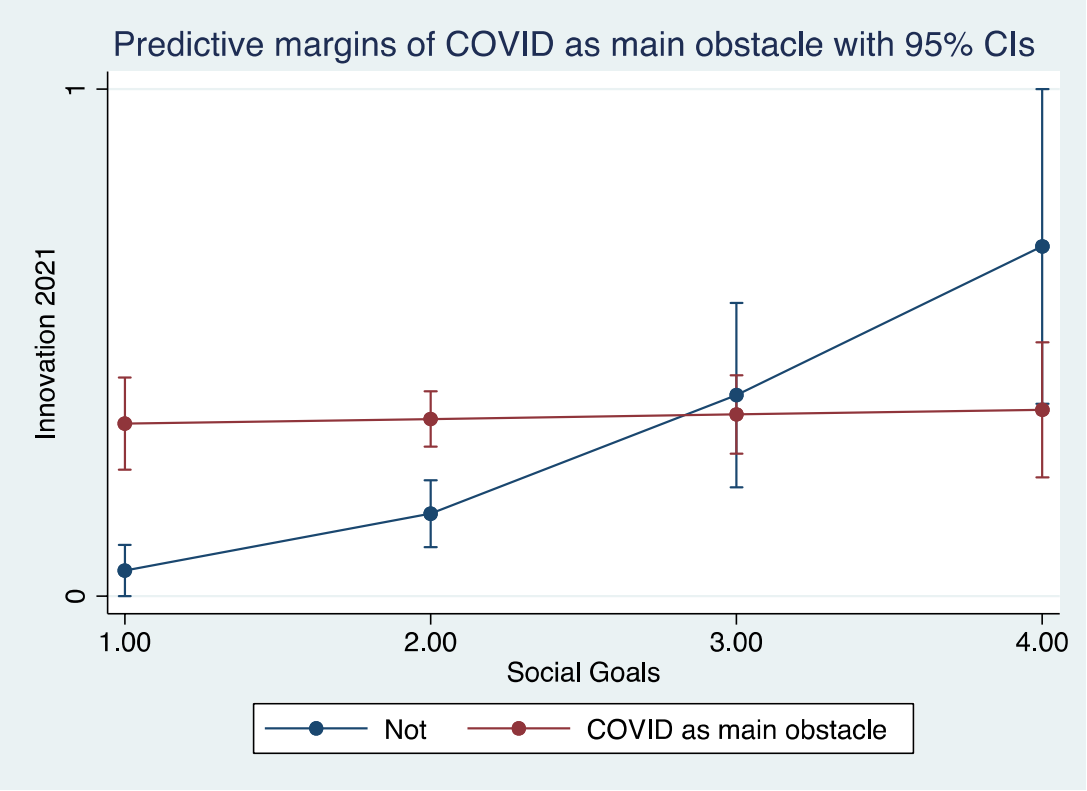
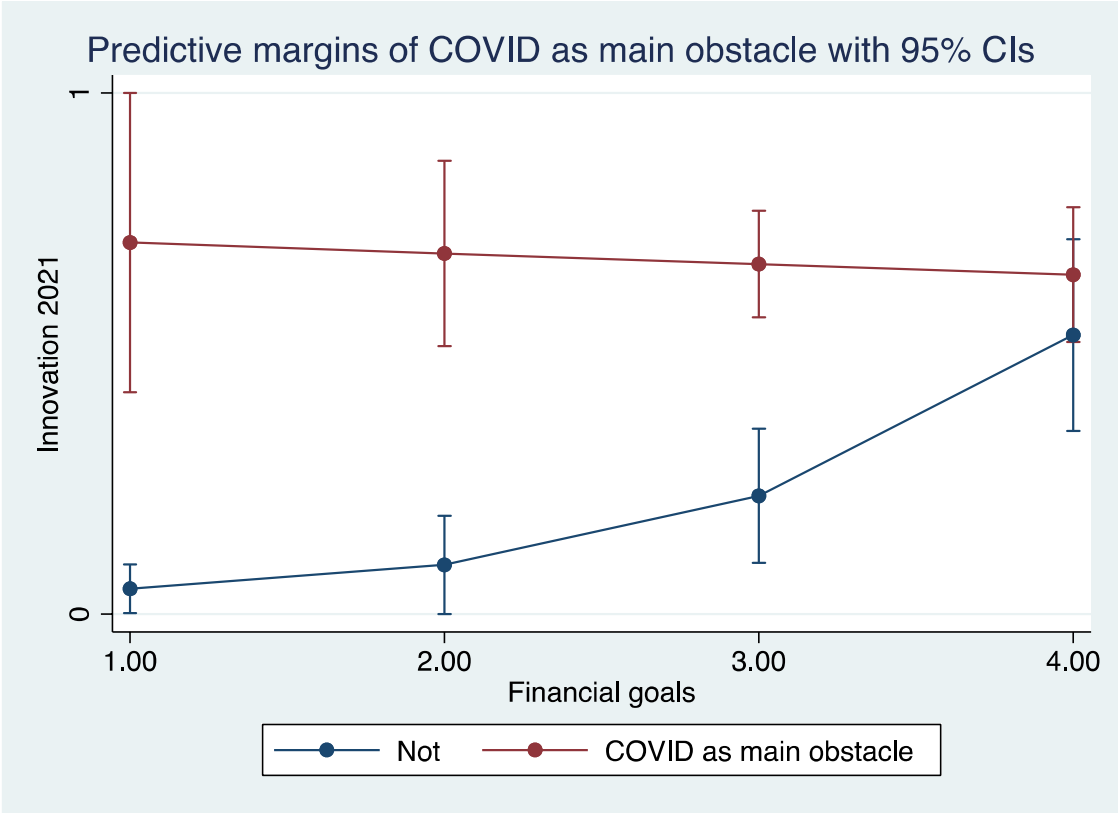


Figure 10: Interaction effect Plot COVID*Financial goals



4.2 Radical Innovation

Radical innovation, a subset of the innovation variable, has also decreased across years. Figure 11 shows that the likelihood of radical innovation decreased from 15% in T1, 2017 to 11% in T3, 2021%. This result may have been expected given that radical innovation is resource intensive and both COVID and Brexit, as exogenous shocks, may have negatively impacted the capacity for radical innovation in small businesses. Additionally, Figure 12, shows that the group with the lowest levels in radical innovation over time, is the group with high social goals.

Figure 11: Average radical innovation in UK small businesses across years

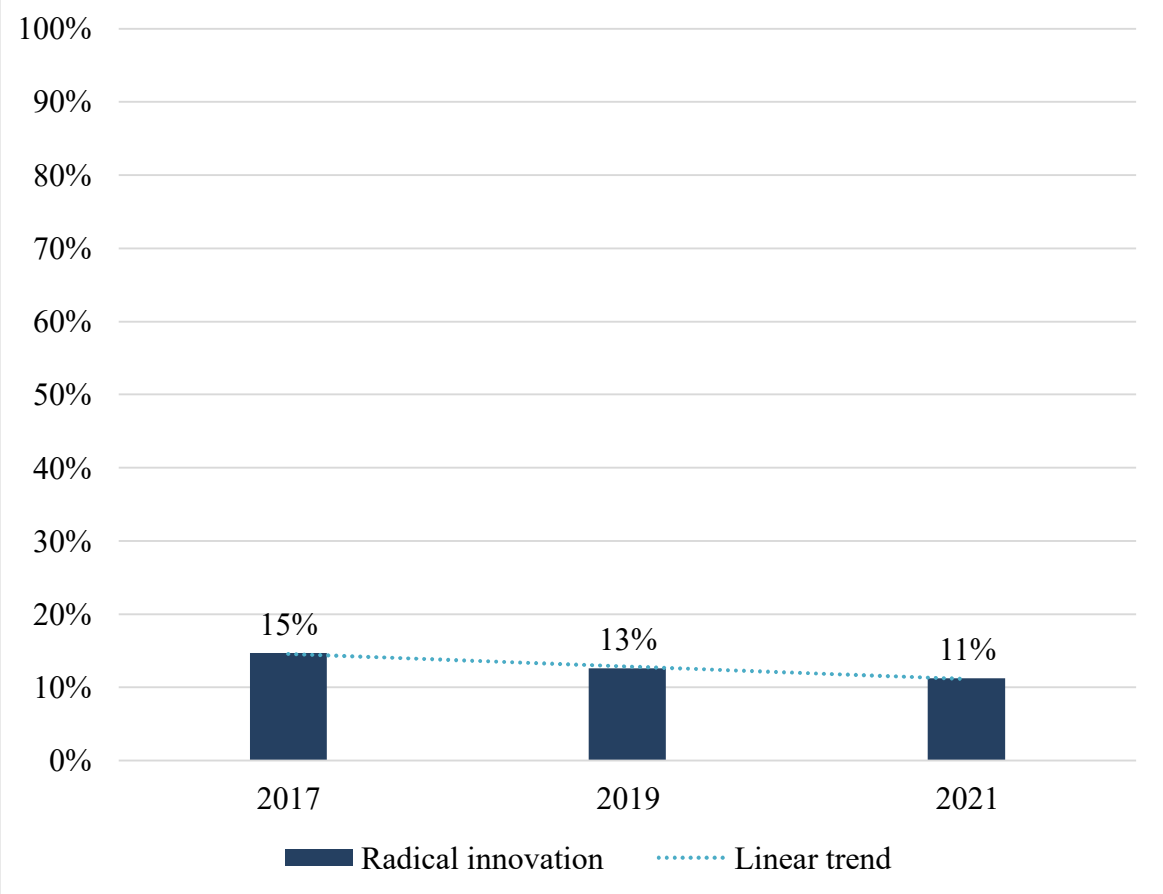
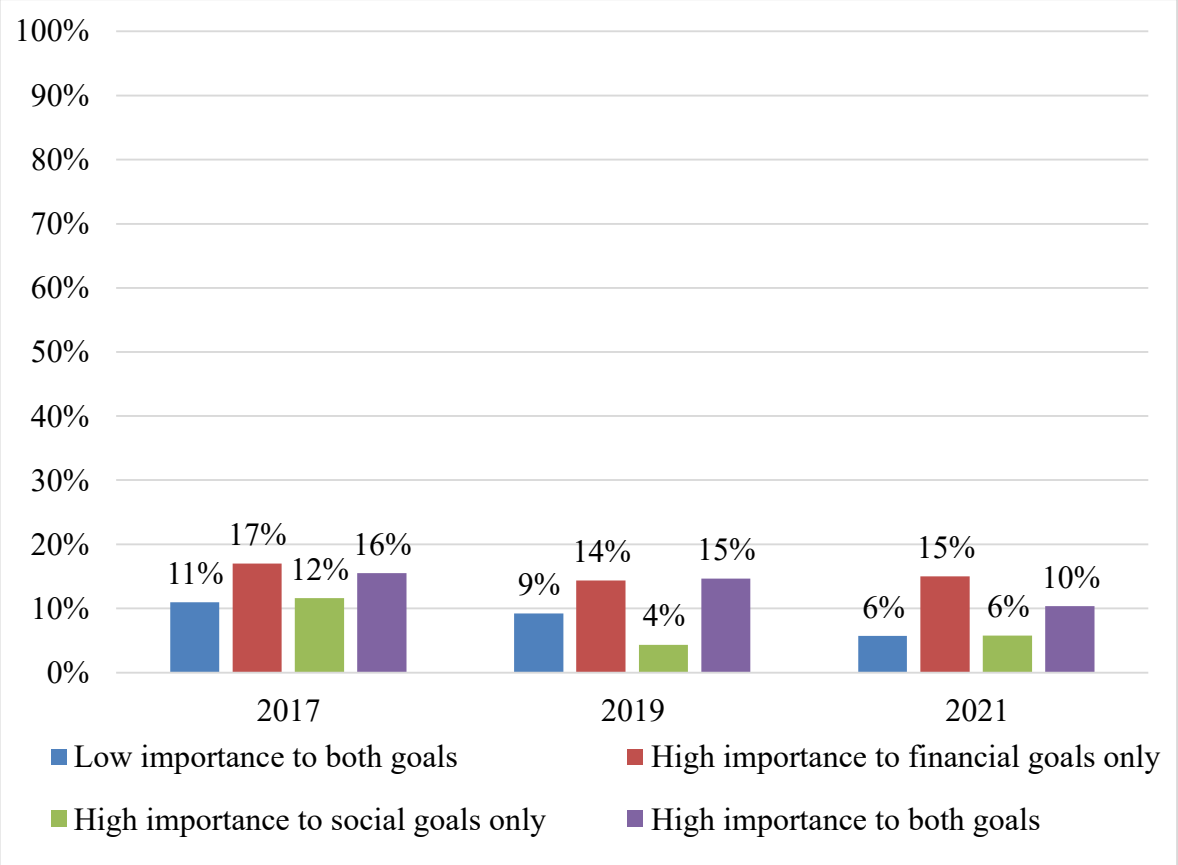


Figure 12: Average proportion of radical innovation by business goals across years



4.2.1 Measuring Radical Innovation Across Time

Table 8 relates the business social and financial goals (in 2017) to their likelihood of radical innovation in 2021. Results in model 8 show no evidence of the likelihood of radical innovation is higher for businesses which place high importance on social goals. Higher importance of financial goals is associated with a 76% increase in the odds of radically innovating.

Following these results, we suggest that it is important to better understand when socially orientated businesses undertake radical innovation to help inform policy to support them. Radical innovation is capital intensive and requires even more resources than general innovation (Nicholas et al., 2013). The underlying reason for a higher need of resources in radical innovation is that these innovations are newly introduced to the market, as opposed to only new to the business, thus requiring a higher level of resource intensity, i.e., longer exploration time (Laursen and Salter, 2006).

The results for control variables such as business size, business age, and external knowledge sourcing are similar to those already reported for the innovation regressions. However, there is an interesting industry effect: model 8 shows that small businesses in the business services industry have the highest probability of innovation, compared to the base category labelled other services, which comprises education, health and social services, etc. Small businesses in the business services sector radically innovate 164% more than those in the category, other services.

As for innovation, we explored the impact of the alignment/misalignment of business goals in relation to radical innovation. However, the polynomial regression and surface plot analysis showed no significant results (Model A12 in appendix table A5). Hence, we conclude that radical innovation is not sensitive to whether or not social and financial goals are aligned.

4.2.2 Regional Disparities in Relation to Radical Innovation

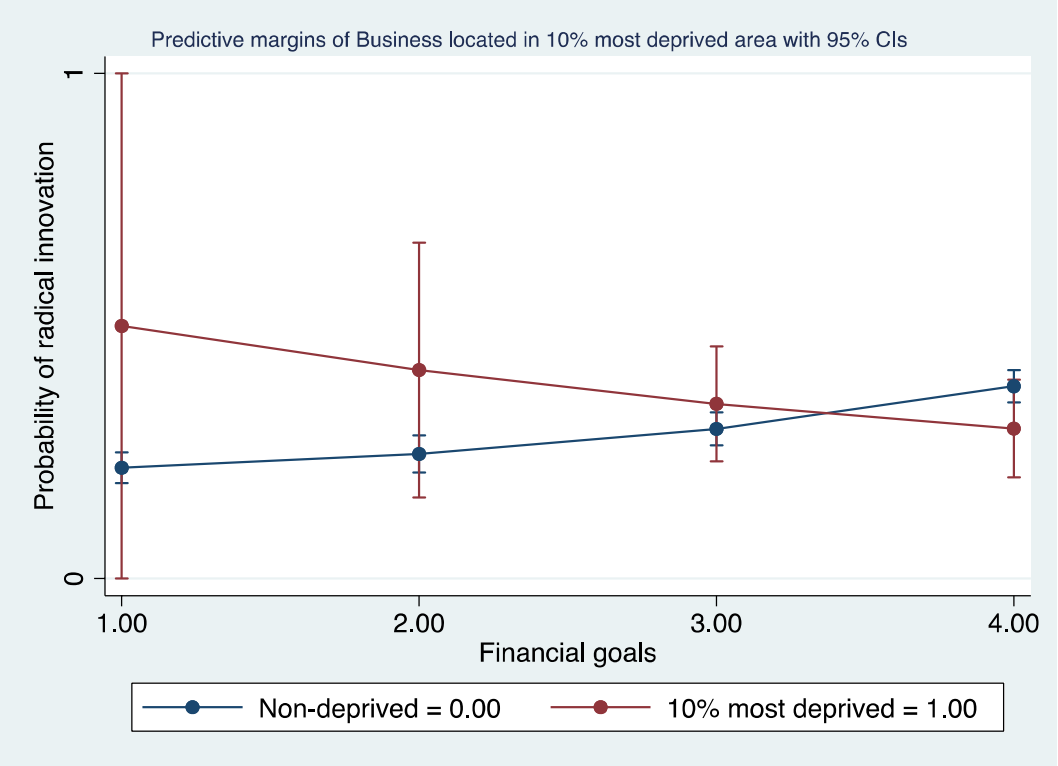
Regression results in model 9, table 8 show that there is no significant impact of social goals on radical innovation for business located in the most deprived area. However, results show a negative significant interaction effect of reginal deprivation with financial goals (Odds Ratio = 0.351, $p = 0.033$). Figure 13 plots this moderating effect of deprivation. The highest probability of radical innovation in small businesses located in the 10% most deprived areas lies in small businesses for which financial goals have no relevance to little importance. Put differently, firms with strong financial goals are less likely to innovate in the most deprived areas, outside of deprived areas financial goals generally increase the likelihood of radical innovation. These findings may be a further reflection of the resource-intense nature of radical innovation as firms with financial goals often also control more resources.

Table 5: Regression results for radical innovation 2021 as predicted by business goals in 2017.

	Model 7				Model 8				Model 9 [e]			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.138	0.065	0.033	1.148	0.101	0.067	0.132	1.107	0.101	0.068	0.139	1.106
Age[b]	-0.295	0.088	<.001	0.744	-0.261	0.089	0.003	0.771	-0.256	0.089	0.004	0.774
Industry sector[d]			<.001				0.014				0.012	
Production and construction	1.192	0.356	<.001	3.293	0.903	0.367	0.014	2.467	0.923	0.370	0.013	2.517
Transport, retail and food service/ accommodation	0.723	0.374	0.053	2.060	0.440	0.384	0.252	1.553	0.438	0.385	0.256	1.549
Business Services	1.279	0.344	<.001	3.591	0.972	0.357	0.006	2.644	0.986	0.359	0.006	2.681
Index of multiple deprivation[c]	-0.219	0.413	0.597	0.804	-0.197	0.414	0.634	0.821	2.356	2.171	0.278	10.544
External knowledge sourcing	0.650	0.185	<.001	1.916	0.596	0.186	0.001	1.814	0.598	0.187	0.001	1.818
Social goals					-0.115	0.120	0.337	0.891	-0.153	0.123	0.214	0.858
Financial goals					0.565	0.170	<.001	1.760	0.668	0.186	<.001	1.951
Social goals by Index of multiple deprivation									0.524	0.479	0.274	1.688
Financial goals by regional disparities									-1.046	0.491	0.033	0.351
Constant	-2.587	0.444	<.001	0.075	-4.166	0.775	<.001	0.016	-4.504	0.832	<.001	0.011
Chi-square	47.609				61.948				67.205			
Cox & Snell R Square	0.035				0.045				0.049			

N= 1332.
a Size is measured by number of employees, in logs.
b Age, industry sector, and goals are time constant variables for year 2017.
c Index of multiple deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d Base category is, other services. e. Results for the separate moderation effects do not change.

Figure 13: Interaction effect plot business in 10% most deprived areas*Financial goals.



4.2.3 Analysing the Impact of the COVID Pandemic

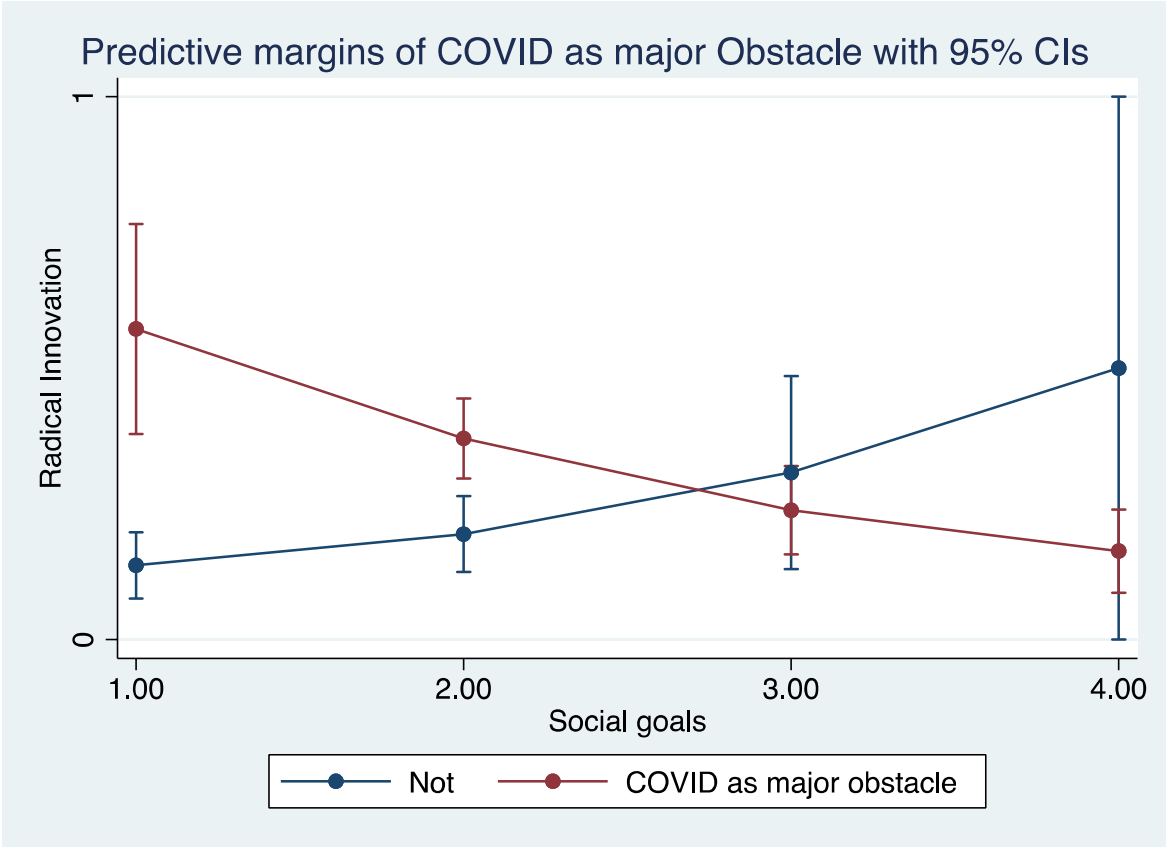
Table 9 presents results for radical innovation and the negative impact of COVID as a major obstacle to the success of small businesses. Model 10 shows that the negative supressing effect of COVID on businesses with social goals is more pronounced for radical innovation than the previous results for innovation. To interpret these results we show, in Figure 14, the predictive margins of the interaction effect between social goals and a business perceiving to be negatively impacted by COVID. Figure 14 suggests that social goals increase the likelihood of radical innovation for businesses not affected by COVID but decrease the likelihood of radical innovation for businesses negatively impacted by COVID. This suggests that impact of COVID is to reduce the likelihood of radical innovation for firms which otherwise might have undertaken it.

Table 6: Regression results for radical innovation 2021 as moderated by COVID as major obstacle for the success of the business

	Model 10				Model 11				Model 12			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.510	0.180	0.005	1.665	0.528	0.173	0.002	1.695	0.510	0.180	0.005	1.665
Age[b]	-0.656	0.153	<.001	0.519	-0.621	0.152	<.001	0.537	-0.659	0.157	<.001	0.518
Industry sector[d]			0.373				0.421				0.373	
Production and construction	3.992	2.342	0.088	54.172	3.702	2.335	0.113	40.51	3.995	2.342	0.088	54.311
Transport, retail and food service/ accommodation	4.112	2.349	0.080	61.082	3.859	2.343	0.1	47.439	4.115	2.349	0.080	61.261
Business Services	3.91	2.332	0.094	49.914	3.814	2.328	0.101	45.332	3.911	2.332	0.094	49.93
Index of multiple deprivation[c]	-0.487	0.821	0.553	0.614	-0.557	0.83	0.502	0.573	-0.490	0.822	0.551	0.613
External knowledge sourcing	-0.053	0.468	0.910	0.948	0.047	0.457	0.918	1.048	-0.054	0.469	0.908	0.947
COVID as major obstacle	4.724	1.366	<.001	112.58	3.23	2.771	0.244	25.282	4.556	2.803	0.104	95.242
Social goals	0.907	0.513	0.077	2.477	-0.395	0.245	0.107	0.674	0.915	0.528	0.083	2.498
Financial goals	0.677	0.247	0.006	1.968	1.044	0.688	0.129	2.84	0.632	0.701	0.367	1.882
Social goals by COVID as major obstacle	-1.737	0.588	0.003	0.176					-1.748	0.614	0.004	0.174
Financial goals by COVID as major obstacle					-0.547	0.729	0.454	0.579	0.052	0.760	0.946	1.053
Constant	-9.481	2.733	<.001	0.000	-8.161	3.533	0.021	0.000	-9.325	3.552	0.009	0.000
Chi-square	66.174				57.556				66.182			
Cox & Snell R Square	0.136				0.119				0.136			

N= 457.
a. Size is measured by number of employees, in logs.
b. Age, Industry sector, and goals are time constant variables for year 2017.
c. Index of multiple deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category is other services.

Figure 14: Interaction plot of COVID*Social goals



4.3 Exporting

In Figure 15, we observe that, compared to the levels of innovation, the likelihood that a small firm exports has been relatively more stable across years. As such, 2021 showed a slightly smaller average likelihood compared to previous waves, 23% in T3 vs. 25% in T1 and T2. As expected, Figure 16 shows that, within groups, small businesses which only place high importance towards financial goals, are also the ones with the highest likelihood of exporting across all waves. In contrast, the group of small businesses with high social goals only has the lowest likelihood of exporting across all waves. The figure also shows that granting high importance to both goals decreases the likelihood of exporting from 18% in T1 and T2 to almost 8% in T3. Finally, the likelihood of exporting in the group granting low importance to social and financial goals has maintained a relatively steady rate, ranging just below/above 20%.

Figure 15: Average exporting in UK small businesses across years

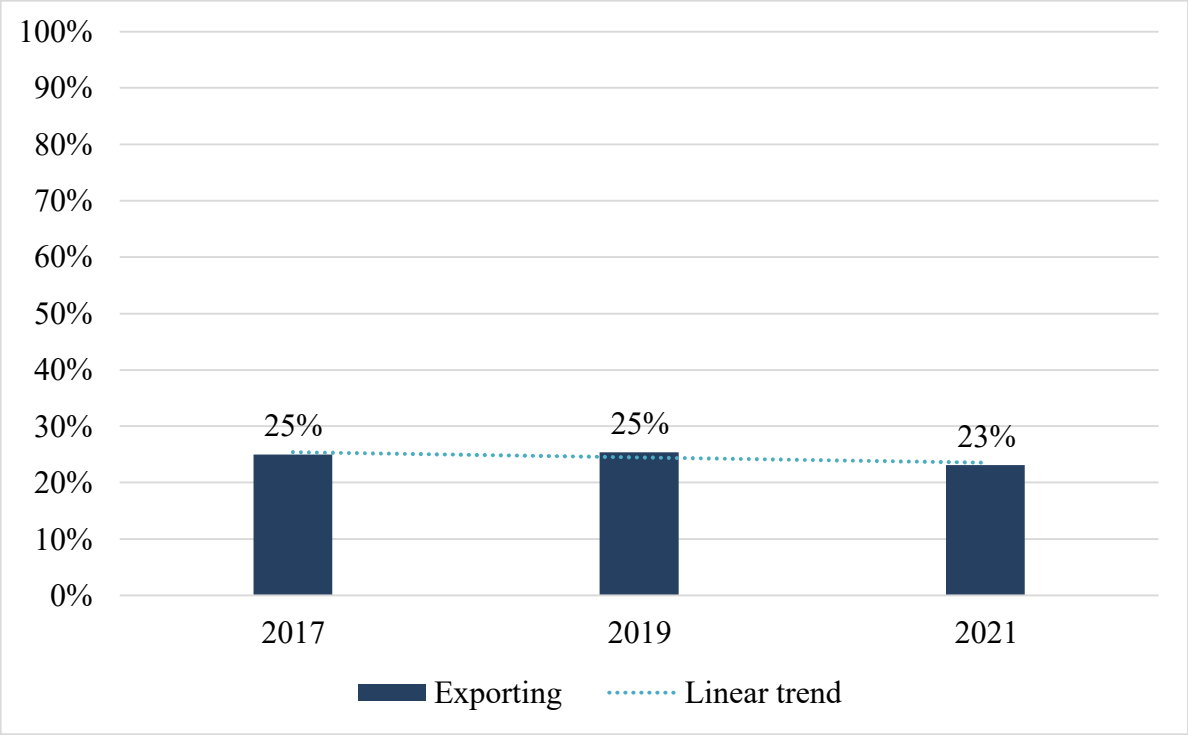
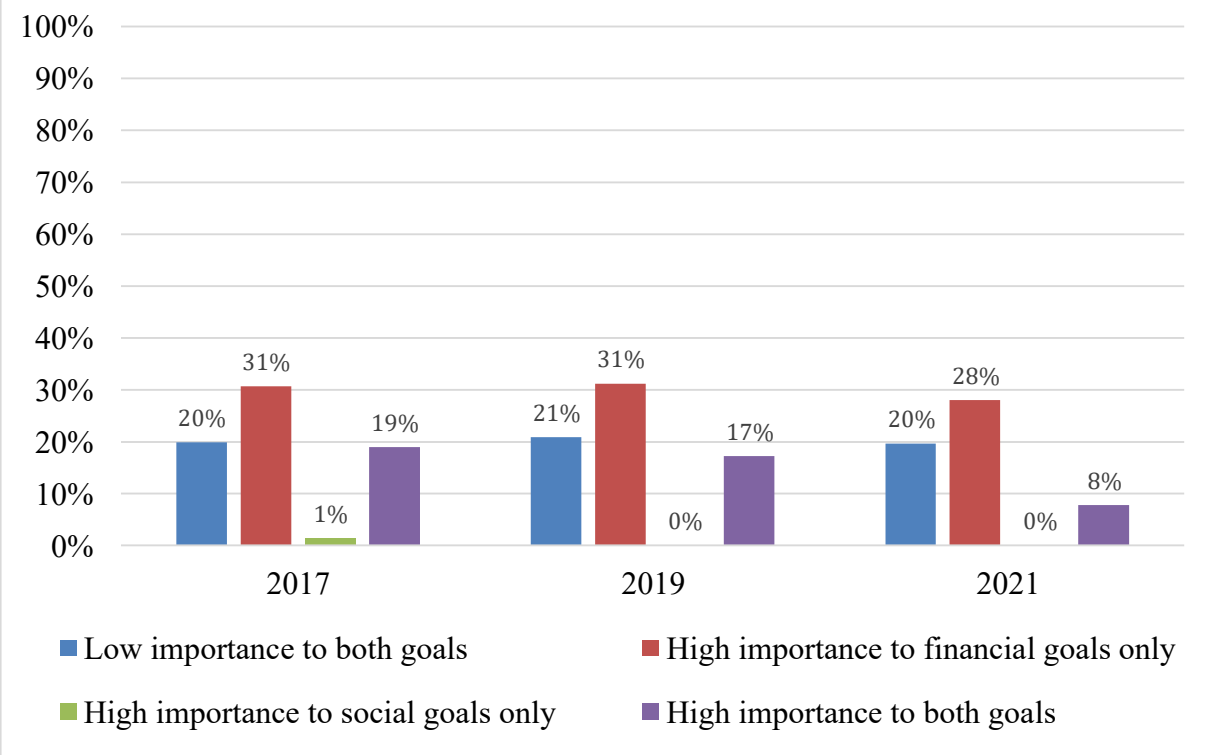


Figure 16: Average proportion of exporting in UK by business goals across years



4.3.1 Measuring Exporting Across Time

Tables 10 and 11 present regression results estimating the likelihood of exporting across time in years 2019 and 2021, respectively. In general, small businesses pursuing social goals are associated with a lower likelihood of exporting, and those with financial goals are associated with a higher likelihood of exporting. These results are statistically significant at the 95% level and hold across time. Model 14 shows that in 2019, higher importance towards social goals is associated with a 38% decrease in the odds of a small business exporting. Alternatively, higher importance towards financial goals is associated with a 40% increase in the odds of a business exporting. For 2021, results in model 17 show that higher importance towards social goals is associated with a 31% decrease in the odds of a small business exporting. In contrast, higher importance towards financial goals is associated with a 24% increase in the odds of exporting.

These results suggest that financial rather than social goals are beneficial to stimulate exporting in small businesses. This is perhaps because socially orientated small businesses tend to operate at the local level, to address social issues in their communities (Angulo-Ruiz et al., 2020; Haugh, 2007, 2022; Lumpkin et al., 2017; Yan et al., 2022). Previous policy has aimed to stimulate commercial activity across borders in socially orientated small businesses; however, these results indicate that this may not be a very fruitful path and future policy may need to adapt interventions to fit to the needs of these group of small businesses.

Results for control variables in the same models (models 13 and 14, and 16 and 17) provide some additional information, which may add guidance for future policy. As such, results show that larger and more innovative businesses are associated with a higher likelihood of exporting. These results are expected, as innovation is considered a measure of business performance and high-performing businesses are more likely to export (Castellani, 2002). (Dhanaraj and Beamish, 2003)

Furthermore, Figures 17 and 18 provide results for the goal alignment effects estimated using polynomial regression analysis and response surface plot analysis (models A19 and A21) in appendix table A8). Both figures show the test results for the slopes and curvatures in a1, a2, a3, and a4. A significant result in a_3, the slope along *x* = -*y*, in which financial goals scored high and social goals scored low, in relation to the likelihood of exporting, suggest that goal misalignment in the form of high financial but low social goals increases the likelihood of exporting. In both waves, T2 and T3, the slope of a_3 is negative and

significant (p = .000). This is consistent with the general regression results that social and financial goals have the opposite effects (negative and positive) on the likelihood of exporting. The effect is somewhat less pronounced in T3/2021 compared to T2/2019 suggesting that the strength of impact of business goals from 2017 diminishes somewhat over time, which seems plausible. Importantly it can still be identified 5 years later. [3]

4.3.2 Regional Disparities in Relation to Exporting

Tables 10 and 11 provide regression results of models 15 and 18, respectively. Results show that there is no significant effect of the index of multiple deprivation, i.e., businesses located in the 10% most deprived area, with social and financial goals in relation to exporting. Thus, while we cannot identify any effects directly, we do not find evidence that small businesses located in deprived areas have either a lower or a greater likelihood of exporting. This is despite the fact that these areas are often in receipt of interventionist policies instruments designed to support small businesses, and these may be relevant to support exporting where access to local markets may be lower due to regional exclusion (Einiö and Overman, 2020).

[3] In T3, 2021 Figure 18 shows an additional result for a_1, the slope along x = y, which is negative and significant (p = 0.023) which is the diagonal starting at point -2 for both social and financial goals and crossing towards the back of the plot. This suggests that as both social and financial goals jointly increase the likelihood of exporting is reduced compared to having both low levels of social and financial goals.

Table 7: Regression results for exporting in 2019 as predicted by business goals in 2017.

	Model 13				Model 14				Model 15			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.077	0.048	0.113	1.080	0.103	0.051	0.043	1.109	0.106	0.051	0.038	1.112
Age[b]	0.102	0.074	0.166	1.107	0.139	0.075	0.063	1.15	0.134	0.075	0.074	1.144
Industry sector[d]			<.001				<.001				<.001	
Production and construction	1.489	0.262	<.001	4.434	1.082	0.269	<.001	2.952	1.097	0.270	<.001	2.996
Transport, retail and food service/ accommodation	1.458	0.264	<.001	4.298	1.092	0.271	<.001	2.982	1.099	0.271	<.001	3.000
Business Services	1.358	0.256	<.001	3.889	0.949	0.264	<.001	2.583	0.955	0.265	<.001	2.598
Regional disparities[c]	-0.029	0.276	0.915	0.971	0.011	0.28	0.968	1.011	-1.674	2.025	0.409	0.188
External knowledge sourcing	0.292	0.145	0.045	1.338	0.251	0.148	0.091	1.285	0.252	0.148	0.090	1.286
Innovation	0.886	0.135	<.001	2.427	0.912	0.139	<.001	2.489	0.909	0.139	<.001	2.483
Social goals					-0.476	0.092	<.001	0.621	-0.497	0.096	<.001	0.609
Financial goals					0.342	0.099	<.001	1.408	0.333	0.102	0.001	1.395
Social goals by regional disparities									0.349	0.357	0.329	1.418
Financial goals by regional disparities									0.254	0.474	0.592	1.289
Constant	-3.260	0.360	<.001	0.038	-3.333	0.506	<.001	0.036	-3.256	0.514	<.001	0.039
Chi-square	99.864				137.822				138.992			
Cox & Snell R Square	0.072				0.098				0.099			

N= 1334.
a Size is measured by number of employees, in logs.
b Age, Industry sector, and goals are time constant variables for year 2017.
c Regional disparities is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d Base category is, other services.

Table 8: Regression results for exporting in 2021 as predicted by business goals in 2017.

	Model 16				Model 17				Model 18			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.128	0.051	0.011	1.137	0.147	0.053	0.006	1.158	0.146	0.053	0.006	1.158
Age[b]	0.081	0.076	0.285	1.084	0.108	0.077	0.158	1.115	0.108	0.077	0.162	1.114
Industry sector[d]			<.001				<.001				<.001	
Production and construction	1.482	0.274	<.001	4.400	1.157	0.283	<.001	3.179	1.156	0.283	<.001	3.176
Transport, retail and food service/ accommodation	1.393	0.277	<.001	4.027	1.099	0.285	<.001	3.001	1.101	0.285	<.001	3.007
Business Services	1.478	0.267	<.001	4.383	1.153	0.276	<.001	3.168	1.153	0.276	<.001	3.169
Regional disparities[c]	-0.038	0.293	0.896	0.962	-0.014	0.296	0.962	0.986	-0.181	1.924	0.925	0.835
External knowledge sourcing	0.456	0.148	0.002	1.577	0.452	0.150	0.002	1.572	0.452	0.150	0.002	1.572
Innovation	0.902	0.140	<.001	2.464	0.924	0.143	<.001	2.520	0.925	0.143	<.001	2.523
Social goals					-0.366	0.094	<.001	0.694	-0.358	0.097	<.001	0.699
Financial goals					0.216	0.100	0.031	1.241	0.209	0.103	0.042	1.232
Social goals by regional disparities									-0.117	0.389	0.763	0.889
Financial goals by regional disparities									0.113	0.456	0.804	1.120
Constant	-3.533	0.381	<.001	0.029	-3.409	0.520	<.001	0.033	-3.396	0.527	<.001	0.033
Chi-square	111.059				130.291				130.460			
Cox & Snell R Square	0.080				0.093				0.093			

N= 1334.
a. Size is measured by number of employees, in logs.
b. Age, Industry sector, and goals are time constant variables for year 2017.
c. Regional disparities is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category Is, Other services.

Figure 17: Surface analysis plot for likelihood of exporting in 2019

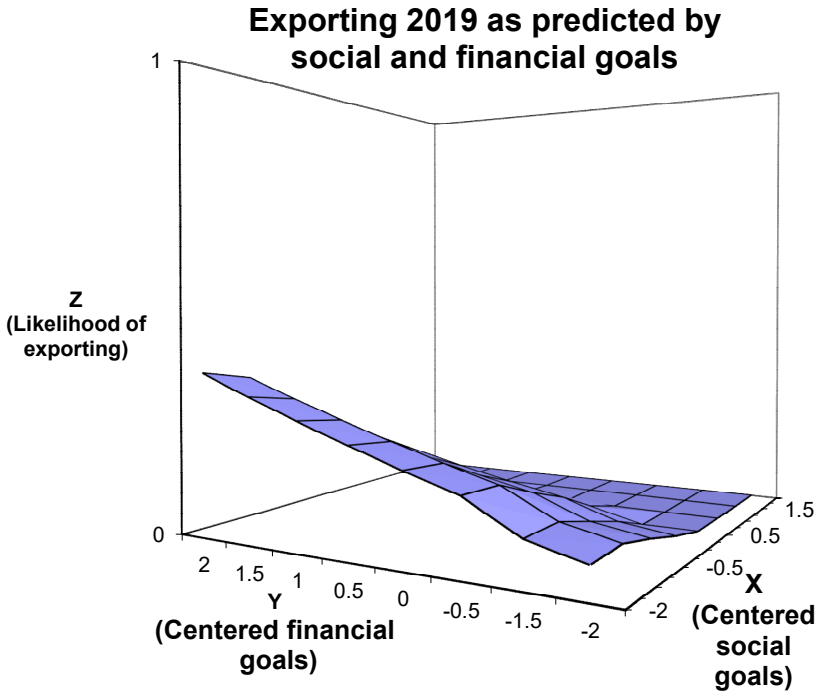
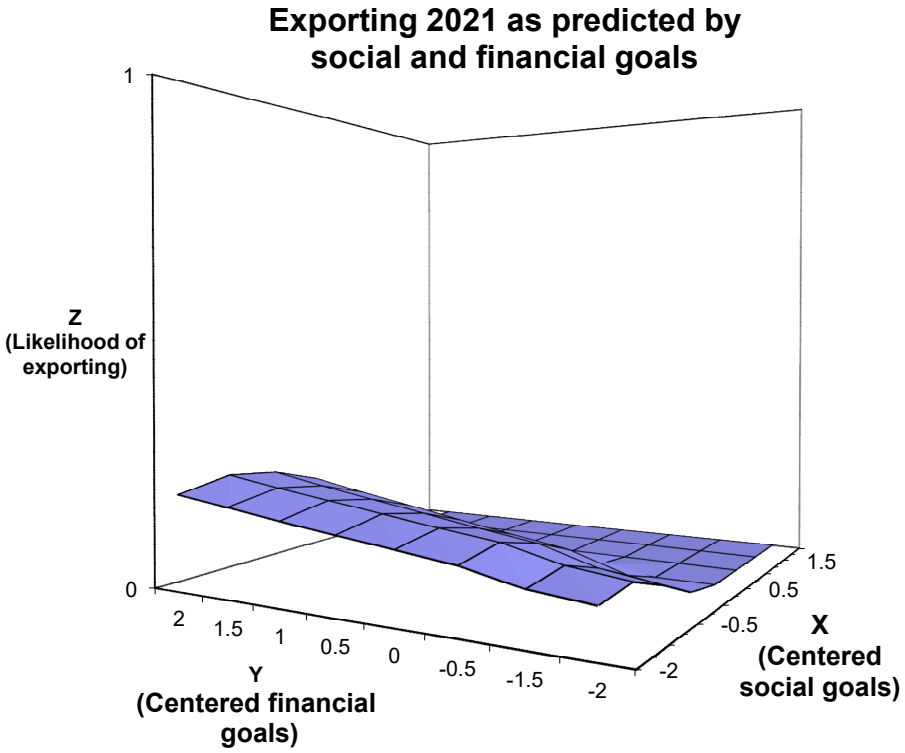


Figure 18: Surface analysis plot for likelihood of exporting in 2021



4.3.3 Analysing the Impact of the COVID Pandemic

Table 12 presents results for the impact of the COVID pandemic on the likelihood of exporting in 2021. Model 19 shows that the moderating effect of COVID on the relationship between small businesses' social goals and the likelihood of exporting is negative and significant at the 95% level. This suggests that COVID reduce the likelihood of exporting for socially orientated business for businesses that were negatively impacted by COVID (i.e., businesses that reported COVID to be a major obstacle for their success).

Figure 19 illustrates the way that COVID had a negative impact on the likelihood of exporting in firms placing higher importance on social goals. The red line in Figure 19 indicates businesses that were negatively impacted by COVID, for these we observe a decline in the likelihood of exporting with increasing relevance of social goals. This may be because these businesses faced higher logistical challenges due to the pandemic (Juergensen et al., 2020).

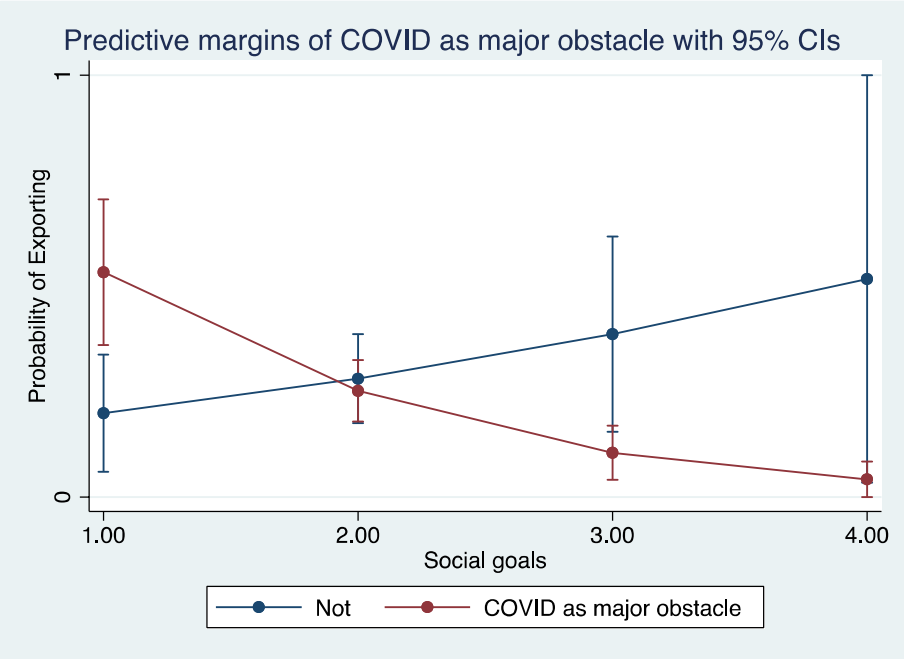
For UK small businesses reporting not to have been negatively impacted by COVID, we see a positive relationship of social goals with the likelihood of exporting. Indeed, when COVID is not an obstacle for the business, small businesses with the lowest importance towards social goals also have a lower likelihood of exporting. These results contrast with the main effect, whereby lower social goals may increase the likelihood of exporting. In sum, COVID masked the positive effect of social goals on subsequent exporting activity. The shock of the COVID pandemic seems to have affected mostly businesses that were less likely to export (Juergensen et al., 2020). The analogous results for businesses with financial goals were not statistically significant (Model 20, Table 12).

Table 9: Regression results for exporting 2021 as moderated by the negative impact of COVID (Businesses reporting Covid as a major obstacle for the success of the business).

	Model 19				Model 20				Model 21			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.180	0.145	0.214	1.198	0.199	0.150	0.186	1.220	0.183	0.155	0.239	1.201
Age[b]	-0.057	0.129	0.659	0.945	-0.021	0.132	0.875	0.979	-0.005	0.132	0.970	0.995
Industry sector[d]			0.029				0.025				0.057	
Production and construction	-1.017	0.457	0.026	0.362	-1.181	0.470	0.012	0.307	-0.868	0.481	0.071	0.420
Transport, retail and food service/ accommodation	-0.209	0.451	0.643	0.811	-0.394	0.462	0.394	0.674	-0.198	0.472	0.675	0.820
Business Services	0.083	0.393	0.834	1.086	-0.091	0.405	0.823	0.913	0.179	0.420	0.670	1.196
Index of multiple deprivation[c]	0.806	0.561	0.151	2.239	1.040	0.580	0.073	2.830	0.896	0.591	0.130	2.449
External knowledge sourcing	0.510	0.341	0.135	1.665	0.500	0.354	0.158	1.648	0.517	0.361	0.152	1.677
Innovation	0.347	0.296	0.241	1.415	0.433	0.305	0.155	1.542	0.300	0.307	0.329	1.350
COVID impact	-0.046	0.298	0.877	0.955	0.058	0.305	0.849	1.060	2.76	0.845	0.001	15.802
Social goals					-0.615	0.190	0.001	0.541	0.422	0.344	0.220	1.525
Financial goals					0.128	0.152	0.401	1.137	0.067	0.161	0.678	1.069
Social goals by COVID impact									-1.447	0.408	<.001	0.235
Constant	-1.620	0.585	0.006	0.198	-0.934	0.692	0.177	0.393	-2.878	0.918	0.002	0.056
Chi-square	20.414				31.931				44.800			
Cox & Snell R Square	0.044				0.068				0.940			

N= 457.
a. Size is measured by number of employees, in logs.
b. Age, Industry sector, and goals are time constant variables for year 2017.
c. Index of multiple deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category is, other services.

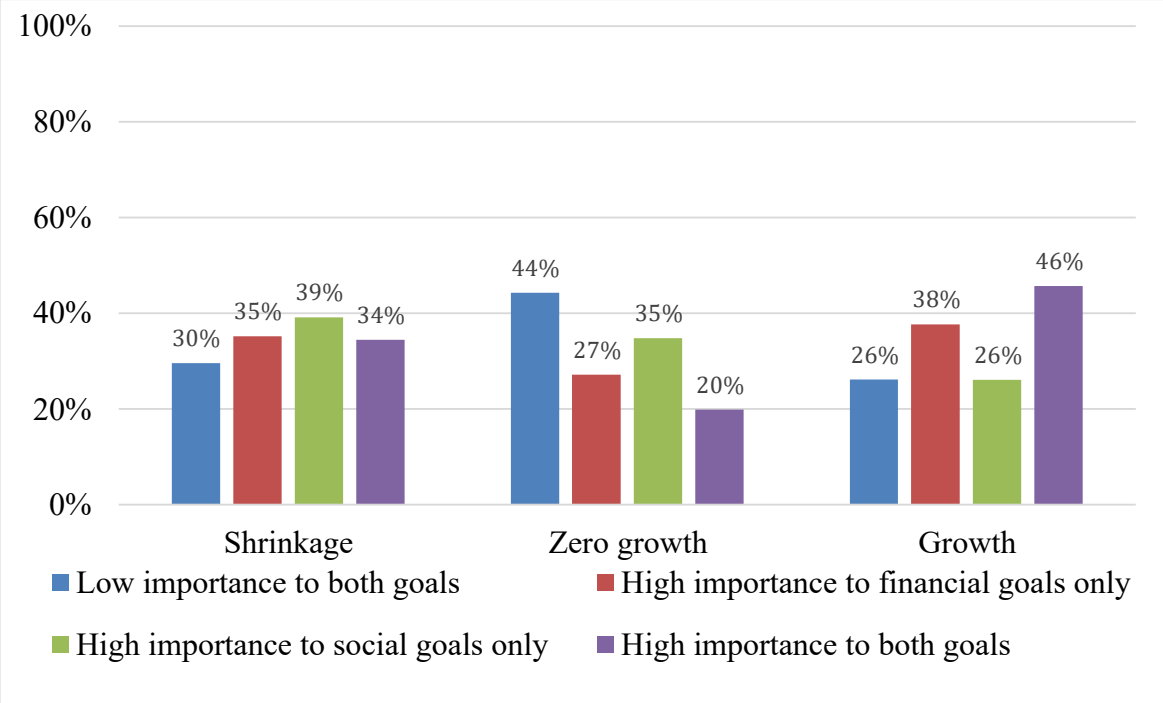
Figure 19: Interaction effect plot of COVID*Social goals



4.4 Employment Growth

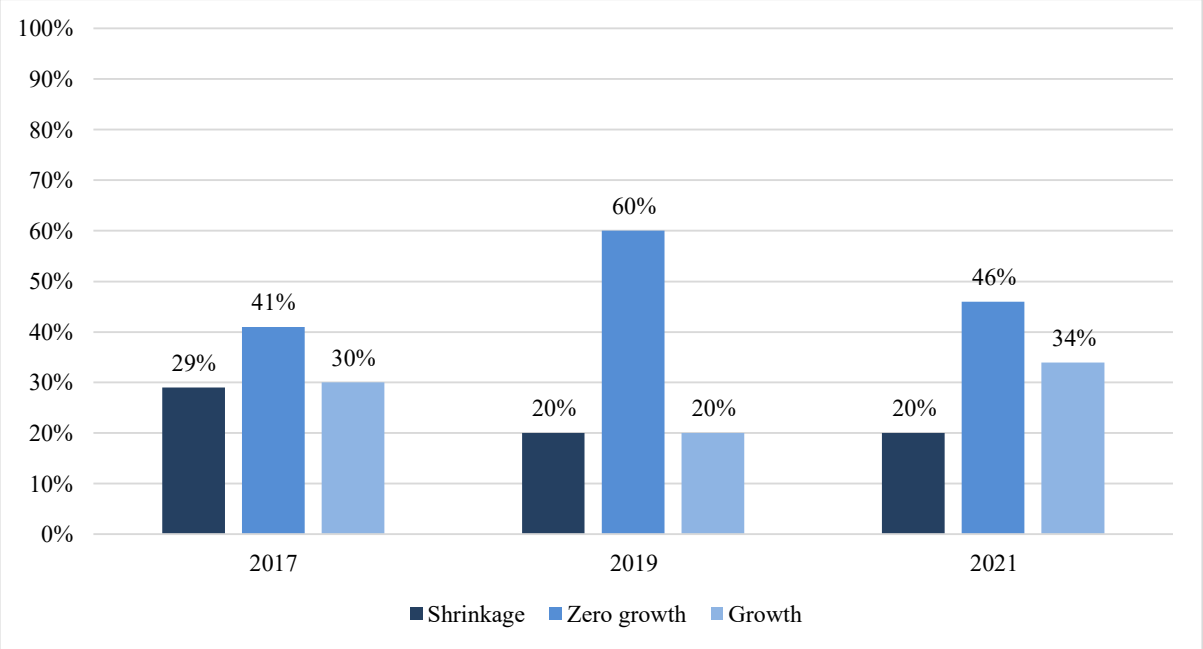
According to the descriptive statistics in Table 2, average employment growth among small businesses is very low: on average UK small businesses grew by 0.96%. This figure is low especially considering that it captures employment growth across five years (2017 – 2021). Figure 20 shows average employment growth against business goals: Small business that prioritize both social and financial goals had the highest employment growth in the last five years, i.e., 46%. This result is important because it serves as an indicator of the changing labour market in relation to business goals. That is, this is evidence that socially orientated businesses help create employment growth. In contrast, financial goals do not seem to drive growth (38%) or shrinkage (35%), as enterprises in this category are similarly distributed between both growth categories. Finally, small businesses that attribute low importance to both social and financial goals fall more frequently into the no growth (44%) or shrinkage (30%) categories.

Figure 20: Average proportion of employment growth and shrinkage in the last five years (2017-2021) by business goals in UK small businesses



Breaking down growth over shorter time intervals, Figure 21 shows the average annual employment growth, stagnation, and shrinkage of small businesses in 2017, 2019, and 2021. Employment growth across years has been relatively low in terms of number of employees. Compared to previous waves, 2021 had the highest average growth, 34%. In contrast, 2019 had the lowest average growth, 20% and the highest stagnation of 60% across all waves shown.

Figure 21: Average annual employment growth, stagnation, & shrinkage of UK small businesses, across time.



4.4.1 Measuring Employment Growth Across Time

Table 13 presents OLS regression results for employment growth across years, as predicted by social and financial goals. As we might expect from the descriptive statistics, there is only limited variation in the dependent variable, employment growth; for most firms growth was zero or negative over 2017 – 2021. Hence, the results indicate that almost no independent variables are statistically significant, and we find no relation of social and financial business goals with employment growth. However, results for the control variables show that age is significantly negatively associated with growth,; as is well known, older firms tend to grow more slowly. The control for external knowledge sourcing also shows a small positive significant effect (p <.005).

Figures 22 and 23 seek to further explain employment growth across years in UK small businesses. Figure 22 shows that socially orientated small businesses, which place higher importance towards social goals, seem to adjust slower to recent economic shocks, i.e., COVID and Brexit. This result shows that, if employment growth is negative, socially orientated businesses shrink less (i.e. are less likely to lay off employees) but also grow more slowly than commercially orientated businesses. Figure 23, in relation to financial goals shows that there is even less variance in employment growth across small businesses which place high importance on financial goals.

Table 10: Regression results for exporting in 2021 as predicted by business goals in 2017

Model [a]		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.199	.065		3.078	.002
	Age [b]	-.082	.015	-.146	-5.371	<.001
	Production and construction [d]	.040	.045	.033	.907	.365
	Transport, retail and food service/ accommodation	.038	.045	.031	.841	.400
	Business Services	.065	.042	.059	1.545	.123
	Index of multiple deprivation[c]	.014	.059	.006	.234	.815
	External knowledge sourcing	.094	.032	.081	2.933	.003
	Innovation	.051	.030	.046	1.679	.093
2	(Constant)	.183	.093		1.978	.048
	Age	-.080	.015	-.142	-5.201	<.001
	Production and construction	.016	.047	.013	.343	.732
	Transport, retail and food service/ accommodation	.017	.047	.013	.349	.727
	Business Services	.041	.045	.037	.901	.368
	Index of multiple deprivation[c]	.016	.059	.007	.274	.785
	External knowledge sourcing	.093	.032	.080	2.877	.004
	Innovation	.051	.031	.046	1.644	.100
	Social goals	-.022	.018	-.034	-1.186	.236
	Financial goals	.021	.018	.034	1.206	.228

a. Dependent Variable: employment growth by employees, compared to five years ago (2021)
b. Age, industry sector, and goals are time constant variables for year 2017.
c. Index of multiple deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category is, other services.

Figure 22: Conditional change graph by social goals across years [a]

a. Year 1 = 2017, year 2 = 2019, and year 3 = 2021.

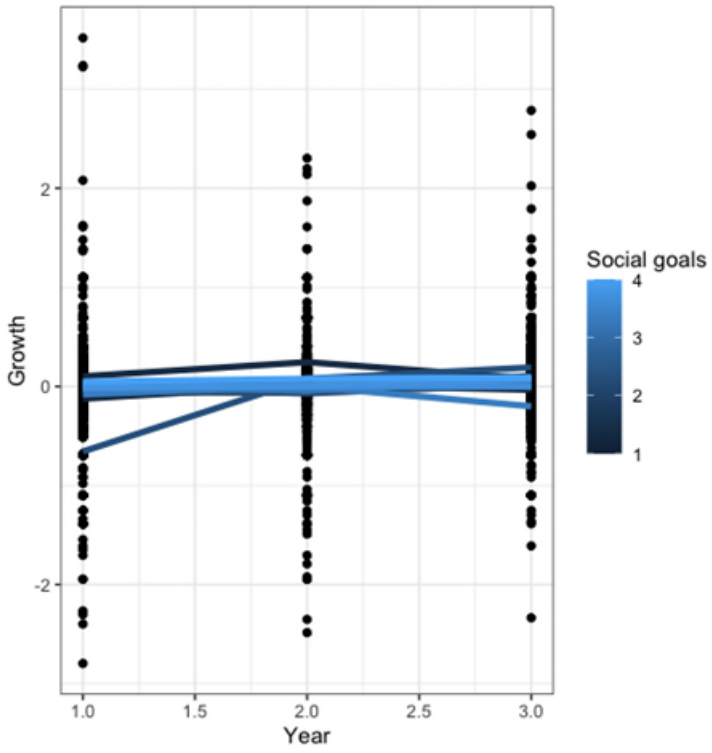
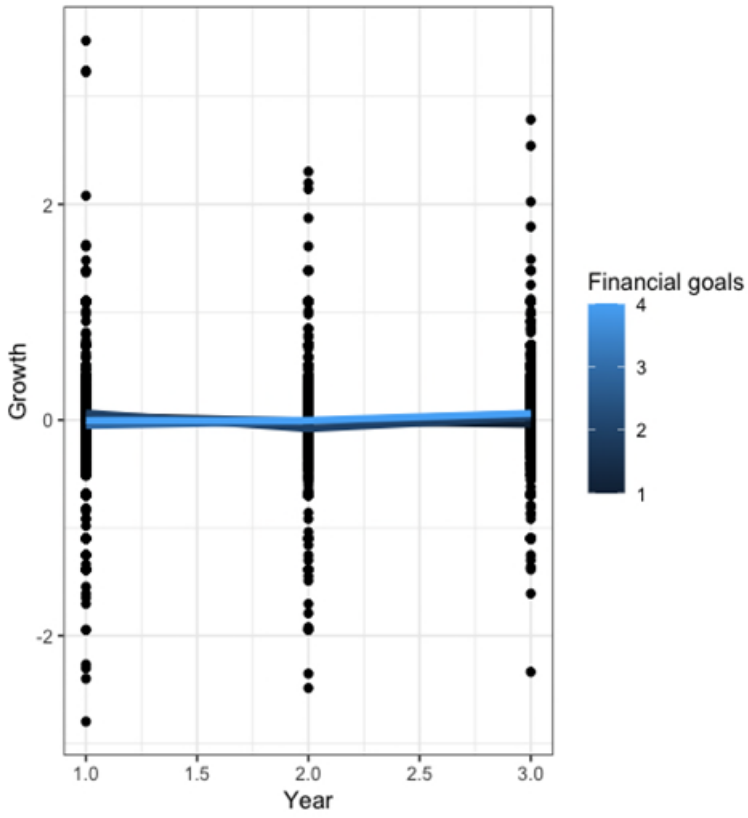


Figure 23: Conditional change graph by financial goals across years [a]

a. Year 1 = 2017, year 2 = 2019, and year 3 = 2021.



5. CONCLUSION

Schumpeterian entrepreneurship in small businesses can improve the competitiveness of the economy through, innovation, exporting, and job creation (employment growth). A growing number of small businesses are socially orientated—those that place high importance on social goals. In the UK, around 30% of businesses are socially orientated. These businesses can help to create a competitive and inclusive economy by addressing objectives like narrowing economic and social disparities. We analyse a panel from the LSBS survey years 2017, 2019, and 2021 to examine how UK small social and financial goals in 2017 predict their innovation, exporting and growth in 2021. We also include concurrent cross-sectional analyses, which mirror the findings of the time-lagged analyses.

This research contributes new evidence on the social orientation of small businesses and their Schumpeterian outcomes. Our results suggest that both social and financial goals are beneficial for innovation, but only financial goals benefit radical innovation and exporting. In particular, an alignment of social and financial goals increases innovation, and, in contrast, a misalignment of goals increases the likelihood of exporting. However, COVID seems to have masked the beneficial effects of social goals on radical innovation and exporting.

In terms of regional inequalities, we find that a larger proportion of socially orientated businesses are located in the 10% most deprived area. However, we do not find evidence that being located in a deprived area alters the effect of social and financial goals on innovation, exporting or growth. It may be that support, especially to address resource constraints of socially oriented businesses, for their radical innovation and exporting activities can yield positive social outcomes in these deprived areas.

The COVID pandemic appeared to act as a challenge stressor, whereby small businesses were forced to innovate to survive, as opposed to innovating to achieve their goals. In contrast, for businesses not negatively impacted by COVID, the likelihood of radical innovation and exporting did not change. Small businesses that reported not being affected by the COVID pandemic and that are socially orientated are more likely to be radically innovative than those affected by COVID. Additionally, when COVID is not an obstacle, UK small businesses that strongly prioritize social goals have a higher likelihood of exporting. Our intuition is that the shock of the COVID pandemic, affected mostly businesses that were less likely to export.

Current policy debates around social impact and the consequences of innovation have emphasised the need to foster the social aspect of innovation, i.e., how it can play a role in job creation and inclusivity. Current radical innovations with AI are raising important questions for the functioning of the labour market, but policy could alleviate some of this by supporting forms of innovation that are socially focused, and which enhance inclusivity.

This research has key limitations. The economic turbulence over the period of 2017 to 2021 owing to external shocks such as Brexit and Covid has negatively impacted the small business population, particularly in terms of their ability to create jobs (employment growth). Small businesses have faced a period of stagnation in the UK since, at least 2017. This presented a limitation for our study as the estimated growth model was not able to identify significant causal relationships during this time period. Missing data also created limitations as some of the key variables had to be excluded from this analysis. As an example, we had to exclude environmental goals as a result of the factor analysis which suggested environmental goals are confounded with both social and financial goals (Table 1). We assessed alternative variables to capture the environmental orientation of businesses, but the panel lacked an appropriate alternative measure due to the high number of missing cases in some of the variables under consideration. Finally, the COVID pandemic caused a collapse in international trade, and this posed additional limitations to disentangle results with exporting.

6. POLICY IMPLICATIONS

Although we have not assessed the impact of specific policy measures, the findings presented in our report have important general policy implications for interventions to support UK small businesses.

We find a general decline in Schumpeterian outcomes between 2017 and 2021. That is, UK small businesses innovated less, exported less, and stagnated in terms of employment in this period. This is a concerning finding and suggests that the UK small business population has suffered from the external shocks and crises (Brexit and Covid) that mark this period. As small businesses form the backbone of the UK economy and play an important role in its productivity, our findings are worrying for the UK economy and suggest that UK small businesses are in need of multifaceted policy support.

The social orientation of UK small businesses on its own and in concert with their commercial orientation strengthens innovation. Thus, we find synergies between social and commercial orientation resulting in greater innovation. Socially oriented businesses seek

to enhance societal wellbeing and our findings suggests that these businesses are an important source of new ideas for a competitive inclusive economy, and hence warrant continuous policy attention and support.

Socially oriented businesses are often located in deprived areas and appear to grapple with resource constraints, especially to innovate radically. Thus. resource-support for those businesses may yield particularly high dividends in terms of radically new and socially inclusive offerings.

Results highlight the need for export support policies specifically targeted at socially orientated businesses. More research to understand the specific barriers to exporting in socially oriented business would be useful. Future policy may need to adapt interventions to fit to the needs of this group of small businesses.

COVID – despite support measures - constrained the innovation of social and commercially oriented businesses alike, but particularly negatively impacted the exporting activities of socially oriented business.

A policy mix supporting both growth in existing firms and new entrants may help lower the shrinkage rates in existing businesses and hence counteract relative stagnation among the small business population.

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APPENDIX

This section includes all appendix tables with regression results for: the cross-sectional analysis, the polynomial regression results, and the general effects of COVID as a major obstacle. As in the main text, sections are divided by dependent variables.

Table A 1: Regression results for innovation in 2017.

	Model A1				Model A2				Model A3			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size	0.066	0.042	0.121	1.068	-0.015	0.045	0.739	0.985	-0.013	0.045	0.769	0.987
Age	-0.145	0.062	0.02	0.865	-0.114	0.064	0.073	0.892	-0.115	0.064	0.071	0.891
Industry sector[b]			0.011				0.026				0.027	
Production and construction	0.073	0.18	0.687	1.075	0.042	0.194	0.827	1.043	0.049	0.194	0.801	1.050
Transport, retail and food service/ accommodation	0.128	0.182	0.48	1.137	0.078	0.194	0.688	1.081	0.074	0.194	0.701	1.077
Business Services	0.468	0.172	0.007	1.597	0.421	0.187	0.024	1.524	0.420	0.187	0.024	1.522
Index of Multiple Deprivation	-0.288	0.237	0.225	0.75	-0.32	0.241	0.184	0.726	-0.564	1.480	0.703	0.569
External knowledge sourcing	0.681	0.121	<.001	1.976	0.635	0.123	<.001	1.887	0.621	0.124	<.001	1.861
Social goals					0.288	0.076	<.001	1.334	0.266	0.078	<.001	1.304
Financial goals					0.381	0.078	<.001	1.464	0.394	0.080	<.001	1.483
Social goals by Index of Multiple Deprivation									0.315	0.299	0.292	1.371
Financial goals by Index of Multiple Deprivation									-0.141	0.323	0.663	0.869
Constant	-0.176	0.259	0.498	0.839	-2.011	0.395	<.001	0.134	-2.007	0.402	<.001	0.134
Chi-square	57.635				101.390				102.998			
Cox & Snell R Square	0.043				0.074				0.075			

N= 1334.
a. Size is measured by number of employees, in logs.
b. Base category is Other services.

Table A 2: Regression results for the polynomial regression with innovation in 2021.

	Model A4				Model A5	
	B	S.E.	Sig.	Exp (B)	Unstandardised Beta (S.E.)	Sig.
Social goals	0.743	0.304	0.014	2.102	0.124 (0.034)	<.001
Financial goals	0.695	0.208	<.001	2.004	-0.104 (0.040)	0.009
Social goals by Financial goals	-0.162	0.084	0.054	0.851	-0.125 (0.028)	<.001
Social goals^2					-0.038 (0.032)	0.246
Financial goals^2					0.043 (0.026)	0.098
Firm size[a]	0.018	0.044	0.689	1.018	0.063 (0.024)	0.009
Age	-0.137	0.064	0.033	0.872	-0.052 (0.020)	0.011
Industry sector	0.186	0.06	0.002	1.205	0.069 (0.020)	<.001
Index of Multiple Deprivation	-0.288	0.257	0.262	0.749	-0.169 (0.096)	0.080
External knowledge sourcing	0.687	0.13	<.001	1.987	0.002 (0.058)	0.968
Constant	-3.678	0.793	<.001	0.025	0.351 (0.102)	<.001
Surface Analysis						
a1					0.100 (0.030)	0.002
a2					0.020 (0.030)	0.452
a3					0.030 (0.030)	0.306
a4					0.070 (0.030)	0.014
Chi-square	89.134					
Cox & Snell R Square	0.065					
R2					0.067	
Model Fit					F(df = 10, 1335) = 9.525, sig. <0.001	

N= 1334.
a. Size is measured by number of employees, in logs. Standard errors in brackets.

Table A 3: Regression results for innovation 2021 and the general effect of COVID as major obstacle for the success of the business.

	Model A6				Model A7			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.428	0.125	<.001	1.534	0.405	0.127	0.001	1.5
Age[b]	-0.164	0.105	0.120	0.849	-0.187	0.107	0.079	0.829
Industry sector[d]			0.001				<.001	
Production and construction	-1.355	0.352	<.001	0.258	-1.445	0.364	<.001	0.236
Transport, retail and food service/ accommodation	-0.805	0.371	0.030	0.447	-0.859	0.384	0.025	0.423
Business Services	-0.581	0.333	0.081	0.559	-0.668	0.349	0.056	0.513
Index of Multiple Deprivation[c]	-1.101	0.673	0.102	0.332	-1.28	0.681	0.06	0.278
External knowledge sourcing	-0.096	0.307	0.754	0.908	-0.191	0.314	0.542	0.826
COVID as major obstacle	1.077	0.262	<.001	2.937	0.985	0.269	<.001	2.678
Social goals					0.224	0.141	0.113	1.251
Financial goals					0.19	0.134	0.157	1.209
Social goals by COVID as major obstacle								
Financial goals by COVID as major obstacle								
Constant	-0.658	0.476	0.167	0.518	-1.502	0.594	0.011	0.223
Chi-square	49.138				55.665			
Cox & Snell R Square	0.103				0.116			

N= 457.
a. Size is measured by number of employees, in logs.
b. Age, Industry sector, and goals are time constant variables for year 2017.
c. Index of Multiple Deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category is Other services.

Table A 4: Regression results for radical innovation in 2017.

	Model A8				Model A9				Model A10			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size	-0.083	0.060	0.168	0.920	-0.115	0.063	0.068	0.892	-0.112	0.063	0.075	0.894
Age	-0.260	0.080	0.001	0.771	-0.239	0.081	0.003	0.787	-0.240	0.081	0.003	0.786
Industry sector[b]			0.050				0.107				0.098	
Production and construction	0.400	0.274	0.144	1.492	0.300	0.287	0.296	1.349	0.320	0.288	0.266	1.377
Transport, retail and food service/ accommodation	0.108	0.290	0.709	1.114	0.008	0.299	0.979	1.008	0.001	0.300	0.997	1.001
Business Services	0.592	0.258	0.022	1.807	0.485	0.271	0.074	1.624	0.491	0.272	0.071	1.634
Index of Multiple Deprivation	-0.544	0.409	0.184	0.581	-0.536	0.409	0.190	0.585	-0.925	2.397	0.699	0.396
External knowledge sourcing	0.628	0.165	<.001	1.874	0.593	0.166	<.001	1.809	0.566	0.166	<.001	1.761
Social goals					0.041	0.105	0.693	1.042	0.004	0.107	0.972	1.004
Financial goals					0.264	0.119	0.026	1.302	0.297	0.123	0.016	1.346
Social goals by Index of Multiple Deprivation									-0.469	0.493	0.342	0.626
Financial goals by Index of Multiple Deprivation									-2.296	0.580	<.001	0.101
Constant	-1.324	0.353	<.001	0.266	-2.258	0.566	<.001	0.105	0.802	0.519	0.123	2.230
Chi-square	42.883				48.675				52.647			
Cox & Snell R Square	0.032				0.036				0.039			

N= 1319.
a. Size is measured by number of employees, in logs.
b. Base category is Other services.

Table A 5: Regression results for the polynomial regression with radical innovation in 2021.

	Model A11				Model A12[c]	
	B	S.E.	Sig.	Exp (B)	Unstandardised Beta (S.E.)	Sig.
Social goals	0.711	0.400	0.981	0.984	-0.009 (0.016)	0.568
Financial goals	-0.043	0.183	0.075	2.037	0.029 (0.014)	0.036
Social goals by Financial goals	-3.517	1.539	0.814	0.958	-0.008 (0.011)	0.482
Social goals^2					0.001 (0.013)	0.911
Financial goals^2					0.013 (0.011)	0.243
Firm size[a]	0.061	0.066	0.360	1.063	0.006 (0.007)	0.345
Age	-0.268	0.088	0.002	0.765	-0.029 (0.009)	0.002
Industry sector[b]	-0.098	0.090	0.275	0.907	-0.010 (0.009)	0.272
Index of Multiple Deprivation	-0.263	0.412	0.523	0.769	-0.022 (0.035)	0.535
External knowledge sourcing	0.633	0.185	<.001	1.883	0.069 (0.019)	<.001
Constant	-0.016	0.696	0.022	0.030	0.146 (0.047)	0.002
Surface Analysis						
a1					0.020 (0.020)	0.280
a2					0.010 (0.020)	0.750
a3					-0.040 (0.020)	0.109
a4					0.020 (0.020)	0.272
Chi-square	51.39183					
Cox & Snell R Square	0.038					
R2					0.027	
Model Fit					F(df = 10, 1321) = 5.066, sig. <0.001	

N= 1319.
a. Size is measured by number of employees, in logs.
b. Base category is Other services.
c. Standard errors in brackets

Table A 6: Regression results for radical innovation 2021 and the general effect of COVID as major obstacle for the success of the business.

	Model A13				Model A14			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.428	0.125	<.001	1.534	0.405	0.127	0.001	1.5
Age[b]	-0.164	0.105	0.120	0.849	-0.187	0.107	0.079	0.829
Industry sector[d]			0.001				<.001	
Production and construction	-1.355	0.352	<.001	0.258	-1.445	0.364	<.001	0.236
Transport, retail and food service/ accommodation	-0.805	0.371	0.030	0.447	-0.859	0.384	0.025	0.423
Business Services	-0.581	0.333	0.081	0.559	-0.668	0.349	0.056	0.513
Index of Multiple Deprivation[c]	-1.101	0.673	0.102	0.332	-1.28	0.681	0.06	0.278
External knowledge sourcing	-0.096	0.307	0.754	0.908	-0.191	0.314	0.542	0.826
COVID as major obstacle	1.077	0.262	<.001	2.937	0.985	0.269	<.001	2.678
Social goals					0.224	0.141	0.113	1.251
Financial goals					0.19	0.134	0.157	1.209
Social goals by COVID as major obstacle								
Financial goals by COVID as major obstacle								
Constant	-0.658	0.476	0.167	0.518	-1.502	0.594	0.011	0.223
Chi-square	49.138				55.665			
Cox & Snell R Square	0.103				0.116			

N= 457.
a. Size is measured by number of employees, in logs.
b. Age, Industry sector, and goals are time constant variables for year 2017.
c. Index of Multiple Deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category is Other services.

Table A 7: Regression results for exporting in 2017

	Model A15				Model A16				Model A17			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size	0.074	0.050	0.141	1.077	0.086	0.053	0.102	1.090	0.089	0.053	0.094	1.093
Age	0.126	0.075	0.093	1.134	0.158	0.076	0.038	1.171	0.152	0.076	0.045	1.165
Industry sector[b]			<.001				<.001				<.001	
Production and construction	1.647	0.288	<.001	5.191	1.306	0.295	<.001	3.690	1.316	0.295	<.001	3.728
Transport, retail, and food service/ accommodation	1.700	0.289	<.001	5.473	1.403	0.295	<.001	4.067	1.412	0.295	<.001	4.104
Business Services	1.671	0.282	<.001	5.315	1.332	0.289	<.001	3.788	1.337	0.289	<.001	3.808
Index of Multiple Deprivation	-0.207	0.293	0.481	0.813	-0.144	0.296	0.627	0.866	-2.651	2.543	0.297	0.071
External knowledge sourcing	0.297	0.141	0.035	1.346	0.279	0.143	0.051	1.322	0.281	0.143	0.050	1.324
Innovation	0.973	0.138	<.001	2.645	0.991	0.142	<.001	2.693	0.992	0.142	<.001	2.696
Social goals					-0.373	0.093	<.001	0.688	-0.376	0.095	<.001	0.686
Financial goals					0.341	0.104	<.001	1.406	0.316	0.106	0.003	1.372
Social goals by Index of Multiple Deprivation									0.591	0.603	0.327	1.806
Financial goals by Index of Multiple Deprivation									0.142	0.387	0.713	1.153
Constant	-3.776	0.390	<.001	0.023	-4.073	0.538	<.001	0.017	-3.972	0.543	<.001	0.019
Chi-square	123.790				150.387				151.662			
Cox & Snell R Square	0.089				0.107				0.108			

N= 1334.
a. Size is measured by number of employees, in logs.
b. Base category is Other services.

Table A 8: Regression results for the polynomial regressions with exporting in 2019 and 2021

	Model A18				Model A19[c]		Model A20				Model A21[c]	
	B	S.E.	Sig.	Exp (B)	Unstandardised Beta (S.E.)	Sig.	B	S.E.	Sig.	Exp (B)	Unstandardised Beta (S.E.)	Sig.
Social goals	-0.693	0.432	0.109	0.500	-0.086 (0.022)	<.001	-0.995	0.440	0.024	0.370	-0.092 (0.021)	<.001
Financial goals	0.307	0.224	0.171	1.359	0.045 (0.018)	0.013	0.008	0.223	0.972	1.008	0.037 (0.018)	0.036
Social goals by Financial goals	0.047	0.116	0.686	1.048	-0.012 (0.015)	0.400	0.156	0.118	0.187	1.168	0.006 (0.014)	0.690
Social goals^2					-0.020 (0.017)	0.238					-0.034 (0.016)	0.036
Financial goals^2					0.004 (0.015)	0.773					0.001 (0.014)	0.956
Firm size[a]	0.086	0.050	0.083	1.090	0.016 (0.009)	0.069	0.117	0.052	0.023	1.124	0.020 (0.008)	0.020
Age	0.128	0.075	0.086	1.137	0.021 (0.013)	0.092	0.094	0.076	0.215	1.099	0.014 (0.012)	0.255
Industry sector[b]	-0.223	0.067	<.001	0.800	-0.036 (0.012)	0.002	-0.190	0.069	0.006	0.827	-0.028 (0.011)	0.015
Index of Multiple Deprivation	-0.028	0.280	0.921	0.973	-0.003 (0.047)	0.945	-0.065	0.295	0.827	0.938	-0.008 (0.046)	0.870
External knowledge sourcing	0.235	0.147	0.109	1.265	0.043 (0.026)	0.104	0.453	0.148	0.002	1.574	0.082 (0.026)	0.001
Innovation	0.936	0.138	<.001	2.549	0.174 (0.025)	<.001	0.963	0.142	<.001	2.620	0.171 (0.024)	<.001
Constant	-1.610	0.856	0.060	0.200	0.094 (.063)	0.134	-0.976	0.851	0.252	0.377	0.086 (0.061)	0.157
Surface Analysis												
a1					-0.040 (0.020)	0.096					-0.060 (0.020)	0.023
a2					-0.030 (0.020)	0.258					-0.030 (0.020)	0.250
a3					-0.130 (0.030)	0.000					-0.130 (0.030)	0.000
a4					0.000 (0.030)	0.904	-0.976	0.851	0.252	0.377	-0.040 (0.030)	0.122
Chi-square	127.900						0.084					
Cox & Snell R Square	0.097						117.272					
R2					0.092						0.088	
Model Fit					F(df = 11, 1322) = 12.210, sig. <0.001						F(df = 11, 1322) = 11.581, sig. <0.001	

N= 1334.
a. Size is measured by number of employees, in logs.
b. Base category is Other services.
c. Standard errors in brackets.

Table A 9: Regression results for exporting 2021 and the general effect of COVID as major obstacle for the success of the business.

	Model A22				Model A23			
	B	S.E.	Sig.	Exp (B)	B	S.E.	Sig.	Exp (B)
Firm size [a]	0.18	0.145	0.214	1.198	0.199	0.15	0.186	1.22
Age[b]	-0.057	0.129	0.659	0.945	-0.021	0.132	0.875	0.979
Industry sector[d]			0.029				0.025	
Production and construction	-1.017	0.457	0.026	0.362	-1.181	0.47	0.012	0.307
Transport, retail and food service/ accommodation	-0.209	0.451	0.643	0.811	-0.394	0.462	0.394	0.674
Business Services	0.083	0.393	0.834	1.086	-0.091	0.405	0.823	0.913
Index of Multiple Deprivation[c]	0.806	0.561	0.151	2.239	1.04	0.58	0.073	2.83
External knowledge sourcing	0.51	0.341	0.135	1.665	0.5	0.354	0.158	1.648
Innovation	0.347	0.296	0.241	1.415	0.433	0.305	0.155	1.542
COVID as major obstacle	-0.046	0.298	0.877	0.955	0.058	0.305	0.849	1.06
Social goals					-0.615	0.19	0.001	0.541
Financial goals					0.128	0.152	0.401	1.137
Constant	-1.62	0.585	0.006	0.198	-0.934	0.692	0.177	0.393
Chi-square	20.414				31.931			
Cox & Snell R Square	0.044				0.068			

N= 457.
a. Size is measured by number of employees, in logs.
b. Age, Industry sector, and goals are time constant variables for year 2017.
c. Index of Multiple Deprivation is time constant variable for year 2021; all other variables in accordance with year of dependent variable.
d. Base category is Other services.

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