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Home-Based Business Performance: A Study of Geography, Gender and Small Business Growth in the UK

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Abstract

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With nearly half of all small businesses in the UK now located in or run from the home, it has become arguably the most important of all business locations (Mason et al., 2011). Home-based businesses are of significant interest to those studying the changing nature of work and home and the blurring of the traditionally separated workplace and domestic environments (Reuschke, 2015). Digital technologies, outsourcing and the reduction in importance of economies of scale have become key drivers of business formation in the home (Young, 2015; Reuschke and Mason, 2022). This in turn has moved the location of a significant amount of economic activity out of regional and business clusters, and into the home and its surrounding residential neighbourhoods – often to rural or suburban areas - a trend that has been accelerated by the COVID-19 pandemic (Davies, 2021; Phillipson et al., 2020).

Despite the proliferation of businesses based in the home over the last 20 years, there is only a small (but growing) academic literature which has studied this phenomenon, and very little specific policy attention has been given to these enterprises and their owners. Contemporary research has however revealed their high growth ambitions, highlighting the potential value of home-based businesses for job creation and local and national economies (Mason et al., 2011; Enterprise Nation, 2014). However, this literature has also highlighted that women-owned home-based businesses face significant and gendered challenges in growing their businesses, and may face a 'performance penalty' compared to both men/co-owned home-based businesses and women who run their business in a separate premises (Breen, 2010; Daniel and Owen, 2022).

The lack of high-quality, longitudinal and generalisable data available on home-based businesses has led to many untested hypotheses on whether, how, where and for whom home-based businesses can achieve business growth. In turn, this has isolated home-based businesses from key discussions in the small business literature, entrepreneurship and economic geography. In particular, how the location and geographies of home-based businesses and their operations

across different spatial scales may impact on their performance and how gendered business performance may be embedded within both the home and its surrounding neighbourhoods, cities, and regions (Reuschke et al., 2015; Kleinhans et al., 2017).

Combining theories of gender and enterprise from the small business literatures with socio-spatial theories from economic geography, this thesis presents a comprehensive quantitative study of the business growth and performance of UK home-based businesses from 2015 to 2019. The analysis and findings presented in this work utilise the UK Longitudinal Small Business Survey as the primary data source, with additional linked data from the Business Structure Database.

The thesis makes several contributions to academic scholarship. First, the research highlights home-based business performance across multiple measures – firm size, innovation, profit, exporting, and derives a novel typology for understanding the distinct growth strategies of small businesses located in the home. Second, the analysis is able to distinguish, for the first time, the difference in job creation potential between businesses which remain in the home and those which relocate into a separate premises. Third, the research makes a significant contribution to gender and enterprise and women's entrepreneurship research by dispelling myths and revealing the spatial heterogeneity of growth and performance in women-owned home-based businesses. Fourth, the work reveals the geographies of home-based business growth from remote rural locations to semi-urban areas and major cities, highlighting the significance of urbanisation and agglomeration economies for home-based business growth.

Finally, due to the widespread homeworking which public health measures forced employees and the self-employed to adopt in 2020, there is now a significant policy interest in flexible and homeworking arrangements and what implications these will have for the small business sector moving forward (Mutebi and Hobbs, 2022). However, given the paucity of research on home-based businesses and their growth and performance prior to the pandemic, this research provides a much needed base on which to build policies and support for the growing and significant number of home-based businesses operating in the UK today.

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Research Thesis: Declaration of Authorship

Print name: Victoria Sian Price

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I declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
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Chapter 1 Introduction

1.1 Background and Motivation

Between 2005 and 2015 over 800,000 homeworkers were added to the UK labour force. Over 2/3 of these new homeworkers – defined as those that usually work from home – were business owners and sole traders, proportionally outstripping overall employment growth during this period (Trade Unions Congress, 2015). It was not until 2010 however that the Department of Business, Innovation and Skills (BIS) (now the Department for Business, Energy and Industrial Strategy (BEIS)) began to record biannual UK wide data on the phenomenon of home-based businesses (often abbreviated to HBBs) (BIS, 2010; 2013). In 2014, early analysis of this new data revealed that home-based businesses contribute an estimated £380 billion in turnover and 4.8 million in employment to the UK economy (BIS, 2015).

Home-based enterprise is of significant interest to those studying the changing nature of work and home and the blurring of the traditionally separated workplace and domestic environments in the 21st century (Reuschke, 2015). Digital technologies have become a key driver of new business formation, particularly home-based businesses due to the increase in work that can be done from home using information and communications technology (ICT) (Young, 2015; Reuschke and Mason, 2022). Despite pervasive historical perceptions of home-based businesses as primarily women-owned, 'cottage industries' (Orser, 1991), contemporary research has revealed the high growth ambitions of home-based business owners, dispelling unfounded beliefs that they are primarily 'hobby' businesses and highlighting their potential value for job creation and local and national economies (Mason et al., 2011; Enterprise Nation, 2014).

With more than half of all businesses located in the home across many Western societies, the home has arguably become the most important business location (Mason et al., 2011). However, with a few exceptions (Bates et al., 2013; Houston and Reuschke, 2017), there is very limited data and research on actual firm growth in home-based businesses, and whether and how they can achieve their growth ambitions. Home-based businesses today represent a heterogeneous group of both new technology driven, online companies (Di Domenico et al., 2014; Kane and Clark, 2019) and businesses which use the home as a base, such as construction companies and self-employed taxi drivers (Reuschke, 2016). However, little is known about how the diversity within home-based businesses may lead to different outcomes and different barriers to growth.

Chapter 1

The burgeoning home-based business literature has covered a wide range of topics, producing occasionally contradictory findings. Whilst popular culture has focused on stories of individuals starting businesses from their home or garage that later grew into some of the largest firms in the world (e.g. Amazon), in some academic literature, home-based businesses have been portrayed as life-style orientated, built to fit around the owner's other commitments or provide autonomy and flexibility, particularly for women with caring responsibilities (Kim and Parker, 2021). Alternatively, within entrepreneurship research, scholars have theorised that the home is an opportunity for new business start-ups to have a low risk, low cost incubator to test a business idea, before eventually growing out of the home (Anwar and Daniel, 2017).

Others still have considered the role of the home as a place of work for the solo-self-employed who do not need a premises for their business, or those who could not afford one (Daniel and Owen, 2022). Rural business scholars have highlighted that in remote or peripheral locations business owners may have limited other options as to where to locate their business, and may also lack opportunities to bring in an income in their area (Newbery and Bosworth, 2010; Bosworth and Newbery, 2015). None of these conceptualisations of home-based businesses are mutually exclusive, but rather they highlight the heterogenous role of the home within the small business population and signal how business performance and growth may vary across place, space and gender.

Whilst the home-based business literature is growing, the lack of high-quality, longitudinal, and generalisable data has led to many untested hypotheses on whether, how, where and for whom home-based businesses can achieve business growth. In turn, this has isolated home-based businesses from key discussions in the small business literature, entrepreneurship, and economic geography. In particular, how the location and geographies of home-based businesses and their operations across different spatial scales may impact on their performance and how gendered business performance may be embedded within both the home and its surrounding neighbourhoods, cities, and regions (Reuschke et al., 2015; Kleinhans et al., 2017).

Therefore, bridging theories of gender and enterprise from the business literatures with socio-spatial theories from economic geography, this thesis presents a comprehensive quantitative study of the business growth and performance of UK home-based businesses from 2015 to 2019. This is a firm-level study and the analysis and findings presented in this thesis utilise the UK Longitudinal Small Business Survey as the primary data source, with additional linked data where required.

The most recent estimates for the UK are that small (10-49 employees) and micro-businesses (0-9 employees) make up 99.2% of the UK enterprise population, and contribute 47.8% of total employment and 34.1% of turnover (BEIS and Barton, 2022). Despite this, much academic research focuses either on Small to Medium-Sized Enterprises (SMEs) or larger firms, even if the average small business has little in common in motivations, goals, and growth to a medium-sized business or a high-growth start-up (Audretsch, 2021; Welter et al., 2019). Although studies have demonstrated that the majority of home-based businesses have high ambitions for growth, on average, they have fewer employees and lower annual turnover than small businesses with separate premises (Reuschke and Mason, 2022; Mason et al., 2011).

Thus the dominant focus on SMEs and high-growth businesses has likely marginalised home-based businesses in academic research, as they are often excluded from studies, or the differences between non-home-based businesses and home-based businesses are exacerbated because of differences in firm size. This in turn can impact on relative performance and growth outcomes. As a result, and taking into consideration that only a few outliers in specific industries are likely to be home-based and have more than 50 employees, this thesis chooses to focus only on small and micro-businesses, defined by the European Union (EU) as having less than 50 employees (European Commission, 2020).

The publication of this thesis has been made timely by the COVID-19 pandemic, and the changes to the labour market and increase in homeworking that this crisis caused (Fox and Monahan, 2020). The study period of this thesis, 2015 to 2019, is just prior to the pandemic. Due to the widespread homeworking which public health measures forced employees and the self-employed to adopt in 2020, there is now a significant policy interest in flexible and homeworking arrangements, and what implications these will have for the broader small business population moving forward (Mutebi and Hobbs, 2022). However, as there was paucity of research on home-based businesses and their growth and performance prior to the pandemic, the base on which to build policies and support business owners based in or from the home is thin. This research aims to make a significant contribution in this area, and further discussions of the pandemic and the aftermath (including some preliminary analysis) can be found in Chapter 7, Section 7.4.

1.1.1 Defining the Home-Based Businesses

In one the most influential and comprehensive studies of UK home-based businesses to date, Mason et al. (2011) defined home-based businesses as:

"any business entity engaged in selling products or services into the market operated by a self-employed person, with or without employees, that uses residential property as a base from which the operation is run… those where the work (production or service) occurs in the home, and those where the work occurs away from the home with the home serving as the administrative base."

This thesis follows the definition above, as it is the most widely adopted in the contemporary literature, although acknowledging that studies of home-based business occasionally have different parameters for what is considered home-based, which can lead to a lack of comparability of studies within the field (Kapasi, 2015). In order to account for businesses using the home as a base (i.e. mobile businesses registered at home or businesses who work mainly in the clients premises) this work takes the following approach.

Chapter 4, which is the first empirical chapter in this study, makes the distinction between the performance of businesses using the home as a base and those using the home as a premises compared to businesses with separate premises. As the data distinguishing these two types of home-based businesses are only available in the 2015 wave of the Longitudinal Small Business Survey, Chapters 5 and 6, which make use of data from 2015 to 2019, use the broader definition of home-based businesses given above. However, a proxy control variable for businesses which work only in the home is included in the analysis to ensure results broadly apply to both home-based businesses using the home as a premises and those using the home as a base.

1.2 Home-Based Businesses in UK Policy

Both job creation and firm growth are central tenets of economic development policy across the developed world, as neoliberal economies seek to foster employment growth within small businesses and to promote entrepreneurship (Vyas and Vyas, 2019; Doran et al., 2016; Storey, 2016; Grimm and Paffhausen, 2015). Job creation within small businesses is seen as a means of boosting local economies or targeting unemployment in underperforming regions (Reeg, 2015; Stephens et al., 2013), and during periods of economic downturn, small businesses may have an enhanced role to play in creating employment opportunities (Moscarini and Postel-Vinay, 2012).

There is a significant debate however, as to the effectiveness of local employment and entrepreneurship stimulating programs and small business support practices (Partridge et al., 2020). Evidence suggests many do not achieve the desired outcomes (Fotopoulos and Storey, 2019), or result in simply increasing solo self-employment, without further job creation (Acs et al.,

2016). Thus, understanding more about how, when, why and which small businesses create jobs for others, is both topical and relevant across policy domains.

To date, despite the proliferation of home-based businesses and the home-based self-employed (Figure 1.1), there has been very little specific policy consideration of home-based businesses within the small business community. In 2014, after the findings by the UK Government and Enterprise Nation that 2.9 million home-based business contribute £380 billion to the economy, the UK took steps to make it easier to run a home-based business, particularly from a rented home. They also reduced/removed planning permission hurdles and business rates for home-based businesses. This was primarily an attempt to clarify previously grey areas in the laws regarding the starting of a business from home, from a legal and regulatory perspective (BIS and Hancock, 2014). Prior to these changes, home-based businesses had been almost invisible in UK policy, and many may have operated on an 'under-the-table' basis (Smit and Donaldson, 2011; Walker and Webster, 2004).

An interesting point in the press release following this new set of policies was the finding that if 1 in 10 home businesses took on just 1 extra employee it would create 300,000 jobs (BIS and Hancock, 2014). However, the document provided no information on how home-based businesses might be supported or encouraged to achieve such growth, despite home-based businesses lagging behind businesses with separate premises in terms of employment (Reuschke and Houston, 2017). As Redmond and Walker (2010) rightly point out, it is important to ensure that if financial support and business rates cuts are granted to home-based businesses, that those home-based businesses can provide a return on that investment, whether that be through innovation, exporting, employment or sales.

In the gender and enterprise literature there are many assumptions and discussions regarding promoting women-owned home-based businesses (Henry et al., 2017). It has been suggested that women may try to start a home-based business for financial independence but find that the social and familial expectations that they will prioritise domestic responsibilities negatively impacts their income and business progression (Rouse, 2020). Martinez Dy et al. (2020) highlights issues with the sustained policy initiative in the UK to expand women's entrepreneurship, assuming this will be a net positive for women and the economy, if women's entrepreneurship often results in low paid or precarious self-employment.

Self-employment is often promoted as a means of achieving flexibility between businesses and the home, providing women with the opportunity to balance both domestic duties, childcare and

income generation (Martinez Dy et al., 2020). However, while there remains a dearth of empirical evidence as to the performance outcomes of women-owned home-based businesses, it will be difficult to challenge the dominant narrative on women's entrepreneurship – if indeed it does need to be challenged. In addition, despite the growing numbers of women-owned businesses and the significant academic interest in gendered business performance, Foss et al. (2019) highlight just how little of this literature engages with actual policy and suggests specific support for women's enterprise (Terjesen et al., 2016; Johnston et al., 2022).

The relevance of home-based businesses for place based or location specific policy and business support is also high. Geographically speaking home-based businesses have more often been studied as rural enterprises than urban enterprises, with many studies utilising rural only samples, both qualitatively (Di Domenico, 2008; Kapasi and Galloway, 2016) and quantitatively (Walker 2003, Newbery and Bosworth, 2010; Markantoni et al., 2014). As previous research has indicated that the proportion of businesses based in the home increases as you move from urban to rural areas (Mason et al., 2011; Bosworth and Newbery, 2015) , home-based businesses are of interest for those considering how best to support declining rural economies (Li et al., 2019). However, the higher proportions of home-based businesses in rural locations has also detracted from the importance of suburban, semi-urban and urban home-based businesses, which may face different barriers to growth than rural areas (Sayers, 2010).

There are gender specific and location specific business support programs, but it is rare to find a combination of the two. Some empirical findings and narratives suggest that women in remote rural locations are forced into small unprofitable business ownership as they have a lack of other options, which can have a negative impact on their business performance (Bird and Sapp, 2004). This is a topic with a strong but unexplored link to home-based businesses, as often in the most remote rural locations there is no other option than to locate your business at home (Gligorijevic et al., 2016). There is a gap in establishing the support needs of both rural and urban home-based businesses, and identifying whether women-owned businesses in either location need additional or tailored support.

From a policy context in particular, it is important to have high quality data sources that can accurately capture the issues facing both small and home-based businesses. The primary limitation on research on home-based businesses is the lack of data sources which identify these businesses at all. In 2015 the Department for Business, Energy and Industrial Strategy announced that the Small Business Survey series which it had been running since 2003 would become annual and contain a panel of businesses which would be re-interviewed each year. The survey contains

multiple measures of business performance, innovation and internationalisation as well as rich data on the gender composition of the business, its location and most importantly, multiple questions about home-based businesses. This provided an invaluable and unprecedented opportunity for a study of actual UK home-based small business growth over several years. For the first time the UK now has data that can help researchers and policy makers respond to the changes to and blurring of, work, business and home in contemporary society.

1.3 Research Questions and Research Gaps

Whilst it is clear home-based businesses are, on average, smaller than businesses with a separate premises (Reuschke and Mason, 2022; Mason et al., 2011), few studies have moved beyond sales and employment size to consider other measures of business performance or growth, including innovation, exporting and profit. Excluding these measures may lead to an underestimation of the contributions of home-based businesses, and the potential benefits of running a business within or from the home. Furthermore, Mason et al. (2011) suggested that whilst home-based businesses may be smaller in employment size, this may conceal that they pursue jobless growth – turnover growth without employee growth - or that they hire contractors instead of employees.

However, growth in home-based businesses is likely both dynamic and spatial in nature. Studies of the job creation potential of home-based businesses are yet to take into consideration that many businesses may start in the home (Reuschke and Domecka, 2018), and that businesses remaining at home may have different growth strategies to those who relocate into separate premises. Furthermore, the majority of businesses with no employees (non-employers) are home-based (BEIS, 2022b), but to the author's knowledge, there is no study to date which has considered whether running a home-based business inhibits non-employers (or the solo-self-employed) from taking on their first employee.

In order to address these research gaps the first two research questions answered in this thesis are:

Q1: How do home-based businesses differ in their business growth and performance compared to small businesses with separate premises?

Q2: Is relocation a significant part of the growth process in home-based businesses?

Home-based businesses were traditionally associated with female dominated industries, craft and small scale manufacturing, which is reflected in the consistently greater percentage of self-

employed women who work from home than self-employed men (Figure 1.1). However, in line with the wider business population, the majority of small and home-based businesses are owned by men (Mason et al., 2011), who have seen a steady increase in self-employed homeworking over the last 20 years (Figure 1.1), indicating that they should not be excluded from discussions surrounding home-based businesses. Nonetheless, the literature on home-based businesses has maintained a strong focus on the importance of the home to female business owners and their families (Breen, 2010; Daniel and Owen, 2022).

There is an extensive, but primarily qualitative literature on 'mumpreneurs' which often overlaps with the home-based business literature (Duberley and Carrigan, 2013; Sheikh et al., 2018), and the motivations and challenges facing women who start home-based businesses have been well documented (Wynarczyk and Graham, 2013; Walker et al., 2008). Findings suggest that running a home-based enterprise is more often motivated by work-life balance and childcare for female business owners than male business owners (Kim and Parker, 2021; Walker et al., 2008), and that this may be associated with lower business performance (Thompson et al., 2009; Loscocco and Bird, 2012). This has led to concerns, particularly among scholars studying gender and enterprise, that home-based business ownership may be a negative choice for women economically, leaving them 'stuck' in the home, unable to grow their businesses (Estrin and Mickiewicz, 2011).

However, despite these potential disparities between men and women who own and run home-based businesses, there is little recent empirical quantitative evidence linking gender and the performance and growth of home-based businesses, particularly using measures such as innovation, exporting, profit and growth. Furthermore, an increasing number of studies are disputing the underperformance hypothesis in women-owned businesses, finding that sophisticated analysis which controls for the differences between women and men/co-owned businesses (business age and industry in particular) can explain any gender gap in performance (Sappleton, 2018). However, it is not known whether this applies to women-owned home-based businesses. This leads to the third research question which this thesis will address:

Q3: Do women-owned home-based businesses have a growth or performance penalty?

Mason et al. (2011) revealed, for the first time, the distinctive geography of home-based businesses in the UK, which are predominantly found in suburban locations, particularly in affluent neighbourhoods in the South of England and in remote rural counties. This has led to discussions surrounding the potential role of home-based businesses in job creation and the revitalisation of locations with traditionally low business concentrations (Bosworth and Newbery,

2015). Home-based businesses, for the most part, must grow (or not grow) outside of major agglomerations, regional clusters and science parks which have traditionally been viewed as optimal business locations. Not only is their geography different from small businesses with separate premises, but the impact of location on their performance may also be different, as it is not known exactly how (if at all) home-based businesses benefit from agglomeration and urbanisation economies (Houston and Reuschke, 2017).

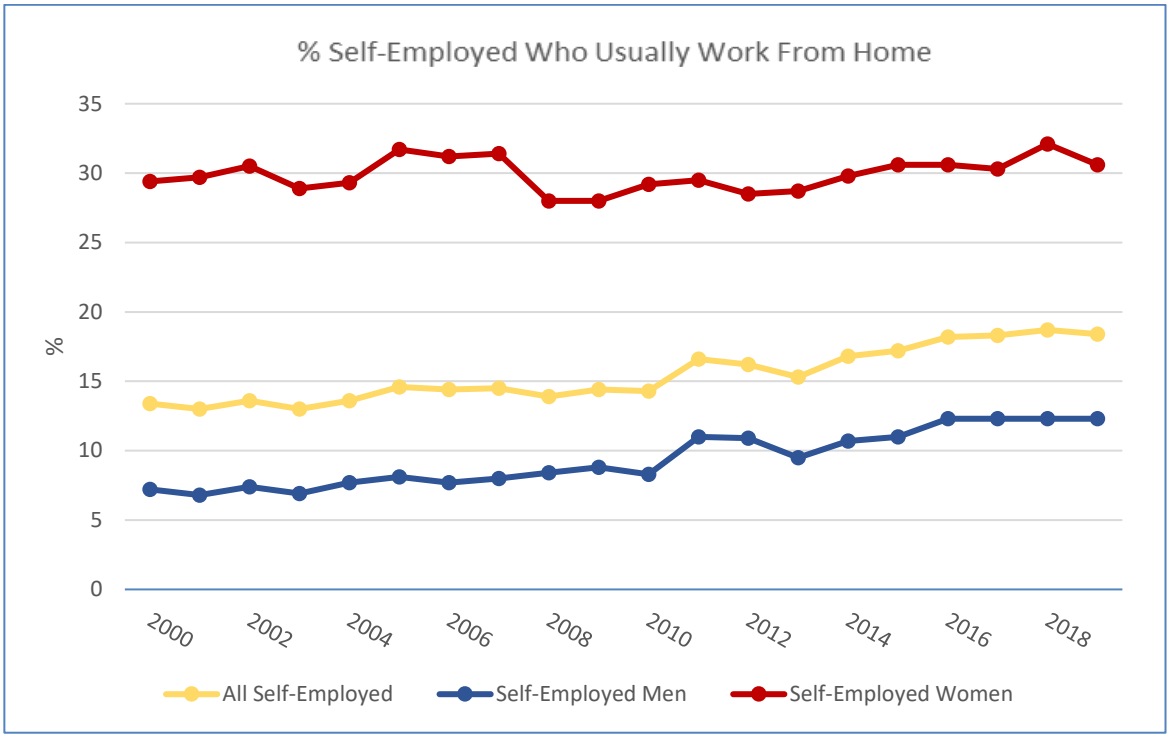
However, this thesis also extends the analysis beyond the geographies of home-based business growth in urban and rural neighbourhoods, and investigates how the different spatial scales can impact on performance through the location of the business's customers, exporting activity and relocation. Thus answering the following research question:

Q4: How does home-based business growth and performance vary by neighbourhood, urban-rural location, region, and internationalisation?

Finally, only a limited number of studies from gender and enterprise research have drawn upon the economic geography literature. This has led to calls for more studies of women's business ownership and entrepreneurship to highlight spatial and geographic perspectives that have received relatively little attention thus far in the gendered performance debate (Foss et al., 2019). Most research into women-owned business performance, including home-based businesses, conducts analysis at the national level, holding the assumption that any differences between female and male-owned businesses will be spatially homogenous (Kalnins and Williams, 2021). Thus, this thesis sets out to explore not only the geography of home-based business growth, but also to identify if that geography is gendered and to investigate variations in performance outcomes for women-owned home-based businesses across place and space.

Q5: Do the growth and performance outcomes of women and men-owned home-based businesses differ spatially or geographically?

Figure 1.1 UK Self-employed who usually work from home by gender, 2000 to 2019, percentages



Source: EUROSTAT Labour Force Survey 2000-2019. Author's own compilation.

1.4 Outline of the Thesis

This chapter introduces the thesis, the research gaps this work seeks to fill and the policy context of this study of home-based business performance and growth. A full review of the literature and theory underpinning the empirical research is presented in Chapter 2, although the empirical chapters themselves each include a literature review and hypotheses development, so Chapter 2 is concise and attempts to avoid repetition. Chapter 3 maps the data and details the major methodological considerations and limitations of the quantitative secondary data analysis included herein. The methods for the data analysis are contained in Chapters 4, 5 and 6 , which present three distinct but thematically linked chapters of empirical research.

Chapter 4 investigates the performance of home-based businesses compared to businesses in separate premises, specifically disaggregating between businesses which use the home as their business premises, and those that use the home as a base for their business. Performance is investigated across multiple measures: firm size, profit, innovation and exporting. The performance of women-owned home-based businesses is tested, and further modelling is used to explore how exporting is associated with sales, employment and profit in home-based businesses, and can lead to specific outcomes for women-owned businesses.

Chapter 5 uses longitudinal data analysis to examine the relocation behaviours of home-based businesses, and to reveal whether moving into a separate premises (and thus losing the home-based status) is necessary for employment growth. This chapter investigates both the role of the distinct geography of home-based businesses in their growth types and tests, for the first time, the 'jobless growth' hypothesis, that home-based businesses may choose to grow their turnover without growing their employment whilst they remain in the home (Mason et al., 2011). Chapter 5 also explores the high use of subcontractors by home-based businesses (which has been previously reported (Enterprise Nation, 2014)) and reveals spatial variations in businesses that relocate out of the home.

Chapter 6 looks specifically at non-employing businesses and investigates whether home-based businesses are less likely to take on their first employee. There is significant interest in the increasing number of non-employing businesses in the UK, 67% of which were run from home in 2021 (BEIS, 2022b), and why so few go on to create jobs for others, particularly women-owned non-employers (Henley, 2019). This chapter addresses this research gap by identifying whether this is associated with home-based businesses and whether there are variations in women-owned and men/co-owned home-based businesses becoming employers if they are located in major agglomerations, semi-urban areas, or remote and accessible rural locations. Finally, Chapter 7 brings together the research findings from the preceding chapters for a broad discussion, provides additional context, data and theory for the findings, and presents recommendations for UK policy, practice and future research.

1.5 Summary

Despite a great deal of focus from both the academic and policy communities on the growth and performance of small businesses, particularly with the end goal of using SME's as a vehicle for job creation, home-based businesses have received comparatively little attention. Chapter 1 argues that this is a significant oversight and justifies further research and public policy on UK home-based businesses, particularly highlighting the need for contributions from economic geography and gender and enterprise researchers using high-quality secondary data analyses.
Chapter 1 outlines the five research questions that this thesis will use to address gaps in the literature on home-based business performance with regards to job creation, financial performance, innovation, exporting, growth and becoming an employer for the first time, how this varies geographically and whether women-owned home-based businesses are less successful than their men/co-owned counterparts by these measures. The chapter further highlights the

invisibility of home-based businesses in UK policy despite the fact that they represent nearly half of all UK enterprises and make significant contributions to the UK economy and may have the potential for greater contributions, with the right policy support (BEIS, 2022b; BIS and Hancock, 2014). The following chapter (Chapter 2) provides a detailed literature review of academic scholarship underpinning the research in this thesis: the home-based business literature, the underperformance hypothesis in women-owned businesses and women-owned home-based businesses, spatial approaches to small business growth and the importance of geography in women's labour market outcomes and economic success.

Chapter 2 Literature Review

2.1 Bridging Small Business Research and Economic Geography

This thesis sits at the nexus of the 'complex and under-researched' relationship between the small business literature, entrepreneurship and economic geography (Sternberg, 2022), drawing on literature and theory from all three disciplines. Whilst changes have been occurring in the labour markets of the UK and other developed countries over the last two decades, changes have similarly been taking place within the academic literature which frames this research. Whilst sociology focused on matters of the home, business research focused on the firm, and economic geography on the region, Sternberg (2022) suggests that there has been limited cross-disciplinary work. As a result, the disciplines have all been characterised by a disconnect between work and home, the separation of the economic from the social, and the organisation from the agency of economic actors.

The home-based business, where home life and work life overlap both spatially and temporally, represents the closest possible physical interconnection between the family, neighbourhoods, and the personal life of the business owner and their business, and one that occurs well outside the realm of traditional business clusters or start-up 'hot-spots' (Di Domenico, 2008; Mason et al., 2011; Daniel et al., 2018). The rise in home-based businesses illustrates that in the 21st century, theoretical and empirical approaches that separate the owner from the business, the business from the household, and the home from its locale are no longer appropriate (Reuschke, 2015). In this sense, home-based businesses and their growth and performance provide an ideal opportunity to study the changing nature of work and home and its implications for the small business population, particularly at different spatial scales, from the micro-geographies of the home to neighbourhoods, cities and regions (Vorley and Rodgers, 2014; Reuschke et al., 2015; Kleinhans et al., 2017).

2.1.1 Small Business and Entrepreneurship

There has been a contextual turn in entrepreneurship research over the last two decades (Zahra et al., 2014; Baker and Welter, 2018) and debates about the definition of an entrepreneur (and who is excluded) which have brought small business research into the forefront of business research (Steyaert and Katz, 2004; Hanson and Blake, 2005; Yeung, 2009). In relation to this, a geographic turn has occurred concurrently, as the importance of spatial contexts has been

acknowledged, which can be seen most prominently in the proliferation of entrepreneurial ecosystem approaches (Stam, 2015; Alvedalen and Boschma, 2017; Wurth et al., 2022).

The focus on high-growth, technology-enabled, venture capital-backed businesses which has dominated business research excludes most small businesses, home-based businesses and women-owned businesses (Henry et al., 2021). The focus on very specific and neoliberal business outcomes such as high-growth firms excludes most enterprises across the world, and has created a vacuum of knowledge about many kinds of economic activity which do not fit the 'ideal entrepreneur' or the 'silicon valley' model of entrepreneurship (Tedmanson et al., 2012; Hanson, 2009). The reality is that these businesses are the minority of businesses in the UK – most businesses start and remain small (Audretsch, 2021; Storey, 2016).

Contextual approaches have been particularly pushed in the gender and enterprise literature, to encourage a nuanced understanding of women's entrepreneurship and business ownership, in particular challenging the common assertion that women's businesses are 'underperforming' in comparison to their male counterparts (Yousafzai et al., 2018; Marlow and McAdam, 2013). The entrepreneurship literature has seen several recent calls to address the heterogeneity and diversity of women's entrepreneurship and business ownership (Henry et al., 2019), and for studies in different and new contexts which have received little attention thus far. Whilst the home certainly represents such a context, the subdiscipline moved towards institutional contexts or national contexts – filling much needed gaps in research in developing and transitional economies in particular (Rosca et al., 2020; Isaga, 2019). This has also led to an uptick in intersectional approaches and qualitative research (Hughes et al., 2020; Raman et al., 2022).

As Steyaert and Katz (2004, p. 184) succinctly put it, there is a need to re-consider ''the boundaries of entrepreneurial spaces and reflect on boundary setting processes'', and to consider the importance of spatial scales for firms and their owners. However there remains a dearth of robust, comparative quantitative research into the geography of women-owned small businesses. Within developed economies, empirical quantitative research into female business owners with comparative geographic contexts, particularly micro-geographies such as the home and the neighbourhood, are few and far between and are still reliant on older and often bivariate studies (Bird and Sapp, 2004; Merrett and Gruidl, 2000). This leads to assumptions about women's enterprise which have not yet been empirically tested. Whilst the importance of the contextual turn for gender and enterprise literature is clear, the geographic turn has not been applied to the same extent, particularly at a sub-regional level.

2.1.2 Economic Geography

Economic geographers have made significant contributions to research on regional entrepreneurship and the uneven spatial distribution of economic activity (Sternberg, 2009; Tamásy, 2006), entrepreneurial ecosystems (Spigel, 2018; Spigel and Harrison, 2018), and geographical variations in the evolution of new firms and start-ups (Boschma and Martin 2010; Stam, 2010). They have highlighted how different spatial scales interact to impact on entrepreneurship, which has been accompanied by an increase in studies using multi-level and multi-scale modelling techniques over the past two decades (Theodoraki and Messeghem, 2017; Hundt and Sternberg, 2016; Bergmann et al., 2016). The latter is of particular interest to this study, as the home as a place of business has many overlapping scales – the home itself, the mobility of the business owner (if the work is not done within the home), the neighbourhood, and even the scope of where the business sells its goods and services.

Sternberg (2022) remarks however, that overall, economic geographers have been less engaged in entrepreneurship research than business schools and economists have been engaged in geographical or spatial issues. There are long established theories in economic geography urbanisation, localisation, agglomeration economies and knowledge spill overs (Audretsch and Keilbach, 2007; Mueller, 2006), which are highly relevant to the contextual turn in business research. However, many geographic studies do not link these theories directly to the agency of the entrepreneur or business owner themselves.

Just as the business literature has begun to look critically at its over-focus on “high-growth” businesses, or ‘silicon valley’ models of entrepreneurship, economic geographers engaging with firm-level business studies have tended to focus on highly economically successful and growth orientated sub-regions, valleys and corridors – the Ruhr Valley in Germany, Silicon Valley, Boston Route 128 – with high co-location of entrepreneurial activities (Sternberg, 2022). This is logical, as the spatial concentrations of start-ups and self-employment in science based industries are highly important to regional economic development (Fritsch and Wyrwich, 2018; van Oort and Bosma, 2013). However, this has led to a paucity of work by economic geographers into the regional or spatial relations of small or micro enterprises which mostly operate outside of these clusters (Pugh and Dubois, 2021). This thesis suggests that understandings of locational effects through economic geography theories such as urbanisation and agglomeration economies, may need to be reconsidered and reformatted in order to be applied to the growing number of businesses distributed through residential zones.

Overall, Sternberg (2022) highlights that despite the significant cross-over in economic geography and entrepreneurship or small business studies, the two disciplines have maintained 'mutual ignorance' of the other. Müller (2016) also points out that even regional economists neglect the role of the entrepreneur and their agency, and the factors that might influence business owners in distinctive localities. At the same time entrepreneurship studies have neglected important spatial contextual conditions and their impact on the business development and the entrepreneurial process. This thesis attempts to bridge this gap.

2.2 The Changing Landscape of Home and Work

Academic and policy interest in small businesses arose during the 1980s and 1990s on the back of several labour market shifts within Europe and the United States. There was the increase in the dominance of service sector, as western countries moved into post-Fordist economies and more flexible systems of production, as well as towards privatisation and neoliberal modes of thinking (Hirst and Zeitlin, 1991; Bridge and O'Neill, 2017). Alongside these changes was a growing focus on the job creation potential of SMEs following the recessions of the late 1970s and early 1980s in Europe (Gibb, 1996). This continued well into the 21st century, as research repeatedly found that small businesses contribute a greater share of new jobs than large firms (Anyadike-Danes et al., 2015; Anyadike-Danes and Hart, 2018). This interest eventually spread beyond job creation however, to the role of SMEs in exporting and innovation, and both national and regional competitiveness (Keeble, 2022).

The history of homeworking or 'at-home income generation' dates back to the concept of the electronic cottage as a means of reducing commuting costs during the oil crisis of the 1970s, although a significant shift to homeworking did not materialise at the time (Huws, 1991). Research into homeworking did grow throughout the 1990s though (Felstead, 1996; Shaw et al., 2000), but home-based businesses were often a category within the larger group of homeworkers and only a little consideration was given to the differences between employees and businesses owners in most early studies (Heck, 1992; Owen et al., 1992; Stafford et al., 1992). In fact, despite homeworkers being predominantly self-employed, and the rising interest in small business outcomes, the early academic literature on homeworking focused almost exclusively on employees or 'teleworkers' (Boell et al., 2013).

Both self-employment and home-based businesses increased rapidly in the 21st century. In the UK between 2002 and 2019 the overall employment rate increased by 2.2%. The concurrent increase in the overall self-employment rate was significantly higher, rising by 3.2% (EUROSTAT, 2022).

Likewise, in 2019, just prior to the COVID-19 pandemic, the UK saw record numbers of small businesses (5.82 million), which accounted for at least 99.5% of the business population in every main industrial sector in the UK, employing 13.1 million people (BEIS, 2019). Alongside these changes came a significant rise in self-employed homeworkers, as more jobs were able to be done from home, particularly in developed economies (Hatayama et al., 2020).

These changes to self-employment during the 21st century came on the back of further shifts in the UK labour market including globalisation, deregulation, the rise of non-standard work and the spread of ICT and digital technologies (Stewart and Stanford, 2017; Abraham et al., 2017). These changes are often summarised in reference to the 'gig' economy, which is characterised by short-term project work, increases in outsourcing, freelancing, independent contractors, and the dominance of temporary, casual, part-time and even zero hour contracts across the service sector (Kaine and Josserand, 2019). All these changes have made self-employment both a more attractive and necessary option for those looking for work (Meager, 2019). Within this context the home has become a primary location of independent economic activity, both shaped by and shaping the labour market changes occurring.

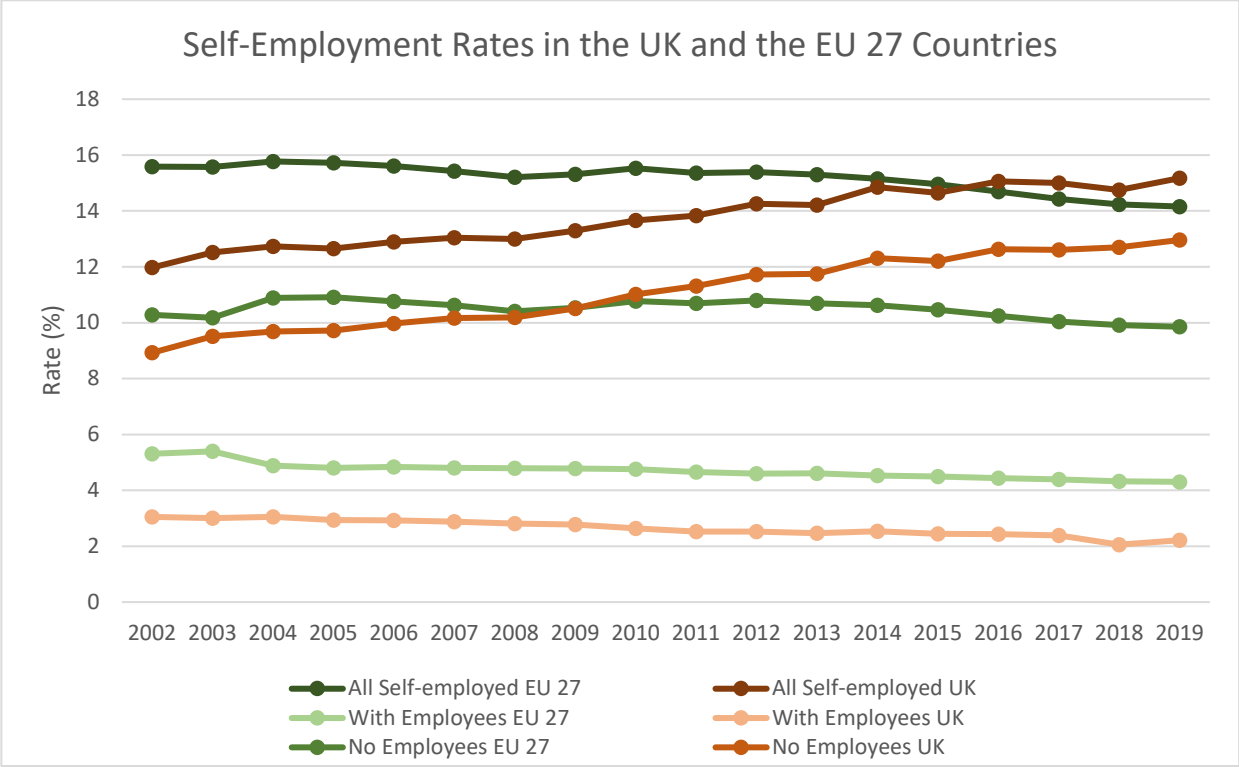
2.2.1 The Rise of Solo Self-Employment

Although certain other European Nations such as the Netherlands have had similar trends in self-employment over the last two decades, the UK stands out from the EU-27 countries, which, as a whole, saw their self-employment rate hover around 15%, before beginning to decline slightly from 2015 onward (Figure 2.1). Also diverging from the EU-27 countries is that in the UK the trend of increasing business ownership and self-employment has been driven by a rise in solo-self-employment - self-employment without employees or non-employing businesses. In 2002 73.7% of the self-employed had no employees, and by 2019 this had risen to 84% (EUROSTAT, 2022), with a particularly sharp rise during the 2008-2010 financial crisis, which has been attributed to credit constraints during and after the crisis, unemployment, and the low risk nature of non-employing start-ups (Giupponi and Xu, 2020; Rozzi, 2018).

There is also evidence that the increase in women entering solo self-employment is higher than for men. Business level data has shown the same marked increase in non-employing enterprises as many non-employers are in fact solo self-employed individuals, with nearly half operating as sole traders, and the rest operating as limited companies (business owner(s) that pay themselves a dividend) or partnerships without employees (BEIS, 2022b). Research also demonstrates that non-employers are significantly less likely to take on employees in the future than employing

businesses are (Criscuolo et al., 2017; Kraaij and Elbers, 2016), particularly female-led non-employing businesses (Henley, 2019; Fairlie, 2013). Most non-employers are located in the home (BEIS, 2016), a rational decision for a low risk, credit constrained businesses, those that do not need premises or have staff that require an office space. However, it is not known whether the home plays a role in the rise of non-employers or their inability to take on employees and grow.

Figure 2.1 Self-employment rates by number of employees 2002 - 2019, UK and EU 27 countries



Source: Eurostat, Labour Force Survey, author's own compilation.

This increase in the solo-self-employed and non-employing businesses has been dubbed the 'new self-employed', as the decline in employing businesses and increase in non-employers has been so profound (Figure 2 and 3). There is a duality to the 'new self-employed'. On one hand genuinely independent business owners can use the autonomy of self-employment to increase their finances and progress their careers, leading to business growth if desired (Murgia and Pulignano, 2021). These businesses would be associated with professionals in knowledge intensive, technology or cognitive-cultural industries, and may have positive effects on innovation, productivity and wage growth in these sectors (Schwellnus et al., 2019; de Vries and Koster, 2013). Many of these professionals will be able to work entirely from a computer, with occasional face-to-face contact, thus making a premises not necessary unless significant employment growth is planned, in which case the business may wish to relocate.

However, some of these non-employers will only have one client, essentially forming an employment style relationship without employment protections (Román et al., 2011). This has been described as the grey area in 'new self-employment', or economically dependent self-employment. This is an issue that impacts businesses across industrial sectors (Behling and Harvey, 2015; Williams and Lapeyre, 2017) but is more common among men and those with lower levels of education in the UK (Boheim and Muehlberger, 2006). Non-employing businesses in lower paid, crowded sectors or semi-skilled or unskilled occupations have also been associated with other forms of precarious self-employment, including underemployment - not getting enough work or hours - and necessity entrepreneurship – transitioning from unemployment to self-employment (Reuschke and Zhang, 2022). Both have been linked to lower growth orientation (Fairlie and Fossen, 2020) and lower job creation (Henley, 2019).

Prior to the COVID-19 pandemic almost half of all non-employers in the UK were home-based (BEIS, 2020a; 2020b) (in 2021 the figure had increased to 67% (BEIS, 2022b) and yet it is not known whether this trend towards non-employing businesses that do not take on other employees, particularly by female business owners, is linked to barriers to growth in home-based business. Home-based businesses are also not frequently integrated into the debates around precarious self-employment. However, there is evidence that working at or from home significantly increased the odds of the self-employed being necessity entrepreneurs and under-employed across Europe (Reuschke and Zhang, 2022; Daniel and Owen, 2022; Henley, 2017). In particular, necessity entrepreneurship in urban areas compared to non-urban areas has been linked to the home-based solo-self-employed (Reuschke and Zhang, 2022). This implies that the home may be used a business premises due to a lack of other options, particularly for non-employing enterprises. This could create barriers to their growth and performance.

2.3 The Growth and Performance of Home-Based Businesses: State-of-the-Art

Home-based businesses were once commonly perceived as low-paid, 'hobby' businesses, with limited growth potential (Mason, 2010). It is true that home-based businesses, for the most part, represent micro-scale business activity, with Mason et al. (2011) finding only 1 in 10 to have more than 10 employees, and the average home-based business is significantly smaller than the average small business based outside the home (Reuschke and Mason, 2022; Mason et al., 2011). Many home-based businesses do not employ any staff at all, however research has shown that among micro-businesses, home-based businesses are just as likely as non-home-based businesses

to have 1 to 3 employees (Reuschke and Houston, 2016, Pilkova and Holienka, 2020) indicating that there may be a 'ceiling' on employment growth for home-based businesses.

Financially, home-based businesses also have lower turnover and receipts on average when compared with businesses in separate premises, and lower turnover growth overall (Reuschke and Mason et al., 2022; Mason et al., 2011; Thompson et al., 2009; Pratt, 2008). These results are broadly reflected in other studies of home-based business characteristics in developed economies including Australia and New Zealand (Wang et al., 2009; Jain and Courvisanos, 2013), although many studies rely on home-based business only samples, and thus can only compare to wider business estimates, which may not be reliable. Most studies of home-based business performance and outcomes however, have found that despite their small size, the perception of home-based businesses as non-serious enterprises has been misguided (Walker and Flinders, 2003; Walker and Brown, 2004; Mason et al., 2011; Anwar and Daniel, 2014). The majority of home-based business owners have ambitions to grow their business at least moderately, if not significantly (Enterprise Nation, 2014; Mason et al., 2011; Clark and Douglas, 2012; Breen, 2010; Breen and Karanasios, 2010).

Much less is known about other measures of firm performance in home-based businesses, leaving a wide research gap in the literature. However, the results which have been published on other aspects of business development in home-based businesses paint a very different picture of the potential benefits to locating and starting a business from home for business performance. Pratt (2008) found that although home-based businesses had lower receipts than non-home-based businesses, home-based businesses actually had a higher return on their gross revenues. Similarly, Headd (2003) found that businesses which started in the home had higher rates of survival compared to businesses which started in a separate premises and Bates et al. (2013) found that whilst home-based businesses had lower employment growth, they had similar closure rates to non-home-based businesses. Higher survival rates for home-based businesses compared to non-home-based business have also been found during severe environmental crises (Haynes et al., 2019; Sydnor et al., 2017). The survival rates support the typology of the home as an incubator for small businesses in their early years, or during a period of turmoil within the business.

In terms of innovation studies of Australian home-based businesses by Wang et al. (2009) and Breen (2010) both found that almost half of all home-based businesses had introduced new goods or services in the past 2 years. This certainly indicates that home-based businesses are capable of innovation, however the analysis is bivariate and does not compare home-based businesses to non-home-based businesses of similar sizes, and no distinction between novel and incremental

innovation is drawn. Therefore, there remains a gap in the literature as to if and how home-based businesses innovate compared to small businesses in separate premises. Nonetheless, home-based business owners generally appear to have a high autonomy orientation which is strongly associated with innovation and creativity more generally (Van Gelderen et al., 2008).

In terms of exporting and internationalisation, Mason et al. (2011) found that home-based businesses in general are less likely to engage in any exporting. However, the proportion of home-based businesses deriving more than half their sales from overseas customers – although very low – is actually greater than for other SMEs, indicating the presence of a small proportion of home-based businesses that are highly export-oriented. Breen and Karanasios (2010) also found that home-based businesses which exported were significantly more growth orientated (although they did not measure actual growth), which implies that the relatively small group of home-based business exporters may also be high growth businesses. Again, these results highlight how little is known about the heterogeneity of home-based businesses, and the potential for specific groups of home-based businesses to skew overall business performance outcomes.

In summary, the extant literature indicates that whilst home-based businesses may be smaller in size, relative measures of performance show at least equal performance with non-home-based businesses, indicating that home-based businesses may have a similar economic value to other businesses of the same size, and should not be viewed as low performing enterprises. However, more research is clearly required across a greater variety of measures to explore and explain this in greater detail.

2.3.1 Characteristics of Home-Based Businesses

Quantitative studies which directly compare home-based businesses with businesses in separate premises are still relatively rare – the discipline as a whole has often relied upon home-based business only samples to identify their characteristics (Jain and Courvisanos, 2013; Clark and Douglas, 2012; Breen, 2010). However, those studies which have used comparative samples have identified specific home-based business characteristics which, from the wider literature on business growth, could be potential barriers to their growth (Reuschke and Mason, 2022).

Carter et al. (2004) and Mason et al. (2008) found that home-based businesses are more likely to be new businesses, sole traders, and less likely to be VAT registered, and often have other sources of income such as full or part-time employment. This is further illustrated by Loscocco and Bird's (2012) finding that home-based business owners work less hours in their business than non-home-based business owners, which is also confirmed by Kim and Parker's (2021) study which

found that the home-based self-employed were less likely to be operating full-time. However, their study and findings by Mason et al. (2008) and Mason et al. (2011) did show that the majority of home-based business owners do work full-time in their business (40+ hours per week). Carter et al. (2004), Mason et al. (2011), Reuschke and Mason (2022) also find that home-based businesses are on average younger than non-home-based businesses, which certainly supports the concept of the home-based business as an opportunity to test business ideas and potentially highlighting the role of home-based businesses within business start-ups which later move into a separate premises to grow.

Furthermore, growth-oriented businesses that start in the home may have lower start-up capital and assets, as otherwise it seems likely they would have chosen a separate premises. Certainly, home-based businesses appear to be more likely to rely on personal/family finance and credit cards for start-up and expansion capital compared to non-home-based businesses (Pratt, 2008). That said, a significant proportion of businesses with separate premises, were previously home-based indicating the importance of relocating for home-based businesses (Reuschke and Domecka, 2018). However, it is worth keeping in mind that the latter study used data from 2004-2007 – a period of significant economic growth and relative prosperity. This may explain why Bates et al. (2013) found that home-based businesses had lower growth. If most home-based businesses remain home-based they may have different growth strategies or intents compared to those which relocate, and those which plan to remain home-based may choose jobless growth or outsourcing.

Through the use of structural equation modelling and path analysis, Loscocco and Bird (2012) find that the lower sales of home-based businesses are partially due to the owners working less hours in the business than other business owners, although a great deal remains unexplained – which they dub the “home-based business effect”. Studies of actual growth are rare in the home-based business literature, and a lack of longitudinal sources, and the exclusion of unregistered non-employing businesses from many datasets, has created methodological challenges in this field.

2.3.2 Employment Growth, Jobless Growth or Relocation?

There are a limited number of studies of growth in home-based businesses and the majority are cross-sectional studies which ask home-based businesses to recall whether they achieved growth over the last 1 to 2 years. All of these studies have identified that when asked, more than half of home-based businesses claim they have recently made ‘significant’ or ‘high’ increases to their turnover (Wang et al., 2009; Thompson et al., 2009; Breen, 2010; Farja et al., 2017). However, the

same studies find much lower percentages of home-based businesses have recently grown their staff, and similarly Mason et al. (2011) found that more than half of UK home-based businesses wanted to grow, but most did not want to take on more employees.

This may indicate that home-based businesses have specific barriers to growth beyond the characteristics above which can, for the most part, be controlled for in a firm-level quantitative study, thus mediating any differences between home-based businesses and non-home-based businesses. The difficulties managing a multi-person operation from a home, spatial restrictions, work-family conflict, discomfort allowing clients or strangers to work in their home, and limited networks have all been reported as potential barriers to growth for home-based businesses in qualitative or mixed methods studies (Merrell et al., 2022a; 2022b; Reijonen and Komppula, 2007; Loscocco and Hunter-Smith, 2004).

Bates et al. (2013) one of the few longitudinal studies of growth in home-based businesses, concludes that "home-based firms are often less inclined to pursue venture growth than otherwise identical owners choosing to locate their businesses outside the home". However, whilst home-based businesses may be generally smaller in size than other businesses, assuming home-based businesses do not grow because they do not want to grow is somewhat contradictory to the ambitions revealed by the studies set out in the first paragraph of this section. It also simplifies the issue of home-based business growth, the different types of growth a business may pursue, and ignores other ways in which businesses may achieve value creation, such as through exports and innovation.

Jobless growth is a well-established macro-economic phenomenon which is often discussed in terms of long term or periodic national GDP growth or 'jobless recoveries' without employment growth (Burger and Schwartz, 2018), or in respect to the replacement of labour intensive industries with technology which results in growth with declining or stable rates of employment (Josifidis and Supic, 2018). Mason et al. (2011) applies the term to home-based businesses as many businesses had increased in turnover and a majority wanted to grow further, but concurrently, expected to stay the same size in employment.

Similar results appear in other surveys of home-based businesses (Enterprise Nation, 2014; Breen and Karanasios, 2010; Clark and Douglas, 2014). Houston and Resuchke (2017) found that among micro-businesses home-based businesses had similar turnover growth to non-home-based businesses but were significantly less likely to grow in employment, although they were just as

likely to become employers. Growth in turnover without complementary growth in employment was therefore deemed 'jobless growth' – although this hypothesis is yet to be tested.

Mason et al. (2011) also suggested that turnover growth can be supported in home-based businesses through a combination of employing a limited number of staff who work in their own homes, hiring subcontractors and outsourcing. High levels of subcontracting and collaborative behaviour have been linked to the home-based businesses in the literature (Enterprise Nation, 2014; Hastings and Anwar, 2019), and particularly to online home-based businesses, where specific projects/skills are outsourced to other self-employed people via the internet (Hastings and Anwar, 2019). This approach may allow home-based businesses to "pay on result" and "maintain low risk start-up" (Van Gelderen et al., 2008 p. 168cited in Anwar and Daniel, 2014). The distinctive 'jobless growth' strategy may therefore still generate jobs, but it seems primarily, indirectly, and these jobs would not be identifiable in standard measures of performance or employment. However, as with the jobless growth hypothesis, whether home-based businesses are more likely to take on subcontractors than direct employment is yet to be empirically tested.

Bates et al. (2013), using the Kaufman Firm Survey (KFS), examine employment growth and survival of nascent businesses in the United States, and include a variable which compares businesses based in the home with those based in a separate premises when analysing firm growth in employment. The results from their studies show almost unanimously that home-based businesses have significantly lower employment growth than non-home-based businesses, with the exception of home-based businesses in high-tech industries, whose employment growth was in fact on-par with non-home-based businesses.

However, when analysing a sample of high growth firms only - those growing more than five times their original size - being home-based did not result in lower growth within this category, indicating a duality in home-based business growth. Some home-based businesses can still achieve high growth, but most firms (except high-tech firms) that do not fall into this category have lower growth than their non-home-based business counterparts. Bates at al., (2013), like Houston and Reuschke (2017) are able to identify businesses which were home-based in 2004, however, during the follow up survey in 2008 between which growth was measured, the question is not asked again. Therefore, neither survey can identify whether these businesses are still home-based.

What this may indicate is that there is a portion of high growth home-based businesses which are able to achieve this growth by relocating into a separate premises, whilst those that remain in the

home struggle to take on employees compared to those in a separate premises. The findings of Houston and Reuschke (2017) that high employment growth occurs specifically for urban home-based businesses is particularly pertinent, as urban home-based businesses are likely to have significantly more options and access to external separate premises than rural home-based businesses are. Furthermore, as Newbery and Bosworth (2010) highlight, businesses which use the home as a convenient location, rather than as a base or where the home itself is the business (accommodation, shops etc.) have the most motivation to relocate. And, looking at Bates et al. (2013) businesses in high tech industries would be expected to fall into this category.

However, no study thus far has been able to empirically test this theory, and to definitively differentiate between growth *within* the home and growth *out of* the home. Despite a great deal of effort by the home-based business research community to dispel myths about home-based businesses being 'hobby' businesses (Mason and Reuschke, 2015; Walker, 2003), very little is known about how and if home-based businesses can achieve growth whilst remaining in the home, and how relocation out of the home is linked to growth. Mackloet et al. (2006) , Mason et al. (2011) and Breen (2010) found between 10% and 17% of businesses planned to move out of the home in the next two or three years. Kim and Parker (2021), the only empirical study thus far to study actually record changes from homeworking to non-homeworking found a similar proportion – (11%) moved out of the home into a separate premises. Overall however, the evidence suggests that whilst the home may play an important role for a significant minority of small home-based start-ups which later move into a commercial premises (Reuschke and Domecka, 2018; Mason and Reuschke, 2015; Horgan, 2001), the majority likely see the home as a permanent location (Walker and Webster, 2004; Dwelly and Lake, 2008; Daniel et al., 2014).

Another issue which has not yet been resolved is how relocation is tied to growth. It is often suggested or assumed that relocation is the primary growth mechanism for home-based businesses. This is supported by Reuschke and Houston (2016), who found 90% of businesses in their Edinburgh sample which moved out of the home did so because they needed more space. This seems logical, particularly if considering dominant neo-classical firm growth theories which posit that business owners are rational individuals, with the knowledge and ability required to make informed choices about firm location and relocation based on cost-effectiveness and the optimal conditions for firm survival and growth (von Thünen, 1966; Weber, 1982).

Mackloet et al. (2006) paint a more complex view, both finding that relocation desire in home-based businesses is linked to plans for growth in employment, but that this is mediated by housing type, and also linked to plans for sales growth, independently of whether the business

intends to grow their number of workers. They also find that some home-based businesses want to relocate into a new home and keep working on the business from there, particularly those with younger children at home. However, they find the main reason given by home-based entrepreneurs with relocation desire was to separate private and business life. Daniel et al. (2014) found in their interviews with online home-based business owners that relocation was also tied to improving the clients perception of the firm, and influenced by availability of a workforce in the local area.

Risselada et al. (2013) found only a weak association between firm growth and relocation in highly educated home-based entrepreneurs in the Netherlands. They also found that the association with growth was actually stronger in non-home-based businesses which had relocated, and pointed out that they could not identify home-based businesses which relocated out of the home compared to those who moved to a new home. They did however, find that home-based businesses were more mobile on average than non-home-based businesses, but they were less able to explain why home-based businesses relocated. It seems likely that in this case moves for home-based businesses were highly tied up in the personal lives of the owners, which are more difficult to measure in firm level surveys. The mixed and somewhat contradictory findings in this topic indicate further exploration of home-based business relocation and growth is required, particularly by measuring moves into a separate premises.

2.4 Gender and Enterprise

2.4.1 The Female Underperformance Hypothesis

Studies debating the “female underperformance hypothesis” – the widespread acceptance that, all else being equal, female entrepreneurs will have lower business performance than men - represent a vast body of work (Dean et al., 2019; Deng at al., 2020; Treanor, 2022). The female underperformance hypothesis has significant implications for wider small business and job creation policy, as it implies that women-owned businesses may contribute less to economic and employment growth, or that entrepreneurship may not be a good option for women financially or career wise. It has led to significant attention on training and advisory services targeted specifically at women-owned businesses, in addition to policies encouraging women to start businesses more generally (Ahl and Marlow, 2021; Rouse and Trehan, 2020; Rouse, 2020).

Reviews of the gender and enterprise literature highlight that most empirical evidence over the last two to three decades confirms the underperformance hypothesis. However, several more

recent studies have found that when modelling with rich data sources, the inclusion of control variables can mediate or even eliminate any effects of gender on performance (Robb and Watson, 2012; Justo et al., 2015; Marco, 2012; Zolin et al., 2013). The underperformance hypothesis is a key framing for this thesis, as there is some evidence that women-owned home-based businesses have an additional performance penalty compared to women-owned businesses outside the home (Thompson et al., 2009).

The two primary theoretical perspectives which have been employed within studies of gender and enterprise performance - or 'underperformance' - are social and liberal feminism. Broadly, liberal feminism highlights extrinsic gender-based discrimination, whereas social feminism posits that the intrinsic differences between men and women lead to different outcomes (Fischer et al., 1993). Both theoretical perspectives are relevant for this study. Liberal feminist perspectives highlight the importance of controlling for certain firm level factors in multivariate regression modelling, such as financing and access to support networks, where women may be at a disadvantage (Rosenbaum, 2017; Calas et al., 2009; Singh and Dash, 2021). For home-based businesses, this could be particularly important, if women in the home face additional discrimination because their businesses are not taken seriously, or are not perceived as 'professional'.

Social feminism on the other hand highlights the importance of differences between men and women-owned businesses, such as women running younger businesses, and in particular business industry or entrepreneurial segregation, in gendered performance outcomes (Zolin et al., 2013; Sappleton, 2018). It is well-established that women-owned businesses are often younger than men-owned businesses and that they are concentrated in less profitable, lower-paid, crowded and competitive industrial sectors - a process called entrepreneurial segregation (Sappleton, 2018). Social feminism posits that women are socialised from a young age to sort themselves into roles in the labour market that fit 'gender norms', such as industries that are associated with feminine roles and behaviors. This may be even more pronounced in home-based businesses, as men-owned are concentrated heavily into construction, which makes up a significant portion of home-based businesses (Kane and Clark, 2019; Mason et al., 2011).

Furthermore, in many studies to date, women-owned businesses have been found to run smaller firms in terms of employment, and have lower annual sales and productivity (Farhat and Mijid, 2018; Robichaud et al., 2018; Kiefer et al., 2020). Social feminist perspectives suggest that women make the decision to keep firms smaller and more manageable due to a lack of growth-

orientation, prioritisation of work-life balance over wealth creation and lower tolerance for risk (Gottschalk and Niefert, 2013; Robb and Watson, 2012).

2.4.2 The Performance Penalty on Women-Owned Home-Based Businesses

Home-based businesses have been referred to as "pink-collar" businesses, as they have long been associated with female ownership (Loscocco and Smith-Hunter, 2004). This, it has been suggested, is an extension of the traditional perception of the home as the woman's sphere and the workplace as the man's sphere (McDowell, 1999; Di Domenico, 2008). home-based businesses have been linked in the literature with representing 'convenience' or 'life-style' businesses, providing a means of balancing family life with income generation for female businesses owners (Carter et al., 1992; Thompson et al., 2009). The feminised narratives and lesser or "other" status surrounding work in the home may have led to the continued and inaccurate perception of home-based enterprises as low paid "hobby" businesses, with limited potential for income generation, growth or innovation (Mason, 2010).

In contemporary empirical studies there is some evidence to suggest that female business owners are over-represented or concentrated in the home, however the reality remains that the vast majority of home-based businesses are led by men (Mason et al., 2011; Loscocco and Bird, 2012). Women-owned home-based businesses have been found to experience particularly low financial performance and turnover and they have also been found to be more likely to be run part-time (Thompson et al., 2009). Perhaps contradictorily a study by Breen and Karanasios (2010) found that over ¾ of women-owned home-based businesses had ambitions to grow. However, many gendered studies of home-based businesses have been limited by small, or women-only and non-representative samples. Studies that directly compare men and women are sparse in the home-based business literature; however, Breen (2010) finds in a sample of home-based businesses in Australia that women-owned home-based businesses employ, on average, less staff than men-owned home-based businesses. Wang et al. (2009) also find that in comparison to men, women-owned home-based businesses are more likely to be run part-time, female owners work less hours in their businesses and have lower business ages on average.

Loscocco and Bird (2012) further find that because women are more likely to run home-based businesses, this is partially responsible for them having lower sales performance compared to men-owned businesses. Thus it appears that whilst women-owned home-based businesses may have ambitions to grow, the home may be preventing them from doing so. The main theoretical

link drawn in the literature between women's home-based businesses and their low financial performance is with work-life balance (Thompson et al., 2009; Walker et al., 2008).

It is well documented within the home-based business literature that family, lifestyle and convenience are more common motivations for women to start and run a home-based business than for men (Kalleberg and Leicht, 1991; Loscocco and Smith-Hunter, 2004; Thompson et al., 2009; Walker and Webster, 2004). Men-owned home-based businesses have been reported to be orientated towards wealth creation, and providing an income for their families (Breen, 2010; Walker, 2002). Several studies document the struggles and challenges specific to women-owned home-based businesses in terms of work-life balance (Loscocco and Smith-Hunter, 2004; Walker et al., 2008). Kim and Parker (2021) confirm that childcare specifically is linked to homeworking for female business owners but not male business owners.

The empirical analysis conducted by Loscocco and Bird (2012) shows the low financial performance of home-based businesses and women-owned businesses, is linked to both time dedicated to family and lower hours worked in the business. Thus the extra time spent scheduling in domestic duties reduces the time spent on the business and subsequently their earnings and capacity to take on employees (Acker, 2006; Jurik, 1998). Similar findings for home-based business are present within qualitative research into the gendered dimensions of home-based businesses, with Loscocco and Smith-Hunter (2004) finding that although home-based businesses run by women bring less work-life conflict, they are less economically successful than women in separate premises, leading the authors to suggest "homebased ownership may be a good option only for women who do not have strong financial needs".

Together, these relatively sparse empirical findings on women-owned home-based businesses have led to theories that women are 'kept' in the home by their domestic responsibilities, and hence may be less likely to locate and relocate their business out of the home and into a separate premises, hampering their growth (Estrin and Mickiewicz, 2011). However this premise is yet to be tested empirically. Overall, the gender and enterprise literature has a rather negative perception of women-owned home-based businesses, at least in terms of the seemingly limited success, financial and growth potential of female entrepreneurs.

However, just because a business has been started in the home by a woman looking to achieve work-life balance, does not necessarily mean that the business cannot grow. Whilst an older study, Walker (2002) found that although women were more likely than men to start a home-based business for work-life balance, over 50% still reported that their business was the primary

household income. In studies of home-based business motivations, many owners including both men and women, highlight complex multiple reasons for starting a business from home, including convenience, and cost-saving, not just work-life balance and childcare (Reuschke and Domecka, 2018; Reuschke and Mason, 2015).

There is also a school of thought within the gender and enterprise literature that suggests differences within groups of women-owned businesses are of far more importance than the differences between men and women-owned businesses (Henry et al., 2021; Fleck, 2017). This may depend upon the types of business being operated or the industry the business is in. For example, in relatively well-paid, professional industrial sectors there may be a concentration of career orientated women who run their business from home as there is no need for a separate premises. Those in personal services on the other hand may not have any other option than to run their business from home due to the low-paid nature of their industrial sector (Sappleton, 2018).

Whilst it is logical that running a part-time business is likely to generate less sales and less capacity to take on employees, most home-based businesses, whether run by women or men are full-time enterprises (Mason et al., 2011). Furthermore, a smaller reduction in hours spent on the business may not significantly reduce capacity to grow or achieve business performance, particularly if the business owner runs the business efficiently or hires employees and managers to do so. There is a strand of literature and career advice which suggests that women can 'work smarter' (Walters and Burnstine, 2021; Martinez, 2017) – increase productivity even with reduced hours of work – which may help them to compensate lost hours due to childcare and other domestic responsibilities whilst improving work-life balance (Grisso et al., 2017; Taylor et al., 2021). It is not yet known whether the phenomenon may exist among female entrepreneurs, however it is apparent in older entrepreneurs (Zolin, 2015).

By focusing purely on traditional sales and employment measures of business performance, distinct patterns of home-based business development may not be fully captured. This could lead to the underestimation of the performance of women-owned home-based businesses, as studies have shown that women-owned businesses tend to start and remain smaller (Farhat and Mijid, 2017), and have different attitudes or approaches to how they grow their business (Fairlie and Robb, 2009). Just because women-owned home-based businesses may be constrained in firm size does not mean that they cannot achieve high business performance in other measures.

2.5 The Geography of Home-Based Businesses

2.5.1 Agglomeration and Urbanisation Economies

Within economic geography it is well established that SMEs and start-ups can benefit from agglomeration economies in urban, higher density locations (Rosenthal and Strange, 2003; 2006; 2020). The benefits businesses, particularly small businesses, can gain from locating within agglomerations, urban areas, and business or regional clusters are well documented and theorised (Storper and Venebles, 2004; Williams and Currid-Halkett 2011; Shearmur and Doloreux, 2008). Large cities in particular are conceptualised as entrepreneurial accelerators, providing a large customer base, skilled labour and opportunities for networking, tacit knowledge transfer and entrepreneurial 'buzz' (Bathelt et al., 2004; Durmaz, 2015; Leibovitz, 2004; Martins, 2015).

Within the economic geography literature a distinction is often made between three types of geographically bounded externalities derived from firms clustering and encouraging firms to cluster further: Marshall-Arrow-Romer (MAR), Jacobs' externalities, and urbanisation externalities (Arbia et al., 2021; Caragliu et al., 2016). The MAR model states that concentration or geographic specialisation of a particular industry generates knowledge spill overs, input sharing activity between firms and promotes innovation (Krugman, 1991). Jacobs externalities (Jacobs, 1969) suggest that a diversity of industries in a geographic area promotes economic growth and innovation. Urbanisation externalities are the benefits a firm gets for being in a large urban area – including infrastructure, deep labour pools of skilled workers across different fields, and opportunities for sharing intermediate inputs (Rosenthal and Strange 2006; 2008).

Agglomeration economies can extend over broad distances (Rosenthal and Strange, 2020). However, as models suggest knowledge spill overs are geographically bounded in the place where the knowledge is created (Autant-Bernard, 2001a; 2001b; Feldman and Audretsch, 1999; Griliches, 1991), the strongest effects on productivity are from nearby activity (Rosenthal and Strange, 2020). Thus residential neighbourhoods and rural areas which are further from business clusters and major urban centers are considered less agglomerated in that they have less overall activity (urbanisation) and, in some cases, less activity of the entrepreneur's own industry (localisation), or less activity of a particular industry necessary for supporting that business (i.e. banking, production). Firms in these locations may have lower performance and growth because they do not benefit from agglomeration economies to the same extent (Rupasingha and Marre, 2020; Lee and Xu, 2020). Rural firms often cite difficulties in hiring, particularly skilled labour

associated with metropolitan areas, as an obstacle to their growth (Lee and Cowling, 2015; Bosworth and Venhort, 2018).

There are differences in how agglomerations benefit firms and they can benefit firms differently depending on firm age and size. Younger, and particularly new firms benefit more from localisation economies in terms of growth than older firms (Rosenthal and Strange, 2005; Rigby and Brown, 2015; Badr et al., 2019). Many small firms rely on large 'anchor' organisations in urban conurbations (Leibovitz, 2004). Small firms may also benefit to a greater extent from Jacobs' externalities and industrial diversity, which more commonly occurs in major conurbations than industrial clusters (Arbia et al., 2021).

However, there have also been challenges to the generally accepted notion that agglomeration equals better business performance. Agglomeration also generates increased competition, and may have significant costs for more mature firms, whilst still benefiting new firms (Sorenson and Audia, 2000). In fact, some later stage firms may even relocate out of a business cluster due to costs and an inability to sustain growth (Duschl et al., 2015). Furthermore, business owners and entrepreneurs often choose to locate near home, or in locations where they can spend time with friends and family, and that this can have a positive effect on performance (Dahl and Sorenson, 2012; de Beer and Schutjens, 2017).

There is an alternative strand of thinking therefore, which suggests that smaller cities and towns (intermediate settlements) located near large urban areas can still provide urban business benefits, but without incurring the additional financial (high business rents and competitors) and life-style costs that come from locating in a city (Phelps, 2001; 2004). This is described by Renski (2008, p. 62) as a "balance between urbanisation and diseconomies", which can help business owners to "maximise success and well-being".

However, it remains relatively rare for studies to disaggregate urban and rural areas or to include peripheral locations which exist along the continuum of urbanity or rurality. Studies which have included semi-urban or smaller cities have identified differences in these areas when compared to major conurbations, or core cities (van Eupen et al., 2012; Laurin et al., 2020, Abreu et al., 2019). It has also been suggested that skilled labour and clientele are accessible outside of major urban areas and business clusters through commuting, increased mobility and digital technologies and that business owners in these areas can also access lower commercial rents, and for home-based businesses, larger houses (Abreu et al., 2019; Bosworth and Venhorst, 2018). Hracs and Brydges (2019) detail how entrepreneurs outside of core cities can utilise temporary mobility to overcome

the disadvantages of remoter locations and smaller settlements, by travelling to nearby agglomerations when needed for banks, events, conferences, and meeting with suppliers and customers.

2.5.2 Location and Barriers to Growth in Home-Based Businesses

Home-based businesses have a geography that is highly distinct from businesses with separate premises, as most are not located in major agglomerations. Home-based businesses are concentrated in rural locations, village centres and residential suburbs (Mason et al., 2011). Bosworth and Newbery (2015) looking at home-based businesses in England, found that the proportion of home-based self-employment increased as the rurality of the district increased.

Mason et al. (2011) also identified a distinct regional geography, with home-based businesses concentrating into Southern England, particularly in affluent towns and smaller cities, with a significant second group located in remote peripheral counties. The latter areas are characterised by a lack of economic opportunities and potentially impossibly long commutes to urban areas, and thus home-based businesses are a logical solution. However, home-based businesses are also facilitated by detached or single-family homes (Reuschke, 2016; Kane and Clark, 2019; Kim and Parker, 2021) and so it not a surprise that Mason et al. (2011) revealed that most home-based businesses in the UK locate in affluent residential suburban locations, or rural villages where there are high proportions of these housing types (Reuschke and Mason, 2015; Kim and Parker, 2021; Enterprise Nation, 2014).

Research has also demonstrated that home-based businesses are spatially mobile, and are not strongly rooted in one location (Reuschke and van Ham, 2013). They have a higher propensity to relocate than other urban neighbourhood entrepreneurs (Risselada et al., 2013). This portrays home-based businesses as ‘footloose’ businesses, which can be easily moved and do not rely a great deal on their local area. Findings by Reuschke and Houston (2016) appear to confirm this, as in their study, it is businesses in separate premises which make use of neighbourhood resources, not home-based businesses. Folmer and Kloosterman (2017) also find that home-based entrepreneurs display a lower ‘connectedness’ with other entrepreneurs on all scale levels compared to firms located in an office, shop or other type of commercial real estate, and especially low local untraded interdependencies. Instead, they have higher levels of extra-local interdependencies. Home-based businesses also show a greater reliance on e-commerce trading for sales than non-home-based businesses (Reuschke and Mason, 2022).

There is evidence to suggest that home-based businesses in cities are more likely to become medium sized enterprises (Houston and Reuschke, 2017). Farja et al. (2017) also find that home-based businesses in rural locations reported lower employment growth than non-home-based businesses, but this did not apply to urban locations, indicating some potential disadvantage for non-urban home-based businesses. The results from Farja et al. (2017) is for businesses which are still home-based, whereas for Houston and Reuschke (2017) it is highly likely, but not confirmed, that this is related to growth out of the home and into a separate premises. Therefore, urban areas may provide specific benefits to home-based businesses and their growth compared to rural locations in terms of availability of premises and even when the business remains in the home. However, the fact that home-based businesses appear to be supra-local in their orientation indicates they may not access agglomeration economies on a local scale, which could indicate that the many home-based businesses in suburban or semi-urban locations may still benefit from proximal urban locations or online customers and networks.

Merrell et al. (2022a; 2022b) in their mixed methods study of entrepreneurs in rural hubs/incubators find a high proportion of tenants were previously based in the home. These previous home-based businesses had substantial gaps in their networks prior to coming to the hub and they often lacked visibility. Benefits of co-location mentioned by the home-based businesses were market proximity, professional proximity and separation from home, including overcoming the isolated nature of working from home in a remote area and avoiding distractions. Many businesses which had been operating in the home also reported lacking reliable and speedy internet access.

Together, these results indicate that home-based businesses may benefit from agglomeration economies in different ways from non-home-based businesses, both due to their location in residential and rural areas and when they are located in urban areas. Indeed, they may not benefit from some agglomeration economies at all. On the other hand, home-based businesses may also be less dependent on those same agglomerations and the resources in their local area. Different types of home-based businesses may locate in different areas. For example, in remote rural locations residents may have a lack of other options for employment, those in suburban areas with large houses may use the home as a business premises because it is convenient to do so whilst still accessing the city when needed, and urban home-based businesses may start with the plan to move into a separate premises. However, as there are very few studies of home-based business growth and performance which directly compare home-based businesses in different locations, little is known as to how the geography of home-based businesses relates to growth.

2.6 A Gendered Geography of Home-Based Businesses

There have been calls for more studies of women's entrepreneurship to highlight spatial and geographic perspectives that have received relatively less attention thus far in the gendered performance debate (Welter, 2020; Foss et al., 2019; Brush et al., 2019). A limited number of studies from gender and enterprise that have examined the female underperformance hypothesis have drawn upon the economic geography literature. Usual research designs for quantitative studies hold the assumption (incorrectly) that any differences between female and male-owned businesses will be consistent throughout the national economy under study, and hence interaction terms between women-owned businesses and locations are often not included in modelling (Kalnins and Williams, 2014; 2021).

There have however, been a few notable contributions to understanding the role of location and gendered business performance. Rosenthal and Strange (2012), Lee and Marvel (2014) and Marvel et al. (2015) all find that there are significant differences in where women and men choose to locate their businesses, and that this has significant implications for their business performance. Lee and Marvel (2014) and Marvel et al. (2015) find that women-owned businesses are less likely to be located in employee-clustered regions, which contributes significantly (alongside other firm demographics) to their lower firm performance in innovation, domestic sales and exports. The authors argue that if women have different reasons for starting firms and different goals (i.e. men pursue wealth creation and women pursue work-family balance) then women will place less emphasis on locating in areas where they can maximise revenue, and therefore will not benefit from agglomeration economies to the same extent as men.

Rosenthal and Strange (2012, p. 766) similarly find that

"the smaller presence of female entrepreneurial activity in the densest locations and in clusters means that both the productivity and opportunity advantages of cities may not be enjoyed proportionately by female entrepreneurs".

They develop and test a theoretical model that female entrepreneurs have disproportionate responsibilities at home, and therefore commute shorter distances. They argue that the 'spatial segregation' by gender found in their study develops because women are discouraged from locating their businesses in major cities and agglomerations far from attractive residential areas – which certainly fits the finding that more women may choose to locate their businesses in the home. However, Rosenthal and Strange (2012) also find that women-owned enterprises benefit

less from nearby agglomeration than men, and that this is reflected in their lower sales per employee.

This is an interesting finding, as urban areas tend to benefit female employees; particularly in terms of earnings and career progression, cities tend to be more gender equal than rural areas (Hirsch et al., 2013; Nisic, 2017). This finding is also somewhat contradicted by Kalnins and Williams, (2014) who found that women-owned sole traders survived for a longer duration than male sole traders in major cities, and where there are higher concentration of banking services, and in customer rich and network-rich areas (Kalnins and Williams, 2021). Nonetheless, survival does not necessarily mean higher profitability or sales, but these findings certainly indicate that women-owned businesses not only differ in their firm location and performance across different areas, but they may gain some benefits from agglomerated areas over their male counterparts.

There is some evidence from the home-based business literature that indicates that women and men-owned home-based businesses have different locations and that women-owned home-based businesses are slightly more rurally located than men (Bosworth and Newbery, 2015). Reuschke and Mason (2015) found that women-owned home-based businesses in Scotland were highly concentrated into city suburbs, whilst Wang et al. (2009) found that women ran higher percentages of peripheral/rural home-based businesses than men did. It is therefore plausible that the family-orientated motivations of women-owned businesses identified in the home-based business literature could result in women-owned home-based businesses clustering outside major urban areas and into peri-urban and rural location. This would be expected to have higher proportions of families, and would provide detached housing suitable to accommodate both family and business (Ekinsmyth 2011; 2013; Reuschke, 2016).

Another possible driver which could lead women-owned home-based businesses to be located outside of agglomerations, is the lack of other opportunities for women in remote areas (Wynarczyk and Graham, 2013), as this may encourage small business ownership within the home as one of few options available (Thompson et al., 2009). In urban areas, women may be more inclined to choose regular employment over running a business (Hanson and Blake, 2005). Folmer and Kloosterman, (2017) further find that women-owned home-based businesses and non-home-based businesses in residential neighbourhoods in the Netherlands were more likely to form local business connections and therefore may be more dependent on their neighbourhood than men/co-owned home-based businesses.

If women-owned home-based businesses are started in rural locations because they have few other options – and there is evidence that women-owned businesses in general are less likely to participate in opportunity entrepreneurship in rural locations (Figueroa-Armijos et al., 2012) - this will likely impact their performance as necessity entrepreneurs are generally less growth orientated (Fairlie and Fossen, 2020). Equally, if women-owned home-based businesses are more locally orientated, when home-based businesses are generally supra-local in their business connections (Folmer and Kloosterman, 2017), then women-owned home-based businesses may be more reliant on local customers and networks, which in sparse rural locations will be limited, creating further barriers to growth and performance in these areas. All of these findings indicate that women-owned home-based businesses may have different business performance outcomes depending upon their location, particularly whether their business is in an urban, rural or semi-urban location.

2.7 Summary

Despite significant changes to self-employment and small business ownership in the last 20 years (the rise of the 'gig' economy, ICT and homeworking), there remains a disconnect between work and home in academic scholarship. Theoretical and empirical approaches that separate the owner from the business, the business from the household, and the home from its locale are no longer appropriate (Reuschke, 2015). Chapter 2 argues that geographical perspectives and socio-spatial theories must be combined with business research to understand the growth and performance of home-based businesses, however there has been limited work across the two disciplines (Sternberg, 2022).

Chapter 2 therefore defines the specific research gaps within the cross-disciplinary space of entrepreneurship and business research and economic geography, which provide the framework for this study. The home-based literature highlights that a variety of performance measures beyond firm size are yet to be explored and that going forward, research must distinguish between those that remain in the home and those which relocate into a separate premises or new home to fully understand growth strategies in home-based businesses. Growth in home-based businesses is inherently spatial.

Within the small business literature, gender and enterprise has become a highly discussed and somewhat controversial topic with some studies continuing to push the narrative that female business owners underperform their male counterparts, and others providing evidence that this is not the case. However, a more consistently agreed upon narrative is that women who own home-

based businesses have even lower business performance and growth prospects, as they manage childcare and work within the home to the detriment of their business (Thompson et al., 2009; Loscocco and Bird, 2012). However, the underlying evidence base for this 'performance penalty' is limited, and there is a gap in the literature for exploring women-owned home-based business across different homeworking arrangements, different measures of performance and indeed, location.

Whilst there has been a contextual turn in entrepreneurship which has elicited excellent research on women's entrepreneurship and business ownership within national contexts, particularly developing or transitional economies, there is a strong need for generalisable, quantitative research that explores how business outcomes may differ for both men and women within national economies, at the regional, urban-rural, or neighbourhood scale.

Chapter 3 Data and Empirical Approach

3.1 The UK Longitudinal Small Business Survey

The UK Longitudinal Small Business Survey (UKLSBS) comprises the primary dataset used in this thesis and is a rich dataset for exploring small business performance and growth using multiple measures. The UKLSBS is a stratified random sample of Small and Medium-Sized Enterprises (SMEs) (0-249 employees) in the UK - although, as this is a study of small businesses, only those with less than 50 employees are used in this work (European Commission, 2020). The data is collected by telephone (BEIS, 2022a).

The UKLSBS is part of a series of government led small business surveys which have been released biannually or annually since 2003, to inform policy and support programs (BEIS, 2016). The dataset provides the largest, most recent sample of home-based businesses from a UK firm-level survey thus far. The previous small business surveys were all smaller sample, cross-sectional surveys. For the first time in UK data history, the UKLSBS provides both annual cross-sections of the small business population and a longitudinal tracking element which follows a panel of re-interviewed businesses from 2015-2019 (BEIS, 2022a). This chapter will provide details into the choice of data and methods used in the empirical work in this thesis, including data linkage and limitations.

At the time of writing the UKLSBS contains seven waves of data from 2015-2021. Given the delays to the release of the 2020 wave , the significant changes to the small business population during the pandemic - particularly home-based businesses - and the new methodologies which were implemented due to work-from-home orders (BEIS, 2021), only the UKLSBS 2015-2019 is used in this thesis. It was beyond both the scope and the time-frame available of the work to include analysis of 2020 or later, and would likely dramatically impact on results from prior to the pandemic.

The UKLSBS has a dual sampling methodology, including registered businesses sampled from the Inter-Departmental Business Register (IDBR) and unregistered businesses sampled from Dun and Bradstreet's database (BEIS, 2022a). The IDBR is an administrative database which covers over 2 million businesses in all industrial sectors across the UK economy, and gets its data from HMRC, Office for National Statistics (ONS) surveys and quarterly companies house data (Evans and Welpton, 2009; ONS, 2006). The IDBR compiles its information on the entire business population through multiple administrative systems: Value Added Tax (VAT), employee income tax payments

(made by employers through the Pay as You Earn system) and Company Registration (for businesses that wish to operate with limited liability) (ONS, 2006).

The IDBR is maintained by matching sources of commercial and administrative data and is a total universe of registered enterprises within the UK. Businesses which are 'unregistered' and therefore not contained in the IDBR are zero employee businesses with a turnover under the VAT threshold (£82,000 in 2015; £85,000 in 2022) (HMRC, 2022; ONS, 2006). These businesses represent the smallest enterprise units in the UK and, like home-based businesses, are excluded from nearly all UK business surveys, and thus much existing research. These businesses are essential for a study of home-based businesses, as most home-based businesses in the sample do not have employees, and most unregistered businesses are home-based.

In 2015, Dun and Bradstreet's UK Trading File contains 2.8 million businesses (BEIS, 2016). It is populated by a mix of Companies House data, annual accounts returns, trade directories and other sources, and thus have contact details for unregistered zero employee, non-VAT paying businesses that are not in the IDBR. Unregistered businesses from this database were carefully screened to ensure that they definitely did not appear in the IDBR, or have any employees, to avoid duplicates (BEIS, 2022a).

With the exception of Houston and Reuschke (2017) and Bates et al. (2013), research on the topic of home-based businesses has mainly relied upon cross-sectional samples with self-reported recall to derive growth and other performance measures. This appears to be a data availability issue, which was identified when searching for appropriate data to address the research questions proposed in this thesis. There are some cross-sectional surveys which identify home-based businesses, including the previous UK business surveys and the Global Entrepreneurship Monitor (GEM), in which UK researchers specifically added a question about home-based businesses and business performance (Thompson et al., 2009).

These studies were crucial for revealing for the first time the significance of home-based businesses to developed economies across the world, the demographics and heterogeneity of home-based businesses, and the distinct barriers to growth that may impact them. They identified how home-based businesses are gendered (Breen, 2010; Breen and Karanasios, 2010), differ geographically from non-home-based businesses (Mason et al., 2011; Reuschke and Mason et al., 2022), and highlighted the growth intentions and perceived barriers to growth and innovation (Clark and Douglas, 2012).

Therefore, the UKLSBS provides a unique and exciting opportunity to add to this body of literature with an extensive, representative study of actual growth over a number of years/waves, which is currently missing from the home-based business and small business literatures. The use of panel data has several advantages in microeconomic analysis. Panel data is essential for looking at growth at the business level accurately, to capture conditions preceding growth and controlling for endogeneity rather than depending on unreliable 'retroactive recall' (Rost and Ehrmann, 2017; Narayanan et al., 2021). Therefore, it has become a popular choice in both micro and macroeconomic research, particularly in regards to its ability to obtain unbiased estimates of parameters that control for unobservable cross-sectional heterogeneity – i.e. the individual (or in this case firm) effect (Hsiao, 2007).

The UKLSBS is a stratified random sample by industrial sector, and when used with the survey weights (based on Business Population Estimates (BPE)) can in fact provide a representative sample of SMEs within the UK, which allows generalisations to be made about home-based businesses. The UKLSBS provides survey weights for use with the data (both longitudinal and cross-sectional), which weights the data to the BPE estimates for the prospective year by location, size, sector. This corrects for under-sampling and oversampling during the data collection. The UKLSBS provides a large sample size of home-based businesses and non-home-based businesses both in its cross-sections, and longitudinally, when compared to most of the previous home-based business literature, which can increase the statistical power of models and the robustness of the results and inferences.

Henley and Song (2020) point out the lack of information on management skills available in the UKLSBS. Unobserved information on human and social capital (such as education, networks, childcare needs etc) may also influence business outcomes (Tata and Prasad, 2008). Overall, however, the modelling controls for as much heterogeneity as possible, and the range of contextual variables included as controls will proxy for some of these missing variables. A specific limitation of the employment variable is the inability to determine whether employees are full-time or part-time.

3.1.1 Secure Data Access

The UK data service provides access to a micro-data version of the UKLSBS, in addition to the standard release, via the Secure Lab. This version of the dataset includes additional variables: the postcode district, 3 or 4 digit industry SIC codes and IDBR reference numbers for linking to other official business surveys and registers in the UK. Since this dataset is more sensitive and poses a

higher risk of disclosure than data made available under the standard End User Licence, it is not available for free download but can be accessed through the UK data service Secure Lab, by ONS accredited researchers.

3.2 Data Linkage

3.2.1 The Business Structure Database

The Business Structure Database (BSD) is a snapshot of the IDBR, which is taken annually in March, and captures longitudinal data from the firms in the IDBR on a small number of the same variables every year. These variables include the number of working owners/partners, turnover, employees (if they are paid through PAYE), when the business started and ended trading, and the full postcode (ONS, 2006).

Within the secure data environment the UKLSBS and the BSD can be linked. There are two files available, one at the enterprise level and one for local 'units' or branches of an enterprise with multiple business premises. This thesis, being concerned with small and micro-enterprises which rarely have more than one premises, makes use of the enterprise level files, which date back to 1997. A panel dataset was then created from these files.

Not all businesses in the UKLSBS can be linked to the BSD. The IDBR and the BSD exclude unregistered businesses which generate sales below the VAT threshold and do not pay employees via pay-as-you-earn (PAYE). The UKLSBS samples businesses from both the IDBR, which can be linked to the BSD, and non-employing non-VAT registered businesses from the Dun and Bradstreet Database which cannot be linked to the BSD.

This poses some restrictions on the use of the BSD for this thesis. Moore et al. (2018) highlights the issues that can occur when linking some firms and not others, and that differences between businesses with and without linkage identifiers can cause severe bias in research. This is reflected in Robinson et al. (2020) , whose study links the UKLSBS, the Community Innovation Survey (CIS), and the BSD. They use only registered enterprises from the UKLSBS to conduct their analysis. However, this approach is not suitable for this research as excluding these businesses would not give a representative picture of UK home-based businesses , and would exclude 1/4 of the home-based business sample.

Nonetheless, a longitudinal panel dataset of the BSD was used as part of the methodology for Chapter 6 in this thesis. By linking the two datasets with the UK Secure Server it was possible to

identify which businesses had previously had employees, and which had not. Further information on this methodology is provided in Chapter 6.

3.2.2 Issues and Considerations with Aggregate Data Linkage

This thesis explores the links between geography and home-based business growth in both men and women-owned small businesses. For this purpose, area and neighbourhood characteristics, including urban, rural and agglomeration identifiers were required, so that the link between firm level growth and aggregate level data could be analysed. The UKLSBS includes several pre-coded variables, which were linked to the dataset via the full postcode of the business prior to the publication of the data, and are described in the variable list below. Unfortunately however, the version of the dataset available to researchers within the UK Secure Lab censors the full unit postcode of the business, and only the postcode district is provided. This creates several issues regarding linking data from outside of the UKLSBS (i.e. variables that are not pre-coded).

Postcode geography within the UK consists of the following, from smallest to largest: postcode units, sectors, districts, areas. An example table describing these units is presented below, taken from the ONS (ONS, 2021).

Table 3.1 UK Postcode Geography

Example	Geographic Unit	Number in UK
PO	Postcode Area	124
PO15	Postcode District	3,114
PO15 5	Postcode Sector	12,381
PO15 5RR	Unit Postcode	Approximately 1.75 million (Live)

Source: https://www.ons.gov.uk/methodology/geography/ukgeographies/postalgeography

One of the primary limitations of working with postcode districts is that very little aggregate data is produced at this level (Ball, 2009). This is because postcode districts, unlike regional and neighbourhood data defined for the census - output areas (OAs), lower super output areas (LSOAs) and middle layer super output areas (MSOA) - postcode districts are based on delivery routes for the royal mail – i.e. where people live, not how many people live in an area (Bennett et al., 1999; Martin, 2001). Datasets within the UK Secure Server including the Annual Population Survey, Labour Force Survey and the Annual Survey of Hours and Earnings do include data on individuals and the postcode of their household which could be used to derive postcode district level measures on population characteristics. On investigation, unfortunately, these datasets do not produce sufficient sample sizes for accurate postcode district level data. However, census

data is produced at postcode district level and as this is a total universe could be linked to the UKLSBS at the postcode district level.

Postcode boundaries do not align with other geographic boundaries, including census geographies, and are constantly changing due to new addresses and location changes (ONS, 2021). Postcode units, the smallest level, have an established linking methodology derived by the ONS to census output areas using population weighted centroids, which allows any postcode data to be linked directly to OAs and higher level geographies such as LSOA, MSOA, Wards and Local Authority Districts (LADs) (ONS, 2021). Unfortunately, there is no such linking methodology for the postcode district (Ball, 2009). In fact, a review of the literature reveals that no peer-reviewed study, government department or even a private commercial GIS or database provider has attempted linkage of postcode district to other geographies.

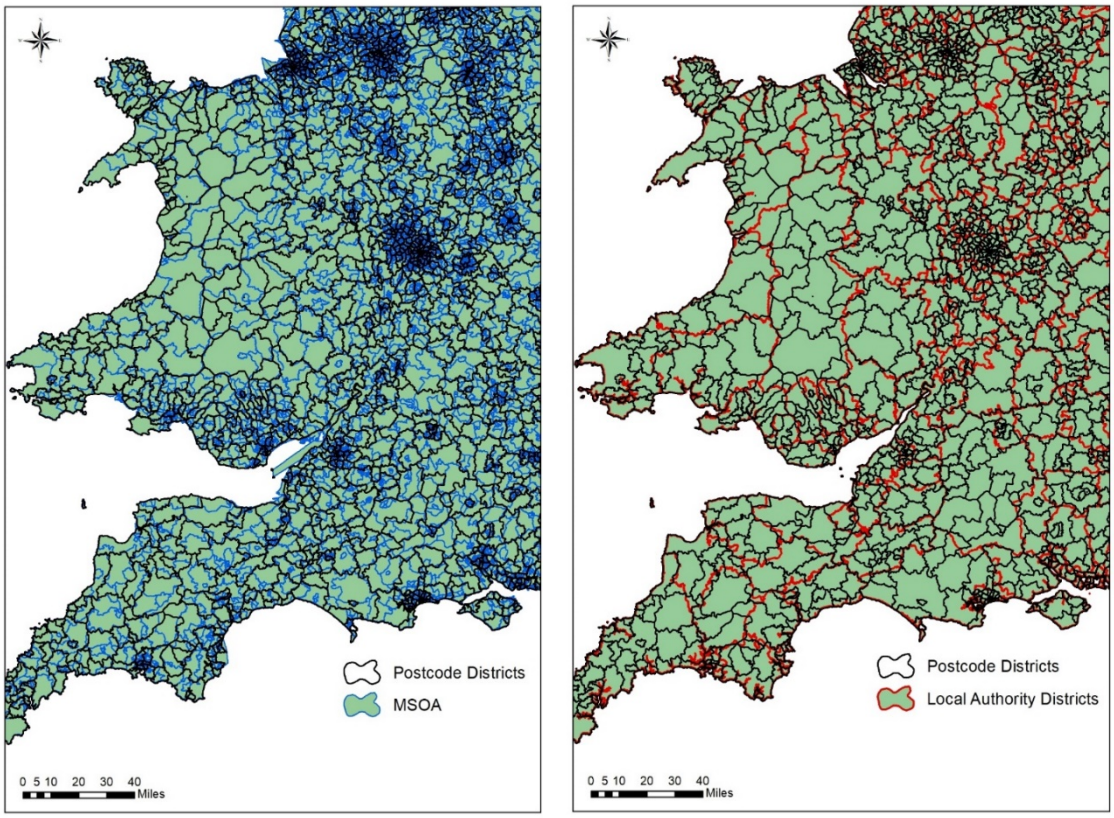
Figure 3.1, which displays a snapshot of geographical boundaries/polygons within Wales and the South West of England highlights the severity of the overlap between postcode districts and MSOAs and LADss making data linkage of these different boundaries impossible to do accurately or robustly. Figure 3.1 also demonstrates that most postcode districts are larger than MSOAs.

Census boundary data is based on both households and number of people and have undergone a degree of standardisation (Martin, 2001). In the 2011 census an OA had between 100 and 625 people, an LSOA had between 1000 and 3000 people and an MSOA had between 5000 and 15,000 people (ONS, 2022). Output areas were also assessed to ensure some degree of social homogeneity. As postcode boundaries are based solely on Royal Mail delivery routes no such methodology is applied to them (Martin, 2001; Lavoratori and Castellani, 2021). In comparison the usual resident population in 2011 in the smallest postcode district was 136, whilst the largest was 154,233 people, and this lower and upper limit do not represent outliers (ONS, 2011). Furthermore the land area of postcode districts is also highly skewed. Bennett et al. (1999) highlight that this can cause significant issues when analysing rural postcode districts, as Royal Mail increase their delivery size in these areas to equalise delivery loads, distorting the rural geographic frame.

As there was no methodological precedent, and due to the issues associated with use of postcode districts described above, it was decided that only the pre-coded variables would be used, as these had already been accurately linked to the business level data. When analysing spatial units they should be “as relatively internally homogenous and of as equal a size as possible (to retain their comparability)” (Bennett et al., 1999, p.419). In this case, the pre-coded output area data

can satisfy this requirement, whereas postcode districts are more problematic. The pre-coded data is sufficient to answer the research questions this thesis poses. Furthermore, the use of the pre-coded variables captures detailed settlement information on urban, rural and intermediate areas which would be lost within the larger postcode district.

Figure 3.1 The overlapping regions issue, boundaries of postcode districts, MSOA and LADs



Source: Office for National Statistics; Ordnance Survey Open Data; author's own compilation

3.3 Key Variables and Additional Information

The section below provides additional information on several key variables which are used in the empirical research in the following chapters.

3.3.1 Home-Based Business, Premises Type and Multiple Business Sites

To identify home-based businesses the UKLSBS asks the survey respondent if their business has a separate business premises apart from theirs or someone else's home. This definition can include businesses registered at home where most or all of the work is done outside of the home, mobile

businesses, and those which use the home as the main premises. Businesses which are registered at home but also have a business address, which would be 'false' home-based businesses, will not be included as home-based businesses. Additionally, this definition will capture those home-based businesses which work entirely from home, but use a 'virtual mailbox' for a more professional, looking business address, or to protect their home privacy[1].

By using this definition this thesis is in line with and comparable to many other studies of UK home-based businesses (Hastings and Anwar, 2019; Mason et al., 2011) and policy documents written by the UK government and others (Reuschke and Domecka, 2018, Enterprise Nation, 2014).

Premises type is a more nuanced variable than the home-based business variable, and splits the home-based business variable into three categories following terminology developed by Long and Reuschke (2021): businesses in a separate premises; businesses using the home as a premises; businesses using the home as a base. This data is gathered by asking businesses which have indicated they are home-based whether they mainly work at home. Those that stated they work mainly from home would then be considered businesses which use the home as a premises, those that do not, use the home as a base.

Unfortunately the variable which gathers data on the premises type of home-based businesses is only available in 2015, and was discontinued in the following waves of the survey. Therefore this variable can only be used in cross-sectional analysis using the 2015 wave, which is presented in Chapter 4. In Chapters 5 and 6, which use longitudinal data to analyse growth in home-based businesses, a proxy control variable for home as a base and home as a premises is introduced using data on whether the business has multiple business sites (i.e. work is not only done at the home). This should partially control for those who work only from home, and those that work in more than one location. Whilst this is unlikely to be a perfect proxy, it should allow any growth outcomes identified to apply to all home-based businesses, regardless of work related mobility and whether the home is the only premises used.

3.3.2 Women-Owned and Men/Co-Owned Businesses

The survey has been designed with gendered studies in mind, and therefore contains unusually detailed variables on gender composition for a business level survey. The gender variable used

[1] See for example: https://www.ukpostbox.com/who-uses-uk-postbox/home-based-business

throughout analysis in this thesis is whether the business is over 50% owned by women or not. When a business is described as women-owned, this refers to majority women-owned businesses, whereas men or co-owned businesses refers to business either owned in majority by men or owned equally by men and women. This is certainly one of the most common gender variables used in the gender and enterprise literature (Sui et al., 2022; Orser et al., 2010), increasing comparability to other studies.

The UKLSBS provides another variable on gender – whether the business is women-led or men-led. This variable is not based on ownership, but based on the number of men and women in the management team, including directors/managers who are not owners or partners. This variable was not chosen for the main analysis, as it is unlikely directors and managers will dictate the overall direction of the business compared to the owners. Furthermore, as home-based businesses are very small with one or two owners/partners, a business 100% owned by a woman with a male manager, would not be considered 'women-led' if this variable was used, therefore the ownership variable was chosen instead.

3.3.3 Urban-Rural Location

The indicators of urban-rural locations are taken from the 2011 census classifications. Detailed urban and rural data is provided for England and Wales, Scotland and Northern Ireland separately, as each country has its own classification. As this is a UK wide study, the 'unified' or cross-country classification derived by the Consumer Data Research Centre (O'Brien, 2016) was used.

The first is a simple binary urban-rural variable. Following Abreu et al. (2019) the second variable – area type - takes all rural locations as the base category, with two comparative categories, large urban areas and smaller urban areas. The third variable takes all urban areas (large and small together) as the base category with two comparative categories, accessible rural areas and remote rural areas. Due to missing data on rural accessibility in Northern Ireland, Northern Irish businesses are excluded from the models which use the second business location variable.

Large urban areas include conurbations such as London and Manchester/Liverpool, and other major cities in the UK such as Birmingham, Leeds, Glasgow and Belfast. Smaller urban areas include smaller cities such as Bristol, Cardiff, York and Blackpool and large peripheral towns or suburbs. Rural locations capture lower population density suburbs, rural towns, villages, hamlets and isolated dwellings. Rural settlements which have the smallest number of other settlements

within 30km are classified as remote rural locations. As would be expected, most remote rural locations fall in Scotland, Wales, Cornwall and the North of England.

3.3.4 Turnover and Employment

One of the limitations of the panel data in the UKLSBS, which is common to voluntary or non-mandatory surveys of small businesses, is that not all firms are willing to give responses relating to their turnover/sales. Small businesses are often apprehensive to give out sensitive company data, and may also be less likely to respond if the business is struggling, creating a bias in the results towards the more successful businesses. However, most of the businesses which did not provide precise turnover data provide turnover within a size band (e.g. £0-82,000, £82,000-249,000 etc.). Therefore, the missing data issue can be dealt with, as in previous research using this survey (Maioli et al., 2020; Henley and Song, 2019), by taking the middle size band of the data, or by using a categorical variable (turnover 'dummies') rather than a continuous one.

There are some limitations in the employment measure worth noting. The employment measure is headcount per enterprise rather than full-time equivalent which is used in some studies. However, the majority of studies from OECD countries are not able to capture this information and in this sense, this study does not differ significantly from other research (Criscuolo et al., 2014). Nonetheless, if a group of businesses has greater employment than another group, it should be considered whether there is any theoretical basis for that group hiring more part-time employees.

3.4 Sample

3.4.1 Sample Selection

The UKLSBS contains data on businesses with 0-249 employees. Medium sized businesses with 50 or more employees, as explained in Chapter 1, are excluded from this study and only the small businesses are used in the analysis. Some small businesses naturally grow into medium sized enterprises during the survey and these are left in. As different samples are used in Chapters 4, 5 and 6, sample sizes are reported there.

The original sample of businesses collected by the UKLSBS contains a mixture of sole traders, partnerships, limited companies, organisations such as trusts and charities. This thesis is interested only in UK for-profit private enterprises. Charities and not-for-profit social enterprises have different outcomes, barriers to growth, and decision making processes (Jenner, 2016;

Tykkylainen et al., 2016; Huybrechts, 2019). From a practical perspective organisations such as trusts or industrial societies do not operate to provide financial renumeration for the owner, they often rely on volunteers rather than employees, and often there is no 'owner', rather a board. Therefore, the following organisations were excluded from the sample based on their legal status:

- Private company limited by guarantee
- Community Interest Company (CIC, limited by guarantee or shares)
- Friendly Society
- A Co-operative /Cooperative society
- Industrial and Provident Society
- Foreign Company
- A trust
- An unincorporated association
- Charitable Incorporated Organisation
- Charities
- Community Benefit Society

Businesses which did not contain information on the owner of the business, or whether the business was majority women-owned were also naturally excluded.

3.4.2 Missing Data

From the businesses chosen for the analysis, the home-based and location variables have only one business with missing data, which is extremely beneficial for the data analysis. For the gender variable, the missing data is mostly that businesses do not have working owners and partners – for example where the business is owned by another business.

In general, where an independent variable has missing data it is included as an extra category within the variable to increase the sample size and ensure there is no unintended or unobserved bias in the missing data. This is only done where robust standard errors can be estimated for the coefficient of the missing data. This will be indicated in individual regression tables throughout the thesis.

All derived variables – i.e. variables derived by the data owners - were checked to ensure they had been correctly coded based on the information provided. Some minor changes were made to the ethnic-minority ownership variable, which had incorrectly coded 'do not know' responses as 'not

ethnic minority owned' and had incorrectly coded some ethnic minority businesses as missing data. More information on this process is available on request.

3.4.3 Sample Attrition and Retention

One of the limitations of the UKLSBS which has been addressed in some of the peer-reviewed publications using the dataset (Henley and Song, 2019; Gkypali et al., 2021; Owalla et al., 2021; 2022) is that the sample attrition – the 'drop out rate' from the survey is a little higher than other similar surveys. This is likely because this is the first time the UK Government has run a longitudinal small business survey. The attrition reduces the sample size each year and necessitates using an unbalanced panel, rather than a balanced panel, when analysing smaller sub-samples of the data. This is of itself, not an issue, as there are various methods that can cope with unbalanced panel data (Baltagi and Song, 2006).

However, this could become an issue if survivor bias is introduced into the data analysis, which occurs when businesses appear more successful than they are, as only the businesses which survive remain in the survey (Davidsson and Gordon, 2012). There are methodological approaches for dealing with this issue (see the Heckman Correction (Heckman, 1979)), but unfortunately the UKLSBS loses a portion of the panel each year who simply 'disappear', and it is not possible to determine if these businesses survived or not.

In the UKLSBS however, the majority of businesses which only responded to one wave of the survey simply couldn't be reached when contact was attempted, or refused to participate, the latter being the most significant reason for attrition. It is likely that some of these dropouts are no longer trading, but the survey cannot tell us this for certain. Again, this should not be an issue for the analysis however, unless the sample attrition is stratified by the key variables of interest – for example if businesses in urban locations were more likely to remain/leave the survey than businesses in rural locations.

This is particularly important as Chapter 5 looks at relocation in home-based businesses. Businesses could easily lose contact with the telephone survey if they change their business/personal number and the business now has a new address, regardless of where they relocate too. Houston and Reuschke (2017) found that home-based businesses were more likely to remain in the survey, perhaps because they are more likely to give out personal contact details, which will remain the same. However, were home-based businesses more likely to drop out of the survey this could indicate that a large number of the most successful, relocating, growing home-based businesses were lost from the survey, and the longitudinal results would subsequently

underestimate home-based business performance. This would also apply if women-owned businesses or men/co-owned home-based businesses were more likely to leave the survey, as this could lead to an under/overestimation of gender differences.

In order to address these two concerns – survivor bias and relocating home-based businesses – sample attrition analysis was carefully conducted.

3.4.4 Stratification of Sample Retention by Key Variables

Two sets of analysis on the sample retention are run and presented below. Table 3.2 and 3.3 present logistic regression models estimating the log odds of a business remaining in the survey in each year – i.e. whether a business which responded to the survey at t also responded to the survey at t+ 1, the following year. Table 3.2 mirrors the sample used in Chapter 5 – all businesses which remained in the survey for two or more consecutive waves. Random effects are included to account for the likelihood that businesses that respond to the survey twice in a row will be more likely to respond to further waves, and controls for businesses which drop in and out of the survey.

Table 3.2, Model 1 demonstrates that women-owned businesses are significantly less likely than men/co-owned businesses to remain in the survey for two or more waves. Home-based businesses on the other hand, are just as a likely to remain in the survey as businesses with separate premises, and businesses in urban areas have similar odds of remaining in the survey as businesses in rural locations. Table 3.2, Model 2 includes an interaction term between home-based business and women-owned business which demonstrates that women-owned home-based businesses do not have significantly different odds of remaining in the sample. The aim of Chapter 5 is to analyse the home-based and business location variables, which according to the analysis do not have any issues with retention or attrition, and therefore this does not pose a risk to the robustness of the analysis. However, Model 1 does indicate that coefficients for women-owned businesses in this chapter should be interpreted with some care, as there may be some survivorship bias in the sample.

Table 3.3 runs the analysis on a sample of non-employing businesses only, using the key variables and sample used in Chapter 6 to analyse retention among the non-employing businesses in the survey. Table 3.3, Model 1 confirms that the odds of a home-based non-employer remaining in the survey for more than two waves is not significantly different from a non-employer with separate premises. This model also shows that the finding in Table 3.2, Model 1, that women-owned businesses are significantly less likely to remain in the survey than men/co-owned

businesses, does not apply to non-employing enterprises. Table 3.3, Models 2 and 3 demonstrate that women-owned home-based non-employers do not have significantly different odds of remaining in the survey compared to women-owned non-employers with a separate premises or men/co-owned home-based non-employers.

Table 3.3 Models 1-3 demonstrate that for the non-employer sample business location in different types of urban and rural areas are not significantly associated with sample retention. Table 3.3, Models 4 and 5 show the same results as Models 1-3, but for samples of men/co-owned non-employers and women-owned non-employers separately. Overall, neither Table 3.2 not Table 3.3 provides any cause for concern or indicates that the sample retention is stratified across the key variables used in each chapter.

Table 3.2 Sample retention by key variables in Chapter 5, logistic regression with random effects

	All	All
	Model 1	Model 2
Home-Based Business (Ref Cat. Separate Premises)	0.946	0.967
	(0.036)	(0.041)
Women-Owned (Ref Cat. Men/Co-Owned)	0.879**	0.908
	(0.037)	(0.046)
Women-Owned X Home-Based Business	-	0.905
Area Type (Ref Cat. Rural)	-	(0.076)
Smaller Urban	1.322	1.331
	(0.443)	(0.446)
Larger Urban	1.312	1.320
	(0.444)	(0.448)
Area Accessibility (Ref Cat. Urban)		
Accessible Rural	1.472	1.482
	(0.497)	(0.500)
Remote Rural	1.837	1.848
	(0.601)	(0.606)
Observations	27,983	27,983
Chi2 (Degrees of Freedom)	407.669 (32)	409.125 (33)
Random Effects	Yes	Yes
Standard Errors	Robust	Robust

Note: Exponentiated coefficients; Standard errors in parentheses. Note: UKLSBS, 2015; UK private enterprises only; unweighted data. Not shown: ethnic minority ownership, sole ownership, industrial sector. Source: author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3.3 Sample retention by key variables in Chapter 6, non-employing businesses only, logistic regression with random effects

	All	All	All	Men/Co-Owned	Women-Owned
	Model 1	Model 2	Model 3	Model 4	Model 5
Home-Based Business (Ref Cat. Separate Premises)	1.034	-	-	1.026	1.068
	(0.062)	-	-	(0.069)	(0.136)
Women-Owned (Ref Cat. Men/Co-Owned)	0.885	-	-	-	-
	(0.064)	-	-	-	-
Gender and home-based business (Ref Cat. Men/Co-Owned Separate Premises)					
Women-Owned Separate Premises	-	0.847	-	-	-
	-	(0.092)	-	-	-
Men-Owned home-based business	-	1.018	-	-	-
	-	(0.067)	-	-	-
Women-Owned home-based business	-	0.930	-	-	-
	-	(0.090)	-	-	-
Gender and home-based business (Ref Cat. Women-Owned Separate Premises)					
Men-Owned Separate Premises	-	-	1.180	-	-
	-	-	(0.128)	-	-
Men-Owned home-based business	-	-	1.202	-	-
	-	-	(0.130)	-	-

Women-Owned home-based business	-	-	1.097	-	-
	-	-	(0.137)	-	-
Area Type (Ref Cat. Rural)					
Smaller urban	0.936	0.929	0.929	0.789	1.332
	(0.577)	(0.572)	(0.572)	(0.617)	(1.287)
Larger Urban	0.947	0.940	0.940	0.826	1.182
	(0.589)	(0.584)	(0.584)	(0.651)	(1.160)
Area Accessibility (Ref Cat. Urban)					
Accessible Rural	1.023	1.015	1.015	0.902	1.233
	(0.635)	(0.628)	(0.628)	(0.708)	(1.205)
Remote Rural	1.177	1.170	1.170	1.016	1.681
	(0.713)	(0.707)	(0.707)	(0.781)	(1.604)
London (Ref Cat. Not in London)	0.847	0.847	0.847	0.834	0.905
	(0.093)	(0.093)	(0.093)	(0.103)	(0.215)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	9,992	9,992	9,992	7,934	2,058
Chi2 (Degrees of Freedom)	219.089	219.177	219.177	174.903	65.272
	(31)	(32)	(32)	(30)	(30)
Random Effects	Yes	Yes	Yes	Yes	Yes
Standard Errors	Robust	Robust	Robust	Robust	Robust

Note: Exponentiated coefficients; Standard errors in parentheses. Note: UKLSBS, 2015; UK non-employing enterprises only; unweighted data. Not shown: ethnic minority ownership, sole ownership, industrial sector. Source: author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.5 Implementation

3.5.1 Software and Data Cleaning

All the data analysis in this thesis was conducted in STATA SE, Version 16.1 - which is the standard edition of STATA for working with large datasets with up to 32,767 variables (StataCorp, 2023). The software was licensed under a 28-user network perpetual license provided by the University of Southampton. There were no models or analysis that could not be completed in this version of STATA and so this software was chosen as it is the standard choice in economics and small business research (Cameron and Trivedi, 2010).

The UKLSBS was downloaded from the UK Data Service website under Crown Copyright and agreement to UK Data Service End User License Agreement. The dataset was a cross-sectional file (i.e. variables were structured as var1_2015, var1_2016, var1_2017, var2_2015, var2_2016…) and therefore syntax was used to create the panel version of the dataset for Chapters 5 and 6. The longitudinal models in Chapters 5 and 6 automatically filter out missing data, so no further cleaning was required. The only other data cleaning was renaming, recoding and creating any new variables from the existing ones as required for the analysis in this thesis and to make working with the data more straightforward. All syntax for the data preparation and cleaning is available on request for reproducibility purposes.

Chapter 6 uses the version of the UKLSBS held in the Secure Lab (see Section 3.1.1 for more information) with additional variables/micro-data. The BSD was linked to the UKLSBS within the UK Data Service Secure Lab. The BSD in the Secure Lab is a series of individual cross-sectional files for each year dating back to 1997. For this project, each BSD file was linked individually to the UKLSBS in its cross-sectional form. This involved first cleaning each of the BSD files for duplicates. Every registered business which appears in the BSD is assigned an enterprise reference number (entref) which allows that business to be linked to other ONS surveys that it appears in, including the UKLSBS (ONS, 2006).

After the duplicates were removed, a 1:1 data join was completed using entref, linking the registered business records from the UKLSBS to their records with the BSD. This created variables such as BSDemp_2014, BSDemp_2013, BSDemp_2012, which refer to the business's employment (number of employees) in 2014, 2013 and 2012 respectively. From these variables it was possible

to code a variable for Chapter 6 which determined whether the business has previously had employees prior to its inclusion in the UKLSBS.

To run the models presented in Chapters 4, 5 and 6, in-built syntax commands for regression modelling were used: ologit (ordinal logistic), nbreg (negative binomial), mlogit (multinomial logistic), logit (binary logistic), xtlogit re (binary logistic with random effects), xtprobit re (probit with random effects), margins dydx (var) post (postestimation marginal effects). Several user written packages were also used: esttab, outreg2 (for table compilation), and fairlie for decomposition analysis (see Appendix B).

3.5.2 Data Weighting and Sample Stratification

The UKLSBS sample is stratified by UK region (the nine English regions, Scotland, Northern Ireland and Wales), sector and employment size. The sample for Scotland and Northern Ireland are boosted and is disproportionate by business size. By utilising the weights within the UKLSBS where possible the thesis ensures the most accurate, detailed, and representative descriptions of the home-based business sector by gender are presented.

The major advantage of using the UKLSBS is that because it is a large stratified random sample it is possible to use the data to make generalisations about the UK business population as a whole (Solon et al., 2015). Many home-based business studies rely on small (less than 1000), female or home-based business only samples (Breen, 2010a; 2010b) drawn from online networks (Jain and Courvisanos, 2013). This restricts knowledge on different types of home-based businesses and their geographies. National, representative samples comparing home-based businesses to non-home-based businesses have been extremely rare – a gap this thesis hopes to fill.

Weights are used in Chapter 4 of this thesis to produce unbiased, UK wide business population estimates when presenting cross-sectional descriptive statistics. In line with classical economics, weights are not used for regression analysis at any point in this thesis as it is not necessary when measuring an effect and as unweighted regression models perform better (Avery et al., 2019; Bollen et al., 2016). Statistical research has demonstrated that unweighted regression models are "are unbiased, consistent, and have smaller standard errors than weighted… estimates" (Winship et al., 1994 p.1). Furthermore, all regression models in Chapter 4 were run with and without weights, and no significant differences in coefficients were observed.

The weights provided can only be used when performing cross-sectional analysis or panel analysis that includes a balanced panel, with businesses responding to every wave (BEIS, 2022a). Not all

home-based businesses responded to each year, and the balanced panel sample is quite small. Therefore, an unbalanced panel is used in Chapters 5 and 6, and hence no weighting is used in these chapters. Weights are also used in Table 7.4 and 7.5 when presenting cross-sectional descriptive statistics from the 2020 wave of the UKLSBS. One final limitation of the sampling and weights is that under-sampling occurred in younger businesses in the UKLSBS, but there are no weights to correct for this (BEIS, 2016). This is not an issue for the analysis included in this thesis, as all the multivariate analysis includes controls for business age. However, it is a limiting factor in studying start-ups, and thus the analysis in this thesis does not specifically cover this topic.

3.6 Summary

Chapter 3 introduces the main dataset used in this thesis – the UKLSBS - justifying why this dataset was selected to address the research questions presented in Chapter 1, as well as outlining the limitations of working with UK wide firm-level data. This chapter also details how the data was accessed, particularly within the UK Data Service Secure Lab, and provides an overview of the BSD which is linked to the UKLSBS as part of the analysis presented in Chapter 6.

Given that this thesis sits at the nexus of small business research and geography there is a discussion of the challenges associated with linking UK business data with spatial data, and the issue of matching data sources that use different geographies (census geographies and postal geographies, for example). Chapter 3 concludes with an implementation section with the specifics of the software used (STATA), data cleaning and preparation process and the use of survey weights in the empirical analysis.

Chapter 4 is the first of three independent but thematically linked empirical chapters. It revisits the underperformance hypothesis in home-based businesses and women-owned home-based businesses, including the link between internationalisation and business performance.

Chapter 4 Revisiting the 'Underperformance' of Home-Based Businesses

4.1 Introduction

There is a significant gap in the research on home-based business performance across a variety of measures. Whilst existing studies have illustrated that home-based businesses, particularly women-owned home-based businesses, are smaller in firm size in both sales and employment when compared to businesses in separate premises, almost no research has been conducted to date on performance in innovation, profit and exporting. How home-based businesses perform in these areas is essential to understanding the full value creation and economic contribution potential of the home-based sector, and for identifying whether women-owned home-based businesses truly have a 'performance penalty'.

However, research in home-based business performance has been held back by definitional issues (Kapasi, 2015). As identified by several authors (Kapasi and Galloway, 2018; Reuschke and Houston, 2016; Newbery and Bosworth, 2010), not all home-based businesses work solely within the home - a significant proportion use the home as a base - a form of multilocational working – with most work taking place elsewhere. This could be in the client's premises or home, a vehicle, or even coworking spaces or cafes (Long and Reuschke, 2021).

There are obvious differences between businesses using the home as a base and those using the home as a premises that extant studies have little captured. Businesses using the home as a base are likely to have high work related mobility during the day, travelling to their client base outside of the home (Long and Reuschke, 2021). Therefore, it is likely they are locally oriented businesses in regards to their customer base. However, previous research has revealed that home-based businesses are not local businesses. Rather they have supra-local customers and networks (Folmer and Kloosterman, 2017) and use e-commerce more often for trading than non-home-based businesses (Reuschke and Houston, 2016; Reuschke and Mason, 2022). This indicates that businesses using the home as a premises, may be obscuring businesses using the home as a base, or the latter group has not been captured in these studies.

The different premises types may have specific impacts on operations and the performance of home-based businesses, which previous research has failed to identify (Kapasi and Galloway,

2018). The different geographical scope of these businesses may create disparate barriers and restrictions to growth and performance across different measures and when the business is owned by a woman. The small business literature has revealed that exporting businesses are associated with high business performance, innovation, profits and growth (Love and Roper, 2015). Thus, if home-based businesses using the home as a premises are more internationally or export orientated, and businesses using the home as a base remain local, this could lead to differences in business performance.

There are also significant implications of these two different home-based business types for women-owned home-based businesses. The lower performance of women-owned home-based businesses has been linked to the additional time constraints and childcare self-employed women working in the home experience (Loscocco and Bird, 2012; Kim and Parker, 2021). However, the theoretical causes of these time constraints identified in this literature stem from circumstances where the home and business physically overlap. For example, more frequent interruptions and distractions on the working day, multi-tasking with childcare and work, a lack of work-life separation, the gendered expectation that whilst at home women prioritise domestic work, and motivations for using the premises type (Shannine, 2018; Di Domenico, 2008; Loscocoo and Smith-Hunter, 2004).

If this is the case, there may be differences in performance for women who use the home as a base as they have a different work and home arrangement. Women-owned businesses which use the home as a base are a highly understudied group (Long and Reuschke, 2021), with most gendered research into home-based businesses focusing on women who run their business within the home. However, as women-owned home-based businesses and non-home-based businesses have been found to be locally orientated in their business networks and customer bases (Folmer and Kloosterman, 2017), the different exporting behaviours of these businesses may also have distinct impacts on their performance.

Therefore, this chapter addresses the following research aims. 1) To identify how the performance of home-based businesses compared to non-home-based businesses differs for businesses using the home as a base or the home as a premises across a variety of measures. 2) To explore whether exporting is associated with high business performance in businesses using the home as a premises. 3) To use interaction terms to reveal whether women-owned businesses using the home as a base or the home as a premises both experience a performance ‘penalty’, and whether this is alleviated or exacerbated through exporting.

This chapter makes several contributions to the literature. First, by bringing together multiple and varied indicators of performance – turnover, employment, innovation, profitability and exporting - this research demonstrates the value creation and contribution of home-based small businesses beyond only measures of firm size. At the same time, the analysis identifies specific areas in which business support may be needed (Foss et al., 2019). The chapter also seeks to move the geography of home-based businesses beyond simply where they are located, and to consider the importance of the scope and internationalisation of the business for performance. Finally, the chapter answers calls to revisits the female underperformance hypothesis in women-owned home-based businesses (Henry et al., 2019), through the context of different business premises types and makes further contributions to debates surrounding women-owned businesses, exporting and business performance (Sui et al., 2022).

4.2 Literature Review and Hypotheses

4.2.1 Home-Based Businesses Performance and Innovation

The majority of studies of performance in home-based businesses have found that when compared to other small businesses, they overall have fewer employees and lower sales (Breen, 2010; Wang, 2009; Mason et al., 2011; Reuschke and Mason, 2022). These findings are intuitive – not having a separate premises will spatially constrain the business, and even with the advent of digital technologies and remote working, this is likely to reduce the number of employees a home-based business can realistically take on. Other studies have suggested however, that home-based businesses may act as incubators to test business ideas in a 'low-risk' and cost efficient environment (Anwar and Daniel, 2016; van Gelderen et al., 2008), which implies the home may have some performance advantages over a separate premises.

One of the issues that has arisen in these previous studies of home-based business performance is the inability to distinguish between home-based businesses which use the home as a premises, and those which use the home as a base (Kapasi and Galloway, 2019). The spatial operations of these two home-based business models are very different, as when the home is a base for a business, the spatial constraints of the home premises are removed, and a formal business premises (home or commercial) may not be required at all. That said, given the consistency of the studies above, both types of home-based business likely run smaller operations in turnover and employment compared to non-home-based businesses (Reuschke and Houston, 2016). However,

as businesses using the home as a premises will be more limited by factors such as the size of the home (Reuschke, 2016; Mackloet et al., 2006) than those that work mainly outside the home, a home premises may create greater barriers to taking on employees. Therefore the following hypothesis is drawn:

H1a. Using the home as a premises and the home as a base will significantly decrease the odds of having high turnover and employment compared to businesses in separate premises, however this decrease will be greater for business using the home as a premises than the home as a base.

Few extant home-based business studies have looked beyond firm size measures at other relative measures of business performance, particularly innovation and exporting (Breen, 2010). There is some evidence that businesses that start in the home have higher survival rates and may be more profitable at early stages of businesses growth due to their cost effective nature (Malmstrom and Johansson, 2017; Headd, 2003). This may indicate that while home-based businesses are, on average, smaller businesses, in relative measures of performance they likely perform equally or even better than their non-home-based counterparts.

In terms of profitability, the premises type again has relevance. A business using the home as a premises or as a base offers a significant reduction in costs, expenses and outgoings compared with taking on a commercial rent (Reuschke and Domecka, 2018). This could increase the odds the business runs at a profit and make up for some of the disadvantages home-based businesses may face when using the home as a work space (Mason and Reuschke, 2015). For businesses using the home as a base, although most of the work is conducted outside of home, they may be able to run the business in a similar manner as if the same business was in a separate premises, but with cost saving benefits of avoiding a commercial rent.

Very little is known about innovation and home-based businesses, but there have been suggestions that home-based businesses may be highly innovative as they have a high autonomy orientation (van Gelderen et al., 2008; Sayers, 2010; Breen, 2010). At the time of writing however, and to the author's knowledge, there is no empirical evidence comparing the innovation of home-based businesses and non-home-based businesses. It has also been suggested that many contemporary home-based businesses are within the broad umbrella of cognitive cultural industries, which must innovative continuously to be competitive (Folmer and Kloosterman, 2017). Breen (2010; 2009) also found that almost half of home-based businesses had introduced new goods and services in the last 2 years (the same measure of innovation used in this survey). However the study does not compare home-based businesses to non-home-based businesses. It

may be important to take into account non-technical innovations such as process innovations when studying home-based businesses (for example, marketing innovations (Bodlaj, 2018)) that are often excluded from research that focuses on research and development (R&D) spending and patenting.

Furthermore, whilst businesses using the home as a base and those using the home as a premises may innovate differently, if a measure of innovation includes new goods, services and processes this could reveal high innovation in both type of business. Therefore:

H1b. Using the home as a premises and the home as a base significantly increases the odds of turning a profit and innovating compared to businesses in separate premises.

4.2.2 Exporters and International Markets

Whilst small businesses were once locally orientated businesses, and the international market was the realm of large companies, the last two decades have seen a significant shift in the international relations of small firms (Cheraghi and Schott, 2016). The spread of fast broadband across the UK, the expansion of e-commerce, including globalized third party websites with streamlined processes for shipping goods abroad and accessing worldwide clients has provided 21st century tools for smaller businesses to access global markets just as large firms once did (Pereira et al., 2017; Dana, 2001; Burgess et al., 2009; Oyson, 2018). These tools also include remote working, apps, social media, drop-shipping, artificial intelligence and online networks (Alarcon-del-Amo et al., 2016; Sigusson and Chetty, 2013; Moodley, 2003).

Dabic et al. (2019) review the niche for further quantitative studies in this field, highlighting areas with high interest and low interest to researchers. Although there appears to be a medium interest in so-called 'e-business' that operate wholly online, the home, or home-based businesses are not mentioned once in the article. This is surprising, as unlike the times in which small businesses were restricted to local markets, the tools and pathways to exporting are just as accessible to home-based businesses as they are to businesses in separate premises. Indeed, studies have found that the use the internet, having a website for the business and social networking are significant predictors of international orientation in home-based businesses (Clark and Douglas, 2012; Breen and Karanasios, 2010).

Nonetheless, Mason et al. (2011) found that home-based businesses were less likely to export than non-home-based businesses overall. This is supported by Jain and Courvisanos (2013) that overall home-based businesses in peripheral/regional locations in Australia did not see programs

helping with exporting activities to be important, particularly compared to other support programs. However, it is likely that businesses using the home as a base operate within local markets. Unless the business involves extremely lengthy daily travel or long periods of time away from home - which is unlikely to be personally or financial viable/profitable for most (Long and Reuschke, 2021) - then their work and therefore their customer base is likely to be local. Most home-based businesses which reach international markets may therefore be businesses which use the home as a premises, based on digital technologies which allow the home to become a physical location for a virtually operated export business.

Love et al. (2015) also found that SMEs that export are not 'born global' but are rather 'born regional'. This implies that business using the home as a premises may have some advantage with eventually becoming exporters, if they are more likely to have a 'supra-local' orientation than other small businesses. However, the proportion of home-based businesses deriving more than half their sales from an international customer base was greater than for non-home-based businesses (Mason et al., 2011). It would be expected therefore, that this significant proportion of home-based businesses which are highly export orientated would cluster within those using the home as a premises. Therefore:

H1c. Using the home as a base will significantly decrease the odds of exporting and using the home as a premises will significantly increase the odds of exporting compared to businesses in separate premises.

Firms that export have been linked to higher business performance, growth and innovation (Golovko and Valentini, 2011). Henley and Song (2020) recently extended these results to include micro-businesses, highlighting links between exporting, innovation and productivity using the first two waves of the UKLSBS. However, this leaves the question of whether businesses using the home as a premises which export can achieve higher business performance or firm size than businesses in separate premises.

Businesses that export, particularly those that are born global, or have mainly international customers, may place reduced importance on economies of scale and local interactions (Bell and Loane, 2010; Arzeni et al., 2012). In these situations the minimum economic size of operation may be reduced due to outsourcing, digital marketing and use of e-commerce (Mason et al., 2011; Reuschke and Mason, 2022), enabling profitability and high turnover with a smaller employment size. Breen and Karanasios (2010) found that home-based businesses which exported had higher initial and future growth aspirations. Thus these factors may make the home premises an ideal

location to run a business which exports to international markets, keeping firm size and thus overheads and premises costs far lower than businesses in separate premises, thus leading to a smaller enterprise, but with a higher likelihood of turning a profit.

H1d. Exporting will significantly increase the odds of businesses using the home as a premises turning a profit, but will decrease the odds of high turnover and employment compared to a business in a separate premises.

4.2.3 Gendered Business Performance

There is evidence that women-owned home-based businesses underperform in sales comparative to businesses owned by women in separate premises (Thompson et al., 2009; Loscocco and Smith-Hunter, 2004). This indicates that women-owned home-based businesses may experience an additional firm size penalty. This has been linked in the literature to the motivations of women starting businesses in the home. A range of studies have reported that childcare and other domestic responsibilities are cited by women as the most common reason for running a home-based business, whereas this is not the case for men, whose focus remains on bringing in an income (Bari, 2021; Hilbrecht and Lero, 2014; Craig et al., 2012; Myrie and Daly, 2009). These trends are reflected in self-employment more generally (Delecourt and Fitzpatrick, 2021; Patrick et al., 2016; Rey-Martí et al., 2015), however physically combining childcare and work can reduce the hours spent on the business and the owner's ability to manage employees and a high sales/work volume (Loscocco and Bird, 2012; Wang et al., 2009).

A key issue which is clearly missing from studies of women-owned home-based businesses, is how the home space can be used differently in the operation of a business – either as business premises or as a base for the business (Kapasi and Galloway, 2019). Many of the studies above may be capturing the effects of home-based businesses where the women work mainly from home, without considering the different spatial working patterns that exist among business owners. The majority of women using the home to balance their business and domestic responsibilities are likely to be using the home as a premises rather than as a base (Lewis et al., 2015). If the business is operated physically within the home space, this may also come with additional constraints: concerns with hiring employees or bringing clients into the home (Reijonen and Komppula, 2007) and the expectation that women accommodate childcare, housework and paid work because they are at home during the day (Myrie and Daly, 2009).

Female business owners who spend most of their time working out of the home may be less likely to use their business to balance childcare responsibilities with their income - or at least not to the

same extent as those using the home as a premises. Even if women using the home as a base do still use their self-employment to improve their work-life balance, this may still encroach less on the business itself (Lewis et al., 2015). Either way, as work and home are kept mostly separate, the defining feature of gendered homeworking is missing (Felstead, 2021). Therefore:

H2a. Using the home as a premises will significantly lower the odds of women-owned businesses having high turnover and employment, but there will be no significant change when using the home as a base.

It is more of a challenge to derive hypotheses on women-owned businesses using the home as a premises and as a base in relation to innovation, turning a profit, and exporting as no study has yet addressed these groups with these specific measures of performance. However, Breen (2010) found that women-owned home-based businesses as a whole in Australia were more likely to have recently increased the products/services offered by the business than men-owned home-based businesses and were more likely to be interested in exporting. These are bivariate results which may be mediated by industry and other effects. Women-owned businesses as a whole have previously been found to export less than their male counterparts, often because of gender specific barriers to internationalisation, such as networks and gender-bias from male business owners (Orser et al., 2004; 2010; Idris, 2020). However, Breen's results do not suggest that women-owned home-based businesses would have any specific barriers to exporting compared with businesses in separate premises.

Broadly speaking, due to the low cost and low risk nature of setting up a home-based business, there is nothing to suggest that either type of women-owned home-based business (home as a premises or home as a base) would be less likely to innovate or make a profit than their male counterparts or those in separate premises, once their smaller firm size is controlled for (Zolin et al., 2013). Therefore:

H2b. Using the home as a premises or the home as a base will not significantly change the odds of women-owned businesses turning a profit, exporting or innovating.

Women with high growth ambitions often focus their strategies on new and international markets (Gundry and Welsch, 2001; Ratten and Tajeddini et al., 2018) and there is recent evidence to suggest that women-owned SMEs that adopt an intensive export strategy have higher financial performance and profitability than men-owned SMEs (Sui et al., 2022). However, the only study thus far which has examined women-owned home-based businesses which export and its link to performance or growth is Breen and Karanasios (2010). They found a positive but insignificant

relationship between women-owned home-based businesses which had recently experienced growth and exporting. However, their study uses a female only sample, and does not compare these results to men/co-owned businesses or to women who run businesses outside of the home. Thus, it remains unclear whether women-owned home-based businesses which export would be expected to have different business performance, and this question is left open. Three-way interaction terms will therefore be tested between gender, premises type and exporting for all measures of business performance in the study.

4.3 Methods

4.3.1 Sample and Dependent Variables

The empirical analysis is based on the 2015 wave of the UKLSBS, with a sample of 10,502 small businesses (those with less than 50 employees). The 2015 wave of the UKLSBS is the only UK data that allows the three different premises types (home as a premises, home as a base, separate premises) to be studied. The 2015 UKLSBS also provides the largest, most recent cross-sectional sample of home-based businesses from a UK firm-level survey currently available, and is a rich dataset for exploring multiple business performance indicators by gender. The focus of this study is on the business performance of private enterprises in the UK, therefore charities, foreign companies and businesses with legal status that indicate they are social enterprises or not-for-profit, are excluded. Businesses which are owned by another business or where the gender of the business owner cannot be identified are also excluded. This gives a sample of 10,502 small businesses from the private sector, of which 1206 are businesses using the home as a base (12.5% of men/co-owned businesses and 8.1% of women-owned businesses) and 2327 (21.8% of men/co-owned businesses and 23.5% of women-owned[2]) are businesses using the home as a premises. More details on the dataset and empirical approach can be found in Chapter 3.

4.4 Operationalisation and Models

4.4.1 Dependent Variables and Modelling Framework

The analysis includes five dependent variables: two measures of firm size – turnover and number of employees – and three measures of business performance – profit, innovation and exports. The

[2] Sample percentages are unweighted.

full coding and descriptive statistics of all variables included in the analysis can be found in Table 4.1 (all reference categories are coded as zero).

To model annual turnover over the last twelve months, a linear regression model estimating the log of annual turnover was initially run. However, even with transformation of the dependent variable, the assumption of the normality of residuals was violated and thus, following Lai et al. (2017), turnover was instead split into four increasing size bands and an ordinal logistic model (ordered logit) was chosen instead. As some businesses provided their turnover within a range rather than an exact number an ordered logit model also allows for a larger sample of businesses to be captured. The categories for the ordinal variable were based on the ranges provided by the survey and natural jenks in the data: £0-£82,000 (band 1), £82,000-249,999 (band 2), £250,000-999,999 (band 3), £1m+ (band 4).

To estimate employment, a negative binomial regression model is run. Employment is a count variable, but as the data are left skewed (many businesses have an employee count of zero) a negative binomial distribution is more suitable than a standard Poisson regression (De Kok et al., 2010).

Innovation activity is operationalised as having introduced new goods, services or processes in the last three years, with those who did not innovate taken as the reference category. A multinominal logistic regression model with two mutually exclusive innovation categories is run to capture novel innovation (new-to-market) and those with incremental innovation (new-to-business, occasionally referred to as radical innovation in the literature) (Henley and Song, 2019; Frenz and Lambert, 2019).

Following Idris (2020) , exporting activity is measured as a binary variable: whether the business exported any goods or services outside of the UK in the last twelve months. Whether the business made a profit in the last twelve months is also measured as a binary variable as the data does not hold information on exact profits. For both exports and profit binary logistic regression models are run.

4.4.2 Key Independent Variables

The key independent variables in the study are whether the business uses separate premises, the home as premises or the home as a base, and whether the business is women-owned or men/co-owned. In line with contemporary literature (Reuschke and Domecka, 2018), to identify home-based businesses, the survey respondents described their registered business postcode as a home

postcode in initial screenings and answered the question “Does your business have separate business premises to your or someone else's home address?” with no. They were further asked whether they worked mainly from home. Those who stated yes were considered businesses using the home as premises, and those who stated ‘no’, were considered businesses using the home as a base. Businesses with a separate business premises are taken as the reference category.

A woman-owned business is classified as a business that is majority (51% or more) owned by women, with all other businesses classified as men/co-owned businesses, which is taken as the reference category. Whether the business has exported goods and services outside of the UK over the last 12 months is also included as an independent variable in the models of turnover, employment, innovation and profit.

4.4.3 Control Variables

The models include a series of firm-level, owner and location characteristics as control variables, to ensure the analysis disentangles the association of business premises type and gender from other business demographics.

Thirteen industry dummies taken from one-digit Standard Industry Codes (SIC) and four business age dummies are included. Legal status is also included, coded as company versus sole trader/partnership as the reference category (Johnsen and McMahon, 2005). A control measure for businesses with a single owner versus those with multiple partners is included, as majority women-owned businesses are more likely to be owned by one women (Jurik et al., 2019).

There is an extensive literature on business ownership by ethnic minority women and men, and as these businesses have been associated with distinct barriers to sales and employment growth (particularly female owners) (Rahman et al., 2018), a binary control variable is included measuring ethnic minority ownership versus non-ethnic minority ownership. E-commerce use (any/none) is included as a rudimentary proxy for traditional home-based businesses conducting basic economic activity (many will use the home as a base) and new online sales and/or knowledge-intensive businesses that will be mostly run within the home (Kane and Clark, 2019).[3]

Additional control variables which were significant predictors of growth in other studies using the UKLSBS and other firm-level surveys are also included. These include whether the business has a

[3] The variable capturing e-commerce use was dropped from the survey after the 2015 wave, and so this is not controlled for in the following chapters.

business plan (Maioli et al., 2020), has received business advice (Houston and Reuschke, 2017; Idris, 2020) or obtained finance in the previous 12 months (Owen et al., 2019).

A control for urban or rural location alongside a control for businesses based in London is included (Phillipson et al., 2017). However, all models are run with and without the London control variable, as London dominates the urban category. No significant changes to the coefficient were noted. Regional dummies and aggregate regional data (GVA, unemployment rate and jobs density and the Krugman Index of Specialisation) were also tested within the modeling. However, as the focus of this chapter is not regional variations and the inclusion of these variables did not impact the results, they were not included in the final modelling to avoid overfitting, and issues of collinearity.

Firm size in employment and turnover were included in models of business performance in innovation, profit and exporting, so that home-based businesses and particularly women-owned home-based businesses could be compared to businesses of similar sizes. An additional variable is included in Table 4.5, Models 4 to 8, which controls for whether the business states that they have goods or services which would be suitable for export.

4.4.4 Limitations

The UKLSBS collected data from 2015-2020. Unfortunately, many variables were discontinued from the survey after the first year, including the question on using the home as a base or home as premises. Thus the primary limitation specific to this chapter is the use of a cross-sectional sample. A cross-sectional design may omit potentially moderating variables that may influence the home-based business and non-home-based business gap in performance. The research can provide only a snapshot of a business's economic status and cannot capture growth. Furthermore, as the analysis is neither longitudinal nor experimental, this study can only discuss associations, not causality.

Within the same vein, another limitation is that whilst employment, turnover, profit and exports are all measured within the twelve months prior to the survey, innovation is measured over the three year period prior to the survey. Thus, many of the innovations captured in the 2015 wave of the UKLSBS may have occurred prior to the 12 month period of exporting, creating a mismatch in the period of measurement between the two variables. There are strong links between exporting and innovation, and this is a large body of literature (Love et al., 2015; Henley and Song, 2019). Often the relationship appears to be that innovations lead to businesses that export (Henley and Song, 2019; Love and Roper, 2015) but some studies have found that the relationship between

exporting is in the other direction, with exports increasing the probability of innovations (Hahn and Park, 2012; Damijan et al., 2010). It is highly likely therefore that exporting and innovation will be linked.

However, due to the combination of the large mismatch in measurement periods, and the potential for the relationship to travel in both directions, theoretical hypotheses as to whether exporting will change the relationship between business premises type and innovation were not derived. The interaction terms are included in the innovation models, however, it is recommended to take into account the above when interpreting the coefficients.

It is also more likely with the innovation measure that some home-based businesses innovated when they were in separate premises, and vice versa. However, as the number of home-based businesses which relocate or plan to relocate over a three or four year period is very small (Kim and Parker, 2021; Mason et al., 2011) this is not a significant concern. Therefore hypotheses can be derived for the relationship between premises type and innovation. As there has not previously been a multivariate study of innovation in home-based businesses compared to non-home-based businesses, this remains a key part of the chapter.

Table 4.1 Descriptive statistics of all variables included in the analysis, unweighted data.

Dependent Variables	Type	Incl. Missing Data	Obs	Mean	Std. Dev.	Min	Max
Turnover	Ordinal	No	11815	1.603	1.215	0	3
Employees	Count	No	11302	7.05	9.852	0	49
Profit (Ref Cat. Did not make a profit)	Binary	No	12703	.86	.347	0	1
Innovation (Ref Cat. No innovation)	Categorical	No	13311	.654	.743	0	2
Exports (Ref Cat. Does not export)	Binary	No	13580	.23	.421	0	1
Key Independent Variables							
Premises Type (Ref Cat. Separate premises)	Categorical	No	13620	.477	.795	0	2
Women-Owned (Ref Cat. Men /Co-Owned)	Binary	No	12484	.223	.416	0	1
Exports (Ref Cat. Does not export)	Binary	No	13580	.23	.421	0	1
Control Variables							
Ethnic Minority Ownership (Ref Cat. Not ethnic minority owned)	Categorical	Yes	13631	.213	.572	0	2
Sole Owner (Ref Cat. Multiple Owners)	Binary	No	12519	.441	.497	0	1
Business Age (Ref Cat. 20 Years +)	Ordinal	No	13588	.859	1.087	0	3
Company (Ref Cat. Sole Trader/ Partnership)	Binary	No	13505	.709	.454	0	1
Has Business Plan (Ref Cat. Does Not Have Business Plan)	Categorical	Yes	13631	.486	.548	0	2
Received Advice in Last 12 Months (Ref Cat. No business plan)	Categorical	Yes	13631	.363	.5	0	2
Rural (Ref Cat. Urban)	Binary	No	13596	.297	.457	0	1
London (Ref Cat. Outside London)	Binary	No	13631	.125	.331	0	1
Industrial Sector Dummies (Ref Cat. Manufacturing)	Categorical	Yes	13631	6.345	3.901	0	14
E-commerce (Ref Cat. No e-commerce)	Binary	No	13497	.316	.465	0	1

Note: UKLSBS, 2015; UK businesses with 0-49 employees; unweighted data. Source: author's own calculations.

4.5 Descriptive Statistics

As the survey is a one stage stratified random sample, using the survey weights provided, it is possible to present a representative, generalisable description of the private UK small and home-based business population in 2015 in Table 4.2 and 4.3. As the descriptive statistics presented here are weighted, an unweighted sample description of all variables included in the analysis is shown in Table A.1 (Appendix A).

Looking at the bivariate analysis of measures of firm size and business performance in Table 4.2, women-owned businesses, regardless of their premises type, were more likely to have turnover which falls below the VAT threshold (£82,000 in 2015). In general, however, it was businesses in separate premises that had the largest gender-gap in turnover, not home-based businesses. For employment, the gendered differences are somewhat surprising and differ from existing research. Women-owned businesses using the home as a base had on average more employees than their male counterparts. Men using the home as a base were the most likely to be non-employers out of all premises types and gender groups (93% had no employees). Women-owned businesses with separate premises had similar numbers of employees as men/co-owned businesses in separate premises.

Men using the home as premises were most likely to report having exported goods or services in the last 12 months (16%). Women-owned businesses in separate and home premises were less likely to report that they had made a profit (73% each) than male/co-owned businesses in commercial (79%) and home as a premises (78%). However, women using the home as a base were more likely to report having made a profit than men/co-owned businesses using the home as a base (83% versus 80% respectively). Women-owned businesses, regardless of their business premises type, were more likely to report both incremental and novel innovations than their male counterparts, but were less likely to be exporters (Orser et al., 2010; Rosa and Sylla, 2018).

Table 4.2 also demonstrates that women are more likely to use the home as business premises than men (37% and 30% respectively) (Bates et al., 2013; Bari, 2021), but reveals for the first time that they are much less likely than men to use the home as base (12% and 25% respectively). These types of home-based businesses are thus highly gendered. This is likely linked to significant differences in industry for businesses using the home as a base, which are dominated by construction businesses (Table 4.3). In fact, 49% of men/co-owned businesses who use the home as a base are in construction; the rest are distributed across other industries. For women-owned enterprises almost half of those using the home as a base are in either education (23%) or

professional/scientific industries (18%). These industries may represent female consultants, freelancers, and tutors (Appendix A, Table A.2 for a further breakdown).

Many of the hypotheses presented in this chapter are based on the assumption that businesses using the home as a premises will be supra-local, with a small but significant proportion of internationally orientated businesses (Mason et al., 2011). Businesses using the home as a base make up only 1/3 of the home-based sector in this sample. Therefore, previous research into home-based businesses that has identified that home-based businesses are supra-locally orientated in their customer base and networks (Folmer and Kloosterman, 2017; Reuschke and Mason, 2022) has likely been dominated by businesses which use the home as a premises.

In Table 4.3, 71% of men/co-owned businesses using the home as a base and 54% of women-owned businesses using the home as a base have mainly local customers. This implies a great deal of local work related mobility and reliance on the local area for customers for this business premises type, at least for men who dominate this premises type. For women-owned businesses, those using a separate premises had the highest percentage of enterprises with mainly local customers at 65%. Furthermore, businesses using the home as a base were the most likely premises type for both men and women to trade entirely 'offline' using no e-commerce. Businesses using the home as a premises, in line with the previous literature (Folmer and Kloosterman, 2017), had lower proportions of businesses with mainly local customers than businesses using a separate premises, and 1 in 10 businesses (for both men and women) had mainly international customers. This is a small but higher percentage than for other small businesses, and reflects the previous findings in Mason et al. (2011).

These results were confirmed further with multivariate models including controls for industry and gender and other demographics that might skew the descriptive statistics present above (available on request). These models confirmed that businesses using the home as a premises were less likely to have mainly local customers than both businesses using a separate premises and those using the home as a base, compared to national or regional customers. Businesses using the home as a premises were also more likely than those using the home as a base to use e-commerce, but were just as likely to use e-commerce as those in separate premises. Thus the results in Table 4.2 that businesses using the home as a base have the smallest percentages of exporters are unsurprising, and confirms the assumption that businesses using the home as a base are 'local' and perhaps more 'traditional' businesses.

Table 4.2 Weighted descriptive statistics of the small business population by gender and premises type, column percentages.

Gender	Men			Women			Total
Location	Separate Premises	Home as Base	Home as Premises	Separate Premises	Home as Base	Home as Premises	Total
Under £82,000 Annual Turnover	47.33	78.04	67.92	58.22	76.07	75.92	61.79
£82,000-249,999 Annual Turnover	18.52	7.94	13.59	13.26	7.81	8.48	13.83
£250,000-999,999 Annual Turnover	14.06	3.27	6.37	9.30	2.81	3.26	8.52
£1m+ Annual Turnover	6.85	0.57	1.76	3.67	0.83	1.92	3.73
0 Employees	65.67	93.36	87.15	66.17	89.62	88.52	77.53
1 to 9 Employees	28.00	6.25	11.79	28.07	9.35	10.27	18.98
10 to 49 Employees	6.34	0.39	1.05	5.76	1.02	1.21	3.49
Incremental Innovation over Previous 3 Years	28.49	19.54	24.35	33.91	23.48	30.77	26.26
Novel Innovation over Previous 3 Years	14.37	11.83	11.95	12.95	17.79	15.67	13.33
Made a Profit over Previous 12 Months	78.57	80.06	77.63	73.39	83.21	73.32	77.49
Exported Goods/Services in Previous 12 Months	15.30	4.27	15.59	10.62	4.25	11.68	12.23
Total	45.01	25.10	29.74	50.49	12.23	37.07	100.00

Note: UKLSBS, 2015; UK private enterprises with 0-49 employees only; weighted data; missing data (refused/do not know) not shown. Source: author's compilation.

Table 4.3 Weighted descriptive statistics of the small business population by gender and premises type, column percentages.

Gender	Men			Women			Total
Location	Separate Premises	Home as Base	Home as Premises	Separate Premises	Home as Base	Home as Premises	Total
Industrial Sector							
Primary (ABDE)	2.75	1.13	7.22	1.81	1.41	3.44	3.46
Manufacturing (C)	8.51	2.70	3.57	5.38	0.38	3.28	5.25
Construction (F)	12.15	48.60	18.35	4.69	14.01	2.22	18.75
Wholesale and Retail (G)	15.52	2.81	5.30	18.78	3.52	4.55	9.90
Storage and Transport (H)	4.67	6.77	6.90	1.91	3.53	3.76	5.18
Food and Accommodation (I)	3.79	0.19	2.66	6.19	0.35	5.40	3.21
Communication and Information (J)	7.54	5.65	8.81	2.34	3.76	5.47	6.55
Financial and Real Estate (KL)	5.69	0.86	3.44	1.84	0.00	1.37	3.52
Professional and Scientific (M)	16.38	7.95	19.89	12.63	17.81	18.69	15.32
Administrative and Support (N)	6.78	9.72	7.73	7.31	9.29	15.01	8.39
Education (P)	1.99	7.50	5.94	4.54	23.40	5.12	5.03
Health and Social Work (Q)	4.54	0.39	3.67	15.89	11.66	18.14	6.06
Arts and Entertainment (R)	4.04	3.85	4.44	3.64	4.82	5.71	4.30
Other Services (S)	5.65	1.88	2.09	13.05	6.06	7.82	5.08
Mainly Local Customers	56.87	71.33	55.55	64.72	54.60	58.58	59.84
Regional/National Customers	33.68	24.27	33.94	28.96	36.57	30.07	31.28
Mainly International Customers	9.14	4.16	10.14	5.77	7.12	10.74	8.35
Sells Goods or Services Online	29.31	25.14	28.47	32.90	28.19	36.35	28.93
Has Own Website	67.43	53.99	56.99	69.92	58.35	67.85	62.49

Note: UKLSBS, 2015; UK private enterprises with 0-49 employees only; missing data not shown. Source: author's compilation.

4.6 Multivariate Results

Tables 4.4, 4.5 and 4.6 display the results for the models of firm size and performance. For each measure there is a regression model including only the main effects from the key variables. To test the associations between premises type, gender, and exporting two and three-way interaction terms are run in additional models. The interaction terms test whether being a majority women-owned business using the home as premises or as a base has a different association with business performance than being a majority men/co-owned business. Table 4.7 summarises the hypotheses and results.

Table 4.4, Models 1 to 4 display odds ratios from the ordinal logistic regression models estimating turnover performance. The odds ratios have a similar interpretation to binary logistic regression, except in this case there are three cumulative transitions estimated instead of one. For a one unit change in the independent variable, the odds a business is in a level that is greater than k compared to less than or equal to k (k is the level of the dependent variable), are the proportional odds times larger. For example, being a woman-owned business (coded 1) rather than a man/co-owned business (coded 0), either increases the odds of being in a higher turnover category if the odds ratios > 1 (e.g. 2.0 = twice the odds) or decreases the odds if the odds ratios < 1 (e.g. 0.5 = half the odds).

Table 4.4, Models 5 to 8 display incident rate ratios from the negative binomial regression model estimating firm size in employment. Incident rate ratios (IRR) can be interpreted simply by multiplying the expected count by a factor of the incident rate ratio when the independent variable increases by one unit. An incident rate ratio of 1.2 for businesses using the home as a base would mean that the expected employee count of home-based businesses is 1.2 times higher than businesses in separate premises.

Table 4.5, Models 1 to 4 display odds ratios for the binary logistic regression model estimating profit and Models 5 to 8 display odds ratios for the binary logistic regression model estimating exporting activity. The interpretation of the log odds is simply a one unit change in the independent variable increases or decreases the odds of turning a profit or exporting by the figure presented in the table.

Table 4.6 displays the relative risk ratios of incremental and novel innovation. For this, a multinomial regression model is estimated, in which independent equations are estimated for both categories of innovation compared to the reference category (k-1 models). The relative risk ratio (or RRR) indicates how the risk of a business having achieved either novel or only

incremental innovation compared to the risk of the business having not innovated at all changes with a one unit increase of the independent variable. Like with odds ratios, a RRR > 1 on the gender variable indicates that the risk of a woman-owned business innovating is more likely and an RRR < 1 indicates that the risk of innovation decreases. These models could also be run as two separate logistic regression models, however a multinomial approach increases model efficiency significantly.

4.6.1 Home-Based Business Performance

The results for annual turnover in Table 4.4, Model 1 indicate that both using the home as a premises or the home as a base significantly lowers the odds of a small business having high turnover compared to businesses in a separate premises. Table 4.4, Model 5 similarly displays the results for employment, showing that using the home as a base or the home as a premises significantly decreases the expected number of employees, compared to those in separate premises. These results broadly support H1a, that regardless of premises type, home-based businesses have smaller firm size than non-home-based businesses.

However, it was also hypothesised that the decrease in odds of high turnover and the decrease in the employee count would be greater for businesses using the home as a premises. The results show the opposite. Whilst businesses using the home as a premises have approximately a third of the odds of achieving the same turnover as a businesses in a separate premises, businesses using the home as a base have only a quarter of the odds of achieving the same turnover as a business in a separate premises. The results are mirrored in the employment model. This is in line with the descriptive analysis in Table 4.2, which revealed that businesses using the home as a base were smaller in turnover and employment (with particularly high proportions of zero employee businesses) than both businesses using the home as a premises and businesses in separate premises.

Turning now to Table 4.5 Model 1: using the home as a premises does not significantly change the odds of turning a profit compared to a business in a separate premises. However, using the home as a base significantly increases the odds of turning a profit compared to a business in a separate premises. Table 4.5, Model 5 also confirms H1c: that businesses using the home as a base have significantly decreased odds of exporting goods or services and businesses using the home as a premises have significantly increased odds of exporting goods or services compared to businesses using a separate premises.

However, this result has a caveat. Table 4.5, Model 7 includes a control variable – whether the business actually has goods or services which could be exported internationally. In this model,

businesses using the home as a base still have significantly decreased odds of being an exporter, however the significant, positive coefficient for businesses using the home as a premises is no longer significant. This indicates that businesses using the home as a premises may only have higher odds of being an exporter because more businesses with exportable goods and services use the home as a premises than other business premises types. This is an important finding in its own right. It is also worth noting that businesses using the home as a base are less likely to be exporters regardless of whether businesses have goods or services that could be exported. Furthermore, the model includes controls for other important factors such as online presence and industry, and as such this result is likely not explained by the their concentration into local construction businesses, lower proportions of e-commerce use, or retail/ wholesale businesses in the sample (Anwar and Daniel, 2014).

Table 4.6, Model 1 shows that businesses using the home as a premises have a lower relative risk of incremental innovation, but do not see any significant change to their risk of novel innovation when compared to businesses in separate premises. Businesses using the home as a base do not see any significant change to their risk of incremental or novel innovation.

4.6.2 Exporting and Home-Based Business Performance

In line with the wider literature, the results in Tables 4.4 and 4.5 show exporting is significantly associated with higher turnover, employment and innovation (Love and Roper, 2015). However, Table 4.4, Model 2, shows that for businesses which use the home as a premises, exporting goods and/or services significantly decreases their odds of higher turnover. Table 4.4, Model 6 mirrors this result and also shows that exporting also lowers the employee count for businesses using the home as a premises.

What these results mean is that whilst exporting businesses have a positive association with turnover and employment in all businesses premises type, this association is significantly less for businesses using the home as a premises than for those in separate premises. Put another way, for exporting businesses the odds of having a higher turnover band are significantly lower when using the home as a premises, than for businesses in separate premises.

Table 4.5, Model 2 then reveals, supporting H1d, that exporting significantly increases the odds a business using the home as a premises will turn a profit. Although exporting and innovation are positively associated, exporting does not significantly change the risk of either novel or incremental innovation for businesses using the home as a base or businesses using the home as a premises.

4.6.3 Gender and Home-Based Business Performance

When examining the interaction term between business premises type and gender in Table 4.4, Model 3, this illustrates that there is no decrease in the odds of women-owned businesses having high turnover when they use the home as a premises. Similarly, Table 4 Model 7, does not show any significant decrease in the employee count of women-owned businesses when they use the home as a premises. Using the home as a base also significantly increases the employee count of women-owned businesses by almost two and half times. However, Table 4.4, Model 8, does show that for women-owned businesses using the home as a premises, exporting goods and services significantly decreases their employment count.

The odds of a woman-owned business turning a profit is not changed by using the home as a premises or the home as a base compared to using a separate premises. An additional finding however, is that the three-way interaction term in Table 4.4 Model 9, demonstrates that women-owned businesses using the home as a base see a significant decrease in their odds of turning a profit when they export goods and services. However, it is worth noting that this specific group has a very small sample size, and whilst the confidence intervals and robust standard errors do not indicate any issues, this coefficient should still be interpreted with care.

In Table 4.5, Models 6 and 8 and Table 4.6, Model 3, the interaction terms between women-owned businesses and premises type shows that there is no significant association between gender and businesses using the home as a base or premises in regards to exporting or innovation. There are also no additional effects of exporting on women-owned businesses using the home as a premises or as a base in regards to exporting or innovation.

Table 4.4 Turnover and employee count by gender, business premises type and exports. (1)-(4) Ordinal logistic regression, log odds; (5)-(8) negative binomial regression, incident rate ratio.

	Turnover				Employees			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Business Premises Type (Ref Cat. Separate Premises)								
Home as Base	0.250***	0.256***	0.225***	0.232***	0.301***	0.302***	0.241***	0.238***
	(0.019)	(0.020)	(0.018)	(0.020)	(0.027)	(0.028)	(0.024)	(0.024)
Home as Premises	0.325***	0.346***	0.319***	0.334***	0.407***	0.428***	0.387***	0.396***
	(0.018)	(0.021)	(0.019)	(0.023)	(0.020)	(0.024)	(0.022)	(0.025)
Exports (Ref Cat. No Exports)	2.141***	2.295***	2.191***	2.266***	1.260***	1.316***	1.260***	1.289***
	(0.120)	(0.150)	(0.123)	(0.161)	(0.050)	(0.051)	(0.051)	(0.054)
Women-Owned (Ref Cat. Men/Co-Owned)	0.882*	0.882*	0.829**	0.823**	1.389***	1.385***	1.222***	1.213***
	(0.049)	(0.049)	(0.053)	(0.057)	(0.061)	(0.061)	(0.049)	(0.053)
Home as Base X Exports	-	0.873	-	0.874	-	1.025	-	1.199
	-	(0.203)	-	(0.213)	-	(0.330)	-	(0.465)
Home as Premises X Exports	-	0.754*	-	0.826	-	0.782*	-	0.905
	-	(0.095)	-	(0.114)	-	(0.087)	-	(0.113)
Women-Owned X Home as Base	-	-	1.828**	1.784**	-	-	2.516***	2.653***
	-	-	(0.352)	(0.358)	-	-	(0.537)	(0.597)
Women-Owned X Home as Premises	-	-	1.096	1.179	-	-	1.232	1.335*
	-	-	(0.144)	(0.170)	-	-	(0.140)	(0.165)
Women-Owned X Exports	-	-		1.068	-	-	-	1.064
	-	-		(0.176)	-	-	-	(0.099)
Women-Owned X Home as Base X Exports	-	-		1.061	-	-	-	0.558
	-	-		(0.748)	-	-	-	(0.348)
Women-Owned X Home as Premises X Exports	-	-		0.633	-	-	-	0.499**

	-	-		(0.216)	-	-	-	(0.133)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi2 (Degrees of Freedom)	3,907.714	3,943.211	3,915.611	3,944.154	3,186.508	3,302.43	3,246.602	3,461.860
	(30)	(34)	(32)	(37)	(30)	(34)	(32)	(37)
Observations	8,986	8,986	8,986	8,986	10,308	10,308	10,308	10,308

Note: Exponentiated coefficients; Standard errors in parentheses. UKLSBS, 2015; UK businesses with 0-49 employees; unweighted data; not shown: missing data, ethnic minority ownership, sole owner, industrial sector dummies, business age dummies, legal status, business plan, received advice, rural, London, e-commerce use. Source: author's own calculations. * *p < 0.05,* ** *p < 0.01,* *** *p < 0.001.*

Table 4.5. Turning a profit and exporting by gender, business premises type and exports, binary logistic regression, log odds.

	Profit				Export			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Business Premises Type (Ref Cat. Separate Premises)								
Home as Base	1.454***	1.381**	1.389**	1.274	0.552***	0.572***	0.526***	0.567***
	(0.162)	(0.161)	(0.170)	(0.164)	(0.072)	(0.081)	(0.076)	(0.091)
Home as Premises	0.958	0.890	0.906	0.819*	1.218*	1.266**	1.092	1.168
	(0.076)	(0.077)	(0.083)	(0.083)	(0.095)	(0.109)	(0.102)	(0.121)
Exports (Ref Cat. No Exports)	0.948	0.841	0.968	0.793*	-	-	-	-
	(0.082)	(0.085)	(0.085)	(0.089)	-	-	-	-
Women-Owned (Ref Cat. Men/Co-Owned)	0.848*	0.847*	0.785**	0.745**	0.872	0.922	0.939	1.054
	(0.064)	(0.064)	(0.072)	(0.076)	(0.066)	(0.083)	(0.086)	(0.119)
Home as Base X Exports	-	1.602	-	2.436	-	-	-	-
	-	(0.621)	-	(1.165)	-	-	-	-
Home as Premises X Exports	-	1.481*	-	1.640*	-	-	-	-

	-	(0.284)	-	(0.356)	-	-	-	-
Women-Owned X Home as Base	-	-	1.240	1.477	-	0.818	-	0.662
	-	-	(0.338)	(0.432)	-	(0.261)	-	(0.234)
Women-Owned X Home as Premises	-	-	1.248	1.359	-	0.832	-	0.726
	-	-	(0.209)	(0.248)	-	(0.146)	-	(0.150)
Women-Owned X Exports	-	-	-	1.285	-	-	-	-
	-	-	-	(0.302)	-	-	-	-
Women-Owned X Home as Base X Exports	-	-	-	0.172*	-	-	-	-
	-	-	-	(0.144)	-	-	-	-
Women-Owned X Home as Premises X Exports	-	-	-	0.666	-	-	-	-
	-	-	-	(0.307)	-	-	-	-
Control Variable: Business has goods/services that could be exported	No	No	No	No	No	No	Yes	Yes
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi2 (Degrees of Freedom)	423.212	430.001	432.175	438.481	1,229.673	1,231.199	434.327	437.588
	(35)	(39)	(37)	(42)	(34)	(36)	(34)	(36)
Observations	8,726	8,726	8,726	8,726	8,899	8,899	3,663	3,663

Note: Exponentiated coefficients; Standard errors in parentheses. UKLSBS, 2015; UK businesses with 0-49 employees; unweighted data; not shown: missing data turnover and employment dummies, ethnic minority ownership, sole owner, industrial sector dummies, business age dummies, legal status, business plan, received advice, rural, London, e-commerce use. Source: author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4.6 Innovation by gender, business premises type and exports. Multinomial logistic regression, relative risk ratios.

	Incremental Innovation	Novel Innovation	Incremental Innovation	Novel Innovation	Incremental Innovation	Novel Innovation	Incremental Innovation	Novel Innovation
	(1)		(2)		(3)		(4)	
Business Premises Type (Ref Cat. Separate premises)								
Home as Base	0.873	1.087	0.894	1.039	0.832	1.012	0.841	0.964
	(0.078)	(0.127)	(0.087)	(0.134)	(0.078)	(0.131)	(0.087)	(0.139)
Home as Premises	0.857*	0.838*	0.850*	0.802*	0.856*	0.833	0.843*	0.838
	(0.057)	(0.075)	(0.064)	(0.081)	(0.062)	(0.088)	(0.070)	(0.101)
Exports (Ref Cat. Does not)	1.339***	2.743***	1.339***	2.746***	1.298**	2.638***	1.263**	2.799***
	(0.093)	(0.219)	(0.093)	(0.219)	(0.103)	(0.244)	(0.111)	(0.281)
Women-Owned (Ref Cat. Men/Co-Owned)	1.024	0.871	1.025	0.813	1.024	0.871	0.993	0.925
	(0.064)	(0.076)	(0.077)	(0.088)	(0.064)	(0.076)	(0.082)	(0.116)
Home as Base X Exports	-	-	0.881	1.254	-	-	0.943	1.288
	-	-	(0.194)	(0.349)	-	-	(0.220)	(0.387)
Home as Premises X Exports	-	-	1.036	1.209	-	-	1.066	0.971
	-	-	(0.147)	(0.239)	-	-	(0.165)	(0.230)
Women-Owned X Home as Base	-	-	-	-	1.805	1.813	2.057*	2.093*
	-	-	-	-	(0.547)	(0.572)	(0.688)	(0.730)
Women-Owned X Home as Premises	-	-	-	-	1.000	1.014	1.025	0.899
	-	-	-	-	(0.159)	(0.184)	(0.182)	(0.183)
Women-Owned X Exports	-	-	-	-	-	-	1.136	0.692
	-	-	-	-	-	-	(0.213)	(0.164)
Women-Owned X Home as Base X Exports	-	-	-	-	-	-	0.474	0.445
	-	-	-	-	-	-	(0.364)	(0.355)

Women-Owned X Home as Premises X Exports	-	-	-	-	-	-	0.911	1.982
	-	-	-	-	-	-	(0.368)	(0.904)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi2 (Degrees of Freedom)	1,243.167		1,245.033		1,246.205		1,261.308	
	(70)		(74)		(74)		(84)	
Observations	8,761		8,761		8,761		8,761	

Note: Exponentiated coefficients; Standard errors in parentheses. UKLSBS, 2015; UK businesses with 0-49 employees; unweighted data; not shown: missing data turnover and employment dummies, ethnic minority ownership, sole owner, industrial sector dummies, business age dummies, legal status, business plan, received advice, rural, London, e-commerce use. Source: author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 4.7 Summary of hypotheses and results, Chapter 4.

Hypothesis	Confirmed?	Result
H1a. Using the home as a premises and the home as a base will significantly decrease the odds of having high turnover and employment compared to businesses in separate premises, however this decrease will be greater for business using the home as a premises than the home as a base.	Partially	Using the home as a premises and the home as a base significantly decreases the odds of a small business having high firm size in turnover and employment compared to businesses in separate premises, however this decrease is greater for business using the home as a base than the home as a premises.
H1b. Using the home as a premises and the home as a base significantly increases the odds of turning a profit and innovating compared to businesses in separate premises.	No	Using the home as a base significantly increases the odds of turning a profit compared to businesses in separate premises. Using the home as a premises significantly decreases the odds of a small business innovating compared to businesses in a separate premises.
H1c. Using the home as a base will significantly decrease the odds of exporting and using the home as a premises will significantly increase the odds of exporting compared to businesses in separate premises.	Yes	Using the home as a base significantly decreases the odds of exporting and using the home as a premises significantly increases the odds of exporting compared to businesses in separate premises.
H1d. Exporting will significantly increase the odds of businesses using the home as a premises turning a profit, but will decrease the odds of high turnover and employment compared to a business in a separate premises.	Yes	Exporting significantly decreases the odds of businesses using the home as a premises having high turnover and also decreases employment, but increases the odds of turning a profit.
H2a. Using the home as a premises will significantly lower the odds of women-owned businesses having high turnover and employment, but there will be no significant change when using the home as a base.	No	Using the home as a base significantly increases the odds of women-owned businesses having high turnover and employment.
H2b. Using the home as a premises or the home as a base will not significantly change the odds of women-owned businesses turning a profit, exporting or innovating.	Yes	Using the home as a premises or the home as a base does not significantly change the odds of women-owned businesses making a profit, exporting or innovating.

4.7 Discussion

There are several interesting and unexpected results which emerge from this chapter. Below is a detailed discussion of key findings from this chapter and its implications for the literature, and a broader discussion can be found in Chapter 7.

- Businesses using the home as a premises have significantly lower turnover, employment and incremental innovation than businesses in separate premises.
- Businesses using the home as a base have lower turnover and employment, but are more likely to turn a profit than businesses in separate premises.

The previous literature on home-based businesses clearly demonstrated that, compared to non-home-based businesses, home-based small firms were smaller in both turnover and employment (Reuschke and Mason, 2022; Loscocco and Bird, 2012; Mason et al., 2011). This research confirms these prior findings, and that this applies to both home-based businesses that use the home as a premises and those that use the home as a base. It was hypothesised in H1a that businesses using the home as a premises would see a larger decrease in turnover and employment compared to businesses using a separate premises, than businesses using the home as a base. In fact, the results showed the opposite, and that businesses using the home as a base were smaller in both employment and turnover than both businesses in separate premises and home premises. In particular, the descriptive analysis revealed a very high proportion of non-employing home as a base businesses (Table 4.2).

It may be the case that businesses which use the home as a base, and require the business owner to be mostly mobile or away from home during the work day, struggle to manage a high sales volume or additional employees while undertaking a significant amount of work mobility themselves. Looking at a further break down of industry in this group, the types of home as a base businesses – construction workers, tutors, personal trainers, consultants, drivers, carers and cleaners for example may only require themselves to do the work (Appendix A, Table A.2). In the event of growth, particularly the taking on of employees, the home as base business may become a home as a premises business – with the owner managing the business from a home office while the employees visit clients outside of the home. Alternatively, they may choose to move into a separate premises.

However, regardless of the small size of this type of home-based business, they are significantly more likely to turn a profit compared to non-home-based businesses. This indicates that the

business model of 'home as a base' may allow for unique cost benefits, allowing the owner to run exactly the same business, albeit smaller or without employees at all, as they would if they were in a separate premises but with much lower costs and overheads.

For the first time, this chapter reveals innovation in home-based businesses compared to non-home-based businesses using multivariate analysis. Previous bivariate studies of innovation in home-based businesses were also unable to disaggregate between novel and incremental innovation (Breen, 2010). There is no evidence that home-based businesses are any more creative than similar businesses in separate premises, as both businesses using the home as a premises and those using the home as a base are just as a likely to have achieved a novel, new-to-market innovation as non-home-based businesses (van Gelderen et al., 2008; Sayers, 2010).

Unexpectedly however, businesses using the home as a premises are less likely to have achieved incremental, new-to-business, innovation. This is an important area for business support groups and policy to target, as diversifying product lines and services and pivoting processes is important to competitiveness and long term survival and growth in SMEs (Lecossier and Pallot, 2020; Wojan et al., 2018). This may indicate that businesses using the home as a premises experience barriers to incremental innovation that businesses in separate premises do not experience, such as within their networks, or issues with proximity/isolation (Partanen et al., 2014). Further research in this area would be important.

- Businesses using the home as a premises are more likely to export and businesses using the home as a base are less likely to export than businesses in separate premises.
- Businesses using the home as a premises have significantly lower turnover and employment, but are significantly more likely to turn a profit when they export goods and services compared to businesses in separate premises.

H1c correctly hypothesised this result, although this does differ from previous research by Mason et al. (2011) that found home-based businesses were less likely to be exporters, but had a small yet significant group of businesses which had a high export intensity. The results here may differ because businesses using the home as a premises and those using the home as a base are separated, and the latter were less significantly likely to export. However, the reason home as a premises businesses are more likely to be exporters in this sample is because some businesses do not have goods or services that could be exported, even if they wanted to, and businesses that have exportable goods or services appear more likely to locate in the home premises. This may indicate that the home is becoming an important location for the types of small businesses which

can export and may wish to in the future. That said industry and e-commerce is controlled for – so this is unlikely to be linked to more e-exporting businesses or retail/wholesale businesses choosing to locate in the home. Instead, this has occurred across industrial sectors.

These businesses are likely linked to the new self-employed who can easily work at home, and can manage their business through outsourcing, from a computer or laptop. This may also explain why H1d correctly hypothesised that exporting home-based businesses would have lower turnover and employment, but would be more likely to turn a profit than non-home-based businesses. Operating such a business from home may be part of a rationale business model, which allows a profit making business at a smaller overall economic size (Zhang et al., 2022), which in turn avoids the need for a premises (and has further cost saving benefits) or additional staff. Or, as the business exports goods and services, the reduction in the importance of economies of scale makes it easier to run the business from home, provided the business is small (Bell and Loane, 2010; Arzeni et al., 2012).

- Women-owned businesses using the home as a premises do not have lower performance in any measure.
- For women-owned businesses using the home as a premises, exporting goods or services significantly reduces their expected employee count.

The results on gender in this chapter make a significant contribution to the literature on women-owned home-based businesses. First, contrary to previous studies (Loscocco and Hunter-Smith, 2004; Thompson et al., 2009; Loscocco and Bird, 2012) the findings completely refute the notion that women-owned home-based businesses have a performance penalty of any kind. The previous studies which had identified 'underperformance' in women-owned home-based businesses used significantly older data and often female-only samples. Therefore, this large-scale, nationally representative study hopefully demonstrates a positive move towards equality of outcome in contemporary home-based businesses, and indicates that using the home as a premises can be a successful, value creating business model for women and for men.

It may also be the case that this study was able to apply more detailed control variables, due to the sample size and data available, than previous research. In the wider and gender enterprise literature 'underperformance' is often mediated or eliminated by the inclusion of detailed control variables on business age, firm size, industry and location (Sappleton, 2018; Robichaud et al., 2018; Zolin et al., 2013).

The finding that for women-owned businesses using the home as a premises, exporting goods and services reduces the number of employees they have is harder to explain and requires further research.

- Women-owned businesses using the home as a base have significantly higher turnover and employment.

The analysis on gender in this chapter also identified a small, but key group of businesses which have thus far received almost no attention in the literature (Long and Reuschke, 2021): women-owned businesses using the home as a base. Remarkably, this small group of women-owned businesses have significantly higher turnover and employment compared to those in separate premises.

In H2a it was hypothesised that businesses using the home as a premises would have a 'performance penalty' in turnover and employment compared to those in a separate premises, but businesses using the home as a base would avoid this. The theoretical argumentation behind this was that the latter would not experience the same time limiting and multi-tasking required to combine work and family or childcare within the home (Loscocco and Bird, 2012). However, women-owned businesses using the home as a premises did not display any such penalty. Nonetheless, the results above do indicate that there may be advantages for women who run their business from the home as a base, and perhaps can avoid some of the work-life overlap rather than integrating the two (Shanine, 2019; Kurowska, 2020).

However, this is a relatively uncommon choice of business premises for women. Therefore, it is possible that a very specific type of female entrepreneur or business owner makes this choice, and that this group is homogenous in some way that cannot be controlled for in the modelling. It is possible, given that this group is concentrated primarily into education, consultancy, and healthcare businesses (excluding carers) (Appendix A, Table A.2), that these are some of the most professional, high revenue, labour intensive businesses in their respective industries.

Many of these businesses may even be operating from a co-working space and simply use the home as a place for tax registration (i.e. the home is not used at all) (Kapasi, 2015; Robelski et al., 2019). The high outcomes in employment and turnover nonetheless suggest that promoting this business model for women might be beneficial to both the economy and female entrepreneurs, however more research should be done into this group, identifying exactly how they operate their businesses.

4.8 Summary

Chapter 4 revisits the 'underperformance' of home-based businesses moving the debate in the literature beyond only measures of firm size (i.e. employment or turnover) by revealing, for the first time, the profit, innovation and export performance of this highly important group of small businesses. Furthermore, this chapter takes the novel approach of splitting home-based businesses into two distinct groups – those who use the home as a premises and those which only use the home as a base, participating in multilocational working mostly outside of the home (Long and Reuschke, 2021).

The results indicate that whilst home-based businesses do run smaller firms compared to businesses with separate premises, they do not underperform in novel innovation, turning a profit or exporting. In fact, the chapter reveals that the home is a key site for internationalisation, as businesses using the home as a premises are significantly more likely to export than those using a separate premises. Drawing on studies which found a link between exporting and high business performance (Henley and Song, 2020), further analysis reveals that whilst exporting appears to support businesses using the home as a premises to turn a profit, it conversely results in decreased employment and turnover.

Further interactions between premises type and gender highlight that women-owned home-based businesses (either home as a premises or home as a base) do not underperform compared to women-owned businesses with separate premises or men/co-owned businesses. In fact, the chapter reveals that for women-owned businesses using the home as a base significantly increases their turnover and employment. Hence this chapter contributes to dispelling the myths surrounding female entrepreneurs who work from home, particular the female underperformance hypothesis, which is pervasive within the SME literature (Thompson et al., 2009; Loscocco and Bird, 2012). However, women-owned businesses using the home as a premises do see a decrease in their employment when they export goods or services, indicating this group of women-owned businesses require further attention from researchers.

Chapter 5 further develops on the underperformance hypothesis in home-based businesses by utilising the longitudinal panel element of the UKLSBS, developing a novel typology for growth in home-based businesses, including comparing businesses which remain in the home to, for the first time, businesses which relocate into a separate premises. Through this typology Chapter 5 tests the jobless growth hypothesis, explores links between home-based businesses and the use of subcontractors and reveals important spatial variations in relocation patterns.

Chapter 5 The Role of (Re)Location in Home-Based Business Growth

5.1 Introduction

The state-of-the-art on business growth in home-based enterprises presents mixed and sometimes contradictory findings. Home-based businesses and their owners have been simultaneously depicted as both part-time 'hobby' businesses (Coleman and Robb, 2012; 2014) and spatially restricted but growth-orientated enterprises which pursue 'jobless' growth – turnover growth without employee growth (Mason et al., 2011) (Enterprise Nation, 2014). Chapter 4 demonstrated, in line with previous research, that overall, home-based businesses are smaller in employment and turnover than businesses with a separate premises (Reuschke and Mason, 2022; Mason et al., 2011). There are far fewer studies which capture actual growth in home-based businesses. However, some research has found home-based businesses have significantly lower employment growth than similar businesses with separate premises (Bates et al., 2013; Coleman and Robb, 2014). The jobless growth hypothesis, however, remains empirically untested.

Another key aspect of growth in home-based businesses is relocation. As firm-level studies have thus far been unable to capture moves from the home into a separate premises, it is assumed, but not confirmed, that to take on employees home-based businesses may need to move out of the home (Houston and Reuschke, 2017). However, Kim and Parker (2021) recently challenged the concept of the home-based businesses as a phase businesses grow out of, instead positioning home-based businesses as mostly 'stationary' and likely to remain home-based. Houston and Reuschke (2017) found that despite the lower growth outcomes of home-based businesses compared to non-home-based businesses, cities can promote the growth of home-based micro-businesses into medium sized enterprises (50 or more employees). Such significant growth implies that despite the apparently stationary nature of home-based businesses, employment growth in home-based businesses may be linked to locations with a higher density of commercial premises.

Location was once described as a neglected determinate of firm growth (Audretsch and Dohse, 2007). However, theories from economic geography tend to centre on the idea that agglomeration rich areas and business clusters will support employment growth in start-ups and small firms (Clarke et al., 2016). Home-based businesses have a distinct geography, as unlike non-

home-based businesses they are more likely to locate outside of these agglomerations, and are mostly found in rural locations, affluent and suburban neighbourhoods and Southern regions of the UK (Mason et al., 2011; Bosworth and Newbery, 2015). Therefore, it is essential to understand, before making assumptions about the growth process in home-based businesses, how this geography may contribute to the growth and relocation outcomes of home-based businesses. What is missing from the current literature and which this chapter will therefore address is 1) the different types of growth home-based businesses can achieve *within* the home and when relocating *out of* the home and 2) whether the home location plays a role in determining relocation or the types of growth home-based businesses achieve.

The empirical analysis in this chapter is based on the UKLSBS, 2015-2019. To address the research aims a novel typology of growth is developed appropriate for understanding the distinctive strategies of home-based businesses, as compared to businesses with a separate premises. Multiple regression models are analysed for each growth type, and for relocation out of the home. A decomposition analysis is also presented, revealing the extent to which business location accounts for the different growth types of businesses remaining in the home and those with a separate premises.

This research makes a significant contribution to the growing home-based business literature, by empirically testing both the jobless growth hypothesis for the first time, and the links between growth types and relocation out of the home, providing clarity to the ambiguity and contradictions in current research. These are vital aspects of the growth process in home-based businesses which are missing from policy recommendations and support in small businesses. The chapter also contributes to much needed micro-level research into business growth outside of major agglomerations and business clusters in the UK, and into deprived and rural neighbourhoods and regions with historically lower business ownership and entrepreneurship (Lee and Cowling, 2013; Phillipson et al., 2019).

5.2 Literature Review and Hypotheses

5.2.1 Relocation into a New Premises

Multiple reasons can drive the decision to move a business out of the home but by far the most common motivation reported is for more space and planned business growth in employees or sales (Sleutjes and Beckers, 2012; Reuschke and Houston, 2016; Mackloet et al., 2006). This is commensurate with the concept of the home as an incubator or springboard for businesses which later transition out of the home into a separate premises as part of a growth strategy or as the

business becomes too large to remain at home (Newbery and Bosworth, 2010). Reuschke and Domecka (2018) support this idea, finding that almost 20% of businesses in Scotland currently with separate premises were home-based at one time.

There have, however, been challenges to this broadly accepted notion that home-based businesses relocate to grow. Kim and Parker (2021) found only 11% of home-based self-employed persons changed to non-home-based on an annual basis. They refute the notion that home-based businesses are highly mobile businesses, concluding that homeworking is a stationary entrepreneurial state, and that most home-based businesses will remain in the home. Whilst some authors have suggested that home-based businesses can take on some employees whilst remaining in the home by making use of remote working employees or 'third spaces', for example (Kapasi and Galloway, 2018), the significant logistical issues that come with taking on employees in the home has been reported across various studies (Reijonen and Komppula, 2007; Ekinsmyth, 2011, 2013; Loscocco and Smith-Hunter, 2004). There have been limited studies of actual growth which have demonstrated that most home-based businesses lag behind non-home-based businesses in terms of employment growth (Coleman and Robb, 2012), but there are small or specific groups of home-based businesses which can achieve large or fast employment growth over several years (Houston and Reuschke, 2017; Bates et al., 2013).

Together this indicates there may be two groups of home-based businesses - the majority which remain at home and do not grow, and a minority which achieve employment growth by relocating out of the home into a separate premises with the space to accommodate such an expansion (Reuschke and Houston, 2016). Whilst a number of studies have explored the growth intentions and aspirations of home-based businesses (Walker et al., 2008; Breen, 2010), longitudinal data which allow tracking small businesses by home-based location over time, were, until the UKLSBS non-existent. Thus several questions remain - is relocation an essential component of home-based business growth or not? Is homeworking is a long term solution for many small business owners, and if so, can home-based businesses pursue any kind of growth whilst remaining in the home?

Risselada et al. (2013) found that home-based entrepreneurs do have a higher propensity to relocate than other entrepreneurs. However, they also found only a weak association between relocation and growth in home-based businesses. Their study does not identify where the business moved to – i.e. whether they moved from the home into a separate premises or to a new home premises. This increased mobility may rather be linked therefore to home-based businesses relocating into new homes for personal or family reasons, i.e. 'personal moves', which

may not be linked to growth, but rather the personal/family needs of the business owner. Therefore, the first hypothesis is as follows:

H1a. Relocating out of the home into a separate premises will be significantly and positively associated with employee growth compared to businesses which remain in the home, but this will not apply to home-based businesses moving into a new home.

Mason et al. (2011) found that many home-based businesses in their sample had increased in turnover over the previous three years and a majority wanted to grow further, but concurrently, expected to stay the same size in employment. Similar results appear in other surveys of home-based businesses (Enterprise Nation, 2014; Breen and Karanasios, 2010; Clark and Douglas, 2014). Delmar (2003) identifies "strong sales growers" as a common growth type and it seems likely that this strategy will be adopted by businesses with restrictions on hiring new staff, including those in the home. This type of growth could be further supported by hiring contractors who work remotely and outsourcing projects to other businesses (Clark and Douglas, 2012; Mason et al., 2011; Gelderen et al., 2008, p168).

Mackloet et al. (2006) further found that those with both sales growth and employment growth had aspirations to relocate out of the home, and it is reasonable to expect that high sales growth could facilitate such a move if the business uses some of their turnover for a capital investment or to attract finance to fund the move. However, if home-based businesses often pursue jobless growth whilst remaining in the home, this growth type may occur prior to a relocation, whilst employee growth occurs during or after the relocation.

Together these findings lead to two hypotheses:

H1b. Remaining in the home will be significantly and positively associated with turnover growth without employee growth and contractor only growth compared to businesses with separate premises.

H1c. Relocating out of the home into a separate premises will be significantly and positively associated with turnover growth without employee growth in the year prior to the relocation.

5.2.2 The Geography of Home-Based Business Growth

In the UK, business density (relative to the size of the resident adult population) is highest in London by a significant margin, and this is followed by the South West and the South East (BEIS, 2022a). Conversely, peripheral regions including the North East of England, Scotland, Wales and Northern Ireland have relatively low business density compared to the UK average (BEIS, 2022a).

The highest density of registered businesses across the UK, in particular non-employers and micro-businesses, are found in major and minor conurbations (DEFRA, 2022). There is a substantial literature within economic geography which details how urbanisation and agglomeration economies can benefit businesses and support growth (Chapter 2, Section 2.4), which provides a basis for why firms tend to agglomerate or co-locate. A great deal of this literature focuses on science parks, business clusters and central city locations, which are often portrayed as optimal business locations. However, there is evidence that businesses also choose their location based on where there is a higher density of other businesses in urban and suburban neighbourhoods (Berg, 2014).

Home-based businesses however have a distinct geography from other small businesses (Enterprise Nation, 2014), although extant literature has little considered how this may be related to growth. Mason et al. (2011) found that home-based businesses are concentrated in Southern regions, particularly the South East and West of England, but not London. In contrast with the wider business population, home-based businesses are predominantly located in rural areas rather than urban areas. Bosworth and Newbery (2015) confirm this by finding the proportion of self-employment in UK which is home-based increases with the rurality of the district. At the neighbourhood level, home-based businesses are found mainly in residential suburbs and village centres, in affluent areas (Mason et al., 2011).

There is also a significant group of home-based businesses located in remote peripheral counties such as the Highlands and Islands of Scotland and mid-Wales (Mason et al., 2011). The latter areas are characterised by a lack of economic opportunities and will often place the business outside of commuting distance to urban areas, and thus home-based businesses likely provide a necessary form of income for those who cannot work entirely remotely. Home-based businesses are associated with larger, detached or single-family homes (Reuschke, 2016; Kane and Clark, 2019; Kim and Parker, 2021) and it is likely that this partially explains why there are high proportions of home-based businesses in affluent suburbs, which are dominated by this housing type (Reuschke and Mason, 2015; Kim and Parker, 2021; Enterprise Nation, 2014).

If home-based businesses are indeed mostly stationary enterprises that remain in the home, this distinctive geography may potentially explain the types of growth home-based businesses pursue. Enterprises within rural areas have been documented to employ less staff, and to cite barriers to employment growth as a result of their access to a sparser labour market, and more specifically, their lack of access to the diverse pool of skilled labour provided by urban agglomerations (Phillipson et al., 2011; Lee and Cowling, 2015). Furthermore, businesses in rural locations which do not have access to the benefits or resources from urbanisation – such as networking and

knowledge spill-overs from other firms - may be at a disadvantage (Tiwasing, 2021; Segantini and Dickes, 2021).

The use of contractors may help rural businesses to overcome barriers created by their location, hiring subcontractors who work remotely, using employment agencies, seasonal/temporary workers or local intermediaries which link them to urban areas (Brydges and Hracs, 2019). The implications of restricted labour markets could therefore point to the use of the jobless growth strategy in rural locations and/or the use of contractors rather than employees, in both home-based and non-home-based businesses. Rather than being a growth type specific to home-based businesses, turnover growth without employment growth or contractor only growth may be more common in rural locations than urban areas, in response to weaker labour markets and skills shortages.

Thus, the fact that home-based businesses concentrate into rural locations may explain why home-based businesses which remain within the home have lower employment growth (Bates et al., 2013) and appear to intend to pursue turnover growth without employee growth or contractor growth instead (Mason et al., 2011). However, at the same time, the concentration of home-based businesses into Southern regions, which have much higher population density and access to many smaller urban cities which have seen high skilled employment growth in recent years (Sunley et al., 2020), may partially offset this effect. Together, this leads to the following hypothesis:

H2a. A large and significant amount of the disparity in growth types between businesses remaining in the home and businesses with a separate premises will be explained by the different rural and regional business locations of the two groups.

The concentration of home-based businesses into the locations described above may also indicate that home-based businesses in these areas are less likely to either need to or choose to, relocate out of the home. The different housing types in these areas in particular may lead to spatial variations in which home-based businesses relocate. In rural locations the lower availability of commercial properties may significantly inhibit the relocation of home-based businesses compared to those in cities (Houston and Reuschke, 2017). The East Midlands, South East, South West and East of England, the regions (excluding London) which make up “the South” (Gardiner at al., 2013) have the highest stock of detached housing in the UK (ONS, 2021), and therefore overall, home-based businesses in these regions may find their home has more space to accommodate the business in the long term (Kim and Parker, 2021).

London, which has the highest business density in all of the UK regions but significantly less home-based businesses may have the opposite impact. London has a much higher density of apartments than any other region of the UK which has been linked to relocation and relocation desire in home-based businesses (Reuschke and Houston, 2016; Mackloet et al., 2006). Furthermore, London has a highly diverse and entrepreneurial culture, a high skilled and growing labour force, and a large number of commercial premises available for lease or purchase and therefore opportunities for growth and relocation may be higher than in other regions (Sunley et al., 2020; Mitchell, 2017; Obschonka et al., 2013; Nathan and Lee, 2013).

Finally, home-based businesses are rarely found in deprived neighbourhoods, which have higher proportions of social and rental housing, whose contracts and leases rarely allow the use of the property for a business. In these areas, it is unlikely home-based businesses are regularly relocating, but rather that individuals cannot start businesses from home at all, or they may be forced to run informal 'under-the-table' home-based businesses (Williams and Martinez, 2014a; 2014b). Thus for those businesses that are home-based in more deprived locations, they may in fact be less likely to relocate into a separate premises. Additional barriers such as lower human and social capital, social exclusion and resource acquisition (Lee et al., 2019; Stringfellow and Straw, 2009; Blackburn and Ram, 2006) may also prevent a business from relocating out of the home. Reuschke and Houston (2016) found that residential mortgage finance and home equity is highly used by home-based businesses which move into a separate premises compared to those who remain in the home.

H2b. Home-based businesses located in rural locations, deprived neighbourhoods or southern regions will be less likely to relocate into a separate premises.

H2c. Home-based businesses located in London will be more likely to relocate into a separate premises

5.2.3 Developing a Growth Typology

Defining growth is a challenging process, and there is no one consistent way to measure if a business has grown significantly enough to be classed a 'growth businesses' or a 'non-growth business' (Delmar and Wallin, 2018), particularly when endeavouring to capture complex types of growth rather than the extent of growth. This creates challenges within small business research as to the comparability of studies, due to the varied metrics of growth utilised in academic literature and policy documentation (Roper and Hart, 2019). Not all measures of firm growth are transferable to small businesses (Audretsch, 2012), as most will start and remain small

throughout their life-cycle and only 6% will ever exhibit a period of sustained or high growth (Anyadike-Danes et al., 2015; Storey, 2016).

Janssen (2009) suggests that the desire to find "one best way" to measure growth has detracted from its multidimensional nature. Generally, studies use either sales or employment growth, as it is presumed that one will naturally follow the other. However, Janssen's study tested the interchangeability of sales and employment growth and found that they are often associated with different factors. Such findings have been confirmed by other research (Delmar et al., 2008). In earlier works, Delmar (2003) derives multiple growth categories to capture growing firms, and highlights that combined turnover and sales growth can optimise a study to its specific research design whilst still allowing comparability.

These findings and debates speak to the approach in this chapter, which is interested in testing a growth typology with combinations of employee growth, turnover growth and contractor growth, rather than the amount of growth a business achieves. Three mutually exclusive growth types are therefore derived for this analysis: *employee growth, turnover growth without employee growth (jobless growth), and contractor only growth.*

5.3 Methods

5.3.1 Sample and Dependent Variables

The empirical analysis in this chapter draws a sample of UK private small businesses from the 2015-2019 UKLSBS. More details on the exact sample selection can be found in Chapter 3, Section 3.4.1. Growth and relocation are both measured annually (from t-1 to t) from 2015 to 2019 and so the sample of small businesses included in the analysis are those which responded to a minimum of two consecutive waves.

In order to create variables capturing the growth typology above, binary variables for turnover growth, employment growth and contractor growth are first defined and then combined. To define whether a business is considered to have experienced turnover growth, the proportions of businesses in the sample which had increased their turnover by any amount from t-1 to t were assessed, revealing that exactly 50% of the small businesses in the UKLSBS grow their turnover each year. To exclude businesses which have grown by only a very small margin, any business which achieves over 2.5% growth per annum is defined for this research as a business that has achieved turnover growth. Models were also tested with turnover growth margins of over 5%, and the results were not significantly different.

The employee growth rate overall was lower than the turnover growth rate and most businesses only took on a few additional employees, which is in line with other research into small businesses (ERC, 2020). With this in mind, and as the focus of this study is simply whether the business can take on any (further) employees, employee growth is defined as any increase in the number of employees from t-1 to t. Employees are considered to be those on the payroll, and excludes any new owners or business partners which may have joined the business between t-1 and t.

Contractor growth is defined in a similar manner – a binary variable measuring whether the number of contractors paid by the business increased from t-1 to t. Contractors are defined as any business/ independent contractor, agency staff, freelancer or self-employed person working for and paid by the business that are not on the payroll. Below, when describing categorical variables, (Ref Cat.) is used to indicate the reference or base category in the variable and (1) (2) (3) etc. are used to indicate that the categories are compared to the reference category in the modelling.

The above measures of turnover, employment and contractor growth are combined to create the following binary dependent variables, capturing the three growth types:

- Employee growth: (1) any employee growth (Ref Cat.) no turnover or employee growth
- Turnover growth without employee growth: (1) turnover growth over 2.5%, no employee growth (Ref Cat.) any employee growth
- Contractor only growth: (1) any contractor growth, no employee growth (Ref Cat.) any employee growth

5.3.2 Independent Variables

In these models the key independent variable is relocation. The reference category is businesses which remain in the same home between t-1 and t (Ref Cat.). The comparison categories are: (1) businesses which moved into a new home between t-1 and t (2) businesses which moved out of the home into a separate premises between t-1 and t (3) businesses which remained in separate premises between t-1 and t. For more information on the definition of a home-based business see Chapter 3, Section 3.3.1.

This variable is captured in the survey as follows. (1) The business responds that they are home-based at both t-1 and t and that their head office has not moved at t. (2) The business responds that they are home-based at both t-1 and t and that their head office has moved at t. (3) The business responds that they are home-based at t-1 but in a separate premises at t. (4) The

business responds that they are in a separate premises at t-1 and t. Businesses which moved from a separate premises at t-1 into the home at t are excluded from the analysis.

To measure whether the business is in an urban or rural location a binary variable with urban as the reference category (Ref Cat.) and rural as the comparison category (1) is used. The urban-rural classification is based on the full postcode of the business as is drawn from the 2011 UK census (see Chapter 3, Section 3.3.3.).

A dummy variable for the UK regions includes the nine English regions, Scotland, England, Wales and Northern Ireland. To create a binary variable to compare the Northern and Southern regions, the classification used by Martin et al. (2016) is utilised. Southern Regions are London, South East, South West, East of England, East Midlands (1). Northern Regions are West Midlands, Yorkshire-Humberside, North East, North West, Wales, Scotland and Northern Ireland (Ref Cat.).

To measure deprivation the 2015 English Index for Multiple Deprivation (EIMD) is used (the most recent available at the time of analysis). As each index for multiple deprivation is a relative measure of deprivation within each nation (Scotland, England, Wales and Northern Ireland), analysis must be conducted separately for each of the countries and the indexes cannot be directly compared to one another. There is a method for creating a UK wide deprivation measure (Payne and Abel, 2012), however to apply this method would require lower level geographies than are made available in the dataset. Thus when running analysis including deprivation data only the English businesses and the EIMD are included as the sample size in Scotland, Wales, and Northern Ireland are not large enough to replicate the modelling.

In the survey, the EIMD is taken from the full postcode of the business, and then placed on a scale of 1 to 20, with 20 indicating that the business is within the top 5% of the most deprived postcodes in the nation, and 1 indicating that the business is within the 5% least deprived postcodes. This scale is included in the modelling as a continuous variable for increasing deprivation. It is important to note that these variables were included with the UKLSBS dataset, and were pre-coded and pre-linked to the businesses. The full postcode is not provided to users of the data.

5.3.3 Control Variables

A series of control variables based on firm characteristics and owner demographics are incorporated in the models to disentangle the associations between the key independent variables and growth from other firm or owner effects. The justifications for the variables included are below, and are based on firm-level studies of business growth.

Although not the focus of this chapter, in line with Chapters 4 and 6 a variable controlling for whether the business is more than 50% women-owned businesses or not is included. As majority women-owned business are more likely to have a sole owner, a control variable for whether the business has a single owner or multiple owners is included.

There is an extensive literature on business ownership by ethnic minorities, and as this can be a predictor of lower sales and growth, particularly for female ethnic minority business owners, (Rahman et al., 2018), a variable controlling for if the business has over 50% ethnic minority ownership is included (Ram et al., 2017). Industry dummies taken from one-digit Standard Industry Codes are included, as are business age dummies, as employment and sales growth can vary considerably between young firms and established firms (Haltiwanger et al., 2013; Decker et al., 2014) and across industries (Highfill, 2020; Zolin et al., 2013). It is also important to control for business age as home-based businesses tend to be younger than the average small business (Mason et al., 2011).

Legal status has also been shown to predict growth in small businesses, and changes from sole proprietorships into a limited company (i.e. the process of incorporation) may predict plans to expand the firm (Johnsen and McMahon, 2005). Incorporating the business allows owner(s) to formalise the business, reduce their own liability, and apply for additional credit and loans. Therefore, a binary control variable for companies versus partnerships/sole traders is included.

Additional control variables were drawn from previous studies modelling productivity growth, turnover and employment in the UKLSBS and other similar UK firm-level surveys. These variables include whether the business has a business plan, has recently received business advice (Houston and Reuschke, 2017), obtained finance in the previous year, made a surplus in the previous year (Owen et al., 2019), and whether the business works across multiple sites (Maioli et al., 2020). Wave dummies are included to control for unobserved time-variable and time invariant effects on business growth that are specific to the time period under study (Allison, 2009).

The full details of the coding of all variables in the analysis, including reference categories, are shown in Table 5.1 and Table 5.2 presents a pooled sample description which can be used to determine sample sizes for the categorical variables included in the analysis across all waves.

Table 5.1 Descriptive statistics of all variables included in the analysis, unweighted data.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Relocation (Ref Cat. Remains in the Same Home)	16553	2.71	1.835	0	4
Employee Growth (Ref Cat. No Turnover or Employment Growth)	9584	.473	.499	0	1
Turnover but no Employment Growth (Ref Cat. Employee Growth)	7242	.374	.484	0	1
Subcontractor Only Growth (Ref Cat. Employee Growth)	5608	.192	.394	0	1
Women-Owned (Ref Cat. Men/Co-Owned)	16443	.216	.411	0	1
Rural Location (Ref Cat. Urban Location)	17159	.34	.474	0	1
Ethnic Minority Owned (Ref Cat. Not Ethnic Minority Owned)	17174	.166	.516	0	2
Sole Owner (Ref Cat. Multiple Owners)	16570	.476	.499	0	1
Industry Sector Dummies	17174	3.574	1.866	0	7
Business Age Dummies	17149	.858	1.026	0	3
Company (Ref Cat. Sole Trader/Partnership)	17149	.699	.459	0	1
Has Business Plan (Ref Cat. No Business Plan)	16877	.439	.496	0	1
Received Advice in the Last 12 Months (Ref Cat. No Advice Received)	17061	.249	.432	0	1
Obtained Finance in the Last 12 Months (Ref Cat. No Finance Obtained)	16969	.09	.286	0	1
Exported Goods/Services in the Last 12 Months (Ref Cat. Does not Export)	17148	.231	.421	0	1
Multiple Sites (Ref Cat. Single Site)	17090	.872	.334	0	1
Wave Dummies	17174	17.497	1.217	0	4
Region Dummies	17174	6.08	3.109	0	11
English Index Multiple of Deprivation (EIMD)	14174	9.595	5.347	0	19
Regional Location (Ref Cat. The South)	17174	.67	.65	0	2

Note: UKLSBS, 2015-2019; UK businesses with 0-49 employees at t-1; unweighted data. Source: author's own calculations.

Table 5.2. Pooled sample description of relocation by growth types and key independent variables 2015-19, unweighted observations and percentages by home-based status.

	Remained in the Home	Moved Home	Moved into a Separate Premise	Remained in Separate Premises	Total
No Turnover or Employment Growth	1,643	54	115	3,106	4,918
	61.91	57.45	56.65	49.51	53.32
Employee Growth	1,011	40	88	3,167	4,306
	38.09	42.55	43.35	50.49	46.68
Turnover but no Employment Growth	963	32	70	1,559	2,624
	48.78	44.44	44.3	32.99	37.86
Subcontractor Only Growth	264	19	34	711	1,028
	20.71	32.2	27.87	18.33	19.27
Men/Co-Owned	3,922	138	318	8,059	12,437
	80.27	78.86	81.12	77.46	78.43
Women-Owned	964	37	74	2,345	3,420
	19.73	21.14	18.88	22.54	21.57
Rural Location	2,079	46	119	3,439	5,683
	41.54	26.14	30.05	31.37	34.36
Urban Location	2,926	130	277	7,524	10,857
	58.46	73.86	69.95	68.63	65.64
The South	2,369	88	173	5,162	7,792
	47.3	49.72	43.58	47.05	47.07
The North	2,145	67	178	4,770	7,160
	42.83	37.85	44.84	43.48	43.25
London	494	22	46	1,039	1,601
	9.86	12.43	11.59	9.47	9.67
Total	5,008	177	397	10,971	16,553

Note: UKLSBS, 2015-2019; UK private enterprises with 0-49 employees at t-1 only; missing data not shown. Source: author's compilation.

5.3.4 Modelling Framework

Using data from the UKLSBS, growth types and relocation are measured between t-1 and t (annually) from 2015-2019, utilising the longitudinal tracking element of the survey. To investigate the research questions above a series of binary logistic regression models with random effects are specified for each dependent variable. Random effects are included in all models to assist with controlling for unobserved heterogeneity, and to account for clustering/correlation of growth types within the firm, over time. The growth type of a firm is likely dependent on their past growth, and both residential and business moves are highly endogenous. In this analysis random effects models are chosen over fixed effects models as this model has many of the benefits of a fixed effects model, but time-invariant predictors may be included (Allison, 2009). Many of the key independent variables under investigation do not vary at all from wave to wave, or do not have enough time varying observations (such as those moving from urban to rural business locations) to estimate the time-variant coefficients needed for a fixed effects model.

First, descriptive analysis of the relocation rates in home-based businesses is presented in Table 5.3. Then, Table 5.4 presents odds ratios for the growth typology models. Table 5.5 presents a decomposition of the growth typology models to analyse whether the rural or regional location explains the difference in growth types between businesses remaining in the home and those with a separate premises. Table 5.6 shows the odds ratios of the models investigating the spatial patterns of relocation.

5.4 Results

5.4.1 Transition Matrix

Following the methodology in Kim and Parker (2021), Table 5.3 presents a transition matrix of home-based businesses and businesses in separate premises. The transition matrix shows the average percentage of home-based businesses transitioning into separate premises (and vice versa) each year (t-1 to t) from 2015 to 2019, using an unbalanced panel. The table also shows the total percentage of transitions over the full four years of the survey, using a balanced panel of only businesses which responded to the survey in 2015 and 2019. The per annum rate of home-based businesses which relocate from the home into a separate premises is 7.11%. Therefore, whilst it is clear that most home-based businesses are stationary and remain in the home in any

given year, a significant minority (almost 1/3 in this data) have moved into a separate premises after four years.

Table 5.3 Transition matrix between home-based and separate premises, 1 year and 4 year relocation rates, percentage relocated by previous year premises type.

	1 Year Relocation Rate			4 Year Relocation Rate		
Group (vertical: previous, horizontal: current)	Separate Premises	Home-Based	Total	Separate Premises	Home-Based	Total
Separate Premises	98.52	1.48	100	97.7	2.3	100
Home-Based	7.11	92.89	100	32.07	67.93	100
Total	68.8	31.2	100	78.33	21.67	100

Note: UKLSBS, 2015-2019; UK businesses with 0-49 employees at t-1; unweighted data. Source: author's own calculations.

5.4.2 Growth Typology

In Table 5.4, Models 1-3, relocation and growth are both measured between t-1 and t i.e. simultaneously over subsequent waves. This identifies whether businesses have higher odds of the employee growth, turnover growth without employee growth or contractor only growth within the year they relocate. However, to address concerns with endogeneity, and to be sure of the timing between relocation and growth, Models 3-6 specify that the business relocation variable is lagged so that it is measured from t-2 to t-1 and growth is measured from t-1 to t. This captures what growth types occur in the year after relocation. Likewise, Models 7-9 specifies that the business relocation variable is led and measured from t to t + 1 and growth is measured from t-1 to t, capturing which growth types occur in the year prior to a relocation.

Businesses moving to a new home were not associated with any growth type before, during, or after the year they moved. Models 1 and 7 however, demonstrate that businesses relocating into a separate premises have significantly higher odds of employee growth compared to businesses remaining in the home during the year of relocation and the year prior to relocation. However, the odds of employee growth are not significantly higher compared to businesses remaining in the home the year after relocation. Together, these results support H1a, that relocating is significantly and positively associated with employee growth, but that this does not apply to home-based businesses moving to a new home.

Models 1, 4 and 7 demonstrate, in support of H1b, that businesses remaining in the home have significantly lower odds of employee growth than businesses with separate premises, and the odds of them pursuing turnover growth without employee growth (jobless growth) are significantly higher. However, businesses remaining in the home do not have significantly higher odds of taking on contractors instead of employees compared to businesses with separate premises. In fact, contractor only growth has similar associations with businesses remaining in the

home, those with a separate premises, and those relocating. Thus, this research partially confirms the 'jobless' growth hypothesis. Turnover growth without employee growth is strongly associated with home-based businesses which remain at home, demonstrating a distinctive growth strategy among these businesses.

Finally, there is no indication in Model 5, that businesses relocating into a separate premises have higher odds of turnover growth without employee growth the year before the relocation (as above, they actually have higher odds of employee growth the year prior to relocation), and thus H1c is rejected. In fact, the model shows significantly lower odds of jobless growth the year of the relocation and the year prior (Table 5.4, Models 2 and 5) compared to businesses which remain in the home.

Table 5.4 Growth typology: employee growth (Ref Cat. no turnover or employment growth), turnover but no employment growth (Ref Cat. employee growth) and subcontractor only growth (Ref Cat. employee growth). Logistic regression with random effects, odds ratios.

	Growth and Relocation Simultaneously			Growth The Year After Relocation			Growth The Year Before Relocation		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Employee Growth	Turnover Growth, no Employment Growth	Contractor Only Growth	Employee Growth	Turnover Growth, no Employment Growth	Contractor Only Growth	Employee Growth	Turnover Growth, no Employment Growth	Contractor Only Growth
Relocation (Ref Cat. Remains in the Same Home)									
Moved Home	1.167	0.772	1.847	0.881	1.956	1.169	1.150	0.653	0.338
	(0.277)	(0.201)	(0.579)	(0.366)	(0.735)	(0.629)	(0.335)	(0.272)	(0.250)
Moved into a separate premise	1.563**	0.645*	0.989	2.016	0.376*	0.353	1.635*	1.029	0.759
	(0.264)	(0.116)	(0.224)	(0.800)	(0.167)	(0.263)	(0.410)	(0.273)	(0.314)
Remains in Separate Premises	1.481***	0.645***	0.938	1.618***	0.582***	0.787	1.354***	0.640***	0.917
	(0.088)	(0.041)	(0.083)	(0.148)	(0.058)	(0.106)	(0.112)	(0.060)	(0.117)
Women-Owned (Ref Cat. Men/Co-Owned)	1.291***	0.910	0.942	1.193	0.895	1.001	1.372***	0.928	1.028
	(0.084)	(0.063)	(0.092)	(0.122)	(0.097)	(0.156)	(0.131)	(0.098)	(0.149)
Rural Location	1.209***	0.910	1.076	1.413***	0.830	0.857	1.152	0.945	1.079

(Urban Location)									
	(0.069)	(0.056)	(0.091)	(0.125)	(0.080)	(0.112)	(0.094)	(0.088)	(0.138)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2 (DofF)	493.711 (38)	357.440 (38)	207.470 (38)	235.434 (37)	147.894 (37)	103.137 (37)	227.305 (37)	143.973 (37)	62.691 (37)
Observations	8,245	6,324	4,779	3,532	2,644	1,919	3,670	2,891	2,292

Note: Exponentiated coefficients; Standard errors in parentheses. Source: UKLSBS, 2015-2019; UK businesses with 0-49 employees at t-1; unweighted data. Not shown: region dummies, industrial sector dummies, wave dummies, ethnic minority ownership, sole owner, legal status, business plan, received advice, exports, multiple sites, obtained finance, region dummies and missing data categories: ethnic minority ownership. Author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5.4.3 Decomposition of Growth Types

The models above demonstrate clear differences in the growth typology of home-based businesses and businesses with separate premises. Businesses with separate premises are significantly more likely to experience employee growth and businesses remaining at home are significantly more likely to experience turnover growth without employee growth. To investigate further the differences in growth types between home-based and non-home-based businesses, and to what extent these disparities can be explained by location, a decomposition of Models 1-3 in Table 5.4 is presented below.

As these models have binary dependent variables, the Fairlie extension of the commonly used Blinder-Oaxaca decomposition technique is presented in Table 5.5 (Jann, 2008; Fairlie, 2006), in an identical manor to the original paper by Fairlie (2005). The Fairlie-Blinder-Oaxaca decomposition breaks down the difference in growth types between the two groups – businesses which remained in the home from t-1 to t and those with separate premises at t-1 and t.

Table 5.5 reports estimates of the nonlinear decomposition technique of the difference in growth typology between those remaining in the home and those with separate premises. The individual contributions from differences in location and other characteristics are presented above. The contribution for a set of dummy variables, such as those for region, are calculated by simultaneously switching distributions of all dummy variables. Full details of the specification of the decomposition can be found in Appendix B.

H2a hypothesised that a large and significant amount of the disparity in the types of growth pursued by businesses remaining in the home and those with a separate premises would be attributed to the difference in urban and rural location of the two groups, as businesses remaining in the home are more likely to be located in rural areas. However, the results in Table 5.5, Model 1 indicate that this is not the case, as only a small percentage (3.4%) of the employee growth gap is explained by the difference in urban-rural location. In fact, the coefficient on this variable indicates that as rural small businesses have higher rates of employee growth than urban businesses in these models, that the predominantly rural location of businesses remaining in the home reduces the employee growth gap. Similarly, regional location explains an even smaller percentage of the gap.

It was also hypothesised that any disparity in turnover growth without employee growth between businesses remaining in the home and those with separate premises would be attributed to the difference in urban-rural location, as it was expected that jobless growth would be more common

in rural areas. Again, only 1% of the difference is explained by urban-rural differences in the two groups, and, as Table 5.4 Model 3, rural locations do not in fact have higher odds of jobless growth.

For employee growth and turnover growth without employee growth the variables included in the models explain only 42.9% and 43.1% of the gaps respectively, leaving a large “home-based business effect” unexplained. For contractor only growth, which had a much smaller gap between businesses remaining in the home and businesses with a separate premises, the variables included in the model explain nearly 60% of the gap. Rather than being explained by differences in location, the gaps in growth types are largely explained by differences in firm-level characteristics - this will be discussed in more detail in Chapter 7, Section 7.1.2. For contractor only growth, the small gap is mainly explained by the higher proportions of businesses remaining in the home which are exporters and particular industrial sectors which commonly hire contractors, such as construction.

Table 5.5 Blinder-Oaxaca-Fairlie decomposition of annual growth typology, businesses remaining in the home compared with businesses in separate premises, coefficient, standard errors and percentage explained.

Model Specification	Employee Growth (Ref Cat. No Turnover or Employee Growth)	Turnover Growth, but no Employee Growth (Ref Cat. Employee Growth)	Contractor Only Growth (Ref Cat. Employee Growth)
Non-home-based business	0.3803	0.4962	0.2109
Home-based business	0.5029	0.3486	0.1907
Difference	-0.1226	0.1477	0.0202
Total Explained	-0.0500	0.0623	0.0115
Contribution from differences in:			
Women-Owned (Ref Cat. Men/Co-Owned)	-0.0017	0.0008	0.0002
	(0.0004)	(0.0004)	(0.0003)
	3.4	1.3	1.7
Rural Location (Ref Cat. Urban Location)	0.0033	-0.0015	0.0008
	(0.0012)	(0.0012)	(0.0013)
	-2.7	-1.0	3.9
Region Dummies	-0.0013	0.0001	0.0000
	(0.0008)	(0.0009)	(0.0012)
	1.1	0.1	-0.2
Exports (Ref Cat. No Exports)	-0.0006	0.0021	-0.0035
	(0.0009)	(0.0010)	(0.0013)
	0.5	1.4	-17.2
Multiple Sites (Ref Cat. Single Site)	-0.0029	0.0021	-0.0003
	(0.0013)	(0.0014)	(0.0011)
	2.4	1.4	-1.4
Ethnic Minority Owned (Ref Cat. Not)	0.0002	0.0003	-0.0002
	(0.0003)	(0.0004)	(0.0005)
	-0.2	0.2	-0.8
Sole Owner (Ref Cat. Multiple Owners)	-0.0211	0.0221	0.0058
	(0.0024)	(0.0026)	(0.0023)
	17.2	15.0	28.6
Industry Sector Dummies	-0.0019	0.0034	0.0134
	(0.0029)	(0.0032)	(0.0025)
	1.5	2.3	66.3
Business Age Dummies	0.0020	0.0021	0.0001
	(0.0008)	(0.0009)	(0.0008)
	-1.7	1.4	0.4
Company (Ref Cat. Sole Trader/Partnership)	-0.0174	0.0234	0.0032
	(0.0022)	(0.0026)	(0.0024)
	14.2	15.8	15.6
Has Business Plan (Ref Cat. No Business Plan)	-0.0107	0.0099	-0.0003
	(0.0015)	(0.0017)	(0.0011)
	8.7	6.7	-1.7

Received Advice (Ref Cat. No Advice Received)	-0.0013	0.0012	-0.0008
	(0.0006)	(0.0006)	(0.0009)
	1.1	0.8	-3.7
Obtained Finance (Ref Cat. No Finance Obtained)	-0.0029	0.0019	-0.0011
	(0.0008)	(0.0007)	(0.0006)
	2.4	1.3	-5.5
Wave Dummies	0.0061	-0.0054	-0.0058
	(0.0007)	(0.0008)	(0.0009)
	-5.0	-3.6	-28.7
All included variables	42.9	43.1	57.3

Note: Coefficients; Standard errors in parentheses; % Explained * p < 0.05, ** p < 0.01, *** p < 0.001.
Note: UKLSBS, 2015-2019; UK private enterprises with 0-49 employees at t-1; unweighted data.
Source: author's own calculation.

5.4.4 Spatial Variations in Relocation

Table 5.6, displays models estimating the odds a business relocates out of the home and into a separate premises compared to remaining in the home (Models 1-3). For comparison, Models 4-6 in this table also show the odds of a business relocating into a new home, compared to remaining in the same home. These models demonstrate important spatial patterns in relocation in home-based businesses.

Home-based businesses have significantly lower odds of relocating out of the home and into separate premises if they were located in rural areas than urban areas (Table 5.6, Model 1). Increasing deprivation of the postcode of a home-based business in England however is also associated with significantly higher odds of that business relocating into a separate premises, even when controlling for urban-rural location (Table 5.6, Model 2). However, Model 3 shows that the odds of relocating into a separate premises are not significantly different for businesses in London or the South, compared to businesses located in the North.

For businesses moving home, rather than remaining in the same home, there were lower odds of moving into a new home if the business was located in a rural location than an urban location (Table 5.3, Model 1). There were no significant difference in home moves for home-based businesses in the South, London or more deprived neighbourhoods.

Table 5.6 Home-based businesses relocating into a separate premises and moving to a new home, versus remaining in the same home (Ref Cat.). Logistic regression, with random effects, odds ratios.

	Moved into a Separate Premise			Moved Home		
	(1)	(2)	(3)	(4)	(5)	(6)
Women-Owned (Ref Cat. Men/Co-Owned)	0.966	0.908	0.959	1.063	0.962	1.066
	(0.180)	(0.159)	(0.159)	(0.260)	(0.253)	(0.260)
Rural Location (Urban Location)	0.540*	0.631**	0.567**	0.419***	0.483**	0.423***
	(0.138)	(0.112)	(0.099)	(0.095)	(0.124)	(0.096)
English Index of Multiple Deprivation	-	1.054**	-	-	1.035	-
	-	(0.017)	-	-	(0.021)	-
Regional Location (Ref Cat. The North)			0.797			1.235
The South	-	-	(0.110)	-	-	(0.263)
	-	-	0.925	-	-	1.314
London	-	-	(0.202)	-	-	(0.425)
	1.056	0.999	-	1.156	1.034	-
London (Ref Cat. Outside of London)	(0.241)	(0.210)	-	(0.340)	(0.307)	-
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Chi2 (DofF)	39.095 (25)	93.805 (26)	103.703 (26)	56.276 (25)	47.607 (26)	57.391 (26)
Observations	5,369	4,337	5,369	4,984	4,021	4,984

Note: Exponentiated coefficients; Standard errors in parentheses. Source: UKLSBS, 2015-2019; UK businesses with 0-49 employees at t-1; unweighted data. Not shown: industrial sector dummies, business age dummies, wave dummies, ethnic minority ownership, sole owner, legal status, business plan, received advice, exports, multiple sites, obtained finance; missing data categories: ethnic minority ownership, exports, multiple sites. Author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5.7 Summary of hypotheses and results, Chapter 5.

Hypothesis	Confirmed?	Result
H1a. Relocating out of the home into a separate premises will be significantly and positively associated with employee growth compared to businesses which remain in the home, but this will not apply to home-based businesses moving into a new home.	Yes	Relocating out of the home into a separate premises is *significantly and positively* associated with employee growth compared to businesses which remain in the home, but this does not apply to home-based businesses moving into a new home.
H1b. Remaining in the home will be significantly and positively associated with turnover growth without employee growth and contractor only growth compared to businesses with separate premises.	Partially	Remaining in the home is *significantly and positively* associated with turnover growth without employee growth compared to businesses with separate premises, but this does not apply to contractor only growth.
H1c. Relocating out of the home into a separate premises will be significantly and positively associated with turnover growth without employee growth in the year prior to the relocation.	No	Relocating out of the home into a separate premises is *significantly and negatively* associated with turnover growth without employee growth in the year prior to the relocation.
H2a. A large and significant amount of the disparity in growth types between businesses remaining in the home and businesses with a separate premises will be explained by the different rural and regional business locations of the two groups.	No	Very little of the disparity in any of the growth types between businesses remaining in the home and those with separate premises is explained by to the different rural and regional business locations of the two groups.
H2b. Home-based businesses located in rural locations, deprived neighbourhoods or southern regions will be less likely to relocate into a separate premises.	Partially	Home-based businesses located in rural neighbourhoods *are less likely* to relocate into a separate premises, whereas relocation rates increase with neighbourhood deprivation.
H2c. Home-based businesses located in London will be more likely to relocate into a separate premises.	No	H2c. Home-based businesses outside of London are just as likely to relocate into a separate premises as those located in London.

Source: author's own compilation

5.5 Discussion

Below is a discussion of the key results from this chapter. A broader discussion can be found in Chapter 7 and Table 5.7 provides a summary of the hypotheses and results.

- Most home-based businesses do not relocate out of the home into a separate premises.
- However, home-based businesses which do relocate out of the home experience significantly higher employee growth compared to businesses which remain in the home, both prior to and during the year of the relocation.

Using the same methods, Kim and Parker (2021), found that 17% of home-based self-employed individuals, each year from 2004 to 2008, relocated into a separate premises. However, they do not provide a total relocation rate over the four years of data. Mason et al. (2011) on the other hand found that only 10% of home-based businesses were planning to move out of the home within the next three years. Thus, the relocation rates in this chapter are both smaller and larger than those suggested by previous research.

It is possible that the higher rate found by Kim and Parker (2021) relates specifically to their time period – 2004 to 2008, which partially covers a period of high economic growth in the UK prior to the Global Recession in 2008, and a time period in which credit was easier to obtain for small businesses than it is today (Greenstone et al., 2020 ; Montoriol-Garriga and Wang, 2011). In terms of Mason et al. (2011), it may be the case that more home-based businesses relocate than originally anticipate they will as businesses tend to grow before or during the year of relocation. This indicates that some small businesses may take on employees first and then find they want to move out of the home as it can no longer contain the size of the business.

The results also indicate that businesses which relocate into a separate premises are not significantly associated with taking on employees the year following the relocation, thus the relocation is likely in response to employee growth, and only once the move is absolutely necessary. The results demonstrate that businesses relocating out of the home into a separate premises were less likely to experience turnover growth without employee growth than businesses remaining in the home. This indicates that relocating into a separate premises is likely linked exclusively to employee growth. This is contrary to a previous study which found that sales growth intention was linked to a desire to relocate in home-based business owners (Mackloet et al., 2006). What this may indicate is that businesses which only grow their sales find, particularly with the increased ease of remote working in the last two decades, that they do not need a separate premises.

- Businesses which remain in the home are more likely to pursue turnover growth without employee growth compared to those with separate premises.
- Businesses which remain in the home are just are as likely to grow through the use of contractors as businesses with separate premises.

These results for the first time confirm the 'jobless' growth hypothesis, first proposed by Mason et al. (2011) that businesses which remain in the home are more likely to pursue turnover growth without employee growth than those with separate premises. As the result is significant and positive, this is appears to be a growth strategy that is specifically associated with home-based businesses. A business may be unable or unwilling to relocate out of the home and, finding that managing employees or additional employees from home is too challenging, may pursue only turnover growth instead.

Kim and Parker (2021) concluded from their findings that home-based businesses are stationary and that entrepreneurial homeworking should not be considered a temporary state. Overall, the results in this chapter do indicate that in line with their findings, the majority of home-based businesses remain in the home, even over a four year period, and those who do are more likely to pursue turnover growth without employee growth. This certainly challenges the conceptualisation of the home as a springboard for significant growth or a temporary incubator for a business which will later relocate (Reuschke and Houston, 2016; Newbery and Bosworth, 2010). However, these results do indicate that home-based businesses contribute to the economy through sales growth even when they do not create jobs (or further jobs) for others.

Nonetheless, the research presented here shows that when businesses relocate out of the home this move is strongly associated with employee growth. The average business relocation rate from the home into a separate premises over one year was 7%, however, for businesses which were home-based in 2015 and responded to the survey in 2019, nearly a third of businesses had moved from the home into a separate premises – still only a minority of home-based businesses, but by no means a few outliers.

As businesses remaining in the home are just as a likely as those in separate premises to grow only their contractors, this growth type could not be classed as a home-based business specific growth strategy. This finding may indicate that this is an increasingly common means of growth for small businesses, regardless of location, who wish to avoid hiring employees. Hiring contractors for example, usually costs a business less than hiring a payroll employee (Kleinknecht et al., 2006). This strategy certainly deserves greater attention in the literature, particularly if it is becoming more common, as this practice speaks to debates not only relating to job creation in

small businesses, but also the quality of the jobs that are created (Block et al., 2018; Litwin and Phan, 2013).

- Location explains very little of the gap between businesses remaining in the home and those in separate premises in terms of their growth types.
- However, there are spatial variations in relocation out of the home into a separate premises, with businesses in rural locations less likely to relocate.
- In England, businesses in more deprived neighbourhoods are more likely to relocate out of the home into a separate premises.

The sample description indicates that the businesses remaining in the home are found in higher proportions in rural areas and Southern regions than businesses with separate premises. However, the Fairlie-Blinder-Oaxaca decomposition demonstrated that the differences in employee growth, turnover growth without employee growth and contractor only growth between businesses remaining in the home and those with a separate premises are not explained to any significant degree by differences in business location. The results demonstrate that rural small businesses in fact are significantly more likely to have achieved employee growth than urban small businesses, which likely explains why urban-rural location does not explain the lower employee growth of businesses remaining in the home.

However, there are significant spatial disparities in relocation. Although the hypothesis was that locations with higher numbers or proportions of home-based businesses would be linked to lower numbers of home-based businesses relocating into separate premises, this was not always the case. Previous studies have found that there are generally higher proportions of home-based businesses in rural locations, Southern regions (excluding London) and affluent neighbourhoods when compared to businesses in separate premises (Mason et al., 2011; Enterprise Nation, 2014).

The results indicate that businesses in rural locations are less likely to relocate out of the home, but that there is no difference in relocation patterns between the North, the South and London. Comparing these results with home-based businesses which moved into a new home, it is clear that rural home-based businesses are also less likely to move home. It is likely that home-based businesses in rural locations have less availability of commercial premises to move to, and similarly may be less likely to move home because of lower housing stock in the vicinity or because their housing type is more suitable for the business.

Whilst this chapter could only examine the impact of deprivation from an English perspective, it is clear that home-based businesses in more deprived neighbourhoods are more likely to relocate into a separate premises. In general, home-based businesses in deprived neighbourhoods are

relatively rare, which has been linked in the literature to rental properties and in particular social housing contracts that often restrict the use of the home for commercial purposes (Kane and Clark, 2019; Reuschke, 2016). However, this study cannot control for housing type, and it must be acknowledged that just because an individual lives in a deprived or affluent neighbourhood, this does not necessarily mean their individual circumstances mirror their surroundings. However, this study seeks only to identify patterns in relocation, in order to identify where and why individuals are more likely to struggle to relocate.

It may be the case that the lack of suitable housing to run a home-based businesses drives more home-based businesses in deprived areas of England to relocate. A pull factor may also be the less expensive cost of commercial premises, and potentially the range of options available in terms of commercial (and old industrial) space (Bailey, 2015). This may particularly be the case if the home-based businesses that do form within deprived communities are run by better resourced individuals – i.e. the neighbourhood is deprived but the entrepreneur themselves has high levels of human or financial capital. These individuals may be capable of spotting opportunities and may be particularly well placed to take advantage of cheaper labour and physical costs (Sahasranamam et al., 2018; Kloosterman, 2010).

Table 5.8 demonstrates that of the home-based businesses which relocate out of the home, moves from rural and urban areas and moves to new regions are extremely uncommon. However, almost 17.4% of businesses which relocated into a separate premises moved to a neighbourhood which was less deprived. This may still be a nearby location that is slightly less deprived than the home neighbourhood, and may therefore be coincidental. However, this could also suggest that part of the business strategy is to seek out a more affluent neighbourhood and perhaps a new customer base. Previously, business ownership has been associated with residential moves to more prosperous areas compared to non-business owners (Frankish et al., 2014), and thus has been suggested as a means of poverty alleviation for owners.

Table 5.8 Location following home-based business relocation into a separate premises, percentages.

Relocation Location	%
Relocation from Rural to Urban	2.52
Relocation Urban to Rural	1.01
Relocation to New Region	2.27
Relocation to Less Deprived Neighbourhood	17.38
Relocation to More Deprived Neighbourhood	10.83

Note: UKLSBS, 2015-2019; UK private enterprises with 0-49 employees at t-1; unweighted data.
Source: author's own calculation.

The primary limitation of this chapter is that due to small sample sizes of business relocating out of the home it is not possible to analyse employee and jobless growth over longer periods following relocation. A longer panel would allow for a more detailed analysis of the job creation potential of (former) home-based businesses, and whether they are able to grow to the same extent or even more so than businesses which started in separate premises. It would also be useful to identify whether there is an eventual ceiling or limit to turnover growth without employee growth if a business remains in the home long term. Future research could also examine whether the lack of home-based businesses which relocate in rural locations has a negative, long term impact on job creation in these areas – this would have significant further policy relevance.

To conclude, whilst the home may not be a springboard for growth and relocation for most businesses, it is for nearly 1/3 home-based businesses, and those businesses are creating jobs. The results illustrate the importance of supporting home-based businesses which wish to grow and ensuring they have the resources available to move into a separate premises, particularly in rural areas. There is a risk that small home-based businesses may decide against growth if they do not have suitable or affordable premises available to them.

5.6 Summary

Chapter 5 explores the impact of relocation on home-based business growth paths and trajectories, revealing what types of growth home-based businesses pursue when they remain in the home, move to a new home or relocate into a separate business premises. At the time of writing, this is the first study to track home-based businesses before, during and after they relocate, including where they move from and where they move to.

This chapter confirms that whilst most home-based businesses remain in the home, those which relocate into separate premises experience significant employment growth, while businesses remaining in the home appear to grow their turnover without taking on employees. This confirms the jobless growth hypothesis which has long been proposed in the home-based business literature, but not empirically tested (Mason et al., 2011; Reuschke and Houston, 2017).

The research in this chapter also highlights significant spatial variations in the relocation of home-based businesses into a separate premises, revealing that those based in rural locations are less likely to relocate than those in urban areas, while home-based businesses in more deprived neighbourhoods are, unexpectedly, more likely to relocate than those in more affluent areas. These results highlight the importance of place-based support and public policy to encourage

more home-based businesses to relocate, as this is linked to job creation (Shybalkina, 2022; Tian and Xu, 2022).

The following chapter (Chapter 6), will progress the geographical research presented in Chapter 5 by considering the process of taking on the first employee across urban, rural and suburban locations, and the distinct barriers to growth women and men/co-owned home-based non-employers may experience in these places.

Chapter 6 Becoming an Employer: Job Creation Along the Urban-Rural Continuum

6.1 Introduction

The rise of business ownership and self-employment in the UK since the 2008 recession has been driven by an increase in businesses with zero employees, otherwise referred to as 'non-employers' (EUROSTAT, 2022). A major puzzle for policy makers and academics alike is why these increasing numbers of non-employers do not create jobs for others, particularly when compared with firms who already have employees (Criscuolo et al., 2017; Kraaij and Elbers, 2016; van Stel and Storey, 2004). Most non-employing businesses are solo-self-employed individuals operating as sole traders, but the definition also includes partnerships or limited companies without payroll employees. There are concerns that many of these new non-employers are precarious self-employed persons, either 'necessity entrepreneurs', economically dependent on a single client or underemployed due to poor labour market conditions (Reuschke and Zhang, 2022; Henley, 2017).

Whilst there has been significant discussion surrounding non-employers and the solo-self-employed in the context of the gig economy in the UK and other developed nations with similar trends, there are only a limited number of studies which have investigated the characteristics of non-employers which may be inhibiting their ability to become employers. Nearly half of all non-employing businesses in the UK are home-based whereas only 20% of employing businesses are (BEIS, 2020a; 2020b), and yet despite this, and the distinct barriers to employment growth home-based businesses face, it is not known whether they are less able to become employers than other home-based businesses. Female business owners are also both more likely to enter the market as non-employers and evidence suggests that they are less likely to become employers (Henley et al., 2019; Fairlie and Miranda, 2016; Fairlie and Robb, 2009), leading to concerns that women in particular are entering and remaining as non-employers.

However, the research presented thus far in this thesis has not identified any underperformance in women-owned businesses in regards to employment. In fact, the results have rather pointed to the significant heterogeneity within women-owned businesses, particularly women-owned home-based businesses, which are yet to be investigated within the context of the non-employer to employer transition. As women-owned non-employers appear to have specific and distinct barriers to growth, it may be the case that many of the assumptions in the literature regarding underperformance in women-owned home-based businesses, are derived from non-employing

businesses that fail to take on their first employee, due to increased precarity among these businesses or other distinct barriers to growth.

Furthermore, this chapter will consider that there may be considerable geographic variation in outcomes among women and men/co-owned home-based businesses. It is well established that SMEs and start-ups can benefit from agglomeration economies in urban, higher density locations with strong entrepreneurial ecosystems (Rosenthal and Strange, 2006; 2020), but also that women-owned businesses do not always benefit to the same extent from these effects (Rosenthal and Strange, 2012). However, as few of these studies focus on outcomes in home-based non-employing enterprises, it is not known whether these issues exist uniformly across all small businesses.

Job creation has long formed a central tenet of economic development policy across the UK (Vyas and Vyas, 2019; Doran et al., 2016; Storey, 2016), however, there are increasing concerns that current programmes result in simply increasing solo self-employment, without further job creation (Acs et al., 2016). Taking on the first employee is the biggest growth decision a business will make, essentially doubling (or more) the size of the business and paving the way for future growth (Coad et al., 2017). Thus understanding how, why and where some non-employing businesses are able to make the transition to become employers, whilst other are not, is imperative for supporting job creation in the small business sector. This is particularly important for groups of businesses which are more inclined towards starting as non-employers – home-based businesses, women-owned businesses, and businesses in rural locations (Headd and Saade, 2008) – to ensure these groups are not entering, and becoming stuck in precarious self-employment.

This chapter therefore addresses two aims. 1) To identify if locating in the home inhibits a business from becoming an employer for the first time, and whether this differs for women and men/co-owned businesses. 2) To explore how business location changes the probability of women-owned and men/co-owned home-based businesses becoming employers. For this chapter a sample of 5304 non-employing businesses were drawn from the UKLSBS (2015-2019), and following Henley (2019; 2005) and Kim and Parker (2021) the probability of becoming an employer is estimated through probit regression with random effects of ‘wave-to-wave’ (annual) transitions. The non-employing businesses drawn from the UKLSBS were linked to their data held within the BSD (1997-2019). Through this data linkage, this chapter is able to identify non-employers which have not hired employees prior to 2015, and therefore may take on their first employee(s) during the survey.

There are two approaches in this chapter which differ from the previous research presented in this thesis. First, to build on the research presented in Chapter 5, this chapter moves beyond a simple urban-rural divide, and investigates the non-employer to employer transition across larger urban areas (i.e. major agglomerations/conurbations), and locations which have higher concentrations of home-based businesses - smaller urban areas such as small cities and suburbs, and both accessible and remote rural locations. Second, to move away from simply comparing women-owned and men/co-owned businesses, as this approach is often based on the expected underperformance of women-owned businesses, the analysis investigates the heterogeneity *within* both women-owned and men/co-owned businesses. In other words, different groups of women-owned businesses are compared to each other.

This chapter makes several contributions to both the literature on non-employing enterprises and the home-based business literature. Firm level studies of non-employing enterprises remain surprisingly sparse, despite the significant and rising proportion of solo-self-employed workers and non-employing businesses in the UK and Western Europe (Figure 6.1). Whilst their lower levels of job creation has sparked the interest of some academics and policy makers (Criscuolo et al., 2017; Kraaij et al., 2016), none of the research on non-employers and their job creation capacity has focused on home-based businesses. Equally, research within the burgeoning home-based businesses literature has had little focus on non-employers specifically, despite almost half of home-based businesses being non-employers (BEIS, 2020a).

6.2 Literature Review and Hypotheses

6.2.1 Hiring the First Employee

The majority of businesses in the UK today are businesses that do not employ anybody apart from the owner(s) (BEIS, 2021). The proportion of non-employer businesses in the overall business population has increased steadily over the past two decades (Figure 6.1), particularly among women. However, there was an acceleration of the non-employer entry rate among new business during and following the global financial crisis of 2007-2008 (Kacher and Weiler, 2017). This has been linked in the macro-economic literature to subsequent credit constraints, increasing precarity in Western labour markets, and the rise of the 'gig' economy (Moore, 2018a; 2018b).

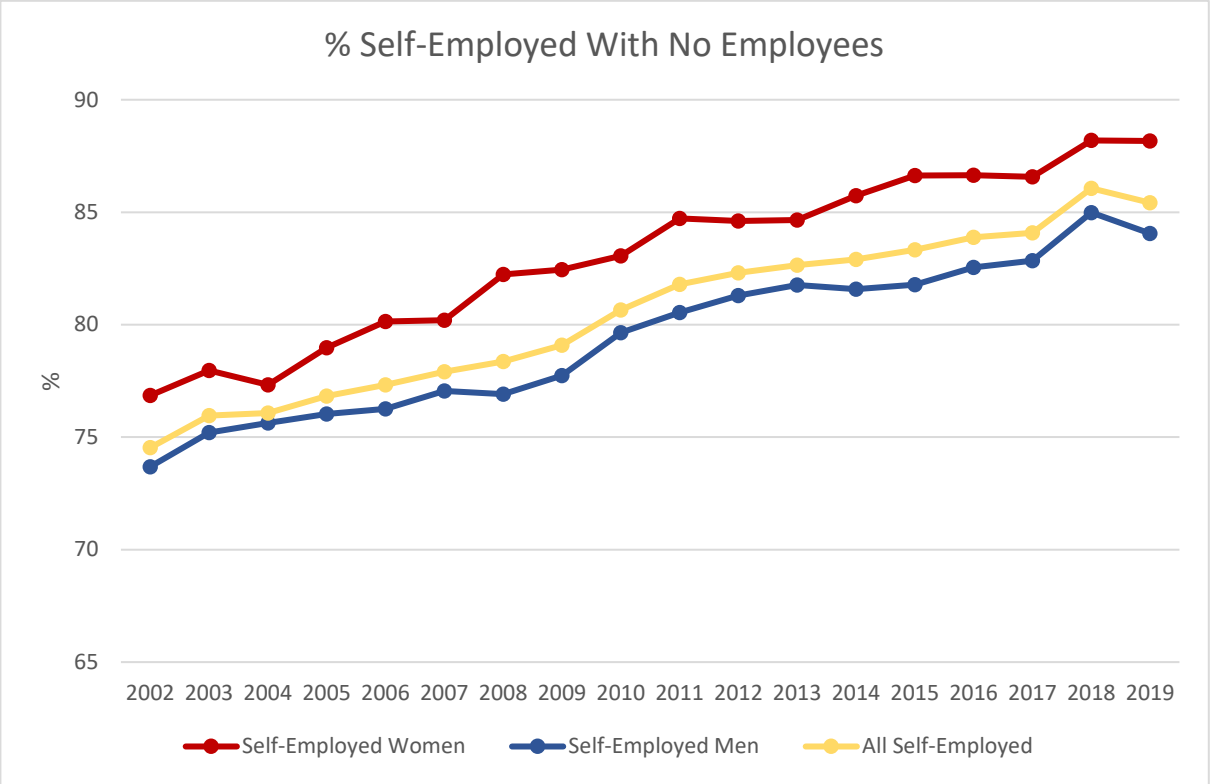
Some studies have found that the widespread use of digital technologies has resulted in high numbers of 'new' solo-self-employed workers, who are skilled contractors and freelancers working for multiple companies (Cieślik and Dvouletý, 2019; van Stel and de Vries, 2015). This is linked to the increasing trend towards highly educated solo entrepreneurs in Western Europe

(van Stel and Zwan, 2020). However, some of these individuals may still be economically dependent solo self-employed or 'false' self-employed – those that work for only one client, but do not have the employment protections of payroll employees (Burke and Cowling, 2019). Precarious non-employing businesses will have barriers to taking on employees for the first time. Businesses that are started by owner(s) who were previously unemployed (necessity entrepreneurs) are less likely to become employers (Millan et al., 2015), as are non-employers in areas with high unemployment (Henley, 2019).

Becoming an employer is a substantial undertaking for a business (Coad et al., 2017). In order for a business to hire its first employee, the business must undergo structural reorganisation – such as incorporating (Lowrey, 2009), sustain a regular cashflow, take on payroll accounting and more complex taxation (which may involve hiring an accountant) and other burdens such as pensions or, in the US, healthcare plans (Moore, 2017; Headd and Saade, 2008; Fairlie and Miranda, 2016).

Subsequently, studies from across the Global North estimate that only between 10-30% of non-employers go on to create jobs for others (Moore, 2017; 2018a; 2018b; Davis et al., 2007; van Stel and Storey, 2004). BEIS (2020a; 2020b) found that in 2019 30% of businesses with no employees expected to increase their employment over the next 12 months compared to 28% of businesses with employees. This indicates that non-employers have similar growth intentions to employers, and yet they are less likely to achieve this growth.

Figure 6.1 UK Self-employed with no employees by gender, 2002 – 2019, percentages



Source: Eurostat, Labour Force Survey, author's own compilation.

6.2.2 Home-Based Non-Employers and Gender

Reuschke and Houston (2016) found that whilst home-based businesses overall had less employees than businesses with separate premises, micro-businesses with 1 to 3 employees were just as likely to be based at home as in a separate premises. Similarly, Pilkova and Holienka (2020) found that in youth and senior run businesses in Europe, similar proportions of home-based businesses and non-home-based businesses had 1 to 3 employees. Houston and Reuschke (2017) further found that home-based non-employers were just as likely to become employers as non-employers with separate premises. However, they were unable to determine if these businesses became employers for the first time or whether they had previously had employees.

Whilst home-based businesses are generally smaller and are less likely to experience employee growth, these results indicate that this may only apply to businesses which are already employers. As most businesses only take on one employee when becoming an employer for the first time, it is possible that despite the spatial and temporal restrictions of running a business from home that, becoming an employer is still manageable. In fact, the home provides the benefit of lower costs, limited regulations, no business rates, and so may serve as a testing ground for limited employment growth before eventually relocating to take on further employees.

Together, these findings suggest the following hypotheses:

H1a. Home-based non-employers will have a similar probability of taking on their first employee compared to non-employers with separate premises.

However, this hypothesis may not apply to men/co-owned businesses and women-owned businesses equally. There are many theories surrounding why women-owned home-based businesses have previously been found to underperform men/co-owned businesses and other women-owned businesses with separate premises. No evidence has been found so far in this thesis to support this previous research. However, women-owned businesses in recent years have disproportionately started as non-employers, and previous research has indicated that they are less likely to take on employees for the first time further down the line (Henley et al., 2019; Fairlie and Miranda, 2016). This has led to concerns that women are entering and becoming stuck in precarious solo self-employment.

As both women-owned and non-employing businesses have both been shown to concentrate in the home, this could indicate that the underperformance hypothesis applies only to non-employers with no previous experience of employing. The difficulty that the group of women-owned home-based businesses who underperform may face is hiring *any* employees, rather than hiring *further* employees.

Korunka et al. (2011) found that non-employers that started their business for personal reasons, including more control over work-life balance were less likely to become employers. Although they did not control for home-based businesses, it is likely that more women-owned home-based businesses fall into this category, as caring for dependants is significantly associated with solo-self-employed women but not men (Kim and Parker, 2021). It is likely there is a portion of the home-based business sector which will be unable to take on any employees at all, due to family related, spatial or time constraints on the business, particularly if the business is not suitable for remote working employees. Such constraints may impact women in the home because they tend to work less hours in their business and spend more time on domestic and caring responsibilities than women running a business outside the home (Loscocco and Bird, 2012).

Finally, women-owned home-based businesses have been found to have lower entrepreneurial resources than women operating businesses with separate premises. Women-owned home-based businesses have lower household incomes, less experience in their business, and less expectation of future growth (Thompson et al., 2009). These differences may significantly lower the probability women-owned home-based non-employers will overcome the significant administrative, regulatory and financial hurdle of taking on their first employee compared to women with separate premises. Women-owned home-based businesses which have already

employed staff and overcome this barrier may have done so because they have higher entrepreneurial resources, and further growth is then less of an issue.

Furthermore, there is no evidence in the current home-based business literature to suggest that men/co-owned non-employers operating inside and outside of the home have these same differences. Indeed, as men are more likely to cite financial reasons for running a home-based businesses (Walker et al., 2008), the home may play a different role for solo-self-employed men. Instead, it may represent an opportunity for a convenient, low risk, low cost start-up (Reuschke and Mason, 2015; Bosworth and Newbery, 2015). Therefore, compared to men with separate premises, they may be just as likely to become employers.

H1b. Home-based women-owned non-employers will have a significantly lower probability of taking on their first employee compared to women-owned non-employers with a separate premises, however this will not apply to men/co-owned non-employers.

6.2.3 Gender, Home-Based Businesses and The Urban-Rural Continuum

Despite the lack of job creation by non-employers, non-employing firms contribute to indirect employment growth (growth in numbers or employment of other businesses) (Moore, 2018a), overall sales growth in non-employer heavy sectors (Moore, 2017), innovation (de Vries and Koster, 2013), and stimulate competition in incumbent firms in agglomerations and business clusters (Cornelissen, 2021).

A study by Houston and Reuschke (2017) using data from prior to the global financial crisis found that home-based businesses were significantly more likely to grow into medium sized businesses when located in cities, however, non-employers did not see this same benefit. This could indicate that whilst non-employers and home-based non-employers may contribute to agglomerations and business clusters, this may come at the expense of their own financial security and job creation capacity, confirming their link to precarious forms of self-employment. On the other hand, agglomeration may simply have no effect on their intention to grow. Furthermore, whilst agglomeration may have a different effect on women-owned firms (Rosenthal and Strange, 2012; Kalnins and Williams, 2014; 2021) there is, as yet, no data on whether on whether the impact of agglomerations is different for women-owned or men/co-owned home-based businesses.

Women benefit from urban areas in terms of opportunities, earnings (incl. business owners) and labour force participation compared with women in rural areas (Hirsch et al., 2013; Nisic, 2017). Rural enterprises owned by women have been found to have the lowest business performance compared to both women-owned businesses in urban areas and men-owned businesses in rural

areas (Bird and Sapp, 2004). Major urban areas provide ease of access/proximity to diverse networks, banks, collaborators, suppliers, customers, public transport and potential employees (Kalnins and Williams, 2021).

Home-based non-employers run by women are linked with care giving for dependent children (Kim and Parker, 2021); part-time work (Loscocco and Bird, 2012); and longer distances when taking trips outside the home (Long and Reuschke, 2021). Major urban areas may therefore provide women-owned non-employers with the flexibility and proximity required to become an employer, if this group are particularly time constrained, and potentially, multi-tasking. Businesses in smaller urban areas, and rural locations may not provide the same benefits, as agglomeration effects degrade over distance (Elvery and Sveikausksas, 2010; Rosenthal and Strange, 2020).

It is also possible that women-owned non-employing businesses in remote rural areas may be particularly isolated, as evidence has shown they have limited support and network access (Herslund and Tanvig, 2012), low sales and survival rates (Bird and Sapp, 2004; Robinson, 2007), and the shortest commute times out of both self-employed women and employed men and women (Giménez-Nadal et al., 2020). This may be exacerbated when the business is based at home and not physically in a local community, as Folmer and Kloosterman (2017) found female business owners, including those running home-based businesses, were more locally orientated in their business activity. Thus the following hypotheses are drawn:

H2a. Home-based women-owned non-employers will have a significantly higher probability of taking on their first employee in major agglomerations.

H2b. Home-based women-owned non-employers will have a significantly lower probability of taking on their first employee in remote rural areas.

Reuschke and Zhang (2022) find that solo self-employed men who work in urban areas (defined as densely populated areas, and differentiated from intermediate areas, such as suburbs) in the UK and Ireland are significantly more likely to be dependent self-employed – contractors who work for one employer. This may be driven by early career men who transition in and out of self-employment in urban locations – contracting with a company when it suits them and later finding formal employment (Litsardopoulos et al., 2020). This is also supported by data from the United States, as Rissman (2006) found that young men in self-employment can be a highly fluid group, moving frequently between self-employment and employment based on opportunities and the macro-economic situation. Large urban areas provide the most opportunities for both self-employment and employment, and thus moving between the two.

It is much less likely that these contractors, freelancers and those that spend only a short time in self-employment will take on employees (Henley, 2019), as their personal earnings and career development are the priority, not growth of a business (Kapelinsky and Shoshana, 2019; Murgia and Pulignano, 2021). Most contractors and dependent self-employed workers which do not intend to grow will not need their own business site, working either in their client(s) offices with their business formally registered at home, or working physically in their home.

In smaller urban areas, on the other hand, there may be a higher concentration of men/co-owned non-employers working from home which are intended to be longer term endeavours, looking to take on employees, particularly as there is likely to be less 'contracting jobs' available in these locations. This, combined with the cost saving nature of a home-based business, larger homes, and access to major metropolitan areas by commuting (Dijkstra et al., 2013) may lead more men/co-owned home-based businesses to become employers in smaller urban areas. In larger urban areas, they will more likely form dependent self-employed relationships (Reuschke and Zhang, 2022) or cycle out of self-employment before hiring (Rissman, 2006).

H2c. Home-based men/co-owned non-employers will have a significantly lower probability of taking on their first employee in a major urban areas, but a significantly higher probability of taking on their first employee in smaller urban areas.

6.3 Methods

6.3.1 Data Linkage

Whilst previous studies of UK non-employer to employer transitions have used data on self-employment from individual level surveys, these data often do not capture businesses that later incorporate (Henley, 2019). This can lead to an underrepresentation of businesses taking on their first employee, as incorporating a business is associated with becoming an employer and business growth (Lowrey, 2009; Johnsen and McMahon, 2005). However, a disadvantage of using firm-level data which do not follow a business from its birth (i.e. start-up surveys, such as the Kaufman Firm Survey in the US), is the inability to identify businesses taking on their first employee, compared to those which have past experience of employing but are now non-employers.

Becoming an employer for the first time requires significant changes to the structure, management and finances of a business, and businesses with previous experience of employing have already overcome these barriers and challenges (Coad et al., 2017; Davis et al., 2007). Indeed, the statistics and narratives presented above, including the small number of non-employers which go on to create jobs for others, apply only to businesses which have never had

an employee. On one hand non-employers with experience of employing may behave more like employers in terms of growth and job creation. On the other hand, it is rare for small businesses to have sustained or multiple growth episodes (Delmar, 2003), and so many of these businesses may be near the end of their life-cycle following a decline in employment from which they will not recover. Others may remain incumbent without employees for several more years or even go on to hire again. Thus it is highly likely that for these non-employers, the process and barriers to taking on employees again may be very different from non-employers looking to take on employees for the first time.

The UKLSBS produces a substantial sample of non-employing businesses, including both sole traders and limited companies, by drawing on the Inter-Departmental Business Register (IDBR) and the Dun and Bradstreet database. This also ensures both VAT registered businesses and unregistered businesses are included, the latter often being excluded from data and analyses that rely solely on the IDBR sampling frame. For many years the UK small business reports released annually by the Department of Business, Energy and Industrial Strategy (BEIS) have separated non-employing businesses from employing businesses. However, when drawing a sample of businesses from the UKLSBS or any other small business survey that does not follow businesses from birth, the sample will include businesses with both non-employers which have never had an employee, and those which have previously employed but no longer have employees on their payroll.

To identify businesses which had previously had employees and those which had not, the UKLSBS was linked with the BSD 1997-2019 within the UK Data Service Secure Lab environment. The BSD, which is a snapshot of the Inter Departmental Business Register for research use, gathers its information through administrative systems: Value Added Tax (VAT), employee income tax payments (made by employers through the Pay as You Earn system) and Company Registration (for businesses that operate with limited liability). The IDBR, and therefore the BSD, is maintained by matching these sources of commercial and administrative data and is a total universe of registered enterprises within the UK. A substantial data cleaning process was undertaken to ensure the removal of duplicates within the BSD and to create a longitudinal dataset out of the cross-sectional files provided.

For the registered businesses in the UKLSBS, it is possible to use backdated employee data provided in the BSD (back to 1997) to identify if they previously had any employees before the start of the UKLSBS in 2015. Unregistered businesses from the UKLSBS are all non-employers, and are screened by the surveyors to ensure they have never appeared in BSD/IDBR. It is therefore

not necessary to check whether unregistered businesses had previously had employees, as if they had, they would have been registered and appeared in the BSD/IDBR.

As this analysis was conducted in the UK Data Service Secure Lab, all tables and regression outputs shown here have been cleared for non-disclosure. A table including standard errors and max and minimum values for all dependent and independent variables is not included with this chapter, due to the risk of disclosure within this information.

6.3.2 Sample and Dependent Variables

A sample of 5304 non-employing businesses which appeared in two or more consecutive waves of the survey was drawn from the UKLSBS (2015-2019). 3090 of these had never had an employee and so were taken as the sample for the analysis is this chapter. Whilst the data linkage in this chapter is a novel and unique approach to analyse the probability of a non-employer becoming an employer, the empirical approach and modelling mirrors several previous studies which have addressed this topic. This is in the hope that readers will be able to make direct comparisons between the studies.

Following Henley (2019; 2005) and Kim and Parker (2021) the probability of becoming an employer is estimated through probit regression with random effects of 'wave-to-wave' transitions – i.e. whether the business becomes an employer between subsequent waves. Once a non-employer becomes an employer, further observations from that business are dropped from the modelling (Henley, 2019). Below, when describing categorical variables, (Ref Cat.) is used to indicate the reference or base category in the variable and (1) (2) (3) etc. are used to indicate that the categories are compared to the reference category in the modelling.

The same dependent variable is used in all models. Businesses which were non-employers in the first wave (t-1) and employers in the subsequent wave (t) (1) are compared to non-employers that remained non-employers across two consecutive waves (between t-1 and t) (Ref Cat.).

It should also be noted here that, in line with other studies of the non-employer to employer transition, we define becoming an employer as hiring a new employee who is placed on the payroll. Growth in contractors or subcontracting (including short-term outsourcing to other businesses, such as accountants) is covered in Chapter 5. Furthermore, payments to other entities or individuals made outside of the payroll are not captured in the IDBR or BSD and therefore it could not be identified if a businesses was hiring a subcontractor for the first time or not.

6.3.3 Key Independent Variables

The independent variables in the analysis are all lagged to t-1. The key independent variable included in the modelling is whether the business is in a separate premises (Ref Cat.) or is a home-based business (1) at t-1. There is a possibility that a home-based business may relocate into a separate premises at t. However, due to the very small number of non-employing home-based businesses which relocate out of the home (only 4.3% annually) it is not expected that this will have a significant impact on the results for home-based businesses compared to businesses in separate premises.

However, to test whether relocating non-employers have a significantly higher probability of taking on their first employee compared to those remaining in the home, a variable with three categories is tested in Table 6.2, Model 5. The categories are those remaining in the home between t-1 and t (Ref Cat.) (1) those relocating out of the home into a separate premises from t-1 to t and (2) those remaining in a separate premises from t-1 to t.

The second key variable is whether the business is majority women-owned (more than 50%) or majority men/co-owned (50% or less), however for non-employing businesses over 70% have one male or female owner (for employers only 37% have one owner). This chapter seeks to move beyond simple comparisons of men/co-owned businesses and women-owned businesses, by comparing women-owned businesses in the home to women-owned businesses in separate premises (and likewise for men/co-owned businesses). This allows the separation of the gender effects and reveals the heterogeneity of women-owned businesses, but also allows for a greater focus on diversity within groups of men/co-owned businesses (Henry et al., 2021).

Therefore, whether the business is majority men/co-owned (Ref Cat.) or is majority women-owned (1) is combined with the home-based variable to create the following categories of analysis, women-owned separate premises (Ref Cat./1), men/co-owned separate premises (Ref Cat./1), men/co-owned home-based business (2), women-owned home-based business (3). In Table 6.3 the reference category is men/co-owned separate premises, and in Table 6.4 the reference category is women-owned separate premises, allowing for the disaggregation of the gender effects. Models were not run separately for men and women due to the differing sample sizes causing an imbalance of model power and effects.

Following Abreu et al. (2019) business location takes all rural locations as the base category (Ref Cat.), with two comparative categories, smaller urban areas (1) and larger urban areas (2). The second variable, rural accessibility takes all urban areas (large and small together) as the base category (Ref Cat.) with two comparative categories, accessible rural areas (1) and remote rural

areas (2). Due to missing data on rural accessibility in Northern Ireland within the dataset, Northern Irish businesses are excluded from the models which use the rural accessibility variable. More information on these variables is included in Chapter 3, Section 3.3.3.

Finally, previous studies have indicated that Greater London should be addressed separately from other major agglomerations, as London can dominate large urban area effects and often has distinct outcomes from other regions (Maioli et al., 2020). Therefore, this chapter also includes separate interaction terms with London.

6.3.4 Control Variables

A number of control variables (also lagged to t-1) which have previously been associated with the non-employer to employer transition or employment growth in the wider small business literature are included. These are as follows: more than 50% ethnic minority owned (y/n), sole owner (y/n), industrial sector dummies (8 categories), business age dummies (4 categories), legal status (company/other), has business plan (y/n), received advice in last 12 months (y/n), obtained finance in the last 12 months (y/n), exports goods/services (y/n), multiple business sites (y/n) and wave dummies (at t, not lagged). For a fuller justification of the inclusion of these variables see Chapter 5, Section 5.3.3. as the chosen control variables are identical in this chapter.

6.3.5 Modelling Framework and Empirical Approach

Due to the nonlinear function, the coefficients of probit models cannot be easily interpreted, thus postestimation marginal effects are calculated and presented in Tables 6.2, 6.3, and 6.4. The original probit models include two-way interaction terms between the gender and home-based variable and business location. As marginal effects cannot be run for interaction terms in STATA, these categories were instead manually computed, with main effects kept in the models. The marginal effects show the change in probability when the independent variable increases by one unit – for binary or categorical variables the change represents the discrete change from the reference category to the comparative category, when all other variables are held constant. The original probit models including interaction terms can be found in Appendix A, Tables A.3 to A.6.

6.3.6 Robustness Checks

The models presented in Table 6.2 were also run on the sample of non-employing businesses which had previous experience of employing. These results are presented in Table 6.5.

Only a very small number of non-employers relocated out of the home (4.3%). Table 6.2, Model 5 further demonstrated that non-employing businesses which relocated into a separate premises between t-1 and t were just as likely to take on their first employee as businesses which remained in the home. As a result, home-based business relocators are included in the variable for home-based businesses in the rest of the analysis, as removing or including these businesses did not have a significant impact on the results.

6.4 Results

6.4.1 Descriptive Statistics

Table 6.1 presents a pooled sample description of the key dependent and independent variables included in the analysis over 2015-2019 (i.e. description of the key variables over all waves), using the sample of non-employers who have not previously had employees. However, the final column at the far right of the table indicates the percentages of non-employing businesses which have not had previous employees, compared to those who have had an employee in the past. In total, 58.2% of non-employers in the 2015-2019 UKLSBS have not previously had an employee, a slight majority. All other columns and the description below refer to percentages (and their underlying observations) within only the sample of non-employers who have not had employees before. The final row at the base of the table indicates the percentages of non-employers that are home-based (around 60%) and in a separate premises (40%), thus significantly more non-employers are based in the home than outside of the home.

For the key dependent and independent variables (rows) a further break down by gender compares the percentages of women-owned and men/co-owned businesses for home-based and separate premises businesses separately. This reveals that for both home-based and separate premises non-employers, the percentages of women-owned businesses in all urban areas is higher than men/co-owned businesses. The opposite is true for rural locations (excluding remote rural locations, which make up a small number of the businesses included in the sample – 162 non-employers in remote rural areas compared to 825 in accessible rural areas). Furthermore, a higher percentage of women-owned non-employers are located in London (12.5%) than both men/co-owned home-based non-employers (7.8%) and women-owned non-employers in separate premises (8.1%). This may support the theory that urban locations can be more supportive for starting and growing women's businesses (Kalnins and Williams, 2014; 2021), and may indicate a particular benefit for women-owned home-based non-employers, particularly in London.

Table 6.1 also shows that only 14.9% of non-employers took on an employee the following year – the vast majority remained as non-employers. However, for non-employers in separate premises this figure was 17.9%, whereas for home-based businesses only 12.8% become employers for the first time. Amongst home-based businesses, a similar percentage of men/co-owned and women-owned non-employers took on their first employee. This highlights the importance of comparing groups of women-owned businesses to each other in addition to comparing women-owned businesses and men/co-owned businesses.

Table 6.1 Sample description of key variables by gender and home-based businesses, non-employers with no previous employment, observations and unweighted percentages by gender and premises type, total indicates percentages of all non-employers.

	Separate Premises			Home-Based Business			
	Men/Co-Owned	Women-Owned	Total	Men/Co-Owned	Women-Owned	Total	Overall Total
Remains a non-employer	782	244	1,026	1,268	336	1,604	2,630
	81.80	82.99	82.08	87.09	87.50	87.17	85.11
Becomes an employer	174	50	224	188	48	236	460
	18.20	17.01	17.92	12.91	12.50	12.83	14.89
Larger Urban	263	85	348	347	108	455	803
	27.63	28.91	27.93	23.85	28.13	24.74	26.03
Smaller Urban	366	136	502	561	141	702	1,204
	38.45	46.26	40.29	38.56	36.72	38.17	39.03
All Urban (incl. London)	629	221	810	908	249	1,143	2,007
	66.00	75.17	68.18	62.41	64.84	65.24	65.06
Accessible Rural*	265	54	319	392	114	506	825
	29.22	19.22	26.85	28.47	30.40	28.88	28.06
Remote Rural*	41	18	59	87	16	103	162
	4.52	6.41	4.97	6.32	4.27	5.88	5.51
All Rural	323	73	396	547	135	682	1,078
	33.93	24.83	32.00	37.59	35.16	37.09	34.94
London	96	24	120	112	48	160	280
	10.04	8.16	9.60	7.69	12.50	8.70	9.06
Total	956	294	1,250	1,456	384	1,840	3,090
	30.94	9.51	40.45	47.12	12.43	59.55	58.26

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. *excl. Northern Ireland*

6.4.2 Marginal Effects

Table 6.2 examines how locating in the home changes the probability of becoming an employer for the first time. Model 1 shows that running a home-based business rather than a business in a separate premises decreases the probability of the business hiring their first employee by 4.2%. Whilst this effect is statistically significant, and thus H1a is rejected, it is not a large effect.

Furthermore, Model 5 demonstrates that non-employers who relocate out of the home into a separate premises are just as likely to become an employer as those remaining in the home. Table 6.2, Model 1 also shows that there is no significant gender gap in the non-employer to employer transition – i.e. women-owned businesses are not significantly less likely to take on an employee in their business compared to men/co-owned businesses. Finally, Model 4 includes an interaction term with gender and home-based businesses which shows that running a home-based business

does not significantly change the probability of a woman-owned business becoming an employer for the first time.

Table 6.3, Model 1 shows that men/co-owned home-based businesses are significantly less likely to take on their first employee compared to men/co-owned non-employers in separate premises. Table 6.4, Model 1 subsequently shows that women-owned home-based businesses do not have a significantly lower probability of taking on their first employee compared to women-owned non-employers with separate premises. This means there is no support for H1b, in fact, the results shows the opposite – men are less likely to take on their first employee when they run a home-based businesses instead of a business with separate premises, whereas women are as likely to take on their first employee when they run a home-based business.

Table 6.2, Models 2, 3 and 4 also demonstrate that business location and rural accessibility have no influence on the probability of a non-employing business becoming an employer. However, there are some specific findings for women and men/co-owned home-based businesses.

Table 6.3, Model 4 shows that running a home-based business in London increases the probability of a woman-owned non-employer taking on their first employee by 32.2% when compared to women-owned non-employers with separate premises. This is a very large increase. However, the effect is only significant to the 10% level in the postestimation marginal effects. Checking this against the original probit model, the interaction term is significant to the 0.05% level, and so this effect is likely robust. Furthermore, Table 6.4, Model 4 shows that running a home-based business in London increases the probability of a woman-owned non-employer taking on their first employee by 18% compared to men/co-owned non-employers with separate premises.

However, Table 6.3, Model 2 also demonstrates that there is no association between women-owned home-based businesses located in major urban areas overall, which highlights that this is a London specific effect. Therefore, whilst technically no support is found for H2a, it is clear that, for women-owned home-based non-employers, there are specific benefits of being in a large urban area but those benefits are exclusive to the Greater London area.

Table 6.4, Model 2 demonstrates that overall, for men/co-owned home-based businesses, locating in a larger urban or smaller urban area compared to locating in a rural area does not significantly increase or decrease the probability of becoming an employer for the first time, and thus there is no support for H2c. Furthermore, Model 3 does show that both men/co-owned and women-owned home-based non-employers have a decreased probability (12.1% and 10.1% respectively) of becoming an employer when they are located in remote rural areas compared to men/co-owned businesses with separate premises. Model 4 also demonstrates that locating in

London has no effect on the probability of men/co-owned home-based businesses becoming employers. Therefore, there is some support for H2b.

Table 6.4 demonstrates that for men/co-owned home-based businesses with no previous employees, running a business in a large urban or small urban area makes no difference to the probability of becoming an employer compared with being located in a rural location. However, Table 6.4, Model 10 breaks down the rural area into its dominating component – businesses in accessible rural areas – and its smaller component – businesses in remote rural locations. This model determines that men/co-owned non-employers who run a home-based business in remote rural areas are 12% less likely to transition into an employing business than urban areas overall. As this does not apply to women-owned businesses, there is no support for H2b, and again the inverse relationship appears to be the case as men/co-owned home-based businesses are less likely to take on their first employee in remote rural areas.

6.4.3 Robustness Checks

Turning briefly to the models run on the sample of non-employers which had previously had employees and thus were excluded from the models above. These results are presented in Table 6.5. Surprisingly these marginal effects were very similar to the results for non-employers which had never previously had an employee. There were no gender differences between women-owned non-employers and men/co-owned non-employers, but home-based non-employers with previous experience of employing had a significantly lower probability of becoming an employer again (4.2% lower). Furthermore, relocating out of the home into a separate premises did not change the probability of becoming an employer again compared to those remaining in the home.

Table 6.2 Transition from non-employer to employer, non-employers with no previous employment, probit estimation with random effects, post estimation marginal effects.

	(1)	(2)	(3)[1]	(4)	(5)
Home-Based Business (Ref Cat. Separate Premises)	-0.042**	-0.042**	-0.048**	-0.047**	-
	(0.015)	(0.016)	(0.016)	(0.018)	-
Relocation (Ref Cat. Remains in the Home)					
Moved into a separate premises	-	-	-	-	0.033
	-	-	-	-	(0.050)
Remains in a separate premises	-	-	-	-	0.045**
	-	-	-	-	(0.016)
Women-Owned (Ref Cat. Men/Co-Owned)	0.001	0.001	0.001	-0.010	0.003
	(0.018)	(0.018)	(0.018)	(0.025)	(0.018)
Home-Based Business X Women-Owned	-	-	-	0.020	-
	-	-	-	(0.036)	-
Business Location (Ref Cat. Rural)					
Larger Urban Area	-0.011	-	-	-0.011	-0.010
	(0.017)	-	-	(0.017)	(0.017)
Smaller Urban Area	-0.005	-	-	-0.002	-0.002
	(0.019)	-	-	(0.021)	(0.021)
London (Ref Cat. Not in London)	-	-0.006	-	-0.009	-0.011
	-	(0.025)	-	(0.028)	(0.028)
Rural Accessibility (Ref Cat. Urban)					
Accessible Rural	-	-	-0.007	-	-
	-	-	(0.017)	-	-
Remote Rural	-	-	0.059	-	-

	-	-	(0.038)	-	-
Controls	Yes	Yes	Yes	Yes	Yes
Observations	3,024	3,030	2,883	3,024	2,994
Degrees of Freedom	27	26	27	29	29
Standard Errors	Delta-method	Delta-method	Delta-method	Delta-method	Delta-method

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Marginal effects, standard errors in parentheses. Excludes non-employing businesses with previous employment. Control variables not shown (incl. constant): Ethnic minority owned (incl. missing data), sole owner (incl. missing data), industrial sector, business age, legal status, has business plan, received advice in last 12 months, obtained finance in the last 12 months, exports goods/service, wave dummies and multiple sites. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

Table 6.3 Transition from non-employer to employer, non-employers with no previous employment, probit estimation with random effects, post estimation marginal effects.

	(1)	(2)	(3)[1]	(4)
Gender and Home-Based Business (Ref Cat. Women-Owned Separate Premises)				
Men/Co-Owned Separate Premises	0.011	0.016	0.008	0.004
	(0.028)	(0.056)	(0.033)	(0.030)
Men/Co-Owned Home-Based Business	-0.036	-0.059	-0.024	-0.047
	(0.027)	(0.053)	(0.032)	(0.029)
Women-Owned Home-Based Business	-0.027	-0.025	-0.025	-0.051
	(0.031)	(0.060)	(0.038)	(0.034)
Business Location (Ref Cat. Rural)				
Smaller Urban Area	-0.011	-0.028	-	-
	(0.017)	(0.056)	-	-
Larger Urban Area	-0.005	-0.011	-	-

	(0.019)	(0.062)	-	-
Men/Co-Owned Separate Premises X Smaller Urban	-	0.008	-	-
	-	(0.062)	-	-
Men/Co-Owned Home-Based Business X Smaller Urban	-	0.041	-	-
	-	(0.064)	-	-
Women-Owned Home-Based Business X Smaller Urban	-	-0.022	-	-
	-	(0.068)	-	-
Men/Co-Owned Separate Premises X Larger Urban	-	-0.027	-	-
	-	(0.060)	-	-
Men/Co-Owned Home-Based Business X Larger Urban	-	0.033	-	-
	-	(0.069)	-	-
Women-Owned Home-Based Business X Larger Urban	-	0.015	-	-
	-	(0.077)	-	-
Rural Accessibility (Ref Cat. Urban)	-	-	-	-
Accessible Rural	-	-	0.016	-
	-	-	(0.059)	-
Remote Rural	-	-	0.051	-
	-	-	(0.111)	-
Men/Co-Owned Separate Premises X Accessible Rural	-	-	-0.009	-
	-	-	(0.065)	-
Men/Co-Owned Home-Based Business X Accessible Rural	-	-	-0.044	-
	-	-	(0.057)	-
Women-Owned Home-Based Business X Accessible Rural	-	-	-0.005	-
	-	-	(0.075)	-
Men/Co-Owned Separate Premises X Remote Rural	-	-	0.138	-
	-	-	(0.158)	-
Men/Co-Owned Home-Based Business X Remote Rural	-	-	-0.052	-

	-	-	(0.088)	-
Women-Owned Home-Based Business X Remote Rural	-	-	-0.033	-
	-	-	(0.119)	-
London (Ref Cat. Not in London)	-	-	-	-0.105*
	-	-	-	(0.052)
Men/Co-Owned Separate Premises X London	-	-	-	0.107
	-	-	-	(0.126)
Men/Co-Owned Home-Based X London	-	-	-	0.167
	-	-	-	(0.136)
Women-Owned Home-Based Business X London	-	-	-	0.322†
	-	-	-	(0.165)
Observations	3,024	3,024	2,883	3,030
Degrees of Freedom	28	34	34	30
Standard Errors	Delta-method	Delta-method	Delta-method	Delta-method

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Marginal effects, standard errors in parentheses. Excludes non-employing businesses with previous employment. Control variables not shown (incl. constant): Ethnic minority owned (incl. missing data), sole owner (incl. missing data), industrial sector, business age, legal status, has business plan, received advice in last 12 months, obtained finance in the last 12 months, exports goods/service, wave dummies and multiple sites. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

Table 6.4 Transition from non-employer to employer, non-employers with no previous employment, probit estimation with random effects, post estimation marginal effects.

	(1)	(2)	(3)[1]	(4)
Gender and Home-Based Business (Ref Cat. Men/Co-Owned Separate Premises)				
Women-Owned Separate Premises	-0.011	-0.016	-0.008	-0.004
	(0.028)	(0.056)	(0.033)	(0.030)

Men/Co-Owned Home-Based Business	-0.047**	-0.075**	-0.032	-0.051**
	(0.017)	(0.028)	(0.022)	(0.018)
Women-Owned Home-Based Business	-0.038	-0.041	-0.033	-0.055*
	(0.025)	(0.041)	(0.031)	(0.026)
Business Location (Ref Cat. Rural)				
Smaller Urban Area	-0.011	-0.021	-	-
	(0.017)	(0.030)	-	-
Larger Urban Area	-0.005	-0.041	-	-
	(0.019)	(0.030)	-	-
Women-Owned Separate Premises X Smaller Urban Area	-	-0.008	-	-
	-	(0.058)	-	-
Men/Co-Owned Home-Based Business X Smaller Urban Area	-	0.031	-	-
	-	(0.038)	-	-
Women-Owned Home-Based Business X Smaller Urban Area	-	-0.028	-	-
	-	(0.047)	-	-
Women-Owned Separate premises X Larger Urban Area	-	0.030	-	-
	-	(0.071)	-	-
Men/Co-Owned Home-Based Business X Larger Urban Area	-	0.066	-	-
	-	(0.046)	-	-
Women-Owned Home-Based Business X Larger Urban Area	-	0.046	-	-
	-	(0.063)	-	-
Rural Accessibility (Ref Cat. Urban)				
Accessible Rural	-	-	0.007	-
	-	-	(0.027)	-
Remote Rural	-	-	0.200*	-
	-	-	(0.080)	-
Women-Owned Separate Premises X Accessible Rural	-	-	0.009	-

	-	-	(0.070)	-
Men/Co-Owned Home-Based Business X Accessible Rural	-	-	-0.037	-
	-	-	(0.034)	-
Women-Owned Home-Based Business X Accessible Rural	-	-	0.004	-
	-	-	(0.056)	-
Women-Owned Separate Home-Based Business X Remote Rural	-	-	-0.091	-
	-	-	(0.069)	-
Men/Co-Owned Home-Based Business X Remote Rural	-	-	-0.121***	-
	-	-	(0.034)	-
Women-Owned Home-Based X Remote Rural	-	-	-0.110*	-
	-	-	(0.055)	-
London (Ref Cat. Not in London)	-	-	-	-0.037
	-	-	-	(0.036)
Women-Owned Separate Premises X London	-	-	-	-0.075
	-	-	-	(0.061)
Men/Co-Owned Home-Based Business X London	-	-	-	0.046
	-	-	-	(0.064)
Women-Owned Home-Based Business X London	-	-	-	0.180†
	-	-	-	(0.104)
Controls	Yes	Yes	Yes	Yes
Observations	3,024	3,024	2,883	3,030
Degrees of Freedom	28	34	34	30
Standard Errors	Delta-method	Delta-method	Delta-method	Delta-method

Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Marginal effects, standard errors in parentheses. Excludes non-employing businesses with previous employment. Control variables not shown (incl. constant): Ethnic minority owned (incl. missing data), sole owner (incl. missing data), industrial sector, business age, legal status, has business plan, received advice in last 12 months, obtained finance in the last 12 months, exports goods/service,

*wave dummies and multiple sites. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

Table 6.5 Transition from non-employer to employer, non-employers with previous experience of employing, probit estimation with random effects, post estimation marginal effects.

	(1)	(2)	(3)[1]	(4)	(5)
Home-Based Business (Ref Cat. Separate Premises)	-0.042*	-0.042*	-0.047*	-0.035	-
	(0.021)	(0.021)	(0.022)	(0.023)	-
Relocation (Ref Cat. Remains in the Home)					
Moved into a separate premises	-	-	-	-	0.030
	-	-	-	-	(0.060)
Remains in a separate premises	-	-	-	-	0.043*
	-	-	-	-	(0.022)
Women-Owned (Ref Cat. Men/Co-Owned)	-0.034	-0.034	-0.038	-0.010	-0.035
	(0.027)	(0.027)	(0.027)	(0.042)	(0.027)
Home-Based Business X Women-Owned				-0.044	
				(0.053)	
Business Location (Ref Cat. Rural)					
Larger Urban Area	-0.009	-	-	-0.009	-0.005
	(0.024)	-	-	(0.025)	(0.025)
Smaller Urban Area	0.007	-	-	0.006	0.009
	(0.027)	-	-	(0.031)	(0.031)
London (Ref Cat. Not in London)	-	0.011	-	0.001	0.001
	-	(0.033)	-	(0.039)	(0.040)
Rural Accessibility (Ref Cat. Urban)					
Accessible Rural	-	-	0.014	-	-

	-	-	(0.023)	-	-
Remote Rural	-	-	-0.015	-	-
	-	-	(0.050)	-	-
Controls	Yes	Yes	Yes	Yes	Yes
Observations	2,151	2,152	2,074	2,151	2,137
Degrees of Freedom	27	26	27	29	29
Standard Errors	Delta-method	Delta-method	Delta-method	Delta-method	Delta-method

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Marginal effects, standard errors in parentheses. Excludes non-employing businesses which had no previous employment. Control variables not shown (incl. constant): Ethnic minority owned (incl. missing data), sole owner (incl. missing data), industrial sector, business age, legal status, has business plan, received advice in last 12 months, obtained finance in the last 12 months, exports goods/service, wave dummies and multiple sites. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

Table 6.6 Summary of hypotheses and results, Chapter 6.

Hypothesis	Confirmed?	Result
H1a. Home-based non-employers will have a similar probability of taking on their first employee compared to non-employers with separate premises.	No	Home-based non-employers have a significantly lower probability of taking on their first employee compared to non-employers with separate premises.
H1b. Home-based women-owned non-employers will have a significantly lower probability of taking on their first employee compared to women-owned non-employers with a separate premises, however this will not apply to men/co-owned non-employers.	No	Home-based men/co-owned non-employers have a significantly lower probability of taking on their first employee compared to men/co-owned non-employers with a separate premises, however this does not apply to women-owned non-employers.
H2a. Home-based women-owned non-employers will have a significantly higher probability of taking on their first employee in major agglomerations.	Partially	Home-based women-owned non-employers have a significantly higher probability of taking on their first employee in London.
H2b. Home-based women-owned non-employers will have a significantly lower probability of taking on their first employee in remote rural areas.	Yes	Both women and men/co-owned home-based non-employers have a significantly lower probability of taking on their first employee in remote rural areas.
H2c. Home-based men/co-owned non-employers will have a significantly lower probability of taking on their first employee in a major urban areas, but a significantly higher probability of taking on their first employee in smaller urban areas.	No	Home-based men/co-owned non-employers do not have a significantly lower probability of taking on their first employee in a major urban areas, or a higher probability of taking on their first employee in smaller urban areas.

Source: author's own compilation.

6.5 Discussion

This chapter analyses the probability of a non-employing business taking on their first employee. The analysis first compared home-based businesses without employees to non-employers with separate premises, and then compared women-owned and men/co-owned home-based businesses to their non-home-based counterparts. Probabilities of becoming an employer were then calculated for women-owned and men/co-owned home-based businesses in larger urban, smaller urban and accessible and remote rural areas. Below the main findings from Chapter 6 are presented and discussed, with a broader discussion taking place in Chapter 7.

- Overall, home-based businesses are less likely to take on their first employee than non-employers with separate premises.

This finding runs somewhat counter to previous literature, which found that home-based non-employers were just as likely to become employers as those with separate premises (Houston and Reuschke, 2017). In this case, the differences between the results presented here could be explained by the separation of businesses which are taking on their first ever employee. However, the robustness checks demonstrated that non-employers with previous experience of employing also had a lower probability of becoming an employer again compared with non-employers with separate premises.

Becoming an employer has significant legal and structural ramifications for a business (Coad et al., 2017). Regulations and desire to remain 'under the table' has previously been highlighted in the home-based business literature (Newbery and Bosworth, 2010) as a reason home-based businesses may choose not to grow. However, home-based non-employers which have previously had employees will have already passed the regulation/legal 'hurdle', and the analysis shows they are also less likely to become employers again.

This raises the question of why, in this analysis, home-based businesses in general are less likely to take on their first employee. Clearly, they may have some specific barriers to growth which hold them back from becoming employers. If a business has no employees, but chooses to locate or start outside the home (particularly as a premises may not be needed for one owner or two partners only), the business may be planning for growth in the near future, and will have more space to do so. Growth intentions have been linked to a higher probability of non-employers hiring their first employee (Korunka et al., 2011).

Furthermore, investing in or leasing a premises is an expensive endeavour. Non-employers in a separate premises may have had higher start-up capital or assets, which have also been linked to

an increased probability of becoming an employer (Fairlie and Miranda, 2016; Korunka et al., 2011; Lowrey, 2009). Non-employers located in a separate premises are also more likely to have access to physical, entrepreneurial support infrastructure, such as incubators, business accelerators, science parks and Universities, which have been shown to benefit solo entrepreneurs in terms of survival and employment growth (Dee et al., 2011).

Table 6.7 below demonstrates that home-based businesses which became employers were unlikely to take on more than one employee. For some home-based businesses who want to grow significantly or do not have the space for the number of employees they want/need, they may choose not to grow at all, or wait until they have more space, an additional premises or business site, or gain more capital or assets.

Table 6.7 Number of employees hired during the non-employer to employer transition, observations and percentages.

No. Employees Hired	Separate Premises	Home-Based Business	Total
1	292	341	633
	54.07	63.62	58.83
2	160	121	281
	29.63	22.57	26.12
3	40	39	79
	7.41	7.28	7.34
4	41	32	73
	7.59	5.97	6.78
10+	7	3	10
	1.3	0.56	0.93
Total	540	536	1,076

Source: UKLSBS, 2015-2019 (Secure Access); Note: UK non-employing private enterprises which became employers between t-1 and t only.

In the case of non-employers with previous experience employing, these businesses may be at a different stage in the growth cycle as they have experienced a decline. After this stage of the business life-cycle little is known about gender dynamics and further growth. However, Reuschke and Houston (2016) found that home-based businesses which moved into the home did so for a variety of reasons, including cost reduction and restructuring, but also for personal reasons, such as the desire to be close to home, or as a business owner nears retirement. It may be the case that home-based businesses who have previously had employees have purposely restructured or downsized their business for personal reasons (including moving back into the home), and are therefore less likely to be interested in new or further growth.

This study found that women-owned non-employers were as a likely to take on their first employee and to take on new employees as their male counterparts. This finding, whilst not in

line with other literature (Henley, 2019; 2005), follows a consistent pattern throughout the thesis which does not find that women-owned businesses underperform their male counterparts across different metrics of business performance, growth and job creation.

Overall, this is a positive finding for women-owned businesses, and may reflect the disproportionately high increases in highly educated and skilled solo self-employed women in Western Europe (van Stel and Zwan, 2020). Millan et al. (2015) found that although previously unemployed own-account workers (i.e. necessity entrepreneurs) were less likely to take on employees, this did not apply to those with a tertiary education. It is possible that highly educated solo-self-employed women are starting to outstrip the number of precariously solo self-employed women (van Stel and Zwan, 2020), and that these women are just as able as men to take their business to the next stage and become an employer.

Furthermore, women-owned home-based businesses are just as likely to take on their first employee as women-owned non-employers in separate premises. Previous literature has highlighted the 'growth' penalties that women-owned home-based businesses appear to experience compared to women in separate premises (Thompson et al., 2009; Loscocco and Smith-Hunter, 2004). However, the non-employer dimension of this issue (i.e. that non-employing women-owned businesses may have different outcomes) has not been addressed within the literature, and so one key contribution of this chapter is filling this research gap. Crucially however, the findings in this chapter do not show an increased risk of remaining as a non-employer for women-owned home-based businesses.

For women-owned businesses, a home-based business may represent a longer term investment, or a more stable self-employment choice, rather than a short-term endeavour. Women-owned home-based businesses may be just as happy to grow their business at home as women based in a separate premises. Further research using data on home-based businesses over a longer period of time could identify whether women-owned businesses spend longer in the home before relocating or closing their business, compared with men/co-owned businesses.

In contrast, men/co-owned home-based non-employers are less likely to take on their first employee than men/co-owned non-employers with separate premises. This may reflect that men/co-owned businesses which are located in the home may use the home as an opportunity to test a 'low risk' start-up or business idea, which is therefore less likely to become an employer due to the unpredictability of new business ideas and success (Anwar and Daniel, 2014). Men may choose to start their business or move into separate premises when the business is a start-up with immediate job creation potential or a tested/viable business growth strategy. A significant number of men/co-owned non-employing home-based businesses will be construction workers or

those in specialist trades, who would more likely hire short-term contractors than employees (although this is controlled for).

- Overall, locating in a larger urban or smaller urban area does not increase the probability that a non-employing business will take on either their first employee or new employees.

Whilst not a central finding of this research chapter, this is an important and noteworthy result. Dominant discourses highlight the importance of urban areas, agglomerations and business clusters for promoting entrepreneurship, job creation and high growth businesses (Behrens and Robert-Nicoud, 2015; Carlino and Kerr, 2015; Love and Roper, 2015). However, this study indicates that non-employers do not benefit from major urban or smaller urban areas compared with being located in a rural location.

Previous literature indicates that non-employers can be highly beneficial to agglomerations, but it appears that this may come at the expense of their own financial security (Moore, 2018a; 2018b). This could be a reflection of the increasing precariousness of urban solo-self-employment (Reuschke and Zhang, 2022). This has significant policy implications for regional and urban policies (particularly with the continuing trend towards solo-self-employment in the UK) which tend to assume businesses will do better in these 'prime' business locations.

- For women-owned non-employers, running a home-based business in London significantly increases the probability that they will take on their first employee.

This is a particularly interesting finding, and perhaps the most difficult to explain from this chapter. It may be the case that women-owned non-employers based in the home particularly benefit from a highly entrepreneurial culture and a local economic environment with high urbanisation economies and opportunities to earn profits, as hypothesised. However, as these businesses do not increase their job creation in other major urban areas, this could be related to London's position as a global mega-city (Florida and Hathaway, 2018) or the most highly diverse, entrepreneurial region of the UK (Faggio and Silva, 2014).

More likely however, is that there is something specific about women-owned home-based non-employers in London which was not captured in the modelling. It may be that the most 'entrepreneurial' women-owned home-based businesses are concentrated in London, with more family orientated business ventures located elsewhere. As business premises are of extremely high cost in London, there is also more incentive for growth-orientated businesses to grow in the home. Why this is specific to women-owned non-employers however, it is not clear. This could be related to personal or business characteristics that impact job creation in non-employing businesses that are not captured in this survey – such as educational qualifications, migrant

backgrounds, which differ significantly in London compared to other regions of the UK (Lee, 2015).

6.6 Summary

Chapter 6 explores the non-employer to employer transition, and how being a home-based business might create different barriers to growth for women-owned and men/co-owned non-employers, depending upon the business location. Through novel data linkage between the UKLSBS and the BSD, this chapter identifies, for the first time, non-employing businesses which have previously had an employee, compared to those who have no experience of employing, allowing a unique and novel study of the process of taking on the first employee for home-based businesses compared to businesses with separate premises.

The findings reveal that, in contrast with previous studies (Houston and Reuschke, 2017), non-employers have a lower probability of becoming employers when they are home-based, regardless of whether they have prior experience of employing. Furthermore, despite the hypotheses derived in this chapter that women-owned home-based non-employers would be more likely to become employers for the first time in large urban areas (Kalnins and Williams, 2021), the analysis revealed that this effect was present in London, but not other major urban areas. For both men and women-owned home-based non-employers there were indications that locating in remote rural areas decreased the probability they would become employers, highlighting the importance of moving beyond the urban-rural divide and considering how different levels or rurality or urbanity can impact on small business growth (Abreu et al., 2019; Merrell et al. 2022a; 2022b).

The next chapter (Chapter 7) provides a more detailed discussion of the findings from the three empirical chapters in this thesis, includes additional, complementary analysis, a future research agenda and implications for policy, practice and planning.

Chapter 7 Discussion

This chapter provides an opportunity to re-visit the research questions introduced in Chapter 1 and addressed in the empirical work presented in Chapters 4, 5 and 6. The discussion below considers the broader implications of the results of this work, in addition to linking the findings to firm growth, gender and economic geography. There is also additional descriptive analysis included on the obstacles to growth and future growth intentions of home-based and non-home-based businesses. These data are drawn from the UKLSBS but are only provided by a sub section of businesses each year and therefore could not be included in the main analyses of the thesis due to the smaller sample size. Nonetheless, they are important topics which provide insightful context into the concerns and growth-orientation of UK home-based businesses. The chapter includes a brief discussion of the potential implications of the COVID-19 pandemic on the future of homeworking among business owners, utilising descriptive analysis from the 2020 wave of the UKLSBS. Chapter 7 concludes with a future research agenda, and implications and recommendations for both policy and practitioners who work directly to support small businesses.

7.1 The Growth and Performance of Home-Based Businesses

First and foremost, this thesis considered the differences in growth and business performance between home-based businesses and businesses with separate premises. The first research question presented in the introduction was:

Q1: How do home-based businesses differ in their business growth and performance compared to small businesses with separate premises?

A straightforward question, but one which requires a consideration of what is meant by a home-based business, and how growth and performance are defined. Whilst the majority of contemporary studies have defined the home-based business as any business without separate premises, scholars have rightly pointed out that not all home-based businesses use the home as a premises (Kapasi and Galloway, 2018; Newbery and Bosworth, 2010). Some may use the home as a base, registering the business at home but operating a mobile business or working partially or wholly in the client's premises. This dichotomy (home as a base and home as a premises) was considered for the first time in the academic literature in relation to firm performance in Chapter 4.

Building on previous research which identified that home-based businesses have significantly lower turnover and employment than businesses with separate premises (Mason and Reuschke, 2015), Chapters 4 and 5 extend the current state-of-the-art by considering a wider range of performance measures, highlighting the varied contributions of home-based businesses. The results in Chapter 4 illustrate that despite their smaller size in employment and turnover, businesses using the home as a premises or a base are just as likely to turn a profit and to have had a novel (new-to-market) innovation in the last three years as businesses with separate premises.

Incremental (new-to-business) innovation however, is lower in businesses using the home as a premises. This may be because home-based businesses are more focused on a specialist set of products or services and do not seek to expand their product line nor have the need to change their working practices. Businesses using the home as a premises may find that they are spatially restricted (if the goods are physically made by themselves) or that they lack interactions out of the home with other businesses that they could learn from or imitate (Berg, 2014; Wu et al., 2020; Tomás-Miquel, 2019), particularly given that businesses which use the home as a base do not have lower rates of incremental innovation. Incremental innovation can have major benefits for long term survival (Wojan et al., 2018) particularly in times of crises (Lecossier and Pallot, 2020), if one product line or process fails and the business needs to shift its business model quickly (Noone et al., 2022; Massaro et al., 2017). Business support practitioners who work with small businesses would be advised to encourage their home-based business users to diversify their goods, services and processes.

Businesses using the home as a premises are also more likely to export because higher proportions of these businesses have exportable goods and services. This highlights, for the first time, the value of the home as a space for internationalisation, potentially allowing much smaller businesses to reach international markets (McCormick and Fernhaber et al., 2018). Furthermore, the home premises appears to provide small firms with the opportunity to run a smaller but more profitable business without needing a premises, saving on overheads and providing the personal benefits of homeworking.

Chapter 5 further demonstrated that home-based businesses which remain in the home, regardless of their initial size, experience lower employee growth, and instead are more likely to pursue turnover growth without employment growth, referred to as jobless growth (Mason et al., 2011). However, given the findings from Chapter 4 that home-based businesses also had lower overall turnover than businesses with separate premises, it is likely there is a ceiling on jobless growth i.e. without employment growth home-based businesses may place limits on their

turnover growth in the longer term. The findings from Chapter 5 also highlighted that businesses remaining in the home did not hire contractors to a greater extent than businesses with separate premises (van Gelderen et al., 2008). This indicates that hiring contractors and strategic cost-cutting outsourcing is a strategy that occurs across the entire small business population, and is not specific to home-based businesses (Edvardsson et al., 2019; Richmond and Slow, 2017).

Chapter 6 demonstrated that running a home-based business may also inhibit a business from taking on its first employee when compared to non-employing enterprises located in separate premises. The effect, whilst significant, was relatively small so it is possible that becoming an employer, for the first time is a more straightforward process than hiring further employees.

What these differences indicate is that home-based businesses are equally profitable (which is to the benefit of the owner and the firm) and contribute to the generation of important novel goods, services or processes to the same degree as any similar sized business with a separate premises.

This leads to the second research question addressed by Chapters 5 and 6:

Q2: What role does relocation play in the growth of home-based businesses?

Again, the answer to this question was more nuanced than expected. Overall, yes, businesses which relocated out of the home into a separate premises were significantly more likely to growth their employees than those remaining in the home. However, from 2015 to 2019, only around 1/3 of the home-based business sample moved out of the home. Therefore, this research acknowledges both that home-based businesses are for the most part stationary (and thus employment growth limited), and home-based businesses which relocate out of the home into a separate premises have significant job creation potential.

However, Chapter 6 demonstrated that non-employers that relocated into a separate premises did not increase their probability of becoming an employer for the first time compared to those that remained at home. This suggests that it is only necessary for a home-based business to relocate to grow when they already have employees, and wish to take on more. For businesses becoming an employer for the first time, the home may be able to contain a single employee, making relocation, and its associated expense and risk unnecessary, particularly when taking on the first employee (Coad et al., 2017; Risselada et al., 2013). But overall, home-based non-employers are still less likely to take on employees than non-employers in separate premises, indicating that the barriers to growth in these smallest of enterprises may go beyond spatial restrictions.

7.1.1 Explaining the Performance Gap: The " Home-Based Business Effect"

The modelling presented throughout the chapters of this thesis control for a wide variety of business characteristics and owner demographics. Despite their enhanced performance in exporting, and equal performance in novel innovation and profit, home-based businesses remaining in the home create less jobs and are more likely to pursue jobless growth than almost identical businesses in separate premises. The decomposition analysis presented in Chapter 5 demonstrated that a large portion of the gap in employee growth between home-based businesses and non-home-based businesses is not explained, and hypotheses that the distinct geography of home-based businesses might explain some of this gap prove to be false. Previous research into growth in home-based businesses identified a 'home-based business effect', where home-based businesses had lower employment growth compared to identical businesses outside the home (Loscocco and Bird, 2012; Bates et al., 2013).

It is highly likely that a part of this 'home-based business effect' is simply the space constraints related to being in a home premises – the finding that home-based businesses which relocate are strongly associated with employee growth certainly points to this–- or temporal constraints from more home-based businesses operating on a part-time basis. If this is the case then it is unlikely that home-based businesses could be expected to match the job creation of their counterparts with separate premises.

Nonetheless, it is still worth considering further why home-based businesses may struggle to take on employees while remaining in the home and instead pursue jobless growth, in addition to what barriers may prevent businesses from relocating. It is unlikely that the home-based business effect is only linked to spatial constraints – many home-based businesses have some employees already, and many businesses require little more than a laptop and internet connection and could therefore have employees work remotely, within their own homes.

Table 7.1 presents the decomposition analysis from Chapter 5 again (for ease of reading) as this may provide some further insight into the performance gap. The results identify several characteristics of home-based businesses which contribute significantly to the gap between businesses remaining in the home and businesses in separate premises. This analysis shows that the largest reasons for the gap is that home-based businesses are highly dominated by sole owner businesses (explaining between 15 and 17.2% of the gaps respectively), and are less likely to be incorporated companies (explaining 14.2% and 15.8% respectively).

In theory, what this means, is that if more home-based businesses were to take on an additional business partner, or were to incorporate from a sole trader or partnership into a company, the

gap in employee growth and jobless growth would be significantly reduced. In practice, however incorporating and taking on a business partner may well occur in conjunction with or prior to growth. Many business owners may only incorporate their business when they grow as it makes hiring and paying staff easier – including employers' liability insurance and pensions, and involves more regulations/accountancy costs (Johnsen and McMahon, 2005).

However, given that incorporating also contributes to the gap in turnover only growth, it is worth considering that forming a limited company can have significant financial or sales benefits, such as lower business tax rates, reduced liability, professional image, and making it easier to get external finance (Demirguc-Kunt et al., 2006; Devereux and Liu, 2016). Thus, for home-based businesses which would benefit from incorporation, practitioners should provide assistance with the process, and it may make it easier for these to grow in employees further down the line.

A study by Madanoglu et al. (2020) found that family home-based businesses run by married couples had significantly higher business performance. Thus encouraging home-based businesses to involve interested second parties as business partners, including spouses, may also help close the performance gap. Home-based businesses have been shown to be highly collaborative businesses, that often place more importance on their networks than employing employees (van Gelderen et al., 2008), and so this is a slightly surprising result. Formalising relationships with collaborative firms by bringing on new partners could therefore also be encouraged.

The third largest explainer of the employee growth gap is the lower proportion of businesses remaining in the home which have a business plan. Whilst this explains only 8.7% of the gap in employee growth, it is easily actionable by practitioners and indicates that assisting home-based businesses with formal business plans could lead to employee growth.

Table 7.1. Blinder-Oaxaca-Fairlie decomposition of annual growth typology, businesses remaining in the home compared with businesses in separate premises, coefficient, standard errors and percentage explained.

Model Specification	Employee Growth (Ref Cat. No Turnover or Employee Growth)	Turnover Growth, but no Employee Growth (Ref Cat. Employee Growth)	Contractor Only Growth (Ref Cat. Employee Growth)
Non-home-based business	0.3803	0.4962	0.2109
home-based business	0.5029	0.3486	0.1907
Difference	-0.1226	0.1477	0.0202
Total Explained	-0.0500	0.0623	0.0115
Contribution from differences in:			
Women-Owned (Ref Cat. Men/Co-Owned)	-0.0017	0.0008	0.0002
	(0.0004)	(0.0004)	(0.0003)
	3.4	1.3	1.7
Rural Location (Ref Cat. Urban Location)	0.0033	-0.0015	0.0008
	(0.0012)	(0.0012)	(0.0013)
	-2.7	-1.0	3.9
Region Dummies	-0.0013	0.0001	0.0000
	(0.0008)	(0.0009)	(0.0012)
	1.1	0.1	-0.2
Exports (Ref Cat. No Exports)	-0.0006	0.0021	-0.0035
	(0.0009)	(0.0010)	(0.0013)
	0.5	1.4	-17.2
Multiple Sites (Ref Cat. Single Site)	-0.0029	0.0021	-0.0003
	(0.0013)	(0.0014)	(0.0011)
	2.4	1.4	-1.4
Ethnic Minority Owned (Ref Cat. Not)	0.0002	0.0003	-0.0002
	(0.0003)	(0.0004)	(0.0005)

	-0.2	0.2	-0.8
Sole Owner (Ref Cat. Multiple Owners)	-0.0211	0.0221	0.0058
	(0.0024)	(0.0026)	(0.0023)
	17.2	15.0	28.6
Industry Sector Dummies	-0.0019	0.0034	0.0134
	(0.0029)	(0.0032)	(0.0025)
	1.5	2.3	66.3
Business Age Dummies	0.0020	0.0021	0.0001
	(0.0008)	(0.0009)	(0.0008)
	-1.7	1.4	0.4
Company (Ref Cat. Sole Trader/Partnership)	-0.0174	0.0234	0.0032
	(0.0022)	(0.0026)	(0.0024)
	14.2	15.8	15.6
Has Business Plan (Ref Cat. No Business Plan)	-0.0107	0.0099	-0.0003
	(0.0015)	(0.0017)	(0.0011)
	8.7	6.7	-1.7
Received Advice (Ref Cat. No Advice Received)	-0.0013	0.0012	-0.0008
	(0.0006)	(0.0006)	(0.0009)
	1.1	0.8	-3.7
Obtained Finance (Ref Cat. No Finance Obtained)	-0.0029	0.0019	-0.0011
	(0.0008)	(0.0007)	(0.0006)
	2.4	1.3	-5.5
Wave Dummies	0.0061	-0.0054	-0.0058
	(0.0007)	(0.0008)	(0.0009)
	-5.0	-3.6	-28.7
All included variables	42.9	43.1	57.3

Note: Coefficients; Standard errors in parentheses; % Explained * p < 0.05, ** p < 0.01, *** p < 0.001. Note: UKLSBS, 2015-2019; UK private enterprises with 0-49 employees

at t-1; unweighted data. Source: author's own calculation.

7.1.2 Perceived Barriers to Success

The UKLSBS collects data on the major obstacles which business owners perceive to be barriers to their success. Barriers to success are not exact proxies for barriers to business growth, as what a business owner may consider 'success' will differ from individual to individual (Simpson et al., 2012; Kirkwood, 2016). Nonetheless, they provide a useful insight into what home-based business owners consider to be holding them back from achieving their business goals (Lee and Cowling, 2015). Furthermore, understanding what obstacles businesses which relocate may experience when growing their business may help derive policy that assists home-based businesses in relocating and thus job creation.

Table 7.2 presents the percentages of businesses reporting these obstacles. The percentages are presented for each premises type separately, and within each premises type by the growth type the business had experienced that year. Overall, for businesses with separate premises, those remaining in the home and those relocating from the home into a separate premises, competition is the most highly cited obstacle to the success of their business, followed by red tape and regulations and Taxation, VAT, PAYE, National Insurance and business rates. Despite some suggestions that home-based businesses may have operated 'under-the-table' to avoid such regulations and red tape (Smit and Donaldson, 2011), this is a much lesser cited obstacle to success for businesses remaining in the home than those in separate premises or relocating, indicating that the policy changes to make running a home-based business easier and more straightforward may have been successful (BIS and Hancock, 2014).

The most prominent result however, is that despite their lower size and growth outcomes businesses remaining in the home, overall, are less likely to report obstacles to the success of their business than businesses with separate premises are. However, for businesses remaining at home which grew their employees, compared to those in separate premises, the results are much more mixed. This implies not that home-based businesses have fewer obstacles, but that they may measure their success (and hence their satisfaction) with their business differently, or be less likely to perceive obstacles as their business goals are different (Walker and Webster, 2004). In particular, only 21% of businesses remaining in the home saw staff recruitment and skills as an obstacle to their business success compared to nearly 40% of businesses in separate premises and 34% of businesses relocating into a separate premises. This is commensurate with the lower employee growth of businesses remaining in the home, so it would be expected that recruitment is less of a concern for these businesses. However, it may also imply that businesses remaining in

the home may simply have less desire to grow their employment compared with those in separate premises.

Furthermore, only 11% of businesses remaining in the home perceive that the availability or cost of a suitable premises is an obstacle to their business success, compared to 17% of those in separate premises. This speaks to the desire of most home-based businesses to remain at home that was reported in previous literature (Mason et al., 2011) and that the vast majority of home-based businesses in this research did not relocate out of the home, even over a four year period. Perhaps unsurprisingly, those which relocated into a separate premises were more likely than both businesses with a separate premises and those remaining in the home to state they perceived the availability or cost of a suitable premises as an obstacle to the success of their business. However, the group for whom the availability or cost of a suitable premises is most commonly cited as an obstacle to success is home-based businesses which moved into a new home. These businesses may attempt to relocate to a new home to improve their business situation (Mackloet et al., 2006; Risselada et al., 2013), but the models presented in Chapter 5 do not link this type of relocation to any particular growth typology.

Another finding of note is that businesses which achieved contractor only growth had more obstacles to their business success than businesses which achieved employee growth. This could indicate that these businesses want to grow, but hire contractors because they have barriers to growth which are preventing them from creating employee jobs instead.

Hiring subcontractors/freelancers may also be popular among businesses which do not wish to take on employees as there is less risk to the business, it is easier to lay off contractors in a crisis (Martinez-Sanchez et al., 2008), and can save overall on the firm's wage bill (Kleinknecht et al., 2006). Businesses which require short term project work, increasingly common in a gig economy context, may also hire contractors, but this can have negative consequences by contributing to dependent self-employment or underemployment for the self-employed (Yildirmaz et al., 2020). Furthermore, contractors may be more likely to be non-local or remote hires, thus businesses can access talent from further afield, but are not providing long term, stable job creation in their locality. However, this is a group of businesses which are highly dominated by particular industries which tend to hire contractors (such as construction). This may indicate that these issues are linked to specific industries. Further research to derive policy to help contractor hiring businesses overcome these obstacles would be of use.

One final finding of note from both tables is that businesses remaining in the home which achieved employee growth were more likely to cite obtaining finance as a bigger obstacle to their success than businesses with separate premises which achieved employee growth. This could

indicate that assisting growth-orientated and growth capable home-based businesses with obtaining finance, particularly those which already have employees, would assist these businesses to grow further, and possibly to relocate if needed.

Table 7.2 Self-reported major obstacles to business success in UK small businesses, by relocation and growth, 2015-2019, unweighted column percentages of businesses experiencing an obstacle by each growth type and premises type separately.

Major Obstacles to Business Success	Separate Premises		Businesses Remaining in the Home					Businesses Relocating into Separate Premises		Total
	Employee Growth	Total	Employee Growth	Total	No Growth	Turnover Growth, No Employee Growth	Contractor Only Growth	Into Separate Premises	Into New Home	
Obtaining finance	16.2	15.23	18.13	14.59	12.8	14.26	21.26	13.25	18.7	14.67
Taxation, VAT, PAYE, National Insurance, business rates	39.42	39.68	36.27	30.62	27.26	28.68	41.95	38.55	34.96	31.12
Staff recruitment and skills	43.12	36.97	32.19	20.74	15.1	17.33	31.03	33.73	30.89	21.66
Regulations and red tape	45.52	44.26	44.81	39.91	37.11	37.12	47.13	39.16	41.46	39.93
Availability/cost of suitable premises	17.5	16.51	13.80	11.26	8.93	11.35	18.97	21.69	24.39	12.17
Competition	53.05	52.43	44.28	43.62	42.45	42.18	46.55	45.78	41.46	43.64
Workplace pensions	21.12	19.62	21.55	13.29	10.04	10.58	16.09	19.28	19.51	13.77
Late payment	35.17	33.23	35.35	30.38	25.87	30.21	37.93	40.96	31.71	30.9
UK exit from the EU	25.87	25.52	21.94	22.59	22.1	24.69	27.59	27.11	31.71	23.1
National living wage	20.7	19.06	16.29	10.85	8.93	7.36	10.92	15.06	12.2	11.09

Note: UKLSBS, 2015-2019; UK private enterprises with 0-49 employees at t-1; unweighted data. Source: author's own calculation.

7.1.3 Future Plans: 'Satisficers' or Constrained Optimisers?

A significant portion of the home-based business literature, particularly during the early 2000s, focused on the motivations for starting a home-based business (Walker and Webster, 2004; Walker et al., 2008; Breen, 2010; Reuschke and Mason, 2015). This literature revealed differences between male and female business owners (Walker et al., 2008; Breen, 2010) and those with and without dependants (Reuschke and Mason, 2015). For both women and men with dependants, balancing work and family responsibilities was an important reason for running a home-based business, however Walker et al. (2008) found that men were overall more likely to put emphasis on financial aspects of the business, wealth creation and financial security. However, across these groups, the most common motivations for running a home-based business are cutting costs associated with an external premises, and convenience and life-style flexibility – particularly less commuting (Breen, 2010; Reuschke and Mason, 2015; Mason and Reuschke, 2015). If a greater proportion of home-based businesses are orientated towards achieving a certain life-style and level of flexibility, remaining in the home may be more important than growing.

Unfortunately, the UKLSBS does not provide information on the motivations of the owner who started the business. Nonetheless, the growth orientation of the business owner(s), may be important for explaining why home-based businesses report less employee growth, have smaller turnover, and why they often choose to remain in the home. It is well established in the literature that a business motivated by opportunity which is growth-orientated is more likely to grow and create jobs for others than a business started out of necessity or a business that seeks only to make an income for themselves and not to grow further.

What can be identified in the UKLSBS is the future plans of the business. This can provide a broad proxy for the growth-orientation of the business and can provide some information on whether further enterprise development are a priority for the owner(s). This information was collected at the end of every survey from 2015 to 2020. However, the questions and thus the sample sizes, differ throughout the period and the survey uses cohorts to answer the questions, therefore including growth orientation as a variable in the multivariate analysis in Chapters 4, 5 and 6 was not plausible.

Table 7.3 shows the future plans of UK home-based and non-home-based small businesses over the next three years, by premises type, and within premises by men/co-owned business and women-owned business separately. Table 7.3 displays these percentages for the sample of non-employers, followed by employers. The survey enquired about whether the business plans to recruit employees, grow their turnover, approach financers, invest in capital, introduce or develop

new products/services, invest in R&D, and increase or start exporting. The most common future plan for all businesses is growing turnover, and employing businesses were more likely to list each of the plans above than non-employers, indicating a lower growth orientation among non-employers. Both non-employing home-based businesses and employing home-based businesses are less likely than their counterparts in separate premises to have plans to grow their staff, their turnover, to develop new goods/services, R&D and exporting.

For exporting the difference is only a few percentage points and the analysis in Chapter 4 showed that home-based businesses were more likely to be exporters, thus industry and other firm demographics likely negate these descriptive differences. However, the descriptive analysis does point to home-based businesses having lower growth orientation overall, and less plans to further grow and economically develop their business.

Neoclassical economic theory contends business owners are well-informed, rational economic agents (von Thünen 1966; Wood, 1969). The in-built assumptions of neoclassical firm growth theory are that business owners are homogenous in terms of risk and that they will always be maximisers – i.e. every decision they make will be based on their rational consideration of the options and their selection of the most profitable (Sent, 2018). Constrained optimisers take a similar approach, although they also cost minimise when the business owner is aware of sub-optimal constraints on their growth. Therefore they may select the second best profit making option in order to remain as close to the optimal path as possible for their business (Maital, 1986; Thaler and Shefrin, 1981).

Such theories however have been challenged (Baumol, 1968; Demsetz, 1983), as they assume all business owners and economic agents have equal access to knowledge, which is often not the case. Thus, the concept of bounded rationality by Herbert Simon is often used (1959; 1979), which posits that in reality, decision making is limited by the cognitive system and access to knowledge (Schiliro, 2018; Du and Nguyen, 2022).

Home-based businesses are a key example of this. A business may start in the home for a variety of reasons – cost constraints, or personal reasons (Mason and Reuschke, 2015). On one hand, there may be home-based businesses who are profit maximisers, and exclusively entrepreneurially and financially driven. These may be the businesses which grow out of the home. However, these business owners may still not make the optimal relocation decision, nor have the knowledge to do so – and the data presented in Chapter 5 certainly suggest that these businesses are in a minority among home-based businesses.

Constrained optimisation fits well with home-based businesses and particularly those who must remain in the home because there are no suitable separate premises, or they have caring responsibilities which leave them no choice, but still wish to grow their business. In this case the spatial (or temporal) constraints of the home may lead owners who wish to optimise their business to choose jobless growth, as discussed in Chapter 5, this is the 'second best' way to achieve growth. Therefore, whilst previous research has reported high growth ambitions among home-based businesses (higher than were reported in Table 7.3) (Breen, 2010; Breen and Karanasios, 2010; Clark and Douglas, 2012), these ambitions may still be constrained within or limited by the home. It is likely therefore, that there are a number of constrained optimisers among home-based businesses which remain in the home.

However, Herbert Simon's behavioural critique also highlights another category of economic decision makers, which may provide a basis for why home-based businesses rarely relocate out of the home – the satisficer (Simon, 1959; Mueller and Morgan, 1962). Satisficers make decisions which they view as good enough – decisions that satisfy and suffice. They are often well-established businesses that aim for performance stability rather than growth (Wong et al., 2018), with owners and partners who are comfortable and happy with their personal business life-style, who do not want to expand or take on additional property costs. For home-based businesses, their choice of location is often linked to their desire for a particular life-style or flexibility that will be radically changed if they relocate the business in order to grow. Many may run a home-based business and deem it successful if it provides the right balance of fulfilment, income and life-style. This does not mean these businesses are hobby businesses, but rather that they trade off growth and increasing their economic success for things that are more or equally important to them. Whilst not looking specifically at home-based businesses, Berg (2014) finds direct evidence that businesses employ satisficing when choosing their business location, and this could also apply to choosing to locate and remain in the home.

There are likely many satisficers and constrained optimisers among businesses with separate premises, however the decision to locate and remain in the home, and the lower growth outcomes of home-based businesses may indicate that there are more satisficers within home-based businesses. Other aspects of decision making such as risk attitude and confidence will also play a role in what type of economic agent a business owner or owners are, but these cannot be measured through the firm-level data used in this thesis.

Table 7.3 Future plans of UK small businesses over the next 3 years by home-based business and gender, 2015-2019 unweighted column percentages of future plans by each premises type and gender separately.

	Separate Premises			Home-Based Business			Total
	Men/Co-Owned	Women-Owned	All	Men/Co-Owned	Women-Owned	All	
Sample of Non-Employers Only							
Recruitment of new staff	20.94	22.05	21.17	15.00	13.43	14.66	17.82
Grow turnover	53.99	56.44	54.51	44.97	46.68	45.31	49.42
Approach external financers	14.73	12.03	14.16	13.65	9.55	12.83	13.42
Capital investment (in premises, machinery etc.)	26.90	22.70	26.02	25.19	18.38	23.86	24.78
Develop and launch new products or services	32.26	35.19	32.87	26.10	34.03	27.65	29.88
Invest in R&D	9.30	5.01	8.39	6.37	7.93	6.68	7.42
Increase export sales or begin selling to new overseas markets	14.54	9.31	13.44	10.98	13.24	11.43	12.32
Sample of Employers Only							
Recruitment of new staff	62.47	57.20	61.14	48.06	47.10	47.88	58.87
Grow turnover	75.87	73.61	75.32	66.61	66.55	66.60	73.61
Approach external financers	24.70	21.54	23.94	22.65	18.12	21.66	23.49
Capital investment (in premises, machinery etc.)	44.18	36.25	42.31	39.34	31.41	37.58	41.34
Develop and launch new products or services	43.25	40.35	42.56	39.20	36.45	38.59	41.75

Invest in R&D	14.22	11.15	13.48	14.25	8.44	12.95	13.37
Increase export sales or begin selling to new overseas markets	20.09	14.43	18.72	15.72	9.94	14.57	17.87

Note: UKLSBS, 2015-2019; UK private enterprises with 0-49 employees at t-1; unweighted data. Source: author's own calculation.

7.2 Gender and Enterprise

7.2.1 Reconsidering Women-Owned Home-Based Businesses

The third research question in this thesis (Q3) considered whether women-owned home-based businesses have a growth or performance penalty. The answer to this question is clear – women-owned home-based businesses do not have significantly lower business performance or growth in any measure.

More explicitly, as discussed in Chapter 4, women-owned businesses did not see a significant decrease in their employment or turnover, a lowered risk of turning a profit or incremental or novel innovation when running a home-based business. In fact, for women-owned businesses, using the home as a base increased their employment and turnover compared to men/co-owned businesses. Chapter 5 did not explicitly focus on gender and growth, however it did show that women-owned businesses were just as likely to relocate out of the home into a separate premises. Thus the hypothesis that women-owned businesses are stuck or kept in the home, preventing business growth (Estrin and Mickiewicz, 2011), is not supported by this chapter. Chapter 6 also demonstrates that women-owned home-based non-employing enterprises are just as a likely to become employers as women-owned non-employers with a separate premises. Thus this leads to the conclusion that gender is not an inherent barrier to growth in home-based businesses and finds no empirical support for the theories and previous studies which conclude female business owners in the home are a particularly disadvantaged group (Loscocco and Hunter-Smith, 2004).

A common concern within the gender and enterprise literature was that home-based businesses, whilst providing an opportunity for balancing childcare and income generation, resulted in poor economic and career outcomes for women, both compared to female business owners operating from a separate premises and men operating a home-based business (Rouse, 2020). There was some empirical research to suggest that this may be the case (Thompson et al., 2009; Loscocco and Bird, 2012), however much of the concern was built on either qualitative research recounting the experienced of ‘mumpreneurs’, who go into business specifically for childcare purposes (Sheikh et al., 2020), or is based on social feminist theory, which highlights that women will sort themselves into the home due to implicit, socialised expectations that women take on more caring and domestic labour (Rouse, 2020; Lewis et al., 2022).

One limitation of a firm level survey such as the UKLSBS is that whilst there is a great deal of rich information about the firm, there is only limited information on personal characteristics of the business owner(s), such as their family or household situation or educational background. Equally, a survey with information on self-employed individuals and their households such as the Annual Population Survey or Labour Force Survey would be missing vital information on business growth, business age and other firm-level characteristics. It is possible that female business owners who are mothers find they have a performance penalty when locating their business in the home. This cannot be discounted and certainly would be an area for quantitative research to explore further, possibly using a dataset which combines firm-level and owner or household level data, such as the General Entrepreneurship Monitor (GEM) used by Thompson et al. (2009). A limitation of GEM data however is that it is not longitudinal and to the author's knowledge there is no wide scale survey with data on female home-based business owners with information on various performance measures as well as information on their household.

Nonetheless, the research in this thesis controls for a significant number of firm-level characteristics which the literature has identified as often explaining gender differences in firm performance and which should act as proxies for some of the unobserved heterogeneity regarding the owner background: business age, business industrial sector, legal status, financing, business support and capabilities. Therefore, if motherhood and caring responsibilities do create a performance penalty for some women-owned home-based businesses, it is not enough to affect the group as a whole.

7.2.2 The (Over) Performance of Women-Owned Businesses

When discussing the implications of the lack of performance penalty for women-owned home-based businesses for the wider literature it is important to acknowledge that the UKLSBS has some particularly surprising results for women-owned small businesses more generally.

First and foremost is the finding that within the small business sector, women-owned businesses are job creators, hiring more payroll staff than men or co-owned businesses. This outcome differs from almost all previous gender and enterprise studies from the Global North, which generally conclude that women start smaller businesses (Farhat and Mijid, 2018; Robb and Watson, 2012), are more likely to enter the market as non-employers (Henley, 2005; 2019) and experience lower employment growth (Kiefer et al., 2020; Robichaud et al., 2018; Gottschalk and Niefert, 2013). In fact, the few incidences of women-owned firms to date experiencing higher employment are reported from the African continent (Neneh et al., 2016; Chirwa, 2008).

On the other hand, this analysis does follow much of the gender and enterprise literature in finding that women-owned firms suffer financially – they have both lower sales and are less likely to turn a profit, even when controlling for firm size (Hettihewa and Wright, 2010; Rosa and Sylla, 2018; Robb and Watson, 2012). Some recent studies show that when controlling for firm size women are just as profitable as men/co-owned businesses (Coleman, 2016), however in this analysis firm size mediates some of the gender-gap in turning a profit, but does not control for it completely. This is more in line with older studies of profits in women-owned enterprises (Rosa et al., 1996; Fasci and Valdez, 1998; Collins-Dodd et al., 2004). A more detailed measure of profitability might provide an explanation for the remaining direct effect of gender.

Research has previously highlighted how female entrepreneurs may not seek or prioritise wealth creation, and this has been suggested as a reason for lower financial performance in previous studies (Carter et al., 2003; Kepler and Shane, 2007; Marvel et al., 2015). However, with respect to employment, exporting and innovation found in this study it is difficult to conclude that women-owned small businesses are less growth-orientated than their male peers, even if they have lower wealth creation overall. Alternatively, the financial gap may arise because women and men have different intra-business priorities (Roomi et al., 2009). For example women may take more steady and risk-adverse approaches to growing sales (Watson, 2020; Robb and Watson, 2012). Studies have illustrated that women-owned firms, because of the motivations of their owners, create a more positive work force culture for their employees (Adkins et al., 2013). Female business leaders are often less competitive (Roffey, 2002) and prefer personal interaction as a management style (Chow, 2005). This could lead to greater staff retention and higher employment, if not higher sales.

Furthermore, one of the only specific events linking women-owned businesses to larger employment sizes or growth was during the 2008 financial crisis. Matsa and Miller (2014) found that women-owned businesses were less likely to downsize or lay off employees , take drastic cost cutting measures, were associated with labour hoarding and increased regional economic stability (Deller et al., 2017). They had ‘greater labour intensity’ overall and were less likely to use ‘temporary or leased workers’ following the economic downturn (Matsa and Miller, 2014). Being more employee and welfare focused may result in prioritising employees over maximising or conserving profits and sales – hence higher payroll employment and poorer finances.

Coleman and Robb (2016), using data from the United States, found that that women-owned firms increased their number of employees by 27 percent from 1997 to 2012, whereas firms in the United States overall increased employment by 11.5 percent. In the aftermath of the Global Recession of 2008 Cowling et al. (2019) found increased success among women-owned

firms applying for financing in the UK, potentially because they are lower risk. It is possible that the UK is also seeing a broader shift towards increasingly experienced, well financed and employment generating female business owners, after years of rising female self-employment rates and programs supporting women-owned businesses (EUROSTAT, 2022; Jaiswal, 2020). It is also possible that if the gender-gap is converging (Fasci et al., 2015) the economic literature, which often has a significant time delay in publishing research and data (Hadavand et al., 2021), has not yet caught up.

Furthermore, the focus on small businesses is key. The focus of business research has often been growth-orientated in nature, utilising samples including medium and sometimes large businesses, with little attention paid to micro-businesses and non-employing businesses. This also impacts on home-based businesses, which fall into the smaller category of enterprises and were often overlooked. Robustness checks (Appendix A, Table A.7) reveal that women-owned medium sized businesses have significantly lower sales and employment, which suggests that women play an important role in job creation among small businesses (which make up 99.2% of all UK businesses (BEIS, 2022a)) but create less jobs once the threshold to become a medium-sized business (50+ employees) is crossed. If this is the case, studies that include medium and large businesses may exaggerate male/female business performance.

However, there is a significant on-going debate within the UK regarding slow productivity growth which has been occurring in the UK since the recovery from the global financial crisis and has been notably worse than in other European economies (Crafts and Mills, 2020; Goodridge et al., 2018; Barnett et al., 2014). Contributing to this debate was outside of the scope of this thesis, and this topic which has been well-covered by researchers in particular from the Enterprise Research Centre (ERC) in London. Several publications have identified a finding which may highlight a more negative aspect of labour hoarding or higher employment within women-owned small businesses – that women-owned or women-led businesses have significantly lower labour productivity (measured as turnover per employee) (Tiwasing et al., 2020; Maioli et al., 2020; Robinson et al., 2020).

Whilst turnover per employee is not a perfect measure of labour productivity, as it does not account for part-time employment, it has been widely used in the last 5 years. Given the findings in this thesis that women-owned businesses have significantly lower turnover and significantly higher employment than their male counterparts it seems highly likely that this explains the lower productivity found in these papers. In short, women-owned small firms in the UK appear to have low turnover/sales relative to the number of employees they have.

Overall however, the results for women-owned small and home-based businesses presented in this thesis are overwhelmingly positive for gender equality among the self-employed, and may reflect that this data is relatively recent, demonstrating that policies and attitudes towards women's economic empowerment may be improving the situation for women working at home in the 21st century. Furthermore, for women-owned home-based businesses integration approaches to family, domestic work and to the business have actually been shown to have performance benefits (Shanine, 2019). St-Arnaud and Giguere (2018) further suggest that through the autonomy provided by business ownership, and strategies to integrate tasks related to the family sphere into the organisation of work, female business owners can ensure entrepreneurship serves their life choices without compromising on performance.

Thus the results also caution against assuming women will always underperform men or co-owned businesses. It is clearly important to continue to keep testing the underperformance hypothesis in women-owned business, particularly as female business ownership rates continue to rise in the UK and across developed economies. Both empirical and theoretical challenges to dominant narratives remain a crucial part of the research process, particularly in order to ensure that what was the case 20 years ago is still the case now. Results such as these, which are generalisable to the whole UK population are particularly important from a national policy perspective.

The focus on small and micro-businesses in this thesis reveal findings that significantly contradict the stereotype of the 'underperforming' female entrepreneur. Overall, the results certainly support the revisiting of the underperformance hypothesis, taking into account the myriad of different ways businesses may make economic and societal contributions and how different spatial contexts in particular can impact on gendered business performance.

7.3 The Geographies of Home-Based Business Growth

The fourth question posed in the introduction of this thesis was:

Q4: How does home-based business growth and performance vary by neighbourhood, urban-rural location, region, and internationalisation?

Chapters 4, 5 and 6 in this thesis provide a thorough investigation into whether and how small business performance and growth is embedded within the geographies of home-based businesses. The urban-rural divide has received considerable interest in the home-based business literature, with previous research revealing that cities promote significant and fast employment growth in home-based businesses, highlighting the potential importance of urbanisation

economies to home-based businesses (Houston and Reuschke, 2017). However, until the research contained here it was not known whether this growth was spatial in nature and linked to the dynamism of home-based businesses and their decision to relocate out of the home.

There has also been significant interest in the importance of home-based businesses for rural economies, as rural areas generally have more home-based businesses than urban neighbourhoods (Mason et al., 2011; Enterprise Nation, 2014), but a lower concentration of overall business activity (Newbery and Bosworth, 2010; Bosworth and Newbery, 2015; Galloway and Kapasi, 2014). It has been discussed in the academic literature how home-based businesses may contribute to the revival of rural areas through a neo-endogenous approach to rural development, which recognises the spatial context of entrepreneurship and the importance of local resources and institutions and extra-local influences (Atterton et al., 2011; Georgios et al., 2021). However, a lack of studies examining the performance of home-based businesses in rural locations leaves questions as to what the contributions of home-based businesses to these locations truly are, particularly since they appear to grow more in urban areas (Houston and Reuschke, 2017). This research gap was addressed in both Chapters 5 and 6.

However, this thesis also brings the debates surrounding the geographies of home-based business performance beyond the urban-rural continuum which has dominated the home-based business literature thus far. Chapter 4 considers the importance of the embeddedness of home-based businesses in their local area with regards to business performance through the location of their businesses customers and their international and exporting activity. Chapter 5 explores home-based business relocation within deprived neighbourhoods in England.

Finally, this thesis set out to answer one final research question:

Q5: Do the growth and performance outcomes of women and men/owned home-based businesses differ spatially or geographically?

Chapters 4 and 6 investigate both the gendered and geographical nature of growth and performance in home-based businesses, as both topics alone were understudied and in need of empirical and longitudinal research. However, the work also set out to identify if there is a gendered geography to home-based business growth and performance, by investigating the interaction between place, space, gender and small business outcomes. By taking this approach, the research sought to address calls for contextualisation in studies of women's entrepreneurship and business, and contribute to a small but growing body of academic literature demonstrating how female business owners in different locations may have very different economic outcomes (Kalnins and Williams, 2014; 2021; Rosenthal and Strange, 2012). Assuming female entrepreneurs

will be homogenous across space may also lead to policy approaches that work well, for example, in urban areas but not rural areas (Bird and Sapp, 2004).

7.3.1 International versus Local Markets

Neoclassical economic theory also assumes that larger market demand leads to greater profits for firms, and so locally orientated businesses will relocate more often, and if their market demand drops. However, businesses with international markets can be more flexible in their location choice and are less reliant on local demand (Folmer and Risselada, 2013; Nambisan et al., 2019; Ratten, 2020). A perfect example of this is business using the home as a premises which exports goods and services internationally. These businesses may be closer to profit maximisers – rather than being constrained by remaining in the home, they do not need to locate in a specific place as their revenue comes partially or mostly from abroad, and by keeping overhead costs down they can increase their profitability (Chapter 4).

However, what is complex, particularly from a policy perspective is whether or not to encourage more exporting home-based businesses. The findings in Chapter 4 suggested that whilst these businesses were more likely to turn a profit, they were also smaller – both in terms of employment and annual turnover. Thus the profit maximisation that may be occurring within home-based business exporters has not translated into increased employment or sales or growth, which from a rationale perspective would be expected. These businesses may be positive for the owner, and may also indicate that many exporting home-based businesses wish to remain in the home or do not wish to grow, but ultimately contributes less to the economy in terms of sales and job creation.

This issue appears to be less relevant to businesses using the home as a base, as they are primarily locally orientated businesses, and rarely export goods or services. Those who do export goods and services do not see any changes to their business performance. Businesses using the home as a base, whether they export some goods or services or not, are likely to be dependent upon on and interact with their local area to a greater extent than businesses using the home as a premises, and therefore do not have the advantage of locating anywhere.

By running additional analysis estimating the turnover and number of employees in UK small businesses, using an identical sample, modelling and control variables to those in Chapter 4, it is possible to substitute the exporting variable with a variable for the location of the main customer base, taking businesses with national or regional customers as the reference category, and those with a local customer base (within 30 miles) and those with a mainly international customer base as two comparison categories (Appendix A, Table A.8). Overall, small businesses with a mainly

local customer base had lower annual turnover than businesses with regional or national customers. Despite this, the analysis demonstrates that both businesses using the home as a premises and those using the home as a base have significantly increased turnover and employment when they have a mainly local customer base (within 30 miles) compared to those with a national or regional customer base.

7.3.2 Gender and Exporting

Chapter 4 also revealed that for women-owned businesses using the home as a premises exporting goods and services results in significantly lower employment. At first glance, this could be attributed to sectoral specification within the home-based sector, that women-owned exporters that operate with the home as a premises are often retail businesses (Sappleton, 2018; Ngai and Petrongolo, 2017) – for example, 'kitchen table' enterprises -, selling products online including to international markets. However, the modelling does control for industrial sector, including a dummy for wholesale and retail businesses and manufacturing.

As women-owned businesses using the home as a premises do not see any reduction in their sales when they export goods and services, this could imply that women who run export businesses from home are looking to avoid employment growth, rather than indicating that they struggle economically compared to other businesses. This could indicate that these are the women that are often suggested in the gender and enterprise literature, who use the home as premises to manage domestic work with income generation. Running a businesses which can generate sales from exporting goods and services, but that can be managed entirely within the home may bring in sufficient income at very small scale (as discussed above), but this may appeal particularly to women if this limits the time they need to spend outside the home (Powell and Craig, 2015) – i.e. the entire operation can be managed within the home. Further employment growth may not be desirable if the business model allows the women to manage her home and her business at the same time.

However, this is speculative and it cannot be determined from this modelling and data alone why this association between women-owned businesses using the home as a premises, exporting and lower employment exists, however this would certainly be an area for future research. Interest in women-owned businesses which export is growing (Sui et al., 2022), and how working from the home as a business premises might influence women-owned exporters has yet to be investigated.

7.3.3 The Urban, Rural and Suburban Small Business

Although rural areas have higher proportions of home-based businesses which remain in the home than businesses with separate premises or relocators, this does not, as anticipated, explain the lower employee growth of businesses remaining in the home. This is to be expected however, as businesses in rural locations are more likely to see employee growth than businesses in urban areas, and are just as likely to see turnover growth without employee growth and contractor only growth. Therefore, businesses remaining in the home would actually be expected to see higher odds of employee growth because they are more commonly found in rural areas where this growth type is more common. Therefore, businesses remaining in the home have lower employee growth and are more likely to pursue jobless growth than businesses with separate premises in spite of their location in rural areas.

Regardless of if the business is home-based or not, rural small businesses in this analysis are more likely to pursue employee growth. This finding does not apply to businesses becoming employers for the first time, and as such, this may indicate that more non-employers gain benefits from agglomerations than other businesses. However, in recent years, there have been an increasing number of studies which have found that rural businesses in the UK are more profitable than businesses in urban areas (Phillipson et al., 2017; Maioli et al., 2020; DEFRA, 2022). This has been coupled with growing concerns about increasing inequality and precarity in cities (Modai-Snir and van Ham, 2018) polarising the self-employed to create two groups – high growth businesses and entrepreneurs, and underemployed, low income or economically dependent self-employed (Giupponi and Xu, 2020; Bari, 2021; van Stel and van der Zwan, 2020). This is an important finding, as a great deal of policy is orientated around the benefits businesses in cities gain from input sharing activity, networking and entrepreneurial buzz.

It is also worth considering that there are some advantages for small businesses in rural locations. There have been several studies which have challenged major agglomerations and urban areas as the optimal business location for all businesses. Often, young businesses and start-ups, which disproportionately create jobs in the UK (Lui et al., 2020), benefit more from urban areas than established businesses (Lavoratori and Castellani, 2021). The profile of the average start-up is very different from the average small business. Incumbent firms in industrial clusters often do not sustain high growth, as many relatively expensive and often highly qualified workers have to be hired (Duschl et al., 2015). Duschl et al. (2015) suggests that business activities might even be moved outside of business clusters, to locations where wages are lower, and that the number of employees might decline. Indeed, business failure is often higher in urban areas due to the increased competition (Schalck and Yankol-Schalck, 2021; Mourao, 2020).

However, it is clear from Chapter 5 that home-based businesses in urban areas and deprived neighbourhoods in England were significantly more likely to relocate out of the home and into a separate premises, and businesses relocating were much more likely to grow their employees. This could be related to the type of home-based business in urban areas – they may be more growth-orientated – or it could suggest that home-based businesses which wish to relocate and grow do tap into some urbanisation economies. On the other hand, this may indicate that urban areas provide home-based businesses with a range of options for commercial properties to relocate into, and in the case of deprived neighbourhoods, it may be much less expensive to relocate. Whilst it was not possible to study whether this has a longer term impact on job creation in urban areas, this is certainly an area for future research.

Another key finding from Chapter 6 is that non-employing home-based businesses were significantly less likely to become employers for the first time when located in remote rural areas compared with urban areas. Extending this analysis to employing businesses taking on further employees reveals that the same effect occurs, and so overall, home-based businesses (both men/co-owned and women-owned) in remote rural areas are less likely to create jobs for others. Home-based businesses in accessible rural locations on the other hand, are just as a likely to create jobs as in urban locations.

This is significant because although only a very small proportion of the total business population is in remote rural locations, these business may be a lifeline for remote communities (Philip and Williams, 2019; Gerli and Whalley, 2022). Even if they do not create jobs in their local area, they are certainly providing employment and income for themselves in a location which may have limited economic opportunities, which in turn will increase the wealth and spending within the area (Smith et al., 2021).

There are a number of potential barriers to business growth and performance in home-based businesses which are located in remote rural locations which have been identified in previous research. Merrell et al. (2022a; 2022b) collected data from self-employed users of rural hubs, including businesses owners which had previously been located in remote rural homes before relocating into the hub. Their findings suggest that home-based business owners had substantial gaps in their networks prior to coming to the hub and often lacked visibility. Owners saw the hub as providing an opportunity to overcome the isolated nature of working from home in a remote area in particular. Many businesses operating in home environments lacked reliable and speedy internet access and were apt to positively compare their experiences of working from enterprise hubs to their more negative experiences working from home. Previously home-based tenants seemed more ‘attuned’ to informal business advice, improvements to work-life balance, and

opportunities to grow than those which started outside the home. The issue regarding home-based businesses lacking reliable broadband in remote locations has also been identified in other studies (Philip and Williams, 2019).

The fact there is no disadvantage to home-based businesses locating in accessible rural areas may also speak to the theory that skilled labour and customers are increasingly accessible outside of major urban areas and business clusters through commuting, increased mobility and digital technologies (Gimenez-Nadal et al., 2020). Many home-based businesses in accessible rural areas may benefit from larger housing that is suitable to run a business and have a family life, reducing overheads (Renski, 2008, p. 62), improving quality of life and allowing some access to urbanisation economies (Abreu et al., 2019; Bosworth and Venhorst, 2018). This certainly speaks to neo-endogenous approaches to rural revitalisation, highlighting that whilst the human, social and real estate capital of the business owner may be found locally, extra-local customers and employees can be sought from nearby cities and towns to increase business performance (Folmer and Kloosterman, 2017; Courtney et al., 2008).

Overall, home-based businesses, at least currently, do not appear to be revitalising or creating jobs in the rural locations that likely need it the most. However, clearly there have been a number of recent studies which have identified barriers to growth in home-based businesses which are specific to remote rural locations, suggesting that there is a great deal which could be done to assist these businesses from a policy and practice perspective. The provision of rural or digital hubs, particularly in remote areas, which provide workspace for businesses, reliable broadband and networking opportunities may help stimulate business performance and subsequent employment growth (Afacan et al., 2013; Bouncken and Reuschl, 2018; Price et al., 2021).

7.3.4 Gender and UK Regions

Economic geography has demonstrated significant regional variations in job creation, particularly with regards to the North-South divide within the UK (Varady, 2022; Martin et al., 2016; Gardiner et al., 2013). However, the research in this thesis may appear to have paid relatively little attention to the regional geographies of home-based businesses. There were early investigations conducted into regional differences in home-based business growth (including associations with regional GDP, the Kaufman Index of Specialisation and other aggregate population data). However, there were no significant regional variations in home-based business growth, performance or relocation.

This may reflect that the regions used here are the nine regions of England, Scotland, Wales and Northern Ireland. Previous studies had captured regional differences at a lower level (Mason et

al., 2011; Enterprise Nation, 2014), including peripheral locations in Scotland and Wales (although the findings regarding remote rural locations are likely highly relevant to these sub-regions). This level of detail was not available in this study, and a more fine grained geographical approach or different groupings of regions may yield disparities not captured here.

There is one important exception however. Chapter 6 identifies that women-owned home-based non-employers were significantly more likely to take on their first employee(s) when they located in Greater London over other regions of the UK. Extending this analysis to women-owned home-based employers does not reveal the same change in probability, which indicates this is a specific benefit that this group of non-employing businesses (including solo self-employed individuals) gain from locating in London.

In recent years, Florida and Hathaway (2018) identified that the concentration of start-ups and venture capital investment occurs predominantly in the largest most globally connected cities, with a "Winner-Take-All" pattern, as leading mega-cities pull away from the rest. In the UK, this has occurred in London, which is one of the top 25 cities which account for ¾ of global investment. London's economy and workforce are distinct from other city regions (Faggio and Silva, 2014; Nathan and Lee, 2013) and major agglomerations such as Manchester and Birmingham. It is therefore particularly interesting that there is a regional gendered geography to home-based business growth. Future research would do well to consider how mega-cities or global centres such as London might specifically benefit women's entrepreneurship and business, and how to 'level up' other areas.

7.3.5 Annual Small Business Surveys and Spatial Units

Using the UKLSBS, alongside other relevant linked data, provided a rich and unique opportunity to study the geographies of home-based businesses across urban-rural areas, customer locations, regions and deprived neighbourhoods in England. However, the data does have some limitations which would be relatively straightforward to address, and allow for further study of geographies which could not be covered in this research.

The survey provides the postcode district to users within the UK Data Service or ONS Secure Lab. Users can also obtain the full postcode of the business by linking the data to the BSD. This has several advantages, including age, turnover and employment data which is collected by the BSD but also from a geographical perspective. However, only registered businesses are found in the BSD, which means the smallest enterprises collected in the UKLSBS, which make up 14.2% of the small business sample, and 27% of the home-based businesses. Unfortunately, these businesses are also the enterprises we know the least about.

If the UKLSBS could provide the full postcode for all businesses, including these smallest enterprises, perhaps with additional disclosure clearances and processes in place, this would open the door for a huge range of data linkage opportunities, including allowing a UK wide deprivation index to be calculated (Abel et al., 2016). As there are look-up tables provided by the ONS for full postcodes to a wide variety of geographies, tt would also allow researchers to place the business within other larger geographies which are relevant for policy and have aggregate data available, for example, LADs which can be used to form city regions (Robinson et al., 2020).

7.4 The Impact of the Covid-19 Pandemic

In 2020 and 2021, the UKLSBS collected data for a sixth and final wave of the survey. The pandemic caused significant delays and changes to the fieldwork (including some data being collected in 2021) which are detailed in the 2020 microdata report, and this data was not released to researchers until the end of 2021. Thus, there are significant challenges associated with directly comparing data from 2020 to prior years in the survey.

Nonetheless, the impacts of COVID-19 on homeworking among the self-employed has made this thesis on home-based businesses extremely timely and is highly relevant to the implications of this work. Looking to the future, the pandemic may have made significant and permanent changes to the location and nature of work, accelerating homeworking trends which were occurring before 2020 (Vyas, 2022). How this will impact the self-employed and business owners is not yet clear, but given that 2/3 of homeworkers were self-employed individuals or business owners prior to the pandemic, the reality is that this group will be highly impacted by longer term changes brought around by the pandemic (Zhang et al., 2021). Certainly research indicates that the self-employed in the UK were negatively impacted to a much greater degree than employees in the early and later stages of the pandemic (Yue and Cowling, 2021; Blundell and Ventura, 2021).

However, whilst UK small businesses certainly had unprecedented challenges during the pandemic (Thambusamy et al., 2020; Thukral, 2021), researchers also highlighted the remarkable ability and resilience of small businesses which ‘pivoted’ their business models and changed both processes and products to survive the pandemic (Akpan et al., 2022; Manolova et al., 2020). This opens up new questions and possibilities for future research into business resilience and the role of the home-based business during times of crisis.

The data collected by the UKLSBS in 2020 contained many new questions covering the impact of the pandemic on business operations, performance and innovation. The 2020 wave of the survey captured businesses which were in separate premises or home-based businesses prior to the

pandemic, rather than which businesses were temporarily working from home. Separating out the 2020 data from the 2015-2019 data used so far, it is possible to provide some preliminary, descriptive findings on the initial impacts of the COVID-19 pandemic on businesses which were home-based prior to the onset of the pandemic compared to those which were previously in separate premises.

Table 7.4 and 7.5 display the percentages of businesses impacted by the COVID-19 pandemic, by premises type, and within premises type by men/co-owned business and women-owned business separately. First of all, Table 7.4 highlights that most small businesses were impacted by the initial lock-down restrictions applied by the UK government from March to June 2020. Nearly a third of all small businesses closed down temporarily during this time, and nearly half reduced their operations. However, it is clear that businesses which were home-based prior to March 2020 were more likely to be unaffected by the lockdown restrictions than businesses with a separate premises.

Table 7.5 shows more generally how the future plans of UK small businesses were impacted by the pandemic. These results demonstrate that whilst smaller percentages of home-based businesses had plans for investment in capital, R&D, new products and starting or increasing exporting, those who did have these plans were overall less impacted by the pandemic. This difference is particularly stark for those looking to increase or start exporting, where 63% of businesses with a separate premises stated their export plans had been impacted by the pandemic, only 1/3 of home-based businesses said the same.

However, there are some differences between women and men/co-owned businesses and their responses to the initial lockdown. Women-owned businesses (regardless of whether they were home-based prior to the pandemic) were less likely to have reduced their operations, and instead were more likely to have closed down completely. This could be related to women-owned enterprises being concentrated into sectors which were more likely to be shutdown (Graeber et al., 2021; Blundell and Machin, 2020). However, as this finding also applies to women-owned home-based businesses, many of which would be expected to be able to keep operating in some capacity, this could also be related to increased childcare burdens, which combined with a lack of demand, resulted in businesses temporarily shutting down. However, some early studies of the initial lockdown period in the US and Europe also found that self-employed women did suffer much greater losses in hours worked compared to self-employed men (Graeber et al., 2021; Kalenkoski and Pabilonia, 2022).

The literature on COVID-19 has highlighted that despite the findings in this thesis, that the underperformance hypothesis in women-owned businesses no longer held true, that sudden

shocks and crises have the potential to have disparate impacts on women and female business owners that are not seen during periods of economic growth and stability. Thus whilst the findings here are encouraging, it would be unwise for researchers and policy makers alike to assume that closing the gap between men and women's entrepreneurial outcomes will be a linear or guaranteed process.

Looking to the future, businesses that previously would not have considered locating in the home will now do so, as homeworking has become normalised, and the cost savings benefit of avoiding overheads and a commercial rent are clear (Ratten, 2020; Zhang et al., 2022). Many businesses, particularly small businesses with only a few staff may have realised during the pandemic that a premises was not necessary. However, some businesses will have returned to their separate premises, and it is likely that for larger small businesses and those looking to grow, the benefits of a separate premises will still outweigh the disadvantages. However, some businesses may have a hybrid model (Kim and Parker, 2021), with employees working from their own homes some of the week and thus downsize their premises or office space or even make use of coworking spaces (Foryś, 2021). Home-based businesses may relocate out of the home into a separate premises to grow less often in the future, or may feel they can take on more employees whilst remaining in the home. This is all yet to be seen – but it is clear that the pandemic will have lasting implications for small and home-based businesses.

7.4.1 The UK Exit from the European Union

Given the significant impact of COVID-19 on small business owners, one of the most important topics for researchers moving into the post-pandemic years is to consider how future crises will impact the small business population, and particularly different groups of small business owners: women, ethnic minority owners and those in disadvantaged neighbourhoods for example.

For comparison, Table 7.5 also presents the percentages of small businesses who felt their future plans were impacted by the UK exit from the EU, Brexit, which occurred at the beginning of 2020. Overall, this crisis of an entirely different nature, appeared to have a less of an impact on the future plans of the businesses interviewed, although a quarter of small businesses stated Brexit had impacted their plans to start or increase exports. Again, slightly less businesses which were home-based prior to March 2020 felt their future plans were impacted by Brexit compared to those with a separate premises, however, there is only a few percentage points difference in exporting.

Homeworking and the ability to run a business from home may play an important role in business resilience. During the pandemic, it is not surprising that businesses which were home-based

before the pandemic were less impacted by the lockdown measures, as these businesses already had experience of working from home most or some of the time. However, it is interesting to see that they may have been less impacted by the UK exit from the EU. The latter is an example of another crisis with specific consequences for small businesses, and from the descriptive statistics at least, this may indicate resilience in home-based businesses.

From a Brexit perspective, businesses which export and those which can export are disproportionately located in the home. UK small exporters will face significant challenges over the coming years managing international trading, new regulations exporting to the EU and the need to explore new and more distant markets in addition to on-going pandemic related supply chain issues (Sodhi et al., 2021; Melnyk et al., 2021).

Table 7.4 Changes to UK small businesses during lockdown restrictions, end of March to Mid-June 2020, weighted column percentages of changes premises type and gender separately.

	Separate Premises (Prior to Pandemic)			Home-Based Business (Prior to Pandemic)			Total
	Men/Co-Owned	Women-Owned	All	Men/Co-Owned	Women-Owned	All	
Your business closed down completely (temporarily)	30.68	47.67	34.44	26.68	36.19	28.82	31.43
Operations were reduced	48.96	37.05	46.32	47.45	40.38	45.86	46.08
Your business was unaffected by Covid-19 restrictions	13.52	11.36	13.04	20.14	14.11	18.78	16.12
Operations were increased	6.34	3.39	5.69	5.64	8.89	6.37	6.05

Note: UKLSBS, 2020; UK private enterprises with 0-49 employees; weighted data. Source: author's own calculation.

Table 7.5 Future plans and impacts of COVID-19 and Brexit in UK Small Businesses, 2020, weighted column percentages of future plans and the percentage of those future plans impacted by COVID-19 and Brexit by premises type and gender separately.

	Separate Premises (Prior to Pandemic)			Home-Based Business (Prior to Pandemic)			Total
	Men/Co-Owned	Women-Owned	All	Men/Co-Owned	Women-Owned	All	
Capital investment (in premises, machinery etc.)	27.16	24.58	26.61	18.38	13.06	17.37	21.84
Develop and launch new products or services	35.97	38.87	36.58	24.81	35.68	26.88	31.57
Invest in R&D	19.66	17.68	19.24	10.7	15.28	11.57	15.28
Increase export sales or begin selling to new overseas markets	16.32	13.13	15.64	9.84	6.65	9.23	12.33
% of Business Plans Impacted by COVID-19							
Capital investment (in premises, machinery etc.)	51.77	62.23	53.82	49.7	48.72	49.56	52.07
Develop and launch new products or services	54.7	50.97	53.86	48.55	64.64	52.61	53.31
Invest in R&D	48.26	29.86	44.68	27.6	75.32	39.58	42.68
Increase export sales or begin selling to new overseas markets	64.67	57.12	63.33	35.18	39.42	35.76	52.68
% of Business Plans Impacted by Brexit							
Capital investment (in premises, machinery etc.)	13.24	18.57	14.28	8.52	8.68	8.54	11.92
Develop and launch new products or services	12.92	5.64	11.28	5.27	21.61	9.4	10.45
Invest in R&D	13.66	2.37	11.46	9.62	12.14	10.25	10.99
Increase export sales or begin selling to new overseas markets	26.3	35.37	27.91	27.89	-	24.39	26.55

Note: UKLSBS, 2020; UK private enterprises with 0-49 employees; weighted data. Cell counts below 5 not shown. Source: author's own calculation.

7.5 Implications for Policy, Practice and Planning

7.5.1 Home-Based Business Formation

In 2014, the UK government announced a package of measures which made it easier to run a business from a rented home, reduced planning permission requirements and ensured that business rates no longer applied to most home-based businesses (BIS and Hancock, 2014). This was primarily due to concerns that home-based businesses were operating 'under-the-table' due to regulatory restrictions (Smit and Donaldson, 2011). In the UKLSBS 2015-2019 regulations and red tape is a much lesser cited obstacle to success by home-based businesses than non-home-based businesses, indicating that the policy changes were likely successful (BIS and Hancock, 2014).

However, this thesis has identified a number of other areas in which more policy attention. Even in the aftermath of the COVID-19 pandemic, where many businesses became temporarily or permanently home-based, a search of "home-based business" within official government documents reveals no reference to home-based businesses. Furthermore, a policy brief highlighting the importance of homeworking for workers and organisations in the post-pandemic economy (Mutebi and Hobbs, 2022) fails to mention home-based businesses or self-employed homeworkers, although they are proportionally more likely to work from home than employees (Trade Unions Congress, 2015).

Setting up a home-based business costs considerably less than a business with a separate premises, is less risky, and may provide other benefits to the business owner in terms of lifestyle and childcare (Walker and Brown, 2004; Daniel et al., 2018). Whilst it was not possible to investigate survival rates for home-based businesses in this thesis, previous research has indicated they are equally or even more likely to survive than businesses with separate premises (Headd, 2003; Bates et al., 2013). As such, from a policy perspective, home-based businesses should not be discouraged, and the results of thesis suggest that they offer a good option for an individual who needs or wants to work from or near to home. The business owner is still creating a job for themselves, even if they are less likely to create jobs for others.

Furthermore, the results highlighted the importance of supporting locally orientated home-based businesses, as they have much higher level of job creation and turnover than exporting or internationally orientated home-based businesses. A business with its main customer base within 30 miles will most likely hire employees from a similar area (Dubb and Howard, 2012). Thus, small

business policy orientated towards new business formation should focus on encouraging and supporting home-based businesses with a local customer base.

A key part of encouraging and supporting home-based businesses, particularly those that are locally oriented, is ensuring that there are not regulatory or zoning barriers to starting a business from home. Despite the UK government's efforts in 2014, the model for a private tenancy agreement still includes that tenants must request permission to run a business from home and that the landlord can reject the request if it may "cause a nuisance to the occupiers of neighbouring properties or significantly increase wear and tear to the property".

This clause could be off putting to potential home-based business owners who may feel they have little recourse if their landlord refuses a request or who may not want to risk eviction, and the language is vague and makes it easy for landlords to legally reject requests from tenants. One recommendation from this thesis would therefore be greater protections for self-employed tenants from eviction on the basis of their business activities, removing the need for the tenant to request permission to run a business from home (particularly for e-businesses where clients do not visit the home regularly), and instead putting the burden of proof of nuisance and/or wear and tear on the landlord. Clarification is also needed for businesses using the home as a premises and the home as a base. Any changes in policy in this regard must include social tenants, particularly given the lack of home-based businesses in more deprived neighbourhoods, and the potential social benefits of home-based businesses could bring to these areas.

In the United States zoning laws are often designed to protect residential neighbourhoods from excessive traffic from visiting customers (Gonzalez & Gray, 2023). However, this thesis argues such concerns are out-dated in the modern era of ICT and remote work any zoning restrictions (including ones which restrict how many employees a home-based business can have (Wunder, 2000) should be re-considered, as like the UK tenancy clauses above, they are unnecessary and prohibit growth and entrepreneurship.

7.5.2 Gendered Entrepreneurship Policy

In the UK, many gender and enterprise researchers have expressed concern about women's enterprise policy (Rouse and Tehran, 2020). They highlight that the rapid growth in women's enterprise since the Global Financial Crisis could suggest a scarcity of decent employment, rather than a positive career move for many women (Marlow, 2020). They express legitimate concerns about the low quality of women's self-employment. Often, women-owned home-based businesses have been held up as an example of poor quality entrepreneurship that does not represent a good career move for women (Thompson et al., 2009; Loscocco & Hunter-Smith,

2004). However, this policy issue is understudied and lacks empirical evidence addressing these concerns (Rouse and Tehran, 2020). This thesis, which utilises representative UK wide data and empirical analysis, attempted to fill this gap.

First of all, the findings suggest that women's entrepreneurship is not necessarily more precarious or lower quality than men's, but that women-owned businesses do appear to labour hoard (Matsa and Miller, 2014), potentially at the expense of their companies' finances. This is a complex issue which requires attention from policy makers. Furthermore, the findings do not suggest that running a home-based business negatively impacts the growth of women's enterprise, and in fact, women using the home as a base for their business appear to have particularly high job creation and turnover compared to other businesses. Therefore, from a policy perspective, this thesis would argue that women should not be discouraged from setting up a home-based business, nor should home-based businesses be considered low quality entrepreneurship for women.

The findings rather suggest that policy may need to be targeted to distinct groups of women and men, and a research agenda is required to support this. In some cases, gendered entrepreneurship policy may not be needed or appropriate, and policy support could be given instead on the basis of other characteristics, such as industrial sector, income, ethnicity or of course, location in the home. Given that women-owned home-based non-employers in London have a particularly high probability of becoming an employer compared to other locations understanding where women are most successful may also aid in creating supportive ecosystems for female entrepreneurs (Adner, 2017).

7.5.3 Encouraging Relocation and Job Creation

Overall however, from a broader policy perspective which focuses on job creation and avoiding the 'wrong' kind of entrepreneurship that leads to zero or negative employment growth (Mueller et al., 2008), it must be acknowledged that there are barriers to home-based businesses experiencing growth, and employment growth in particular. As long as a business remains in the home it will be unlikely to match the economic contributions of an identical business with separate premises. For growth-orientated business owners, the home may prove to be a limiting factor, and practitioners should help business owners to consider options for relocation and financing (if required) to assist with a move. Furthermore, home-based businesses which relocate out of the home will likely contribute a great deal more in terms of job creation than businesses remaining in the home.

Several studies have indicated that when businesses relocate they generally do not move far (Christersson et al., 2018; Stam, 2007). Koster and Venhorst (2014) found that businesses tend to locate and relocate to a premises that is very close to the home of the owner. This has important implications for home-based business relocation. Providing spaces locally that allow home-based businesses to relocate nearby may support job creation in that local area, and allow business owners to retain some of the flexibility of homeworking or take a hybrid approach. This is further supported by the fact that businesses that locate in their 'home region' and that stay local when they relocate have better business performance (Niedomysl et al., 2019; Dahl and Sorenson, 2012).

Geographically sensitive policy will be vital in encouraging relocation and job creation in home-based businesses. This thesis demonstrated that home-based businesses in rural locations are clearly less likely to relocate out of the home. Furthermore, home-based businesses in remote rural locations have significantly lower job creation than businesses in urban areas. However, there have been a number of recent studies which have identified barriers to growth in home-based businesses which are specific to remote rural locations, suggesting that there is a great deal which could be done to assist these businesses from a policy and practice perspective (Bosworth & Salemink, 2021; Rundel & Salemink, 2021).

Assuming most home-based entrepreneurs will want to relocate locally, areas where home-based businesses were found to relocate less, such as rural locations, may benefit considerably from the provision of workspaces in business incubators, hubs, or maker spaces (Merrell et al., 2022a; 2022b). The provision of low cost, low risk, easy access rural hubs in remote areas can help businesses by providing reliable broadband and networking opportunities that may help stimulate business performance and subsequent local employment growth and opportunities (Afacan et al., 2013; Bouncken and Reuschl, 2018; Price et al., 2021).

7.5.4 Advice for Practitioners

Overall, this thesis revealed that over a four year period most home-based businesses will not relocate into a separate premises, and so it is also important to consider what additional support might encourage job creation and growth for businesses which remain at home. Based on the findings in this thesis, the following suggestions for targeted support from practitioners who work with small businesses are made:

- Home-based businesses require additional support to diversify their goods, services and processes – i.e. incremental innovation.

- For home-based businesses which would benefit from incorporation (i.e. becoming a company), practitioners should encourage this and provide assistance with the process, as it will make it easier for the business to grow their employees.
- Encouraging home-based businesses to involve interested second parties as business partners, including spouses, may also help close the performance gap between home-based businesses and non-home-based businesses.
- Assisting home-based businesses with formal business plans.
- Assisting growth-orientated and growth capable home-based businesses with obtaining finance, particularly those which already have employees.

7.6 Research Agenda

There are several recommendations for future research which can be derived from the work in this thesis, in particular, research that would support the development of public policy. First and foremost, further research into where (both in terms of location and what kinds of spaces) home-based businesses relocate to was not possible with this dataset but should be an area for future studies to consider. This would help identify barriers home-based businesses may have to relocation and to increase an understanding of what they are looking for in an external premises. This research should be spatially sensitive and likely use qualitative or mixed methods.

From a gender perspective, the thesis has found that women-owned home-based businesses do not have lower business performance than women running businesses outside of the home or men/co-owned home-based businesses. However, when using interaction terms to research performance in different groups of women-owned enterprises, several exceptions were identified. Certainly, the particularly high performance of women using the home as a base warrants further attention from the academic community, as this is a highly understudied group, even among gender and enterprise researchers (Long and Reuschke, 2021). Intersectionality and heterogeneity in women's enterprise is now recognised as an important topic in the small business literature (Romero and Valdez, 2016; Henry et al., 2021), however these topics are too often engaged with only by qualitative research due to small sample sizes in national surveys. Therefore, this thesis would recommend more primary data collection (small surveys) to target individual groups of women-owned enterprises which have been understudied.

From a geographical perspective, future research would do well to consider the impact of business location along the urban and rural continuum. In particular, how mega-cities or global centres such as London might specifically benefit women's entrepreneurship and business, compared to smaller urban areas. Chapter 5 also identified that home-based businesses in areas

of multiple deprivation in England were more likely to relocate than in affluent areas. As there are far fewer home-based businesses in deprived neighbourhoods than in affluent ones (Mason et al., 2011), this a topic which has been little considered in the literature. However, given that entrepreneurship may be a route out of poverty for business owners living in these areas (Frankish et al., 2014), there would be a clear social and economic benefit to further research into home-based businesses and job creation in more deprived neighbourhoods (Bailey, 2017).

Last, but certainly not least, there is the myriad of studies which emerged during the COVID-19 pandemic detailing the struggles of small businesses during lockdown (Akpan et al., 2022; Fairlie and Fossen, 2021; Bartilk et al, 2020). After the Global Financial Crisis of 2007-2009, the self-employed were a key part of the UK's recovery. Little remains known about the longer term impact of the pandemic on small businesses, except that numbers of self-employed in the UK have not recovered. There is a great deal of scope to make further use of the UKLSBS to study whether home-based businesses were more resilient during the pandemic in terms of survival and business performance, in addition to longer term trends in homeworking.

Moving forward, business resilience to crises must become a key topic in the small business literature, and not just in relation to recessions or future pandemics, but also environmental disasters which will increasingly impact small businesses (Saad et al. 2022). Whilst still a highly under researched topic, in the aftermath of the devastating impacts of Hurricane Katrina in 2005 which destroyed homes, buildings and infrastructure across the Eastern United States, several studies found that small businesses which moved into the home were more likely to survive the crisis (Marshall et al., 2022; Haynes et al., 2019; Marshall et al., 2015). Whether and how home-based businesses can increase business resilience during both economic and environmental crises is a key question to be addressed by researchers, with important policy implications for dealing with future shocks. Learning from failure can be beneficial for businesses (Love et al., 2020), and thus ensuring small businesses have advice and support to learn from the pandemic and to aid with future crises will be essential.

7.7 Summary

Chapter 7 provides a detailed discussion of the results from all the empirical work presented in this thesis, returning to the original research questions, and linking the results from the three empirical chapters. In particular, the chapter highlights the differences in business performance between home-based businesses and non-home-based businesses, the factors which could contribute to closing this performance gap, how women-owned home-based businesses do not

appear to underperform their male counterparts, and the geographical variations in home-based business growth, performance and relocation patterns.

In addition, further evidence and descriptive analysis is presented covering obstacles to home-based business growth, their future plans and some preliminary analysis of the impact of the COVID-19 pandemic and Brexit on home-based businesses. These results are discussed in reference to neoclassical firm growth theory and Herbert Simon's theory of 'satisficers' and constrained optimisers (1959; 1979). The chapter concludes with implications for policy, practice, and planning, particularly in relation to encouraging and supporting home-based business formation and relocation through reducing regulatory burdens and providing funding for services to support small home-based businesses. Chapter 7 concludes with suggestions for future research and further analysis of the UKLSBS.

Chapter 8 Conclusion

By 2019, the end of the study period of this thesis, home-based businesses made up nearly half of small enterprises in the UK and many other countries. The steady rise of this unique business sector is part of wider trend towards individuals starting their own small businesses, often with no employees (Giupponi and Xu, 2020; Teichgraber and Reenen, 2021). The increase in ICT, the internet, outsourcing and reduction in importance of economies of scale has allowed the operation of successful businesses at a much smaller firm size (Mason and Reuschke, 2015; Reuschke and Mason, 2022). This in turn has moved the location of a significant amount of economic activity out of regional and business clusters, and into the home and its surrounding residential neighbourhoods and often rural or suburban areas - a trend that has only been accelerated by the COVID-19 pandemic and looks set to continue (Davies, 2021; Phillipson et al., 2020).

Despite the proliferation of businesses based in the home over the last 20 years, there is only a small (but growing) academic literature which has studied this phenomenon, and very little specific policy attention has been given to these enterprises and their owners. Therefore, this thesis set out to address this gap in research and policy with a significant and novel study of the growth and performance of home-based businesses across locations, and with a focus on the variations between women-owned and men/co-owned businesses. The research makes several contributions to academic scholarship which sit at the nexus of small business, gender and enterprise and economic geography, demonstrating the significant benefit of a cross-disciplinary study for this topic (Audretsch et al., 2018).

First, whilst most studies of firm performance focus on one or two measures of financial and employment growth, this study highlights the importance of multi-measure, multi-faceted approaches to growth and performance. A novel typology of growth was derived for this research which highlights specific strategies of growth in home-based businesses, and suggests that a move towards growth typologies, modes, or strategies rather than the amount of growth a business achieves will shed new light on the complexities of job creation in small businesses. Using a large UK wide sample of home-based businesses, this study demonstrates that whilst home-based businesses may be smaller in size and choose turnover growth without employee growth when remaining home-based, they are just as likely to have novel new-to-market, innovations and turn a profit as businesses with separate premises. The research also highlights, for the first time, the significance of the home premises for exporting and reveals the home as a key site of internationalisation.

Second, this research is the first, to the author's knowledge, to use longitudinal data to capture relocation from the home into a separate premises. Business relocation literature often focuses on the negative impact on jobs when businesses move, particularly job loss in the region or district of origin when a business moves a significant distance (Jenkins et al., 2015). However, this research reveals that relocation out of the home has the opposite effect: it is both strongly associated with job creation and most businesses relocate locally. This highlights that home-based businesses may have to move out of the home if they wish to grow significantly but also that the home-based sector can be an engine for local job creation provided they are willing and able to move out of the home.

Third, the increasing number of non-employing start-ups and declining number of businesses with employees is of great interest to UK and other European policy makers whose countries are experiencing similar trends (Kim and Parker, 2021). Most of these smallest of enterprises are home-based, and yet there has been no consideration of how this may affect their ability to take on employees. By dedicating a chapter to the non-employer to employer transition, this thesis elucidates on an outstanding puzzle in entrepreneurship research - why so few non-employers and the solo-self-employed create jobs for others.

Fourth, this thesis makes several contributions to the debates surrounding gender and enterprise and women's entrepreneurship, dispelling some of the myths surrounding women-owned home-based businesses. By empirically addressing the theory that women-owned home-based businesses have a performance penalty this thesis revealed no evidence of underperformance in women-owned home-based businesses compared to their male counterparts or women operating a business with a separate premises.

In fact, this research identified a novel group of high performing women-owned businesses, which at the time of writing, has not been considered in the literature: women-owned businesses which use the home as a base for their business, where the work takes place mainly outside the home. This is a small but significant group of enterprises that exist across a spectrum of industrial sectors and make high contributions to sales and job creation and are certainly deserving of future research by entrepreneurship scholars. Furthermore, this research addresses calls in the literature to contextualise women's businesses and to explore their heterogeneity (Henry et al., 2019; Foss et al., 2019), revealing that assumptions that gender differences in business performance for both men and women will be consistent geographically can disguise important variations across place and space, that should be addressed with both place based and gendered policy (Kalnins and Williams, 2021).

Fifth, the thesis makes a significant contribution to understanding the impact of agglomeration economies and rural entrepreneurship on home-based small businesses. Home-based enterprise makes up a significant proportion of economic activity in areas which traditionally have limited business populations: suburban neighbourhoods, rural locations, remote areas of the country. Little was therefore known about how theories from economic geography regarding the importance of urbanisation and agglomeration economies for firm growth would apply to home-based businesses.

This thesis reveals that home-based businesses are more likely to relocate into a separate premises in urban neighbourhoods compared to rural areas and in deprived neighbourhoods compared to more affluent areas. However, for businesses which remain in the home or cannot relocate, location in major agglomerations does not appear to have any specific benefits over locating in an accessible rural location.

The study does however make a significant contribution to rural entrepreneurship scholarship by identifying that home-based businesses in remote rural areas have particularly low employment growth, whilst those in accessible rural locations perform just as a well as in urban areas. Accessible rural areas may provide a better quality of life and more attractive housing for home-based business owners whilst still allowing access to some agglomeration economies and urban centres within commuting distance, overall leading to similar business performance across the urban and (nearby) rural continuum (Abreu et al., 2019). The research here also suggests this may be indicative of a trend within small businesses towards higher performance in rural locations in the UK (Phillipson et al., 2017; DEFRA, 2022).

To conclude, there has been a great deal of debate about the right and wrong kind of entrepreneurship and which small businesses government policy should be attempting to foster. A great deal of attention has subsequently been placed on the very small percentage of high growth businesses which contribute disproportionately to job creation. This study advocates for scholars to also consider both the needs and contributions of the wider small business population.

For small businesses, remaining in the home long term may restrict their job creation potential but home-based businesses should nonetheless be a focus for both academics and policy makers. They represent both a highly significant business location and their multiple and varied contributions to national and local economies through growth (when relocating), sales (when remaining in the home), innovation and exporting should not be ignored.

Appendix A

A.1 Chapter 4 – Additional Tables

Table A. 1 Unweighted sample description of dependent variables by gender and premises type (Chapter 4), observations and column percentages by men, women and all.

Gender	Men			Women			All
Location	Separate Premises	Home as Base	Home as Premises	Separate Premises	Home as Base	Home as Premises	Separate Premises
Turnover							
Under £82,000	924	594	786	415	107	296	3,122
	17.36	58.81	44.61	25.23	54.59	52.30	29.73
£82,000-249,999	913	192	383	289	41	98	1,916
	17.15	19.01	21.74	17.57	20.92	17.31	18.24
250,000-999,999	1,325	97	249	367	16	64	2,118
	24.89	9.60	14.13	22.31	8.16	11.31	20.17
1 Million +	1,466	32	141	282	8	35	1,964
	27.54	3.17	8.00	17.14	4.08	6.18	18.70
Missing Data	695	95	203	292	24	73	1,382
	13.06	9.41	11.52	17.75	12.24	12.90	13.16
Employment							
Zero	1,350	781	1,103	370	122	335	4,061
	25.36	77.33	62.60	22.49	62.24	59.19	38.67
1-9	1,857	176	456	630	43	143	3,305
	34.89	17.43	25.88	38.30	21.94	25.27	31.47
10-49	2,116	53	203	645	31	88	3,136
	39.75	5.25	11.52	39.21	15.82	15.55	29.86
Exports	1,266	86	347	274	16	85	2,074
	23.78	8.51	19.69	16.66	8.16	15.02	19.75
Does Not Export	4,042	924	1,410	1,365	180	478	8,399
	75.93	91.49	80.02	82.98	91.84	84.45	79.98
Missing Data	15	0	5	6	0	3	29
	0.28	0.00	0.28	0.36	0.00	0.53	0.28
Innovation							
None	2,613	627	995	831	109	298	5,473
	49.09	62.08	56.47	50.52	55.61	52.65	52.11
Incremental	1,729	238	498	563	50	171	3,249
	32.48	23.56	28.26	34.22	25.51	30.21	30.94
Novel	879	133	244	200	32	77	1,565
	16.51	13.17	13.85	12.16	16.33	13.60	14.90
Missing Data	102	12	25	51	5	20	215
	1.92	1.19	1.42	3.10	2.55	3.53	2.05

Made a Profit	4,350	840	1,387	1,204	159	429	8,369
	81.72	83.17	78.72	73.19	81.12	75.80	79.69
Made a Deficit	637	128	291	264	25	96	1,441
	11.97	12.67	16.52	16.05	12.76	16.96	13.72
Missing Data	336	42	84	177	12	41	692
	6.31	4.16	4.77	10.76	6.12	7.24	6.59
Premises Type	5,323	1,010	1,762	1,645	196	566	10,502
	65.76	12.48	21.77	68.34	8.14	23.51	100.00
Gender	8,102	-	-	2,409	-	-	10,511
	77.08	-	-	22.92	-	-	100.00

Note: UKLSBS, 2015; UK private enterprises with 0-49 employees only; unweighted data. Source: author's compilation.

Table A. 2 Women-owned and men/co-owned businesses using the home as a base by select industrial divisions (SIC Digits 2), observations and percentages.

Sector	Division	Division Description	Men/ Co-Owned	Women-Owned	Total
F	41	Construction of residential and non-residential buildings (incl. construction workers and builders)	52	3	269
			5.15	1.53	2.56
F	43	Specialised construction activities (incl. electricians, plasters, joiners, painters, glazers, roofers, scaffolders)	323	18	961
			31.98	9.18	9.15
F	49	Land transport and transport via pipelines (incl. taxi drivers)	45	2	252
			4.46	1.02	2.4
J	62	Computer programming, consultancy and related activities	62	11	454
			6.14	5.61	4.32
M	70	Activities of head offices; management consultancy activities	71	29	505
			7.03	14.8	4.81
M	71	Architectural and engineering activities; technical testing and analysis	41	6	405
			4.06	3.06	3.86
M	74	Other professional, scientific and technical activities (incl. designers, photographers, translators, surveyors)	40	10	356
			3.96	5.1	3.39
N	81	Services to buildings and landscape activities (incl. cleaners, landscapers, gardeners)	47	10	186
			4.65	5.1	1.77
P	85	Education (incl. Tutors, sports coaches, driving instructors, educational support, outdoor instructors)	52	34	329
			5.15	17.35	3.13
Q	86	Human health activities (incl. hospital workers, doctors)	4	10	250
			0.4	5.1	2.38
Q	88	Social work activities without accommodation (incl. carers)	3	8	178
			0.3	4.08	1.69
S	96	Other personal service activities (incl. hairdressers, beauticians, physical wellbeing)	11	9	283
			1.09	4.59	2.69

Note: UKLSBS, 2015; This table uses the 2nd edition of data, as the SIC Divisions were removed from later editions of the data. UK businesses with 0-49 employees; unweighted data. Source: author's own calculations and the UK Standard Industrial Classification of Economic Activities 2007 (SIC 2007): Structure and explanatory notes.

A.2 Chapter 6 – Additional Tables

Table A. 3 Table 4. Transition from non-employer to employer, non-employers with no previous employment, probit estimation with random effects, coefficients and standard errors in brackets.

	(1)	(2)	(3)[1]	(4)	(5)
Home-Based Business (Ref Cat. Separate Premises)	-0.206**	-0.206**	-0.240**	-0.228**	-
	(0.077)	(0.077)	(0.082)	(0.087)	-
Relocation (Ref Cat. Remains in the Home)					
Moved into a separate premise	-	-	-	-	0.166
	-	-	-	-	(0.237)
Remains in a separate premise	-	-	-	-	0.224**
	-	-	-	-	(0.080)
Women-Owned (Ref Cat. Men/Co-Owned)	0.003	0.005	0.005	-0.050	0.014
	(0.089)	(0.090)	(0.094)	(0.129)	(0.091)
Home-Based Business X Women-Owned	-	-	-	0.098	-
	-	-	-	(0.171)	-
Business Location (Ref Cat. Rural)					
Larger Urban Area	-0.056	-	-	-0.055	-0.052
	(0.085)	-	-	(0.085)	(0.087)
Smaller Urban Area	-0.026	-	-	-0.010	-0.010
	(0.093)	-	-	(0.104)	(0.106)
London (Ref Cat. Not in London)	-	-0.028	-	-0.044	-0.055
	-	(0.126)	-	(0.142)	(0.147)

Rural Accessibility (Ref Cat. Urban)					
Accessible Rural	-	-	-0.035	-	-
	-	-	(0.088)	-	-
Remote Rural	-	-	0.272†	-	-
	-	-	(0.162)	-	-
Ethnic Minority Owned (Ref Cat. Not)	0.071	0.080	0.074	0.073	0.084
	(0.197)	(0.200)	(0.203)	(0.198)	(0.203)
Sole Owner (Ref Cat. Multiple Owners)	-0.087	-0.087	-0.063	-0.086	-0.087
	(0.086)	(0.087)	(0.092)	(0.086)	(0.089)
Industrial Sector Dummies	Yes	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes	Yes
Company (Ref Cat. Sole Trader/Partnership)	0.283**	0.288**	0.316**	0.283**	0.287**
	(0.096)	(0.097)	(0.104)	(0.097)	(0.099)
Has Business Plan (Ref Cat. No Business Plan)	0.245**	0.250**	0.253**	0.244**	0.256**
	(0.081)	(0.081)	(0.086)	(0.081)	(0.083)
Received Advice (Ref Cat. No Advice Received)	0.064	0.064	0.078	0.064	0.067
	(0.084)	(0.084)	(0.088)	(0.084)	(0.086)
Obtained Finance (Ref Cat. No Finance Obtained)	0.290*	0.285*	0.330*	0.291*	0.253†
	(0.125)	(0.126)	(0.130)	(0.125)	(0.130)
Exports Goods/Services (Ref Cat. Does not)	0.031	0.030	0.009	0.033	0.010
	(0.095)	(0.096)	(0.104)	(0.095)	(0.098)
Multiple Sites (Ref Cat. Single Site)	-0.037	-0.036	-0.068	-0.036	-0.043
	(0.162)	(0.164)	(0.169)	(0.162)	(0.166)
Wave Dummies	Yes	Yes	Yes	Yes	Yes
Observations	3,024	3,030	2,883	3,024	2,994
Chi2	27	26	27	29	29
Degrees of Freedom	59.50	58.11	59.69	59.56	56.08

Log likelihood	-1234	-1236	-1170	-1234	-1221
Standard Errors	Robust	Robust	Robust	Robust	Robust

Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access).

*Note: UK private enterprises only. Coefficients, standard errors in parentheses. Excludes non-employing businesses with previous employment. Control variables not shown: constant. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

Table A. 4 Transition from non-employer to employer, non-employers with no previous employment, probit estimation with random effects, coefficients and standard errors in brackets.

	(1)	(2)	(3)[1]	(4)
Gender and Home-Based Business (Ref Cat. Men/Co-Owned Separate Premises)				
Women-Owned Separate Premises	-0.050	-0.070	-0.037	-0.017
	(0.129)	(0.244)	(0.158)	(0.137)
Men/Co-Owned Home-Based Business	-0.227**	-0.362**	-0.160	-0.250**
	(0.086)	(0.135)	(0.110)	(0.092)
Women-Owned Home-Based Business	-0.181	-0.184	-0.165	-0.270*
	(0.122)	(0.190)	(0.157)	(0.134)
Business Location (Ref Cat. Rural)				
Smaller Urban Area	-0.055	-0.100	-	-
	(0.085)	(0.141)	-	-
Larger Urban Area	-0.025	-0.201	-	-
	(0.093)	(0.154)	-	-
Women-Owned Separate Premises X Smaller Urban Area	-	-0.040	-	-
	-	(0.311)	-	-
Women-Owned Separate Premises X Larger Urban Area	-	0.147	-	-
	-	(0.332)	-	-
Men/Co-Owned Home-Based Business X Smaller Urban Area	-	0.153	-	-

	-	(0.184)	-	-
Men/Co-Owned Home-Based Business X Larger Urban Area	-	0.305	-	-
	-	(0.200)	-	-
Women-Owned Home-Based Business X Smaller Urban Area	-	-0.160	-	-
	-	(0.280)	-	-
Women-Owned Home-Based Business X Larger Urban Area	-	0.220	-	-
	-	(0.282)	-	-
Rural Accessibility (Ref Cat. Urban)				
Accessible Rural	-	-	0.036	-
	-	-	(0.139)	-
Remote Rural	-	-	0.801**	-
	-	-	(0.280)	-
Women-Owned Separate Premises X Accessible Rural	-	-	0.045	-
	-	-	(0.328)	-
Women-Owned Separate Premises X Remote Rural	-	-	-0.558	-
	-	-	(0.560)	-
Men/Co-Owned Home-Based Business X Accessible Rural	-	-	-0.195	-
	-	-	(0.189)	-
Men/Co-Owned Home-Based Business X Remote Rural	-	-	-0.848*	-
	-	-	(0.363)	-
Women-Owned Home-Based Business X Accessible Rural	-	-	0.021	-
	-	-	(0.266)	-
Women-Owned Home-Based Business X Remote Rural	-	-	-0.733	-
	-	-	(0.549)	-
London (Ref Cat. Not in London)	-	-	-	-0.200
	-	-	-	(0.211)
Women-Owned Separate Premises X London	-	-	-	-0.471

	-	-	-	(0.493)
Men/Co-Owned Home-Based Business X London	-	-	-	0.215
	-	-	-	(0.280)
Women-Owned Home-Based Business X London	-	-	-	0.716*
	-	-	-	(0.359)
Controls	Yes	Yes	Yes	Yes
Chi2	59.585	63.757	66.201	61.665
Degrees of Freedom	28	34	34	30
Observations	3024	3024	2883	3030
Log likelihood	-1234	-1232	-1166	-1232
Standard Errors	Robust	Robust	Robust	Robust

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Coefficients, standard errors in parentheses. Excludes non-employing businesses with previous employment. Control variables not shown (incl. constant): Ethnic minority owned (incl. missing data), sole owner (incl. missing data), industrial sector, business age, legal status, has business plan, received advice in last 12 months, obtained finance in the last 12 months, exports goods/service, wave dummies and multiple sites. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. 1Northern Ireland is excluded, data on accessibility not available.*

Table A. 5 Transition from non-employer to employer, non-employers with no previous employment, probit estimation with random effects, coefficients and standard errors in brackets.

	(1)	(2)	(3)[1]	(4)
Gender and Home-Based Business (Ref Cat. Women-Owned Separate Premises)				
Men/Co-Owned Separate Premises	0.050	0.070	0.037	0.017
	(0.129)	(0.244)	(0.158)	(0.137)
Men/Co-Owned Home-Based Business	-0.177	-0.292	-0.123	-0.233†
	(0.130)	(0.244)	(0.155)	(0.139)
Women-Owned Home-Based Business	-0.131	-0.114	-0.129	-0.253
	(0.152)	(0.276)	(0.189)	(0.166)
Business Location (Ref Cat. Rural)				

Smaller Urban Area	-0.055	-0.140	-	-
	(0.085)	(0.277)	-	-
Larger Urban Area	-0.025	-0.054	-	-
	(0.093)	(0.296)	-	-
Men/Co-Owned Separate Premises X Smaller Urban Area	-	0.040	-	-
	-	(0.311)	-	-
Men/Co-Owned Separate Premises X Larger Urban Area	-	-0.147	-	-
	-	(0.332)	-	-
Men/Co-Owned Home-Based Business X Smaller Urban Area	-	0.193	-	-
	-	(0.303)	-	-
Men/Co-Owned Home-Based Business X Larger Urban Area	-	0.158	-	-
	-	(0.324)	-	-
Women-Owned Home-Based Business X Smaller Urban Area	-	-0.119	-	-
	-	(0.371)	-	-
Women-Owned Home-Based Business X Larger Urban Area	-	0.073	-	-
	-	(0.378)	-	-
Rural Accessibility (Ref Cat. Urban)	-	-	-	-
Accessible Rural	-	-	0.080	-
	-	-	(0.296)	-
Remote Rural	-	-	0.243	-
	-	-	(0.488)	-
Men/Co-Owned Separate Premises X Accessible Rural	-	-	-0.045	-
	-	-	(0.328)	-
Men/Co-Owned Separate Premises X Remote Rural	-	-	0.558	-
	-	-	(0.560)	-
Men/Co-Owned Home-Based Business X Accessible Rural	-	-	-0.240	-
	-	-	(0.324)	-

Men/Co-Owned Home-Based Business X Remote Rural	-	-	-0.290	-
	-	-	(0.544)	-
Women-Owned Home-Based Business X Accessible Rural	-	-	-0.023	-
	-	-	(0.374)	-
Women-Owned Home-Based Business X Remote Rural	-	-	-0.175	-
	-	-	(0.674)	-
London (Ref Cat. Not in London)	-	-	-	-0.671
	-	-	-	(0.454)
Men/Co-Owned Separate Premises X London	-	-	-	0.471
	-	-	-	(0.493)
Men/Co-Owned Home-Based X London	-	-	-	0.686
	-	-	-	(0.486)
Women-Owned Home-Based Business X London	-	-	-	1.187*
	-	-		(0.543)
Controls	Yes	Yes	Yes	Yes
Chi2	59.585	63.757	66.201	61.665
Degrees of Freedom	28	34	34	30
Observations	3024	3024	2883	3030
Log likelihood	-1234	-1232	-1166	-1233
Standard Errors	Robust	Robust	Robust	Robust

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Coefficients, standard errors in parentheses. Excludes non-employing businesses which had previous employment. Control variables not shown (incl. constant): Ethnic minority owned (incl. missing data), sole owner (incl. missing data), industrial sector, business age, legal status, has business plan, received advice in last 12 months, obtained finance in the last 12 months, exports goods/service, wave dummies and multiple sites. *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

Table A. 6 Transition from non-employer to employer, non-employers with previous employment, probit estimation with random effects, coefficients and standard errors in brackets.

	(1)	(2)	(3)[1]	(4)	(5)
Home-Based Business (Ref Cat. Separate Premises)	-0.151*	-0.152*	-0.169*	-0.125	-
	(0.077)	(0.077)	(0.079)	(0.083)	-
Relocation (Ref Cat. Remains in the Home)					
Moved into a separate premise	-	-	-	-	0.108
	-	-	-	-	(0.217)
Remains in a separate premise	-	-	-	-	0.156*
	-	-	-	-	(0.079)
Women-Owned (Ref Cat. Men/Co-Owned)	-0.127	-0.128	-0.141	-0.035	-0.129
	(0.101)	(0.101)	(0.104)	(0.153)	(0.103)
Home-Based Business X Women-Owned	-	-	-	-0.167	-
	-	-	-	(0.205)	-
Business Location (Ref Cat. Rural)					
Smaller Urban Area	-0.032	-	-	-0.032	-0.019
	(0.089)	-	-	(0.089)	(0.090)
Larger Urban Area	0.025	-	-	0.023	0.033
	(0.097)	-	-	(0.112)	(0.113)
London (Ref Cat. Not in London)	-	0.038	-	0.003	0.005
	-	(0.117)	-	(0.141)	(0.144)
Rural Accessibility (Ref Cat. Urban)					
Accessible Rural	-	-	0.051	-	-
	-	-	(0.084)	-	-
Remote Rural	-	-	-0.053	-	-
	-	-	(0.186)	-	-

Ethnic Minority Owned (Ref Cat. Not)	0.122	0.121	0.176	0.127	0.120
	(0.174)	(0.176)	(0.182)	(0.177)	(0.177)
Sole Owner (Ref Cat. Multiple Owners)	-0.200**	-0.202**	-0.172*	-0.200**	-0.207**
	(0.077)	(0.077)	(0.078)	(0.077)	(0.077)
Industrial Sector Dummies	Yes	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes	Yes
Company (Ref Cat. Sole Trader/Partnership)	0.150	0.146	0.132	0.150	0.137
	(0.109)	(0.109)	(0.114)	(0.109)	(0.110)
Has Business Plan (Ref Cat. No Business Plan)	0.248**	0.246**	0.238**	0.249**	0.247**
	(0.079)	(0.079)	(0.081)	(0.079)	(0.080)
Received Advice (Ref Cat. No Advice Received)	-0.078	-0.076	-0.090	-0.079	-0.072
	(0.082)	(0.082)	(0.083)	(0.082)	(0.082)
Obtained Finance (Ref Cat. No Finance Obtained)	0.103	0.104	0.073	0.104	0.101
	(0.157)	(0.156)	(0.160)	(0.157)	(0.157)
Exports Goods/Services (Ref Cat. Does not)	0.122	0.120	0.147	0.122	0.119
	(0.088)	(0.088)	(0.090)	(0.088)	(0.089)
Multiple Sites (Ref Cat. Single Site)	-0.163	-0.165	-0.186	-0.163	-0.164
	(0.147)	(0.147)	(0.149)	(0.147)	(0.148)
Wave Dummies	Yes	Yes	Yes	Yes	Yes
Observations	2,151	2,152	2,074	2,151	2,137
Degrees of Freedom	27	26	27	29	29
Chi^2	84.26	83.60	78.09	84.36	82.61
Log likelihood	-1192	-1193	-115	-1192	-1182
Standard Errors	Robust	Robust	Robust	Robust	Robust

*Source: UKLSBS, 2015-2019 (Secure Access); BSD 1997-2018 (Secure Access). Note: UK private enterprises only. Coefficients, standard errors in parentheses. Excludes non-employing businesses which have no previous employment. Control variables not shown: constant *** p<0.001, ** p<0.01, * p<0.05, †p<0.1. [1]Northern Ireland is excluded, data on accessibility not available.*

A.3 Chapter 7 – Additional Tables

Table A. 7 Firm size and business performance in medium sized enterprises only, ordinal, negative binomial, multinomial and binary logistic estimation.

	(1)	(2)	(3)		(4)	(5)
	Turnover	Employment	Incremental Innovation	Novel Innovation	Profit	Exports
Women-owned (Ref Cat. Men/Co-owned)	0.485***	0.896***	0.883	0.660	1.168	0.677
	(0.067)	(0.026)	(0.142)	(0.155)	(0.307)	(0.140)
Ethnic-minority led (Ref Cat. Not)	0.601*	0.952	1.057	0.968	0.826	0.549
	(0.140)	(0.041)	(0.248)	(0.325)	(0.299)	(0.170)
Sole Owner (Ref Cat. Multiple owners/partners)	1.284*	1.031	0.800	0.892	0.504**	1.232
	(0.151)	(0.028)	(0.115)	(0.171)	(0.108)	(0.215)
Business age and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Business size dummies (turnover)	No	No	Yes	Yes	Yes	Yes
Company	1.218	1.068	1.588*	2.034*	0.657	1.321
	(0.202)	(0.042)	(0.323)	(0.602)	(0.284)	(0.317)
Business Plan (Ref Cat. None)	1.256*	1.069**	1.926***	1.786***	1.057	1.143
	(0.132)	(0.026)	(0.245)	(0.296)	(0.224)	(0.164)
Received Advice (Ref Cat. No External Advice)	1.117	0.999	1.427**	2.210***	0.859	1.178
	(0.104)	(0.022)	(0.164)	(0.332)	(0.161)	(0.156)
Obtained Finance (Ref Cat. No finance obtained)	1.277*	1.046	0.937	0.830	0.701	0.874
	(0.126)	(0.027)	(0.119)	(0.132)	(0.145)	(0.126)
Rural (Ref Cat. Urban)	0.983	0.968	1.179	1.347	2.691***	1.122
	(0.107)	(0.025)	(0.164)	(0.243)	(0.752)	(0.189)

In London (Ref Cat. Not)	1.980***	0.997	1.009	1.205	0.870	2.168***
	(0.302)	(0.032)	(0.187)	(0.266)	(0.249)	(0.402)
E-Commerce (Ref Cat. None)	0.996	1.051*	1.453**	1.513**	0.921	1.294
	(0.103)	(0.026)	(0.185)	(0.239)	(0.188)	(0.183)
No. Employees	-	-	0.998	1.002	1.005*	0.995**
	-	-	(0.001)	(0.002)	(0.002)	(0.002)
Chi2 (Degrees of Freedom)	554.594 (30)	139.729 (31)	237.829		72.835	384.686 (35)
			(66)		(34)	
Observations	1,706	1,939	1,669		1,676	1,718

*Exponentiated coefficients; Standard errors in parentheses; * p < 0.05, ** p < 0.01, *** p < 0.001. Note: UKLSBS, 2015; UK businesses with 0-49 employees; unweighted data; not shown: don't know/refused (business plan, obtained finance, e-commerce). Source: author's own calculations.*

Table A. 8 Turnover and employee count by gender, business premises type and main customer location. (1)-(3) Binary logistic regression, log odds; (4)-6) negative binomial regression, incident rate ratio.

	Turnover			Employees		
	(1)	(2)	(3)	(4)	(5)	(6)
Women-Owned (Ref Cat. Men/Co-Owned)	0.888*	0.891*	0.873	1.391***	1.382***	1.171**
	(0.049)	(0.049)	(0.091)	(0.061)	(0.059)	(0.071)
Premises Type (Ref Cat. Commercial Premises)						
Home as Base	0.234***	0.199***	0.186***	0.298***	0.208***	0.196***
	(0.018)	(0.021)	(0.022)	(0.026)	(0.026)	(0.027)
Home as Premises	0.321***	0.276***	0.268***	0.406***	0.372***	0.367***
	(0.018)	(0.023)	(0.024)	(0.020)	(0.029)	(0.032)
Customer Location (Ref Cat. Mainly Regional or National Customers)						
Mainly Local Customers	0.603***	0.543***	0.558***	0.952	0.859***	0.857***
	(0.029)	(0.031)	(0.035)	(0.036)	(0.032)	(0.037)
Mainly International Customers	1.564***	1.570***	1.487***	1.059	1.092	1.043
	(0.114)	(0.142)	(0.146)	(0.053)	(0.054)	(0.058)
Home as Base X Mainly Local Customers	-	1.346*	1.244	-	1.786***	1.362
	-	(0.201)	(0.203)	-	(0.303)	(0.257)
Home as Base X Mainly International Customers	-	1.250	1.359	-	1.418	1.554
	-	(0.323)	(0.382)	-	(0.533)	(0.670)
Home as Premises X Mainly Local Customers	-	1.458***	1.394**	-	1.300*	1.166
	-	(0.163)	(0.175)	-	(0.134)	(0.138)
Home as Premises X Mainly International Customers	-	0.911	1.189	-	0.718*	0.871
	-	(0.155)	(0.222)	-	(0.106)	(0.141)
Women-Owned X Home as Base	-	-	1.461	-	-	1.364
	-	-	(0.427)	-	-	(0.420)

Women-Owned X Home as Premises	-	-	1.150	-	-	1.083
	-	-	(0.244)	-	-	(0.207)
Women-Owned X Mainly Local Customers	-	-	0.894	-	-	1.060
	-	-	(0.117)	-	-	(0.084)
Women-Owned X Mainly International Customers	-	-	1.354	-	-	1.288*
	-	-	(0.325)	-	-	(0.158)
Women-Owned X Home as Base X Mainly Local Customers	-	-	1.571	-	-	2.624*
	-	-	(0.626)	-	-	(1.063)
Women-Owned X Home as Base X Mainly International Customers	-	-	0.620	-	-	0.631
	-	-	(0.432)	-	-	(0.522)
Women-Owned X Home as Premises X Mainly Local Customers	-	-	1.173	-	-	1.410
	-	-	(0.327)	-	-	(0.344)
Women-Owned X Home as Premises X Mainly International Customers	-	-	0.283**	-	-	0.368**
	-	-	(0.125)	-	-	(0.138)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Chi2 (Degrees of Freedom)	3,908.862	3,939.090	3,980.393	3,176.845	3,578.091	3,744.731
	(33)	(37)	(45)	(33)	(37)	(45)
Observations	8,967	8,967	8,967	10,297	10,297	10,297

*Exponentiated coefficients; Standard errors in parentheses. Note: UKLSBS, 2015; UK businesses with 0-49 employees; unweighted data; not shown: e-commerce, ethnic minority ownership, sole owner, industrial sector dummies, business age dummies, legal status, business plan, received advice, rural, London, uses e-commerce. Source: author's own calculations. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

Appendix B

B.1 The Fairlie-Blinder-Oaxaca Decomposition

In Chapter 5, Table 5.5 and Chapter 7, Table 7.1 a decomposition analysis of the gap between the growth typology of businesses remaining in the home and those with separate premises is presented. This is a complex technique which differs from the regression modelling presented elsewhere in the chapter and so the appendix provides further detail as to the decomposition specification.

As the growth types have been split into three binary dependent variables, the commonly used Fairlie extension of the original Blinder-Oaxaca technique is used, as the latter decomposition only works on continuous dependent variables (Jann, 2008; Fairlie, 2005). The Fairlie-Blinder-Oaxaca decomposition breaks down the difference between two groups – in this case businesses remaining in the home and those with separate premises is presented. The decomposition identifies and quantifies the separate contributions of the different characteristics (captured by the independent variables) of businesses remaining in the home compared with businesses with separate premises. All independent variables are lagged to t-1 and mirror the predictors included in the regression modelling in Table 5.4.

The Oxaca-Blinder-Fairlie decomposition decomposes the model into two parts – the part of the model which is explained by the differences across characteristics, and the unexplained part of the model, which derives from unobserved variables. As is standard in the literature, only the explained part of the model is presented here. Table 5.5 includes the coefficients of the explained part of the model (often referred to as endowments), the standard errors in parenthesis, and the percentage explained by each variable. The contribution of a set of dummy variables, such as region, is calculated by simultaneously switching distributions of all dummy variables. Thus a total percentage contribution is calculated for all regions, rather than separate dummy categories.

The decomposition technique involves one-to-one matching of cases between the two groups. As the groups have different sample sizes, an equal sample is drawn from the larger group, in this case businesses with separate premises. Since the results depend on the specific sample, the process is repeated and mean results are reported. 300 replications are used to generate the averages. The separate contributions from independent variables or groups of independent variables may be sensitive to the ordering of variables, therefore the ordering of the variables is randomised, approximating results over all possible orderings.

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