



The Economic Role of
**Freelance
Workers in the
Construction
Industry**

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Executive Summary



Freelancers form a major part of the construction industry's WORKFORCE. The aim of this report is to explore this vital part of the construction industry, using extensive empirical analysis including site visits, case studies and statistical analysis. Our firm-level analysis covers 55% of the construction industry's sectors, while our labour force analysis is industry-wide.

By combining this analysis with insights from both industrial and labour economics, we show that freelancers are unique economic agents in the construction industry. Their work and flexibility add value to businesses that not could be gained from employee labour.

Our study shows that freelancers add value to the industry and the economy more generally by:

1

Making it possible for businesses to use highly specialised labour and sub-contractors, thus driving huge cost-saving and productivity gains. The study shows that by using freelancers instead of employees for specialist functions, businesses can avoid idle, unused labour downtime. This leads to labour cost savings of 27-86 per cent per project. Savings are greatest when the labour needed is both short-term and highly specialised. In these situations, using employees would be too slow, involve excessive downtime and thus create excess overhead costs.

2

Allowing businesses to use a 'pay per project or task' variable cost model, which helps them to de-risk construction ventures. This also enhances the expected return on investment and thus increases the total industry output.

3

Making finance for construction projects cheaper and easier to find by allowing businesses to de-risk their projects. This adds a further boost to the industry's economic activity.

4

Helping the construction industry to adopt lean entrepreneurship management techniques. These allow lower fixed and sunk capital costs for each building project. They also make firms of all sizes much more agile and flexible. This allows Small and Medium-Sized Enterprises (SMEs) to compete with larger firms (because if there are freelancers available, there is no need to have a large internal employee workforce to cover a diverse range of labour skills). Overall then, it promotes a more competitive, high-performance industry, which improves choice, quality and price for private and public consumers.

5

Helping businesses to manage fluctuations in demand, thus encouraging them to grow when market demand is above average, and also reducing business failures when market demand falls below expectation.

6

Allowing firms to pay for output rather than input if they wish. This can make building project costs more predictable (less risky) and mean that fewer managerial resources are needed to monitor labour productivity. Paying based on output instead of according to hours worked can also boost productivity by aligning the interests of the worker and the firm more tightly.

By analysing firms in the construction industry in 2010, 2013, and 2017, we found that these were the main reasons why businesses use freelance labour as a significant part of their workforce.

We also delved deeply into a home building and a public school construction project. In each, we investigated the terms of the contracts freelance builders had been engaged on. We found that freelancers accounted for 51 per cent of workers on these projects and 57 per cent of work days. In other words, freelancers dominate employees in the construction industry's trades-manual workforce.

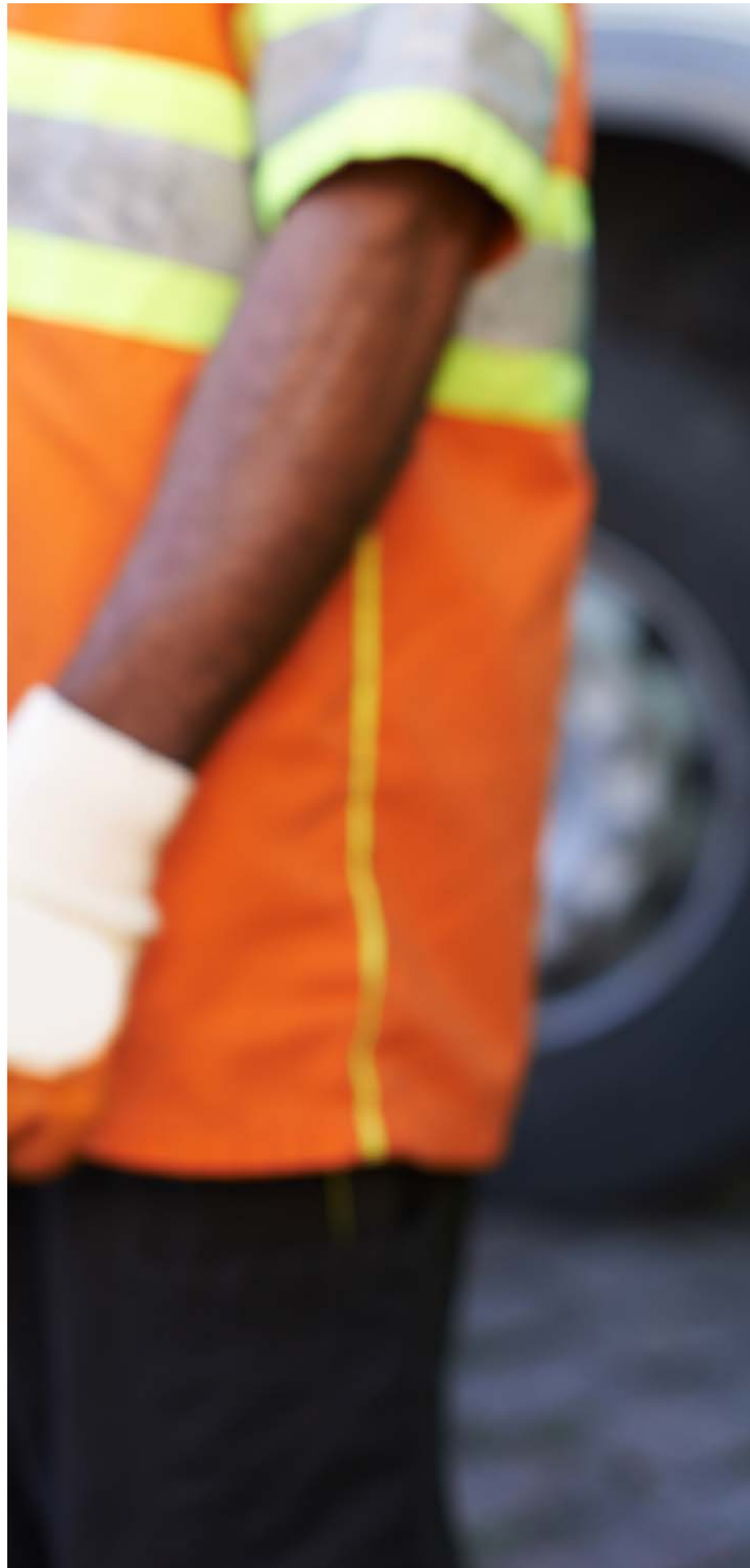
We found that the contractual terms were set to deliver the unique added value of freelance construction workers, and clearly differentiated their roles from employees. We suggest that the terms we found were commonly used to define freelance workers could be very useful guidelines to help public policy and practice differentiate between false and legitimate freelancers.

We also did the first comparative statistical analysis of freelancer and employee earnings in the construction industry, using methodology and data from the Office for National Statistics, combined with the most extensive dataset on payrolls in the UK freelance construction industry. We made three key discoveries:

Firstly, we found that in terms of economic well-being, freelance construction workers tend to be overwhelmingly in the middle group. Typically, both the best and the worst-paid workers were employees.

Secondly, among part-timers, freelancers typically earn more throughout every percentile from the lowest to the highest-paid workers. In many ways this is to be expected because the key added value of freelancers comes from their flexibility, agility and high degree of specialisation. If businesses need such qualities on a less than full-time basis, freelancers will have a significant advantage over employees. One would therefore expect part-time freelancers to be able to capture some of the unique value they add. Correspondingly, full-time freelancers may work with a single client and hence be expected to give volume-of-hours discounts.

Thirdly, the results debunk the myth that freelancers are the most vulnerable, lowest-paid workers in the construction industry. All the statistical evidence in our analysis shows that employees are the lowest paid among both full and part-time workers.





In summary

Each of the three editions of this report has shown just how important freelancers are to the construction industry. Without them, it would face huge difficulties and many more business failures. This is because, through their unique economic function, freelancers both underpin and enable the entire construction industry's business model.

Without freelancers' contribution, the construction industry would be smaller and would hire fewer workers. It would also be less entrepreneurial and efficient. Consumers (i.e. households, industry and the Government) would pay higher prices to a more highly concentrated and less competitive industry.

Genuine freelancers play a pivotal role in promoting economic performance in the construction industry. They are not entrepreneurs, but enable entrepreneurship, and their unique contribution must be recognised and valued. Instead, however, policymakers and business leaders alike seem to so often misclassify them as lesser forms of entrepreneur or employee that they risk encouraging policies that would eliminate their crucial economic contribution.

1. Introduction

The purpose of this report is to provide an economic analysis of the impact that freelance workers have on the performance of the construction industry and also to assess the extent to which freelancing is a financially rewarding career path compared to employees in this industry. In dealing with the former objective (which was the sole focus in the first and second editions of this report), we identify what defines the unique contribution freelance workers (as opposed to employees) make to the construction industry's economic performance. Despite the fact that solo self-employed freelance workers account for the majority of self-employment in most developed countries, there had up until recently been very little research on the impact of this type of labour on economic performance (see Burke 2015 for an overview of the new research). In particular, there was very little on how fluctuations in the supply of freelance labour can affect business performance.

Up until the current decade, most research on freelancers had been motivated by other areas of the labour market and not by an intrinsic interest in freelance workers themselves. Therefore it only considered aspects of freelance work that overlapped with the core areas of interest such as entrepreneurship. As a result, these analyses were only partial and overlooked freelancers' most important economic functions. For example, there is Industrial Relations (IR) literature which investigates the extent to which freelancers are exploited by employers. The question here is how worker welfare is affected by the exercise of an employer's monopsony power. In this research a freelance worker is often the outcome of a push effect where a person involuntarily becomes a freelance worker because of weak bargaining power with employers. In such scenarios, freelance workers can get worse pay and conditions than employees on permanent contracts.

There is also entrepreneurship literature in which freelancers are not classified as workers but because they are self-employed, are seen as owner managers who do not (yet) have any employees. Since high

performing entrepreneurs are often seen as significant job creators, commonly referred to as 'gazelles', the solo self-employed freelance 'one man bands' are then at the lowest end of the entrepreneurial performance spectrum. They are then depicted as failing or underperforming entrepreneurs.

In this report (now in its third edition) we have taken a broader perspective to assess the impact of freelance workers on economic performance at the industry level – specifically the construction industry. To do this, we assessed some of the neglected economic functions of freelancers in the research literature: particularly their impact on economic efficiency. The construction industry is a useful laboratory for our empirical analysis because it makes use of a wide variety of freelancers' economic characteristics. We show that freelancers are enablers of economic efficiency – enabling competition, entrepreneurship, the use of specialised labour, more efficient allocation of risk and the reduction of excess production capacity. They also help to reduce: fixed costs, financial constraints and barriers to entry.

We argue that while freelance workers share some characteristics with owner managers and employees, analysing them as subsets of either category does not capture their full economic role.

Put differently, freelancers are a unique economic agent and carry out economic functions not undertaken by either owner managers or employees. We argue therefore that the defining characteristic of freelance work is in fact that it entails the distinctive added value they contribute to firm performance.

The first edition of this report highlighted the unique added value that freelance workers bring to the construction industry. The second edition extended this analysis and used the defining characteristics of freelancers to assess the proportion of freelancers in some of the main sectors of the construction industry; it showed that their usage is considerable. This latest third edition extends the scope of the analysis by assessing the financial well-being of freelancers

compared to equivalent employees. Put differently, freelancers clearly provide a lot of added value to the industry, but it is prudent to assess just how much value compared to equivalent employees.

The third edition also updates and extends the empirical analysis of the added value freelancers bring to the industry. It also widens the scope of the report by adding some more varied firms and a new sector that was not covered in earlier editions.

In the next section we will examine the theory relevant to the economic function of freelance workers. We will also derive hypotheses to do with their impact on industry performance. These hypotheses are then explored in the following section of the report, which is comprised of 10 case studies on business drawn from 55 per cent of the construction industry: private (18%) and public (4%) home building, commercial building (18%), and infrastructure (15%), (Construction Skills Network, 2017).

The following section of the report involves the collection of new data to quantify the number and hence the importance of legitimate freelancers (Burke, 2012) in the construction industry. The data is compiled from interviewing contractors at a homebuilding project and surveying contractors in a state-funded school building project. The results suggest that just over half of the workforce in the construction industry are freelancers.

In the final section of the paper we undertake a comparative analysis of the earnings of freelancers and employees in the construction industry. In general, we find that freelancers earn a substantial premium on equivalent employees, providing further evidence of the extra added value they generate, as well as proof that they are able to capture a significant share of these gains in the amount of money they are paid by construction firms.

2. Theory and Hypotheses

The Oxford English dictionary defines the word freelance as a “person working for no fixed employer”¹. Wikipedia defines a freelancer as “somebody who is self-employed and not committed to a particular employer long term”². Essentially freelance workers hire out their labour services on a project by project basis. du Gay et al (1996) argue that the defining feature of freelance work is a transactional short-term contract where the employer does not take responsibility for the personal development and employment career of the worker. Freelancers are usually paid on the basis of their productivity (output of their work) rather than the approach more commonly used in continuous employment where workers are paid according to their time and input (e.g. weekly wage or month salary)³.

1. Waite (1998, p253) **2.** <http://en.wikipedia.org/wiki/Freelancer> **3.** The IRS in the USA use the following example to provide guidance on how to differentiate an electrician who is an independent contractor from one who is an employee. “Vera Elm, an electrician, submitted a job estimate to a housing complex for electrical work at \$16 per hour for 400 hours. She is to receive \$1,280 every 2 weeks for the next 10 weeks. This is not considered payment by the hour. Even if she works more or less than 400 hours to complete the work, Vera Elm will receive \$6,400. She also performs additional electrical installations under contracts with other companies that she obtained through advertisements. Vera is an independent contractor.” <http://www.irs.gov/businesses/small/article/0,,id=179115,00.html>

Freelancers account for a significant proportion of economic activity. In the UK in 2016 there were 27 million people in work of which 85% were employees and 15% (4.7 million) were self-employed (ONS, 2016)⁴. The CRSE (2017)⁵ estimates that roughly 84% of the self-employed were solo self-employed in 2016 implying that approximately 13% of the workforce were accounted for by freelance solo self-employed workers. In the construction industry self-employed workers currently account for 42% (984,000 workers: ONS, 2017)⁶ of the workforce, implying a significantly different workforce business model than the average for the economy. The relative scale of the freelance economy justifies exploring the economic function of freelancers in their own right. This report will differ from other studies in this area by taking a broader approach, where other research has only focused on attributes relevant for understanding entrepreneur owner managers or industrial relations.

Burke et al (2008) shows that a typical self-employed career is comprised of discontinuous discrete spells rather than permanent or continuous work. This pattern illustrates the contingent nature of self-employment. At the level of the owner manager this contingency is mainly driven by business uncertainty, whereas at the freelance level it is driven more by business practices aimed at maximising efficiency (i.e. using freelancers to minimise risk and avoid excessive spare capacity). The term 'contingent worker' is also widely used in labour market analyses to describe freelancers. Polivka (1996) emphasises that the defining characteristic of 'contingent work' is that it is based on discontinuous contracts. The contingency is driven by a project's end point rather than an economic downturn – a contingency upon which even some continuous employment often depends. Polivka (1996) also describes contingent workers in terms of being both 'just in time' and 'disposable', hence capturing both the positive and negative connotations of this form of work. The former resulting from employers' desire to achieve productive efficiency through 'just in time' technology, and the latter as a result of employer bargaining power over workers.

Most of the research on temporary, contingent or freelance workers focuses on this latter employer motivation. Freelancing is associated with less use of union collective bargaining (Sisson, 1983, Milward et al 2000) and a concern that there is a need for greater collective bargaining at the industry level to protect the interests of contingent workers (Wial, 1994 and Herzenberg et al 1998). This, therefore, presents freelancers as the disablers of worker negotiating power over employers. Being a freelance or contingent worker is then cast as a 'negative' or 'bad' economic state which may require public policy measures to help workers migrate out of this category (e.g. Krausz, 2000, de Jong et al 2009 and Standing 2016). Furthermore, analyses such as DiNatale (2001), Morris and Vekker (2001) and Remery et al (2002) conclude that the majority of temporary workers would opt for continuous employment if they had the choice.

By extension, the same studies find that a minority of the workforce voluntarily choose to become contingent or freelance workers. Indeed, Krausz (2000) and Morris and Vekker (2001) find evidence that in the US a desire for job flexibility rather than economic gain seems to be the main reason why people voluntarily choose temporary work. The flexibility-enabling dimensions of freelancing such as portfolio work and an 'enterprising self' are deemed positive attributes (du Gay, 1996 and Storey et al 2005)⁷.

Other research also finds evidence that in some sectors contingent/freelance workers command a pay premium over workers on continuous employment contracts. For example, research in the US by Polivka et al (2000) found that there is a great variety in pay across various types of nonstandard employment arrangements. They found that after controlling for profile effects, 'on-call workers' earned similar amounts to standard employees while both 'independent contractors' and 'contract company workers' earned significantly more. de Vries and Wolbers (2005) found similar diversity in the income performance for nonstandard workers in the Netherlands. Both studies concluded that it is a misleading generalisation to depict nonstandard employment contracts as 'bad' or undesirable.

4. ONS (2016), Statistical Bulletin UK Labour Market: February 2016, Office of National Statistics: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/uklabourmarket/february2016>

5. CRSE (2017): http://www.crse.co.uk/sites/default/files/The%20true%20diversity%20of%20self-employment_0.pdf

6. ONS (2017), Self-employment Jobs by Industry, September 2017, Office of National Statistics: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/selfemploymentjobsbyindustryjobs04> 7. These authors describe contingent/freelance worker contracts using the phrase 'nonstandard employment arrangements'.

More recently, a report by the CRSE (2017) has come to a similar conclusion: that in the UK there is a huge diversity in the income and well-being across the self-employed sector.

Freelancers are also inevitably implicated in the conclusions of the extensive entrepreneurship research on self-employment. In this literature the number of employees (or job creation) is often used as a measure of entrepreneurial performance (e.g. Lucas 1978, Cowling et al 2004 and Burke, Fraser and Greene 2010). If viewed in this light freelancers 'without-employees' feature at the lowest end of the self-employed entrepreneurial performance scale.

Carmona et al (2010) found that in the EU, variation in the level of owner managers and 'own account' self-employed workers typically differs across the business cycle. If one sees freelancers in their own right rather than as 'prefer-to-be' entrepreneurs or employees, then more unique attributes become apparent. Some of these are apparent in the seminal model of self-employment by Kihlstrom and Laffont (1979), upon which most of the labour economics entrepreneurship research is based. The strength of the model is that it is based on a simple but compelling axiom that people will choose to become self-employed if that career option is preferable to alternatives. Preference for any career option is positively related to its pecuniary and non-pecuniary benefits. One of the key purposes of Kihlstrom and Laffont's (1979) model is to show how much risk is undertaken by the self-employed sector. The model and the resulting entrepreneurship literature focuses on the risk and uncertainty associated with innovation and new business ventures. However, if one focuses on the freelance component of the self-employed, i.e. those without employees and who merely want to manage their own labour rather than manage a business empire, then the risk becomes more specific. In fact, if one strips out new venture business risk from Kihlstrom and Laffont's model then the risk remaining is mainly related to job insecurity. In a labour market where workers have a choice between continuous employment and less secure contingent/freelance work, the financial

rewards for freelancers must adequately compensate for the greater risk (income and job insecurity) in self-employment compared to employment. Formally, we can represent the labour market equilibrium as:

$$U(Y^*, N) = u(W^*, n) \quad (1)$$

Where U is the utility/satisfaction derived from self-employment and this is positively related to expected self-employment income Y and non-pecuniary benefits N such as job flexibility and being your own boss. Utility, expected income and non-pecuniary benefits in employment are denoted by u , W and n respectively. The framework is consistent with the main tenets of the industrial relations literature. So, for example, if an employer abuses monopsony power and reduces the expected wage either by reducing actual wages or reducing the number of continuous employment contracts (hence the probability of securing a wage), then W declines. It follows that more people will then flow into freelance self-employment, driving the equilibrium expected income (Y^*) to a lower level.

In the entrepreneurship literature, self-employment income is derived from business profits and hence influenced by factors affecting revenue and cost functions⁸. With this focus, most of the risk examined is directly related to the entrepreneurial/impure risk associated with the uncertainty about the existence of a profit opportunity and the ability to exploit it (Knight, 1921). It follows intuitively that the greater the entrepreneurial risks, the greater the rewards need to be for people to choose to start a new venture. In the entrepreneurship literature and indeed central to Knight's (1921) defining work, is the idea that what defines the importance of entrepreneurs to an economy is the inability to pass off this type of risk. Entrepreneurs fulfil a key function in the economy by taking on impure risk and in the process unleashing new profit opportunities. The fact that freelancers take on this same type of risk is one of the reasons why they are so often categorised as entrepreneurs themselves. What the entrepreneurship literature



⁸ The empirical side of this literature which estimates self-employment income as profits stems from the seminal paper by Evans and Jovanovic (1989).



misses, therefore, is that freelancers are not really entrepreneurs but enablers of entrepreneurship – because they offer labour on contingent terms which allows entrepreneurs to pass off impure risk. By reducing the risk involved in business venturing, freelancers generate more entrepreneurial activity than would occur in their absence.

One of the defining features of successful entrepreneurs is their ability to de-risk ventures by staging finance and spreading risk across a portfolio of projects/ventures (Burke, 2009). Bhide (2000) has shown that entrepreneurs will often test the viability of a venture through a pilot launch instead of attempting a fully resourced start-up. Entrepreneurs also manage risk through the use of real options (Dixit, 1989 and O'Brien et al, 2003). Freelancing creates more opportunities for entrepreneurs and corporate ventures to adopt these strategies. Therefore, instead of having to commit to long-term employment contracts to secure labour for a new venture, businesses can employ freelancers on short-term temporary contracts. This enables ventures to stage labour costs and only incur them once particular performance/risk milestones have been achieved. Therefore, if the performance of the venture is less than was hoped for, the venture has the option not to incur the labour costs associated with subsequent stages of development. The (downside) risks are thus reduced in the venture and the expected return on entrepreneurial investment increased. The risk is passed from the entrepreneurial venture to the freelancer who now bears the risk of a period of unpaid labour if the venture fails to proceed after any stage of development⁹.

Also, since freelancers are typically paid for the output of their work rather than the input (as is the norm for employees), they take on general business risk. For example, the prevalence of piece work as the contractual norm for most freelancers in the construction industry means that freelancers take on the risk of delays due to bad weather or the co-ordination risks associated with the temporary non-availability of complementary

inputs to production. This gives our first hypothesis, illustrating how freelancing can enable greater levels of entrepreneurship.

Hypothesis 1: Freelancing enables firms to reduce new building venture/project risks; hence promoting greater activity and performance.

Burke (2009), points out that when this form of de-risking strategy is employed it also increases entrepreneurial capability on two levels. Firstly, the lower risk and greater expected return on investment make it easier to raise finance and hence reduces the prospect of a venture facing finance constraints. Secondly, by only committing resources on a stage-by-stage basis the venture has much greater flexibility/agility to pivot (i.e. alter strategy and tactics) if business circumstances turn out to be different than expected once a performance milestone has been reached. Therefore, since freelancers enable business ventures to make greater use of de-risking strategies, the following hypothesis follows:

Hypothesis 2: Freelancers enhance entrepreneurial capability by reducing finance constraints, enabling greater agility and flexibility to alter strategy and tactics.

Freelancers can also reduce some of the principal agent problems that arise between employer and employee. Storey et al (2005) note that in the British media industry the interests of freelancers are closely aligned to the businesses who hire them: "Success depends on pleasing clients whatever it took"¹⁰. Freelancers' self-employed status means that they are not subject to less labour law than employees and have lower unionisation. As a result, they offer a secondary highly flexible labour market to firms. This can enable more productive work practices that would not be possible to implement in the less flexible primary labour market. Lazear (2000) notes that piece rates can have dramatic effects on labour productivity. In such cases, this is driven not only as a result of greater effort by workers but by a selection effect where more able workers choose to take up

9. The freelancer may be able to eliminate some of this risk through the use of portfolio working.

10. Storey et al (2005, p.1048).



individual piece work contracts to avoid negative spill-over effects from lazy or less able workers. Prendergast (2002) notes that performance-related pay schemes are often used in situations of greater uncertainty where employers pass greater responsibility and risk onto the worker. If freelance workers are less risk averse than employees then firms will experience fewer principal agent problems with freelancers who will be more willing to accept performance related pay schemes. This gives rise to hypothesis 3.

Hypothesis 3: Freelancers can enable ventures to reduce firm-worker principal-agent problems through more optimal use of performance-related pay schemes which can raise productivity and pass off risk.

The construction industry manifests a high degree of labour specialisation in production. The productivity-enhancing impact of the specialisation of labour has long been recognised in economics as far back as Adam Smith (1776) who used it as the primary building block in his analysis of the Wealth of Nations: “The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgement with which it is any where directed, or applied, seem to have been the effects of the division of labour”¹¹.

A prerequisite to enable these productivity gains is the ability to avoid specialist worker downtime. This implies having enough customer demand to warrant large enough production levels to avoid specialist worker spare capacity. As with Ford’s model T car, this is often achieved by passing on a significant share of the productivity gains to consumers in the form of lower prices which in turn generate demand sufficient to support high levels of production. By raising the importance of economies of scale, the productivity gain from the specialisation of labour raises minimum efficient scale in the industry. However, the availability of freelance workers reduces the need to have high volume production to realise these productivity

¹¹. Smith (1776, Book I, Chapter 1, p7).

gains. The contingent basis of freelance contracts can mean that they are not retained during spare capacity downtime. This therefore reduces minimum efficient scale and decreases industry concentration.

Hypothesis 4: Freelancers enable firms to increase productivity – by using highly specialised labour – and production by avoiding the cost of specialist worker underutilised capacity or downtime.

Closely aligned to the previous point are the risks of incurring the cost of worker downtime because of an unexpected fall in consumer demand. The short-term, contingent basis of freelance contracts means they can be rapidly hired and fired to supply unexpected upturns and downturns in consumer demand. Therefore, in a downturn, the risk of spare labour capacity is passed on from the firm to freelancers. Correspondingly, in an unexpected upsurge in consumer demand freelancers enable firms to rapidly hire labour and hence tap into profit opportunities that require speed to market. In this case freelancers save firms the cost and hence risk of carrying spare labour capacity to enable the exploitation of unexpected consumer demand.

Hypothesis 5: Freelancers enable firms to reduce the cost and risks associated with uncertainty over fluctuations in consumer demand.

Freelancers also make it possible to have a much more competitive market. Hypotheses 1, 2, 4 and 5 have the effect of reducing economies of scale advantages, which reduce industry concentration and monopolistic power. Hypotheses 1, 2, 3 and 4 also reduce sunk cost barriers to entry while hypothesis 2 reduces financial constraints on market entry and business growth. All the hypotheses also increase profitability and the incentive to engage in business venturing. Therefore, combined, the total impact of freelancing is a greater number of firms competing in the market.

Hypothesis 6: Freelancing reduces monopolistic power and promotes competition.

As noted above in Hypotheses 1–5, freelancers enable entrepreneurial and business practices which boost firms' profits. Therefore, as long as freelancers have some bargaining power with firms, one would expect them to be able to negotiate some share of this value added in the form of higher pay. For example, Heery et al (2004, p24) note that in the entertainment industries some groups of freelancers earn higher rates than employees. They attribute this to compensation for downtime and lack of benefits. Since this source of income is unique to freelancers, we argue it is their defining feature. It distinguishes them from entrepreneurs and employees. Later in the report is a comparison analysis of equivalent freelance and employee construction workers to assess the extent to which freelancers gain a share of the added value they create through Hypotheses 1–5.

Whether freelancers gain a share of the unique value they add may have less to do with their bargaining power with employer firms, which has been so emphasised in the existing literature. As hypothesis 6 implies, their biggest threat may instead be consumers. By increasing competitiveness freelancers can pass their added value on to consumers through lower prices rather than profit boosts. To the extent that this happens, it reduces freelancers' opportunity to negotiate with firms for a share of the value they add. Alternatively, average firm profits can rise when increased competition is manifested by greater levels of product differentiation (Burke, van Stel and Thurik, 2010). This enhances the potential for freelancers to negotiate some of the gains from their activity.

In summary, in this section we noted that freelancers are more usually analysed in terms of employer–employee bargaining power and entrepreneurship. Traditionally, literature in these areas has tended to depict freelance work negatively. The industrial relations literature categorises freelance workers as part of an unregulated secondary labour market where the majority are worse off than they are in continuous employment. The entrepreneurship literature captures freelance workers by including the self–employed without employees as part of the overall sector. Freelancers are therefore depicted as low performing self–employed entrepreneurs. The approach we take in this report is depicted in table 2.1 and shows that the labour force can be divided into a 2x2 matrix based on the dual distinction of whether a person is employed or self–employed, and a manager or a worker. Freelancers comprise the lower right–hand box, showing their self–employed but non–managerial status. The table is instructive as it illustrates why freelancers share some characteristics with other self–employed entrepreneurs and workers on employment contracts, but also highlights that they form a unique category in the labour force.

**Table 2.1: Labour
Force Functional
Categories**

	Manager	Worker
Employed	Executive	Employee
Self-employed	Entrepreneur	Freelancer

In summary, we have analysed freelancers in their own right and derived six hypotheses which show that freelancers have a unique economic performance enhancing function not discussed in the earlier literature. This puts freelancers in a much more positive economic light, where they are the enablers of entrepreneurship, productivity gains and competition. In the next section we move on to examine these hypotheses more closely in the context of the UK construction industry.

3.

Industry firm Analysis

Data and methodology

Over the periods June to September 2010, 2013 and 2017, we carried out two sets of semi-structured interviews with typical firms from different sectors of the construction industry in the UK. We focused on building firms rather than private DIY and casual repair and maintenance because our emphasis is on the core business of construction and renovation of new buildings and infrastructure. We attempted to cover most sectors and a portion of the contractors within them.

For an examination of the house building sector we interviewed senior managers¹² of Taylor Wimpey PLC who are one of the largest corporate home builders in the UK (and who have sizeable international operations). We also visited one of their construction sites on two occasions to see first-hand freelancers working at different stages of the production process. We interviewed the Commercial Director of MV Kelly Ltd, a nationwide excavation and civil engineering company serving all sectors of the construction industry – including the Taylor Wimpey site we visited. We also interviewed the CEO and Finance Director of SDP Plastering Ltd who are contracted in similar home building as well as commercial construction sectors in the Midlands. And we interviewed both the CEO and Projects Director of an SME house builder (Brian Fell Ltd) who also engage in some repair and maintenance in both the house and non-house sectors. We concluded the 2010 wave of case studies with Goldhill Contracting who are sub-contractors who strip-out buildings for renovation in both the home and commercial sectors.

In 2017 we updated the MV Kelly case study because the company had tripled in size from around 425 to 1,400 construction workers since the 2010 interview, so assessing whether the role of freelancers had changed or indeed played a part in this transformation was an important question for our research. The 2017 interviews were mainly targeted at widening the reach of the case study analysis to include a broader range of sectors within the construction industry. We interviewed Rowland Homes who undertake both public and private housing as well as Colbre who do major conversion and renovation of buildings (e.g. an old rectory) into homes. We then moved onto Mayo Civil engineering who serve both the home and commercial construction sectors. We continued our investigation of the Commercial sector of the construction industry with an interview of a major company who preferred to remain anonymous. Finally, we interviewed JOS Structures to extend our analysis into the infrastructure sector of the construction industry.

The 10 case studies from both sets of interviews cover: private housing, public housing, infrastructure and commercial. Combined, they account for over half (55%) of the construction industry's output (Construction Skills Network, 2017 – see table 4.1 in section 4 of the report). The purpose of the case studies is to test the existence and importance of the hypotheses at an empirical level. Given the time at our disposal, we have attempted to cover a wide spectrum of the construction industry and have chosen firms who are either market leaders in their sector or what we believe are typical SMEs. Therefore, the aim is to have a fairly representative set of case studies. As always happens with case study empirical analysis, the number of case studies is small and hence further empirical research is to be encouraged. However, by any comparative international research measure, 10 case studies is a sizable number for analysis. We are encouraged by the similarity of views presented to us regarding the economic/business role of freelancers in the construction industry.

12. A Senior Commercial Manager, a Commercial Manager and a Site Manager.

Taylor Wimpey: Corporate International Home Builders¹³

Taylor Wimpey PLC are one of the largest home builders in the UK. They also have building projects in North America (USA and Canada) and Europe (Spain and Gibraltar) which account for roughly 33% and 3% of turnover respectively. In 2009 the company had a turnover of £2.6bn while in the buoyant period of 2007, company turnover was nearly twice this, amounting to £4.7bn. This indicates just how cyclical the industry is.¹⁴

To achieve high levels of worker productivity, Taylor Wimpey use a high degree of labour specialisation (hypothesis 4), mainly supplied by contractors who can offer contingent contracts to Taylor Wimpey because they pass much of the risk onto their workforce by hiring freelancers (sub contractors or 'subbies') on a contingent basis. Table 3.1 provides a list of the specialised inputs used in a 224 (predominantly apartment) unit project in Diglis Basin in Worcestershire.

We have estimated the percentage of downtime work days per specialised input for this typical corporate apartment build project. The average downtime is 82%. Weighted by cost the average downtime is 74% which indicates that the potential cost savings generated by freelance workers are very high. In the absence of freelancers, Taylor Wimpey and their contractors would be obliged to hire employees and pay them during downtime. The worst-case scenario

for these firms is where they cannot find any alternative work for employees during this downtime. The data in table 3.1 illustrates that these costs could potentially lead to labour costs increasing by a multiple of nearly 4 (3.85). Therefore, it would take at least 4 concurrent Taylor Wimpey apartment projects of the same scale and within a sufficiently small geographic radius to enable labour mobility to avoid these downtime costs.¹⁵

13. www.taylorwimpeyplc.com and www.taylorwimpey.co.uk **14.** Source: Taylor Wimpey Annual Report and Accounts 2007 and 2009. **15.** The non-uniform nature of the timing and scale of downtime across specialised inputs implies that it would not be possible to completely avoid downtime by scaling up the number of construction projects.

Table 3.1:
Diglis Bason Apartment
& House Project

Input	% Downtime
Foundation work, substructure, drainage	55.8
Piling	90.4
Brickwork	74.2
Floor Planks	92.3
Scaffold	92.3
Steelwork	88.5
Roofing	86.5
Window Installation	88.8
Kitchens	90.8
Lift Installation	96.2
Plastering	69.2
Electrical / Carpentry	55.4
Painting	82.7
Finals / Clean	91.2
Average	82.4
Max	96.2
Min	55.4
Average weighted by cost	74.3

Table 3.2:
Badsey Road House
Building Project

Inputs	Weeks	% Downtime
05/11/10 to 13/1/11		
active weeks	58	
Inputs		
Foundations	34	58.6
1st Brickwork	25	43.1
Joist and Flooring	24	41.4
Plate	25	43.1
Roof	32	55.2
1st Fix	33	56.9
1st & 2nd stage plaster	35	60.3
2nd Fix Carpenter	33	56.9
2nd fix plumb/electric	29	50.0
Paint	33	56.9
Finals	33	56.9
Average		52.7
Max		58.6
Min		41.4

Table 3.2 provides similar data for a Taylor Wimpey house building project in Evesham, Worcestershire. There is more scope to have overlapping and more continuous sequential phases of construction in house building than in apartments. As a result, the estimated downtime of 53% is lower but again substantial. This implies at least two perfectly sequenced concurrent house building projects to avoid much of the downtime cost.

A Commercial Director of Taylor Wimpey indicated that if faced with the challenge of managing a project without recourse to contractors and freelancers, he believes the industry would be pushed towards larger-scale operations (Hypothesis 6). It would effectively be a bid for more overlapping projects – sequenced as much as possible to minimise downtime for the various forms of specialised labour. However, he was sceptical about how successfully scaling up would solve downtime cost problems because this approach would necessitate regular movement of workers from one region in the UK to another. He felt the industry might be faced with the prospect of taking the downtime costs on the chin. “Demand conditions would not be sufficient to sustain that type of scale-up. Even if we had that many projects, regional deployment of labour would entail huge coordination costs for the company and would be very unpopular with workers. In reality, if we had to have all workers on the books then costs would soar and the industry would

be badly affected.” On a separate visit a Senior Commercial Manager suggested that an attempt to eliminate downtime costs by scaling up operations would create high additional logistic management complexities and costs. So, in economics terms, the direct and indirect (through contractors) use of freelancers helps to reduce downtime costs and minimum efficient scale in the home building industry.

In their 2009 Annual Report under ‘Principal Risks and Uncertainties’ (hypothesis 1), Taylor Wimpey emphasise the importance of freelancers to their risk management and company strategy:

In order to optimise our build cost efficiency whilst retaining the flexibility to commence work on new sites as market conditions allow, the vast majority of work carried out on site is performed by sub-contractors. (Taylor Wimpey, 2009: p. 12)

A Commercial Manager also explained that the firm de-risks projects by selling ‘off-plan’ first. He pointed out that company policy typically required that around 15 per cent of a phase of a project must be sold off-plan before Taylor Wimpey will give the go ahead for construction work to start. This financial de-risking strategy relies on the availability of freelance workers, who make it possible to avoid sunk labour costs being incurred in the period before testing for sufficient market demand (i.e. selling 15 per cent off-plan). They simultaneously help provide the

flexibility to commence work when market conditions demand (hypothesis 5). This is because freelancers enable construction supply to be slowed down or sped up as market demand ebbs or flows.

The Commercial Manager outlined how freelancers help Taylor Wimpey to reduce uncertainty and pass on risk to contractors (hypothesis 1). Specific pieces of construction projects (e.g. groundwork, brickwork or plastering) can be contracted out to firms who agree to do the work at a fixed fee and often at short notice. These contractors are able to offer this service through the use of freelancers (sub-contractors or ‘subbies’ as they are known in the industry) who in turn work on a similar basis – usually on piece rates. Thus the risk is passed from Taylor Wimpey to contractors who in turn pass it on to freelancers. In subsequent case studies we further examine how these contractors try to avoid downtime costs by using freelancers.

Taylor Wimpey increasingly place a strong emphasis on corporate social responsibility as part of their strategy and business practices. As a result, contractors/freelancers are only hired when they can meet the environmental strategic objectives for the company.

“We vet all suppliers prior to working with them to ensure that they meet our requirements for environmental impact, health and safety, quality and financial stability.” (Taylor Wimpey, 2009: p.12)

MV Kelly Limited: civil engineering and building contractors¹⁷

MV Kelly traces its roots back to 1993, when Martin Vincent Kelly owned a JCB and hired out his excavation services on a freelance basis. Later, his son John Kelly joined the business and used what he had learned in his business degree to grow the company into a nationwide business. MV Kelly carries out excavation, foundation work, drainage and ducting, hard surfacing and landscaping in the home building, infrastructure, commercial and industrial sectors. We interviewed Sandy Forbes, the Commercial Director of MV Kelly in 2010 and again in 2017. By 2010, the company had between 400 and 450 construction workers at any time, comprised of approximately 15% employees and 85% freelancers. By 2017, MV Kelly had roughly 1,400 construction workers on 152 different sites, all of them freelancers. Their turnover increased from £50 million in 2010 to £300 million in 2017.





Sandy Forbes explains the benefits for MV Kelly of using a freelancer workforce business model: “The freelancers like the flexibility and the monetary benefits of being a freelancer. We like the flexibility to be able to respond to market changes quickly and efficiently by being able to clear a site overnight or get additional workers there immediately. And finally the contractor benefits from the flexibility because as we rely on freelancers, they can essentially put an entire site on hold or increase the pace as needed”. Even though the company is of considerable size now, MV Kelly is still able to provide their customers with short notice as-you-need groundwork solutions (hypotheses 2 and 5). As Sandy explained during our initial meeting in 2010, “Builders will only release a block for construction once they have sold around 25% of the units off-plan. This makes our project start dates very unpredictable. When they are approved it is at very short notice, usually two to three weeks but sometimes as little as two days. Frequently, we get last-minute postponements or even cancellations. It would not be possible to meet these demands without the use of sub-contractors”, supporting hypothesis 5. MV Kelly can offer the flexibility needed by the customer and can respond to seasonal trends in a very efficient way by avoiding worker downtime costs, as outlined by hypothesis 1. Contractors usually push for houses to be completed around May/June and November/December in order to embellish the figures reported to management. “If we had to rely on employees and could only complete a set amount of ground works, we would never be able to respond to these trends,” says Sandy.

However, MV Kelly does not usually sub-contract entire packages. Instead they generally rely on freelancers in a labour-only framework and supply materials and machinery needed. This allows for the use of specialised labour without having to pay for the downtime – the duration on a project when specific labour skills are not needed (hypothesis 4). However, one problem MV Kelly is facing and that Sandy is aware of is that the bargaining power is in the hands of the freelancers. As a result, it could be

that an entire gang of workers leaves at short-notice because they are keen to take on a job elsewhere. The solution is to “treat them well and keep an open eye on the very competitive construction industry to make sure freelancers like coming back to us” says Sandy. There is also a risk-management aspect that is unique to freelancing. The housing developer wants a set amount of houses finished on time, for which he relies on sub-contractors like MV Kelly, amongst others. Sandy emphasises the risk-sharing benefits of freelancing: “Whether it rains, snows etc. we need to deliver on-time. And we can manage this risk by working with freelancers who are given a deadline for a specific task and know that they can do the job in a specific amount of time”, offering support with reducing the principal-agent conflict and increase productivity (hypothesis 3).

It should, however, be noted that the construction industry is going through changes now. Sandy explains that construction workers need a growing amount of certificates, and while MV Kelly provides them with a toolbase talk, it is up to the freelancer to have the necessary set of skills and certificates. Sandy also points towards a financial risk, because the inflation of materials is higher than the increases in house prices. Last year alone, the input prices rose by about 7.5%, while a shortage of skilled labour is also pushing construction prices upwards.

In conclusion, Sandy says “through freelancing, homebuyers can have good quality products, and homebuilders can react to market changes optimally. Freelancers also get decent wages and are better off. In any case, if we were to put all the freelancers involved on employment contracts, neither the company nor the industry would be viable”.

We calculated the downtime for a construction site in Stapeley Garden that MV Kelly is involved with during our 2017 visit and report the results in Table 3.3.

Table 3.3: Freelancer specialised labour spare capacity downtime: MV Kelly Stapeley Garden project

Inputs	Weeks	% Downtime
12/06/2017 to 11/06/2018		
Project duration	53	
Inactive weeks		
Foundation	30	56.6
Superstructure	33	62.3
Roofing	26	49.1
1st fix	29	54.7
Plastering	34	64.2
2nd fix	32	60.4
Painting	33	62.3
Finals	31	58.5
Average		58.5
Maximum		64.2
Minimum		49.1

Indeed, the numbers very much illustrate Sandy Forbes's point: that the flexibility brought by freelancers allows MV Kelly to cut the 58.5% average spare specialised labour capacity downtime for the project, thus keeping costs down and enabling the production of more affordable housing (hypothesis 1).

SDP Plastering Ltd: a freelance contractor¹⁸

This company is based in Staffordshire and operates as a contractor to major building projects in the homebuilding, commercial, industrial and public sectors. They also operate in the building repair and maintenance sectors. The company's services include drylining, wet plastering, rendering, floor screed and metal partitions, including wall and ceiling systems.

The founder, Steve Paul, was initially a freelance plasterer who saw an opportunity to start a plastering contracting business based entirely on hiring freelancers. He had previously worked as a council employee and seen how much it contributed to overheads to have plasterers on employment contracts during downtime periods. By only hiring freelancers, Steve planned to cut overhead costs (hypothesis 4) as well as avoid the need for major start-up capital (hypothesis 2). The main remaining barrier to entry was reputation, so Steve's background as an efficient freelance plasterer was important.

Steve and his business partner Steph are acutely aware that the construction business fluctuates with the business cycle. In 2007, SDP Plastering Ltd hired 150 freelancers and this number dived to just 25 in 2009 but had partially recovered to 80 at the time of interview in June of 2010. Over the same period SDP Plastering Ltd dropped its rate of pay for freelancers by 50%. Steve Paul emphasises the importance of passing business cycle risks onto freelancers (hypothesis 5) in order to survive. "We couldn't operate if everyone was a PAYE employee as our business is feast or famine. We wouldn't be viable. We would have to raise prices and would price ourselves out of the market". SDP Plastering Ltd is essentially

able to compete on price in the market because of the amount it saves by avoiding paying downtime in periods of 'famine'.

But their preference for freelancers is not only driven by efficiency gains. It is also driven by the supply of labour. At one buoyant point in the business, Steve and Steph tried to hire plasterers on full time contracts but had to revert back to a 100% freelance model within 4 months because over half of their plasterers left the business. Steve and Steph realised that the best plasterers could earn more as freelancers and hence opted for that type of work despite the greater job insecurity. Freelance plasterers are paid on a piece work basis, i.e. per square metre. This suits highly productive plasterers who can earn much more than being on industry hourly rates (hypothesis 3). Steve maintains that "90% of plasterers prefer being paid on a piece work basis than a fixed hourly wage".

He also notes that piece work allows SDP Plastering Ltd to pass business risks onto freelancers. For example, if materials don't arrive on time because a lorry has broken down, then piece work-based pay ensures this risk of downtime is borne by freelancers. If business is cancelled at the last minute, this can be managed by

cancelling freelancers' contracts. Overall, this means that much of the entrepreneurial business risk of the venture can be passed on to freelancers (hypothesis 1). But Steve Paul also notes that it can swing the other way too, because if a freelancer gets a better offer from another contractor they can often walk off a job without notice. The ease in hiring and firing freelancers eliminates the need for lengthy and costly screening and selection process, and means that SDP Plastering Ltd has the entrepreneurial agility to respond rapidly to market opportunities.

In sum, SDP Plastering Ltd shows how industry efficiency and competitiveness have been enhanced by freelance workers. It illustrates how in the plastering sector, freelancers have enabled business de-risking, low barriers to entry (hypothesis 6), highly agile firms, greater worker productivity and lower spare capacity. The 100% freelancer model used by SDP Plastering Ltd implies that all of the downtime costs are avoided and the risk is borne by freelancers. Steve Paul argues that he "simply can't imagine the construction industry functioning without freelance workers. The industry would not survive if subbies [freelancers] had to be on full employment contracts."

Brian Fell Builders Ltd: an SME local builder¹⁹

Brian Fell founded the company in 1966 and since then has been the Managing Director. Previously, he worked on a country estate as a joiner and was then offered a project to renovate a building by a local farmer, which led to the foundation of his business. His company operates in many sectors of the construction industry including hospitals and houses as well as maintenance and repair work.

The business is located in the village of Leven in Yorkshire and serves a catchment area which includes the city of Hull. The business now includes a joinery manufacturing workshop, which has its own customer base and also supplies Brian Fell's building projects in the private and commercial construction sectors. Project values for the construction work the business undertakes range between £1k to £1.2m. There are four office staff, three project managers, 18 direct employees (of which 13 work in the joinery), and between five and 15 freelancers engaged at any one time depending on the workload. The business had a turnover of £2.3million in 2009 and is a member of the Federation of Master Builders (FMB). On a typical house building project and with current volumes of work, roughly 25% of the labour is carried out by freelancers. By contrast, an unexpected project such as a recent village hall roof repair is likely to be carried out almost entirely by freelancers (hypothesis 5).

At the time of interview, Brian Fell had 13 building projects and 15 joinery projects in progress. Brian Fell and Anthony Thompson (Projects Director) outlined the factors that influence their hiring of freelancers. Their main concern with employees is carrying a labour overhead when business is not sufficient to keep everyone busy (hypotheses 1 and 4). Brian Fell explained that "If we had to put people on the books we would have to cut

back on the number of employees to avoid having spare capacity". Anthony Thompson described it as a "pay as you go" model where freelancers could be used to make it possible to maintain supply during spikes in demand and avoid carrying downtime cost during troughs in demand (hypothesis 5). If downtime is excessive then it will trigger redundancies, which in turn add further costs when cash flow is likely to be tight. Brian Fell explained "If you run out of work then you would go bankrupt paying redundancy payments". He ruled out using less specialised labour to avoid downtime. He stressed that specialised skills were critical for productivity and quality. He also pointed out that the labour market is comprised of specialists and that 'jack of all trades' were a rarity (for example, see figure 3.1).

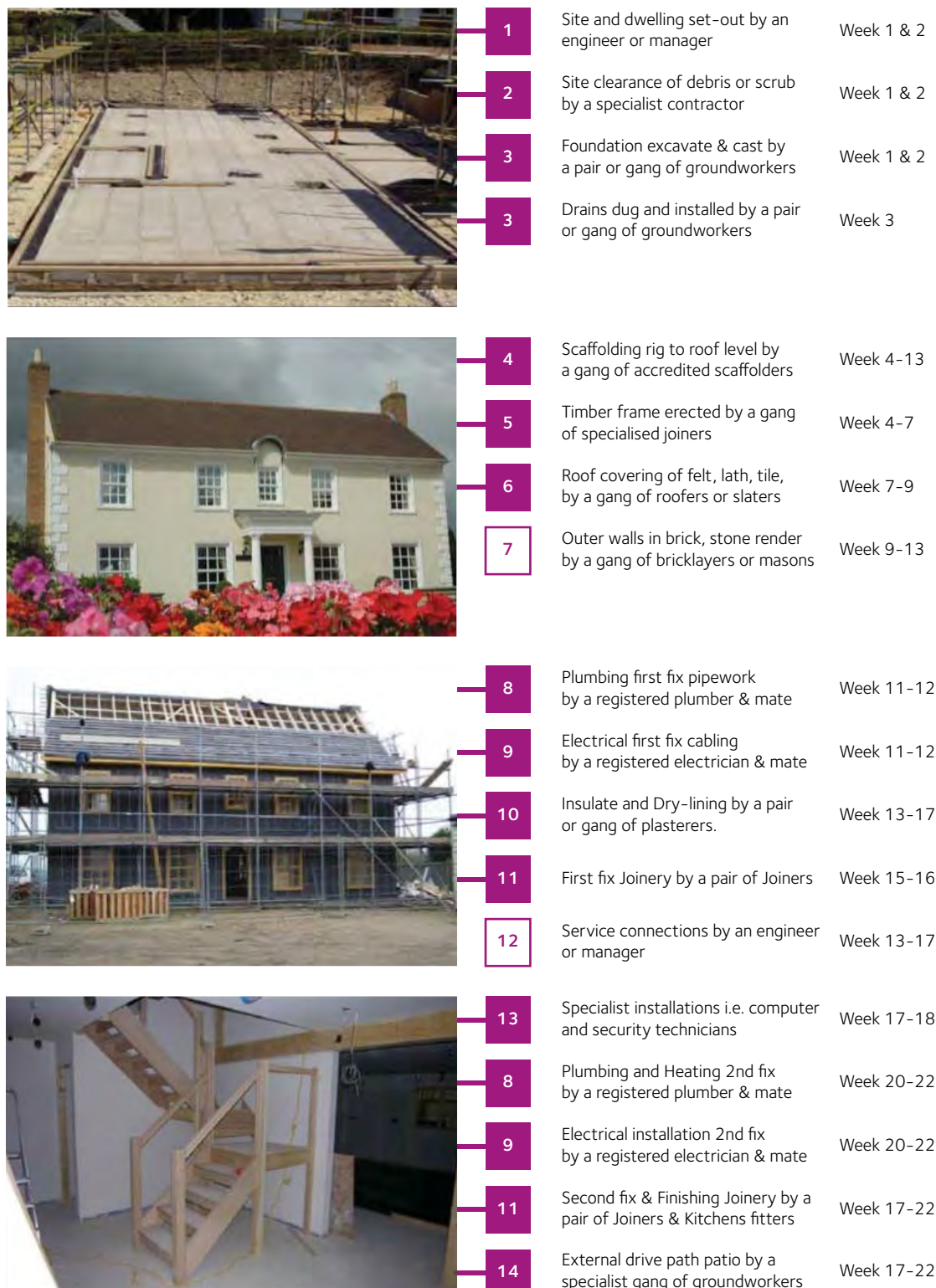
Anthony Thompson explained that freelancers are able to command a pay premium: "freelancers don't get holiday, sick or downtime pay, but this means they can command higher pay-per-week than employees doing the same work". He also pointed out that there is a selection effect in the labour market, where the mindset of the freelancer in relation to risk/reward was very different to an employee (hypothesis 3). "We could not ask an employee to work on the same basis as a sub-contractor. It would unsettle them and they would leave".

Another key consideration in hiring freelancers is that it allows flexibility and agility. Brian Fell maintained that "sub-contractors create flexibility. Moving men around and putting part of the job on hold while a problem gets sorted out is only possible with sub-contractors. Without them the company would be left carrying a huge labour overhead in such circumstances" (hypotheses 2 and 5).

There are certain parts of the job where the company would not use sub-contractors. For example, given work volumes, there is a certain amount of labour they feel they can hire as employees without the risk of incurring downtime costs. This employee base also enables the company to differentiate itself on customer care. This is particularly important for private house build, repair and maintenance. In these market segments, customers are on-site and hence expect some continuity of builder personnel throughout the entire project. They will also engage with the company most at the start and end of the project, and for this reason Brian Fell usually ensures that these parts of the construction project are carried out by employees rather than sub-contractors. He pointed out that larger house builders such as Taylor Wimpey do not have the same problem because most large new-build projects do not have the customer on site during the building work.

Figure 3.1: Freelancer Specialisation of labour in the construction of a single bespoke dwelling.

Eighteen specific phases of works carried out by 14 different trade-groups. Brian Fell Builders program of works for a five-bed Potton timber frame dwelling.



Goldhill Contracting Ltd: building strip out and preparation²⁰

Goldhill Contracting Ltd is a building strip out, cleaning and waste removal business in the commercial, industrial and home building sectors. They hire an average of 30 people, comprised roughly of one third employees and two thirds freelancers.

The company is a father and son family-owned business, started by the father, Mr William Sie Barnett, who, as a freelance building strip out worker, recognised an opportunity to offer a more professional service in this business sector. The company grew further when his son, Ian Barnett, joined the firm; applying his business acumen to enhance the scale and efficiency of the company's operations. The use of freelance workers enabled the company to start-up and grow without the need to raise external finance (hypothesis 2).

One of the main challenges of the business is to dovetail its activities with other construction work involved in any given project. Most of their work is required in phases, with substantial intervals between one aspect of the work and the next. As a

result, the use of freelance workers negates substantial downtime costs i.e. two thirds of these potential costs are avoided because of freelance workers (hypothesis 1). They note that most freelancers used by the firm do not want to become employees. They prefer the higher rewards resulting from their willingness to absorb some of the business risks from Goldhill Ltd. But they also note that they prefer to use employees for some of the work. They use in-house employees to manage the environmental and health & safety performance targets of the company.

Likewise, Ian Barnett is aware that the use of freelance workers enables competition in the industry (hypothesis 6). He observes that: "without freelancers, the industry would end up being dominated by a small number of big companies."

20. <http://www.goldhillcontracting.co.uk/>

Rowland Homes: Private Housing and some Public Housing

Established in 1993, Rowland has a strong record of property development across the North West, Lancashire, Greater Manchester, Merseyside, Cheshire and North Wales.

The privately-owned company is based in Leyland²¹ and currently manages 16 different sites. In an environment in which affordable housing has become a scarce resource, and where new houses sell quickly, Rowland knows it must operate flexibly if it wants to deliver quality and bespoke housing at an affordable price. While Rowland's projects vary in size and location around the country, the management model remains the same. Rowland employs a site manager who is responsible for the quality of the houses built, while a sales representative offers tailor-made interior design solutions to customers. The building plan relies on a build-as-you-sell scheme, enabling the customer to move into their new home as soon as possible.

One such site in Astley Green, Northwest of Manchester, was developed from the ground up on empty land, leaving Rowland to carry all the financial risks. The project is successful enough that Rowland has decided to start a new site in nearby Tyldesley. With an average of 40 people on site every day, Rowland employs five people on the Astley Green site: site manager, assistant site manager, forklift driver, a sales representative and a general labourer. All other trades, however, are outsourced (Figure 3.2). The site manager is Dean Clisham, a joiner by trade with 15 years of experience in the industry; was promoted to the role last year after only two years as assistant site manager. His first appointment in his new senior role was Astley Green, a development consisting of 124, three and

four bedroom homes with a project duration of almost two years. Tony Butterworth is the assistant site manager, and together they manage resources on site, monitor the programme, and ensure the project is delivered to customers to a high standard and within budget. Dean and Tony are also responsible for managing the health and safety commitments.

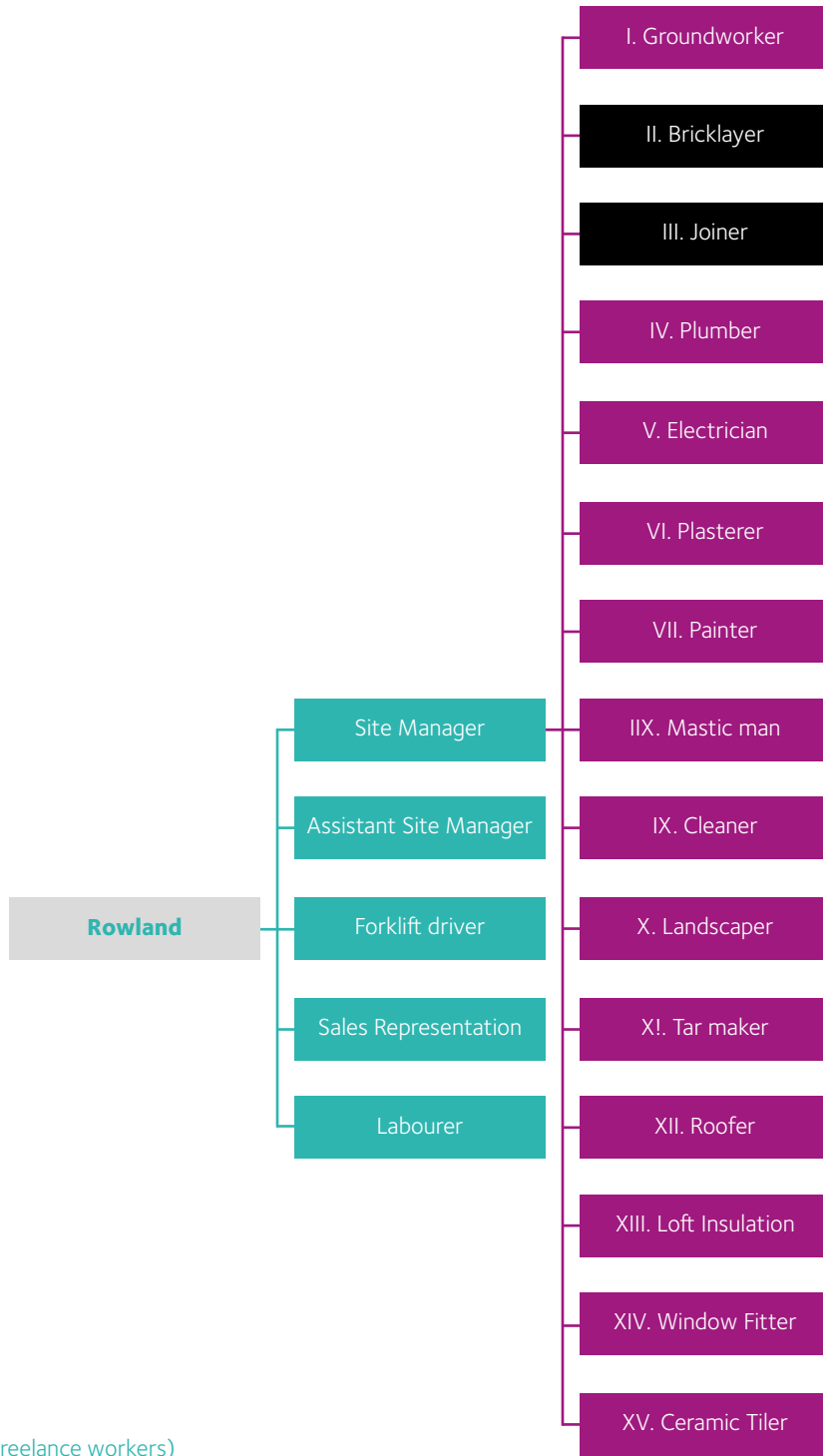
A distinctive feature of Rowland's management is its decentralisation, whereby individual site managers have the ability to implement tailor-made trade solutions. This means Dean and Tony can respond with great flexibility to changes in their build programme. Aware of the high competition in the construction industry (hypothesis 6), Dean explains that freelancers provide him

with more flexibility (hypothesis 2): "I have my portfolio of companies and sub-contractors I know from previous jobs. If they are all gone, I liaise with other site managers and ask if they know anyone who would be available. This gives me the flexibility I need to adapt the site to the speed prescribed by the head office, but also allows me to work with people I know and trust." Every house built requires 15 different trades, of which 13 are outsourced to other companies, while freelancers are used to carry out joinery and bricklaying works.

Dean's ability to adapt rates of pay within a certain range, allows him to respond optimally to fluctuations in demand and, therefore, produce high-quality work in an optimal period (hypothesis 5).

21. www.rowland.co.uk/about/

Figure 3.2: Hierarchical Work Model of Rowland’s Astley Green Site



Teal = employed
 Purple = sub-contracted
 Black = contracted out to freelance workers)

In Rowland’s view, working with sub-contracted bricklayers and joiners carries a distinctive advantage in that it assures they keep up with the schedule by allocating the different labourers in a flexible manner (hypotheses 2 and 4). Table 3.4 displays the different tasks required to build a house in Astley Green over a total of 19 weeks.

As illustrated, bricklayers are required for five-and-a-half weeks per house, and joiners nine weeks. Given that both bricklayers and joiners are required at different stages of the construction, Dean tells us that “outsourcing on a contract basis, and telling the

freelancers what to build, and by when, allows me ensure that the work is done by the time the other trades reach the site.”

Hypothesis 4 is in evidence when calculating the downtime cost savings when using freelancers for each specialist trade per house built in Astley Green (Table 3.5). Results reveal that the smallest amount of downtime is observed for joiners and bricklayers – both occupations outsourced to freelancers. While the tasks with greater downtime have been packaged-out to minimise the costs, a hypothetical scenario in which joiners and bricklayers were employed by Rowland would

Table 3.4: Labour needed for a house built in Astley Green

Work steps	Weeks	Labourer Involved
1. Foundation Excavated & Concreted	0.5	Ground worker
2. Foundation Brickwork Complete	0.5	Bricklayer
3. Slab and Drains	1	Ground worker
4. 1st Floor Brick/Blockwork	2	Bricklayer
5. 1st Floor Joists/Bison	1	Joiner
6. 2nd Floor Brick/Blockwork	2	Bricklayer, Joiner
7. Wall plate	1	Bricklayer
8. Roof Timbers	1	Joiner
9. Roof Tiles	1	Roofer
10. 1st Fix	2	Joiner, Plumber, Electrician, Loft Insulation, Window fitter
11. Plaster	2	Plasterer
12. 2nd Fix	2	Joiner, Plumber, Electrician
13. Decoration	1	Painter
14. Final	1	Ground worker, Joiner, Plumber, Electrician, Mastic man, Landscaper, Tar maker, Ceramic toiler
15. Snag/Clean	1	Ground worker, Cleaner

mean that, for more than half the amount of time required to complete a house, the two trades are not required.

While one could indeed argue that bricklayers and joiners could be placed on another housing project, the downtime resulting from employing the tradesmen full-time would only effectively be removed if there were no delays at all in the building process. Furthermore, Rowland would also have to be able to immediately allocate their employed joiners and bricklayers on another building project as soon as the current one is finished, keeping in mind of course the increased costs of travel that occur when hypothetical employees were to travel from one site to the other.

Table 3.5: Downtime per house built in respect of the specific trade

Inputs	Weeks	% Downtime
Finished House	19	
Ground worker	15.5	81.6
Bricklayer	13.5	71.1
Joiner	10	52.6
Plumber	14	73.7
Electrician	14	73.7
Plasterer	17	89.5
Painter	18	94.7
Mastic man	18	94.7
Cleaner	18	94.7
Landscaper	18	94.7
Tar maker	18	94.7
Roofer	18	94.7
Loft insulation	17	89.5
Window fitter	17	89.5
Ceramic toiler	18	94.7
Average		85.6
Maximum		94.7
Minimum		52.6

Colbre Projects Ltd

Colbre is a construction company founded in Lancashire in 1999, which has since expanded and now has building projects across England²². It focuses predominantly on residential construction, and in particular on existing building conversion/refurbishments and student accommodation. We interviewed Neil Watkiss, a Colbre site manager overseeing the conversion of a large rectory into an apartment complex building in Manchester. The 12-month project involved uncertainty and complexity given that virtually every apartment had unique architectural designs.

Colbre were the main contractors for the project carrying out the works for a fixed price on behalf of the homebuilder (Forshaw Land & Property Group²³) who owned the property and outsourced the work. Colbre were absorbing most of the financial risk in the construction project from Forshaw. In addition, Colbre also agreed to complete the apartment units in the order in which Forshaw sold them. This enabled Forshaw to adopt a 'build as you sell' model, whereby they only began construction on apartments they had sold and received payment on. In this manner, Colbre also absorbed a significant amount of the market risk for Forshaw.

Apart from the site manager, the assistant site manager, general labourer, and a health & safety employee, all of the work on the project was contracted out to freelance workers or sub-contractors. This enabled Colbre to pass on a significant amount of the

construction and market risk to freelancers and sub-contractors (hypotheses 1 and 5). The adopted methodology is presented in Figure 3.3. The risk management component of the entire project operates through a freelancer and sub-contractor model. Private home buyers want to pay a fixed price for a completed home and not become involved in any of the construction risks or uncertainties. Therefore, in Figure 3.3 it is evident that Forshaw provides the offer to private buyers, but pass off the construction risk and much of the market risk to the main contractor. They in turn pass much of the risks on to sub-contractors and freelancers. The freelancers and sub-contractors gain because they are paid a premium for their work, and also limit their downtime by splitting their work across many projects over time.

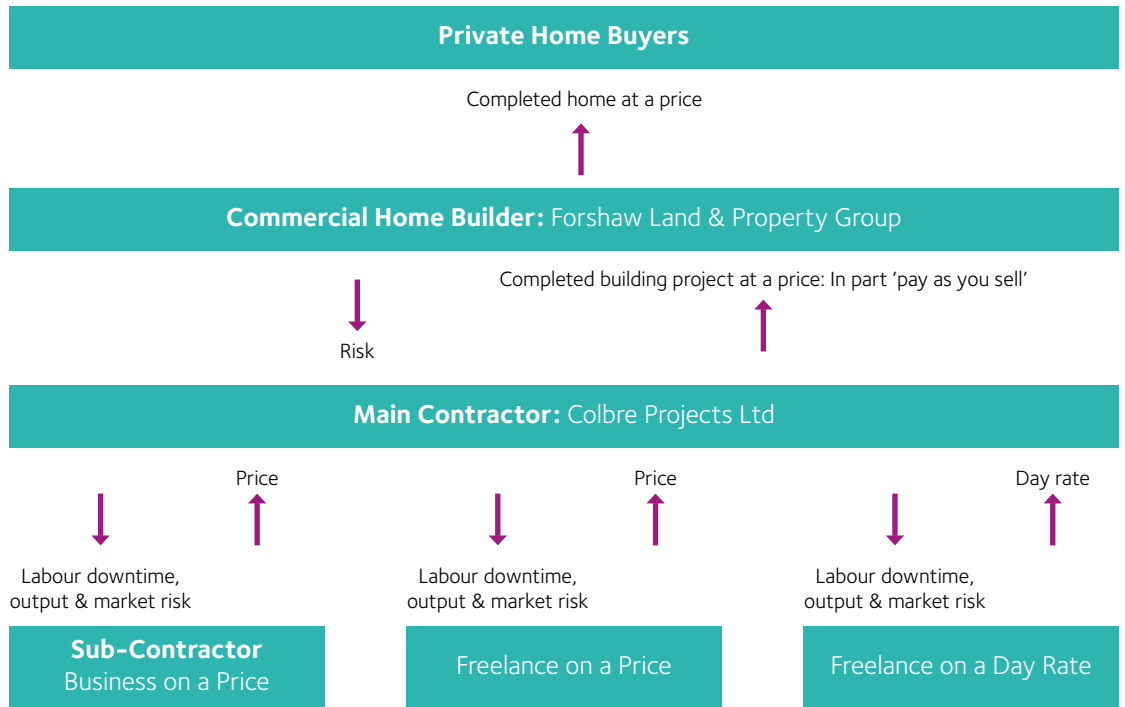
Freelancers and sub-contractors work on an agreed price to complete a project to

specification and within deadline. Colbre's site manager explained: "this makes my job easier as I don't have to manage employees for that segment of the work to ensure it is completed on time and to specification. It also means I don't have to worry about workers underperforming in terms of productivity or constantly check the quality of their work." In this manner, Colbre are able to pass on significant parts of the construction risk which they absorbed from Forshaw, to freelancers and sub-contractors (hypotheses 1 and 3).

This process also enables intra-project optimisation in terms of being able to convert apartments as they are sold to customers. While the most cost-effective way to convert a building is often from the ground up, the sub-contracting and freelancer model enables Colbre to convert apartments sequentially in the order in which they are sold. Since the

22. <https://colbreprojects.com> 23. <http://forshawgroup.com>

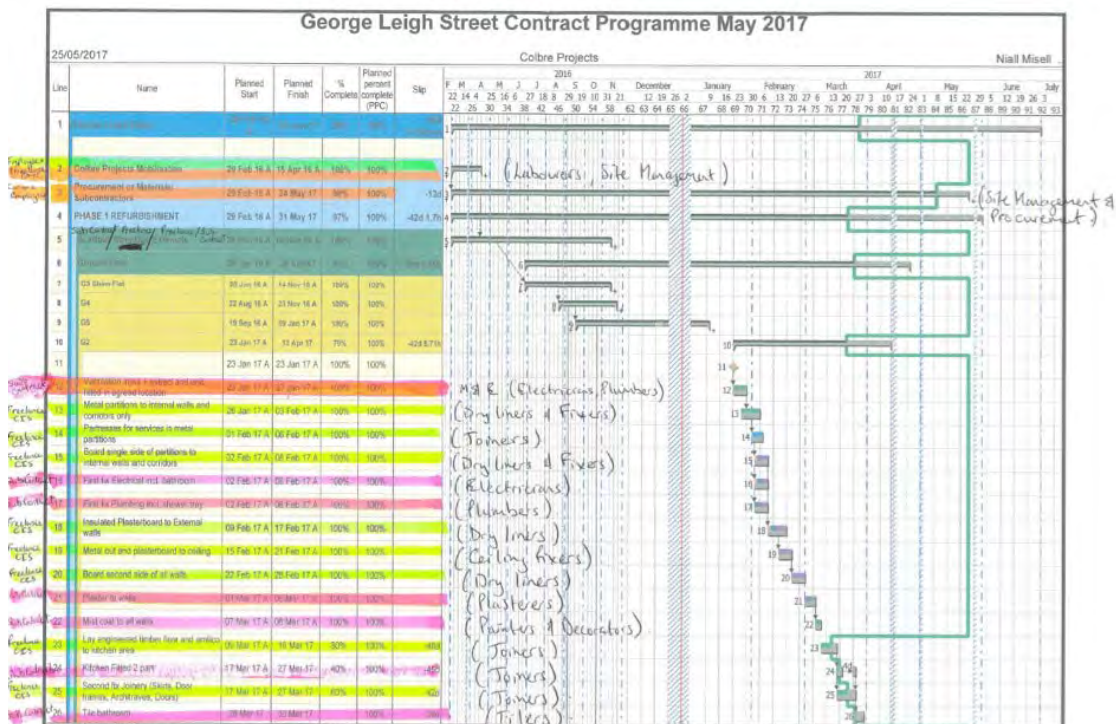
Figure 3.3: Risk Management in a Colbre construction project



final buyer pays 50% of the price to Forshaw at the time of sale, and the remainder on completion, this model eases Forshaw's market risk and reduces their financial requirements. This enables the cost and risk benefits to be passed from freelancers and sub-contractors, working on a price, to first Colbre but ultimately Forshaw. Not surprisingly, the benefits come at a higher price for Colbre and in turn Forshaw, but still at a level that generates net value added for them both (hypotheses 2 and 5). As Neil Watkiss the site manager explained: "we always try to convert project work to a price even if it means that we pay more, simply because the cost savings and productivity benefits far outweigh the freelance price premium."

Colbre's preference to hire freelancers on an agreed price carries the aforementioned benefits, but this is not always possible due of the idiosyncratic nature of building restoration work. As a result, a significant number of freelancers are also hired on day rates, though this still enables Colbre to pass on downtime risk to these workers. Colbre gets to know which freelancers are the most productive and so, as new projects emerge, they can choose their favoured freelancers. As the site manager explains: "we put major effort into finding work for the most highly productive freelancers to ensure that they keep coming back to us rather than taking on freelance work at other firms and hence becoming unavailable."

Figure 3.4:
Freelancers used on project work involving high (white space) downtime



A key risk that cannot be passed off easily is compliance with health and safety regulations. This is the responsibility of the main contractor who applies for an F10 certificate and must ensure that the health and safety rules and regulations are implemented on site. Since this risk cannot be passed off, Colbre has employees who are hired to implement and check health and safety standards are followed and ensure that all sub-contractors and freelancers are themselves compliant with health and safety regulations. In sum, the division of labour on the site between freelancers and employees is very much driven by the outcome of optimal risk management.

Mayo Civil Engineering (Mayo Civils): Private Housing & Commercial

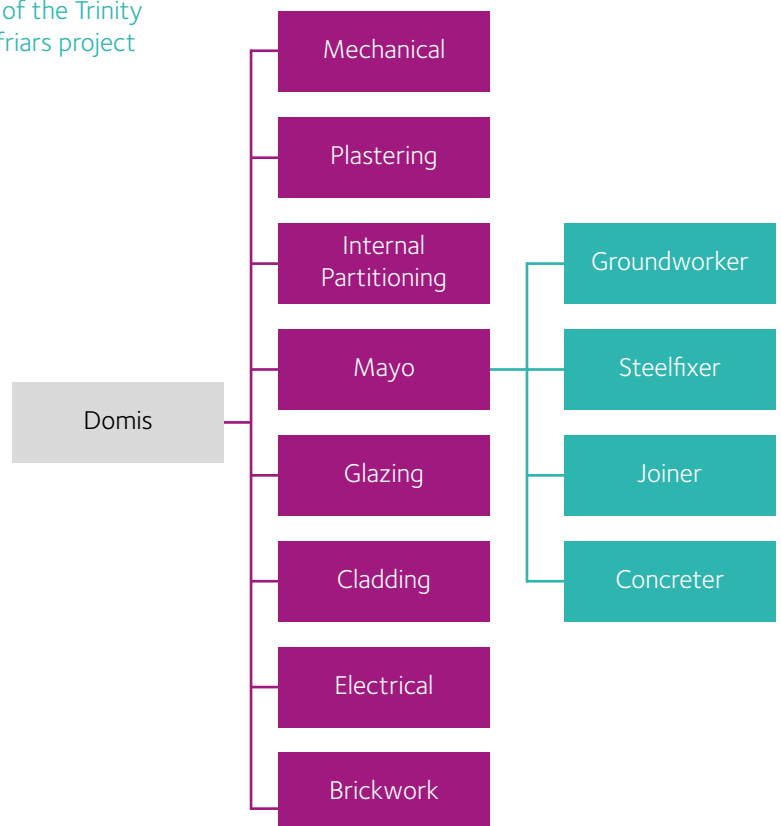
Mayo Civil Engineering, established in 2005, is a leading construction company in the Northwest of England. Mayo has a large portfolio of projects across different sectors and carries out works including: roads, sewers, deep drainage, foundations and structural concrete frames²⁴. Mayo currently operates 12 sites, six of which are superstructures, while the other six are commercial groundwork.

We interviewed Kelvin Mayall, the Project Manager for the Trinity Project; a dual tower made up of 370 apartments in the heart of Manchester, and the adjacent Grade II listed historic Black Friar pub. The construction involves substructure foundations and drainage, dual slip formed cores, concrete framed superstructures, and external hard landscaping.

Due to last for 70 weeks, the contract's value is £9.8 million. The main contractor, DOMIS, sub-contracted the work to eight different parties including the leading sub-contractor, Mayo Civil. Mayo Civil rely on highly-skilled freelance engineers, groundworkers, steel fixers, joiners and concreters (Figure 3.5) (hypothesis 4).

The Trinity Project's workforce are divided by their trades and employment status (Figure 3.6). The division illustrates the overwhelming importance of freelancers. Indeed, Mayo only directly employs an engineer supervisor and a trainee engineer.

Figure 3.5: Workflow chart of the Trinity Blackfriars project



24. <http://mayocivils.com/index.php/company-profile>

Figure 3.6:
Employee–Freelancer
workforce division of
Mayo Civil Engineering

Engineers	Groundworkers	Steelfixers	Joiners	Concrete Finishers	Sub-contracted packages
One employed One trainee Fluctuation of freelancers	Two employed 38 Freelancers	Freelancers	Freelancers	Freelancers	Crane Scaffold

Mayo also employs a quantity surveyor who is responsible for ensuring the costs of the project are in line with the forecasted expectations. Reducing the overhead costs of employed labour by relying on freelancers is extremely beneficial as the quantity surveyors know that most of the specialised trades’ labour downtime is avoided, therefore greatly reducing the cost of the entire project (hypothesis 4).

Stephen Turner, the supervising joiner for the Trinity Project, allocates work to the joiners and oversees the work being carried out. As figure 3.6 illustrates, the management of the Trinity site is relatively decentralised. This means that Stephen is responsible for ensuring the joinery work is being completed on time and is of impeccable quality. In Figure 3.7, the different construction steps in the early phase of the project are evident alongside the different trades active on site.

- In the top left corner, base steel is going in a block – an essential step of superstructure works requiring joiners, steel fixers, and groundworkers.
- In the bottom left corner, the early phase of groundworks can be observed, with freelance groundworkers scattered around and the sub-contracted craning services also visible.
- On the right, the start of the construction of the slipform core 1, requiring the labour of concrete finishers, steelfixers, and joiners.
- On the top of the picture is another sub-contracted crane, which will soon be replaced by one of two tower-cranes.

Stephen offers support to hypotheses 2 and 5, and explains that he benefits greatly from the widespread freelancing model in the construction industry: “I can let go and take on additional joiners as I need. I just need to get a green light from the contract managers and I can re-organise my site overnight.”

We calculate the downtime saved from relying on freelancers and report the answers in Table 3.6.

The results emphasise the thorough just-in-time site organisation of Kelvin, greatly reducing downtime for joiners and steelfixers. The benefits of relying on a freelance model become very revealing when noting the considerable amount of downtime for both concrete finishers and groundworkers. Given the magnitude of the project, it is evident that employing all concrete finishers and groundworkers would simply be unfeasible for Mayo Civil Engineering (hypothesis 4).

Figure 3.7: Drone picture of the Trinity Blackfriars project



Table 3.6: Downtime per trade on the Trinity Blackfriars project

Inputs	Weeks	% Downtime
Trinity Blackfriars	318	
Joiner	8	2.5
Steelfixer	8	2.5
Concrete finisher	34	10.7
Groundworker	298	93.7
Average		27.4
Maximum		93.7
Minimum		2.5

Kelvin indicates that labour shortage is a risk often faced, but that the contract managers will manage rates and supply in a consistent manner, responding to possible shortages immediately. “We work a lot on loyalty; if you treat freelancers well they will tend to come back, which gives us the possibility to choose who we want to work with.” However, Kelvin acknowledges the bargaining power is in the hands of the freelancers across the industry. Workers negotiate rates for work consistent with the localised ‘climate’. Rates reflect freelancer trade, seniority, experience and, of course, the quality of delivered work.

Birmingham based civil engineering company: Commercial

This Birmingham based company established in in the 1990s is a successful firm specialising in excavation, concrete/formwork, drainage and external works. They have a proven track record in the industry and a considerable fleet of plant and machinery. This allows the company to take on big projects, such as a Defence National Rehabilitation Centre, the construction of new production halls for Jaguar Land Rover and the construction of a new holiday village for Center Parcs. Most of their clients are commercial, with a further 10% in the housing sector.

We met four key people of this company's senior management for a discussion on the importance of freelancing in the construction industry. The following people were present:

- The resources and facilities manager
- The production director
- The commercial director
- The financial controller

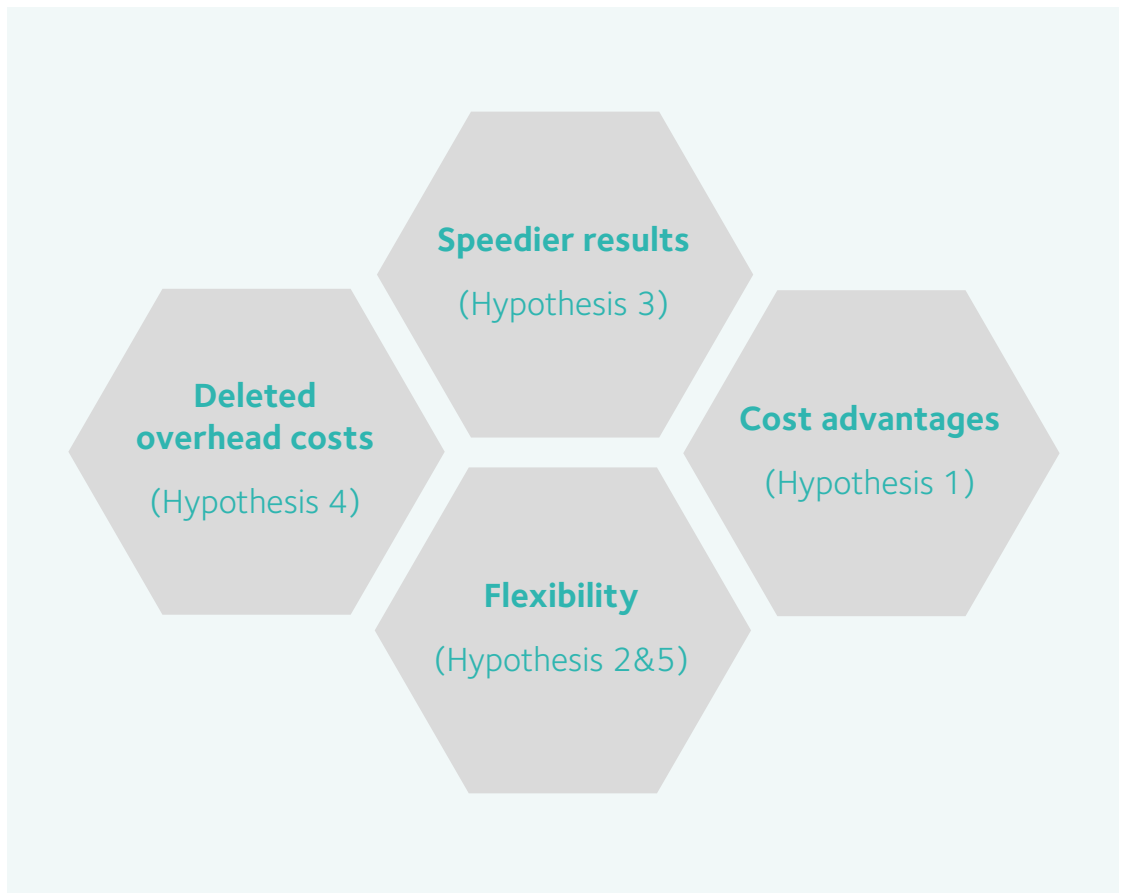
The financial controller pointed out the importance to the company of delivering quality construction: "freelancers are necessary to our economy" he said before, emphasising that freelancers deliver top-quality output, on time (hypothesis 3), enabling them to take on big projects. The production director explained that they would sub-contract entire packages under certain circumstances but mostly rely on freelancers.

We ask both the commercial and production directors to elaborate on the advantages of relying on freelancers in the commercial construction sector. We report an overview of their answers in Figure 3.8.

The company typically provides freelancers with the material required for a job, so that they operate within a labour-only framework. This is more financially viable, as they have better payment terms with suppliers due to the volumes they buy each year, which helps push costs down considerably. The production director explained that by using freelancers on a labour-only basis the company is able to flexibly manage projects to suit the requirements of the job and this ensures resource requirements and programme deadlines are achievable (hypotheses 1 and 5). Downtime for all operations and trades involved can be calculated from the programme and the flexible use of freelancers means that the company does not have to bear the fixed cost of this downtime; reducing overhead costs in the process (hypothesis 4). The financial controller said: "freelancers give us flexibility to be more dynamic, to control risk better and remain competitive in securing future work." The company also sub-contracts entire packages to other specialist contractors, enabling them to better manage risk (hypothesis 1).

On the other hand, this company is aware of the downside risks of freelancer dependence. Akin to the high competitiveness in the market (hypothesis 6), a risk exists whereby competitors that offer higher pay rates can increase the mobility of freelancers across the construction sector. The production director concluded that last year alone, labour costs increased by 16%, and given the importance of migrants in the British construction industry, this figure is likely to increase further after Brexit. The commercial director and production director would like to see regulations that allow the freedom to utilise freelancers: "some companies are put out of business due to the high fixed cost of employing operatives by alternative means". The production director emphasised: "freelancing suits the industry. It allows us to offer affordable high-quality building solutions, and in turn, allows operatives to improve their own financial returns, and for all parties to manage risk more flexibly" (hypothesis 1).

Figure 3.8:
Advantages of relying
on freelancers in the
commercial sector



JOS Structures: Infrastructure

JOS Structures Limited was established in 2004 and is based in Birmingham²⁵. As a formwork and reinforced concrete specialist, JOS Structures oversees projects across different sectors in the construction industry; all within a 100-mile radius of Birmingham.

JOS is responsible for constructing the reinforced concrete sub and superstructure of the new bridge being constructed over the A5 at Uttoxeter. JOS' contract with Carrillion and Tarmac means they are responsible for providing the required plant and labour to complete the works, while the labour provision relies almost entirely on freelancers (Figure 3.9). Jake Allison is a self-employed site manager engaged by JOS to oversee the package of work. By outsourcing the responsibilities of on-site management to Jake, JOS reduces possible principal-agent conflict and ensures that productivity is increased as it is in his best interest to complete the job on time (hypothesis 3). The main contractors for the project are Carillion and Tarmac who pass on much of the risk by outsourcing the job to specialist sub-contractors, including JOS (hypothesis 1). JOS is responsible for constructing the reinforced concrete sub and superstructure

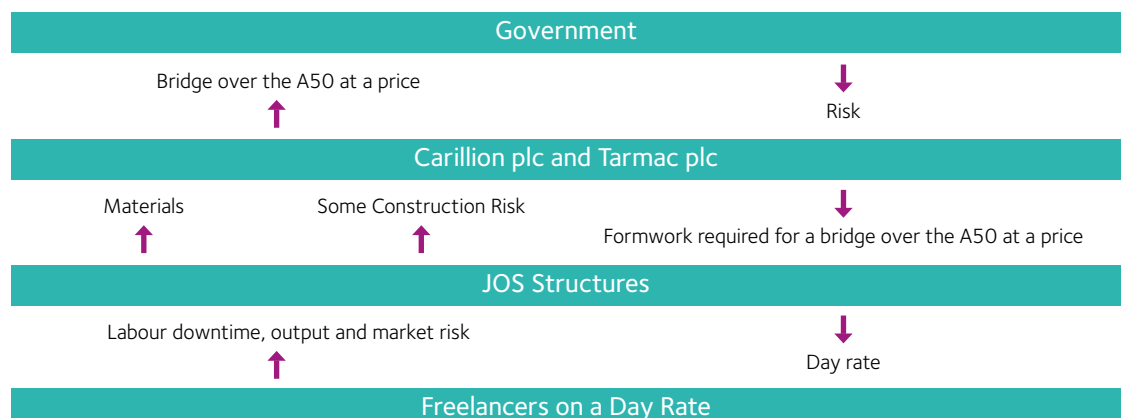
of the bridge, and provides the plant, whilst relying on freelance tradesmen to carry out the work (Figure 3.9).

Outsourcing the work to freelancers limits the downside risk (hypothesis 1) and enables greater flexibility for JOS to adapt to changes in build programme during the project (hypothesis 2).

At the beginning of the project, Jake was supervising 20 tradesmen who were let go gradually as the elements of their work finished. Reflecting on the change in workforce on-site during the project, Jake stated: "freelancers give me great flexibility, JOS could never do the job at the same cost and within the same timeframe if every worker would be employed" (hypotheses 1 and 2). However, not everybody involved in the project is a freelancer: "JOS Structures employs one carpenter, everybody else is a freelancer", Jake explained. He added that it

is always convenient to have an employed carpenter who can do different jobs here and there. Indeed, the great flexibility freelancers have could mean that a large amount of them may not turn into work one day, enhancing the importance of having an employee who is always there and can always do elements of work to keep the project running. We asked Jake whether or not it would be beneficial to JOS to employ the workforce they regularly rely on, but he stated that most of the freelancers would not want to be employed, and that JOS would not know what to do with them once their specific job was complete (hypotheses 4 and 5). This very clear division of labour allows the different parties involved to benefit from economies of scale and specialise in their respective fields (hypothesis 4), hence making the entire project more efficient and less costly – an advantage felt by the entire economy and taxpayers who are funding this public infrastructure project.

Figure 3.9: Downtime per trade on the Trinity Blackfriars project



25. <http://josstructuresltd.com/about-us>

Discussion

The purpose of the cases is to test if the theory applies. Specifically, to ascertain whether managers in the construction industry use freelancers in order to achieve the business effects outlined in the hypotheses. In each of the case studies we have found that the hypotheses are at the forefront of the motivation for managers to hire legitimate freelancers.

Therefore, the evidence bears out the theory that while freelancers share some characteristics with employees and entrepreneurs, they play a unique and defining economic role in their own right. Not only did the case study analysis find that freelancers' economic performance was beneficial to the industry but, in fact, was the main business model upon which the industry's labour-hiring practices are based. Majority of the managers we interviewed, believed the industry could not operate without the freelance labour market, and had little doubt that an absence of freelance workers could have drastic economic consequences for the industry.

The purpose of this report (now in this third edition) is to continue the development of the research trajectory, which we began in the first edition and involves the recognition of freelance workers as a unique form of labour that plays specific a role in driving economic performance. We examine these in more detail now.

In Hypothesis 1 we claimed that freelancers enabled greater de-risking of business ventures. We found from the businesses owners we interviewed, many utilised freelancers for this purpose. Often, they created their de-risking strategies around the capability of freelancers to minimise fixed sunk labour costs. Taylor Wimpey adopted a staged approach to investment, only investing when 15% of units had been sold off plan. Similarly, Colbre prioritised which apartment to complete first, based on which were selling first, in a conversion-renovation.

This practice implies that key sub-contractors such as MV Kelly, SDP Plastering Ltd and Mayo Civil Engineering have to be able to scale up and down labour inputs regularly and at short notice. They were only able to do this by utilising very high levels of freelancers in their workforce (close to 100% for both SDP Plastering Ltd and MV Kelly – whose freelancer share of the workforce had risen from 85% to nearly 100% over a period when their entire workforce increased by over 300% and turnover by 600%).

In other sectors the same staged investment held true. For example, Goldhill Ltd (66% freelancers) did not have to commit resources until they actually had an invoice for a new project. In the case of SME, home builder Brian Fell used 25% freelancers on scheduled work and a higher proportion on variable demand projects,

meaning freelancers played a smaller but similar significant role. However, here we found that the ability to use freelancers is limited when customers regard the 'personal face' of the firm as a key differentiator and competitive advantage. We also noted that employees were preferred over freelancers in businesses who were engaged in the manufacturing of construction materials (Brian Fell's manufacturing activities made no use of freelancers).

In Hypothesis 2 we argued that if freelancers enable de-risking strategies then they will reduce finance constraints in the industry. Firms such as Rowland, Mayo Civils and JOS Structures used freelancers for these ends. Colbre and Taylor Wimpey even went a step further by using the flexibility that freelancers offer to only build when customers were actually buying the properties. This allowed them to use customer finance more and less loan/investment finance. Likewise, Rowland, Mayo Civils and JOS Structures used freelancers to enable greater resources and agility.

In all of the case studies, the ability of freelancers to increase flexibility and responsiveness to the unforeseen was highlighted as a major reason for their use. The ability of freelancers to de-risk the business allow firms to only invest after being invoiced – this was key in enabling the start-up of at least half of the companies interviewed. The founders of SDP Plastering Ltd, MV Kelly Ltd and Goldhill Ltd all previously worked as freelancers and were able to evolve into entrepreneurs, because of the low finance requirements. It is essentially a start-up strategy where you sell first and only pay for labour after an order has been confirmed.

In Hypothesis 3 we proposed that freelancers should optimise the use of performance related pay schemes, which can raise productivity and pass off risk. We found these schemes could equally be adopted for employees but were not utilised because they do not have the same effect. Colbre and the Birmingham civil engineering company both found it easier to manage and motivate workers to get jobs done on time to the correct specification if the pay was based on a freelancer output price. Most companies claimed that the 'mindset' of a freelancer is different to an employee and therefore, a selection effect occurs when a piece work is made available. Workers with higher risk/reward preferences tend to gravitate towards freelance work. SDP Plastering

Ltd claimed that in addition, the more able/productive workers would opt for freelance work because the greater availability of work in this labour market segment allowed them to maximise their income.

In Hypothesis 4 we argued that since freelancers reduce downtime costs, they reduce the need for firms to scale up in order to have enough work for specialist employees. We have found substantial supportive evidence for this. We observed that a quick view of Colbre's construction project Gantt chart visualises the high proportion of specialised labour inactive downtime on any building project. We calculated the actual downtime for some of the main contractors including Rowland (86%) and Taylor Wimpey (68%), which revealed this figure was quite substantial. Among sub-contractors, downtime is somewhat reduced as they are only active for their specialised portion of the project (e.g. Mayo 27% and MV Kelly with 59%). However, the downtime periods are still substantial for sub-contractors to the point that they too actively pass-off the risk to freelancers. Most of the managers interviewed were very much aware that minimum efficient scale in the industry would be necessarily much higher if freelancers were not available i.e. with fixed demand M&A activity would increase as firms buy market share in a bid to have more simultaneous and sequential projects to avoid downtime (resulting from the specialisation of labour in the construction industry).

The interrelatedness of the assumptions underpinning the hypotheses tends to mean that if one resonates with managers then so will the others. Therefore, at this point in the discussion it is probably not too surprising to note that Hypothesis 5, which posits that freelancers enable firms to reduce the cost and risks associated with uncertainty over fluctuations in consumer demand, was also supported by the case studies. The ability of freelancers to facilitate rapid scaling up/down while reducing the costs of spare capacity were emphasised as very important by all managers.

Hypothesis 6 claimed that freelancing reduces monopolistic power and promotes competition. This Hypothesis is an economic implication that follows if the other hypotheses hold true as they reduce the following: sunk cost entry barriers; finance constraints; labour costs; risk in enterprise and minimum efficient scale. All these effects help promote a more competitive industry, which is good for consumers (who may be the main beneficiaries of the value added

created by freelancers), employment and the economy more widely. This conclusion is further supported by most of the managers who expressed the view that the current industry structure and scale of output was reliant on the availability of freelance workers.

In the next section we quantify the input of legitimate freelancers to the Taylor Wimpey Diglis Basin homebuilding project and a state funded school building project (West Lakes Academy) in Egremont, in order to ascertain the extent to which the industry relies on freelancers. We also investigate the income of construction industry freelancers to ascertain if they share some of the economic benefits that they have been identified as creating in these 10 case studies.



4. Quantifying Freelancers in the Construction Industry

Introduction

Earlier we noted that it is common for manual trade employees and freelancers within the construction industry to only be perceived as substitutes. In this light, their main interaction is competitive where freelancers are a shadow workforce for employees. The analysis in this report has shown that freelancers actually serve a distinct economic function of their own. They help generate 6 areas of value added in the economy which are unique to them i.e. that are not generated by employees. These include:

1. Enabling greater de-risking of business venturing (by both corporations and SMEs).
2. Creating more capable (less resource constrained), flexible and agile businesses.
3. Increasing productivity and enabling greater use of specialised skilled labour by reducing the cost of downtime associated with each skilled trade that is only required for a relatively small part of the overall work on a construction project.
4. Offering more options to use performance related pay schemes.
5. Enabling greater ability to manage the risk and uncertainty associated with variable demand i.e. peaks and troughs in demand.
6. Increasing competition through lower barriers to entry and reduced minimum efficient scale.

We noted in the case study analysis that executives in the construction industry emphasised that freelancers underpinned the business model for the construction industry through these economic value drivers; particularly 1, 3 and 5 above. This raises the question of the extent to which the current industry business model depends on freelance labour. To answer this we estimated the share of freelancers in the construction industry workforce.

In order to provide a robust micro level test we undertook ‘ground-up’ project level estimates of the number of freelancers on two different building projects. This enables an estimate where one can closely observe the composition of the data at the level of the construction project. The first estimate is generated from the Taylor Wimpey Diglis Basin project which featured earlier in this report. This provides a direct insight into both the private and public housing construction sector. In addition, we also examine a state funded school building project undertaken by Kier in Egremont which gives us an insight into the public non-housing sector of the industry. Table 4.1 illustrates how that implies that we have ‘ground-up’ estimates based on visits to construction sites for sectors accounting for 55 per cent of the industry. In the absence of any other ‘ground-up’ project level estimates and given resource constraints – particularly the high labour intensity in collecting this type of data – we believe that these estimates provide a useful insight and the best real estimate to date. That said, they are still a pioneering starting point and hopefully further ‘ground-up’ data collection and analysis will be forthcoming.

Table 4.1:
Industry output by sector

Construction Industry Sector 2010	Industry Share (percentage)
Public Housing	4
Private Housing	18
Infrastructure	15
Public Non-housing	7
Industrial	3
Commercial	18
Housing Repair & Maintenance	18
Non-Housing Repair & Maintenance	17
Total	100

Source: Construction Skills Network (2017)

Defining freelancers:

Since our research has found that freelancers serve a unique economic function, it makes sense to provide a definition of these distinct economic agents in order to facilitate the data collection process. Based on this study and subsequent research we have derived the following definition of legitimate freelancing which was published in Burke (2012):

*Freelancers are workers who hire their services on a contingent project basis where remuneration is usually output based. The cost and risk of their own labour downtime within the project and economic inactivity between projects are borne entirely by the freelancer.*²⁶

On this basis it is possible to provide some practical points of distinction which help categorise workers into legitimate freelance and employee categories. These are presented in table 4.2. Primarily, a true freelancer should be hired on a contingent project rather than a continuous basis where they take on the cost and risk of specialised labour downtime. These distinguishing core features are critical to enable the economic value drivers 1, 3, 5 and 6 above. In addition, one might expect to observe freelancers being paid on an output basis either in a lump sum or an implicit ballpark amount comprising the sum of day rates across a likely interval of time. We use these reference points to both collect and interpret the data.

Taylor Wimpey's Diglis Basin: Block Phase 4A BlockC3 (apartments)

We estimate the extent to which freelancers are used on the same project (Phase 4A Block C3) that was the focus of the earlier case study analysis. In order to collect this information Taylor Wimpey invited all of the contractors involved on this project to meet one of the authors for an interview on site at Diglis Basin. Over the period June 2011 to January 2012 we managed to meet the majority of contractors on these site visits and the remaining contractors were contacted by telephone during and after this period. Data was returned in person at the meeting or sent later by email. Data collection was completed in September 2012. This research resulted in an estimate based on the full population of contractors involved in the project. The data is presented in table 4.3 and indicates that roughly 74 per cent of the work days on the project were completed by freelancers. In terms of a headcount, freelancers accounted for 71 per cent of the number of people who worked on this project.

In line with our definition of freelancers we also asked the contractors whether or not the freelancers were hired on a contingent project basis or not. The contingent contract outcome tallies with the case study evidence in that the nature of the contract was a necessary feature of a freelance contract to generate its unique value added for these businesses. We also asked them to let us know if the freelancers were only paid on performance i.e. a specified fee for completion of a specific piece of work. In the construction industry this is known as 'working on a price'. The results are presented in table 4.4. These show that all of the contractors who responded indicate that freelancers were hired on contingent contracts. In terms of performance based pay, 93 per cent of the contractors said that they paid freelancers on 'a price' (accounting for 65 per cent of all freelancers).

Table 4.2: Distinctions between freelancers and employees

	Freelancer	Employee
Term of Contract:	Project based	Continuous
Project downtime and inter-project spare capacity costs & risks:	Borne by the worker	Borne by the business
Remuneration:	Usually output based	Usually Input based

Source: Burke (2012)

Table 4.3: Freelancers on Taylor Wimpey’s Diglis Basin Phase 4A BlockC3

Trade	Freelancer: Work Days	Employee: Work Days	Number of Freelancers	Number of Employees
Piling	12.00	0.00	2.00	0.00
Groundworks & Drainage	1,563.00	188.00	25.00	3.00
Structural Steel	5.00	33.50	1.00	5.00
Upper floors & Stairs	120.00	16.00	5.00	1.00
Scaffolding	86.00	34.40	3.00	3.00
Brickwork	1,260.00	36.00	21.00	2.00
Windows & Ext Doors	265.00	20.00	6.00	1.00
Architectural Metalwork	0.00	5.00	0.00	4.00
Roofing	185.00	32.00	15.00	3.00
Lift	72.00	6.00	2.00	1.00
Carpentry	381.00	21.00	12.00	2.00
Electrical Installation	0.00	381.00	0.00	6.00
Plumbing Installation	22.00	681.00	2.00	8.00
Partitioning & Decorating	750.00	150.00	12.00	4.00
Kitchen	0.00	62.00	0.00	1.00
Total	4,721.00	1,665.90	106.00	44.00
Percentage	73.92	26.08	70.67	29.33

Table 4.4: Freelancers on Taylor Wimpey's Diglis Basin Phase 4A BlockC3

Trade	Businesses hiring freelancers working on a price (percentages)	Businesses hiring freelancers on a contingent contract (percentages)
Piling	100.00	100.00
Groundworks & Drainage	0.00	100.00
Structural Steel	100.00	100.00
Upper floors & Stairs	100.00	100.00
Scaffolding	100.00	100.00
Brickwork	100.00	100.00
Windows & Ext Doors	100.00	100.00
Architectural Metalwork	n/a	n/a
Roofing	20.00	100.00
Lift	100.00	100.00
Carpentry	100.00	100.00
Electrical Installation	n/a	n/a
Plumbing Installation	100.00	100.00
Partitioning & Decorating	100.00	100.00
Kitchen	n/a	n/a
Percentage of businesses	92.73	100.00
Percentage of freelancers	65.09	100.00

Kier's West Lakes Academy project in Egremont

Kier kindly afforded us the opportunity to survey the main 37 contractors on a state funded school building project following a site visit to the construction project. We used a questionnaire containing the same questions that had been used in Taylor Wimpey's Diglis Basin homebuilding project. This was sent out to the contractors by Kier via email. A reminder email was also sent out by Kier. Subsequently, one of the authors and an assistant called all of the non-respondents in order to generate more replies. Finally the survey collection process finished with a final reminder email being sent by the same author. This resulted in a response rate of 27% comprising 10 businesses. The results are presented in tables 4.5 and 4.6. In table 4.5 we observe that 40 per cent of the work days are carried out by freelancers. This was provided by 37 freelancers accounting for 31 per cent of the total number of people working on the West Lakes Academy project for these firms. The figures are lower than Diglis Basin and this could be due to sector differences and/or to the fact that government prefers the use of employees over freelancers in the building projects which are state funded.

Table 4.5: Freelancers on Kier's Egremont West Lakes Academy project

Trade	Freelancer: Work Days	Employee: Work Days	Number of Freelancers	Number of Employees
Demolition	0.00	425.00	0.00	15.00
Ground Engineering	0.00	70.00	0.00	4.50
Roofing	1,107.00	351.00	19.00	13.00
Furniture Installation	14.00	320.00	2.00	14.00
Fire stopping & air sealing	32.00	44.00	1.00	2.00
Render	330.00	495.00	2.00	3.00
Steelwork	15.00	124.00	3.00	10.00
Fire/Security Alarms	340.00	170.00	10.00	5.00
Piling	0.00	420.00	0.00	7.00
Insulation	0.00	300.00	0.00	8.00
Total	1,838.00	2,719.00	37.00	81.50
Percentage	40.33	59.67	31.22	68.78

Both the Taylor Wimpey and Kier projects' estimates place freelancers as a major supplier of labour with 74 and 40 per cent of the work days comprising an average of 57 per cent. In terms of headcount measures the average is 51 per cent freelancers across both projects.

Table 4.6 needs to be interpreted with caution as 4 businesses did not answer the questions relating to contingent contracts and working 'on a price'. This has the effect of reducing the sample size to 16%

(6 firms). We think the reason for the lower response rate in Egremont compared to Diglis Basin is due to the fact that the former was an email questionnaire whereas the latter involved direct person to person contact with contractors. Nevertheless, the data in Table 4.6 estimates that 100 per cent of businesses hired freelancers on a contingent contract basis. It also shows a lower use of working on a price with just half of firms hiring freelancers on this contractual term (accounting for 59 per cent of freelancers).

Table 4.6: Freelancers on Kier's Egremont West Lakes Academy project

Trade	Businesses hiring freelancers on an output price (percentages)	Businesses hiring freelancers on a contingent contract (percentages)
Demolition	-	-
Ground Engineering	-	-
Roofing	100.00	100.00
Furniture Installation	0.00	100.00
Fire stopping & air sealing	100.00	100.00
Render	100.00	100.00
Steelwork	0.00	100.00
Fire/Security Alarms	0.00	100.00
Piling	-	-
Insulation	-	-
Percentage of businesses	50.00	100.00
Percentage of freelancers	59.46	100.00

Conclusion and discussion:

To our knowledge, these are still the only micro level 'ground-up' building project site-based estimates of the number of legitimate freelancers in the construction industry. They illustrate the dominant business model of the construction industry depends heavily on the availability of freelancers. The research only finds a use of freelancers consistent with definition of the unique economic agents outlined in Burke (2012) and Burke and Cowling (2015) which capture the unique value added provided by legitimate freelancers in the modern economy. We find an average of 57% of work days are provided by freelancers and a slightly lower figure of 51% in terms of freelancer share of headcount in the workforce. The two building projects which we examine also show that there is likely to be some variation in terms of the use of freelancers across different sectors of the construction industry. Of course, we still have no 'ground-up' estimates for projects from sectors comprising the remaining 45 per cent of the construction industry so further research is required in order to arrive at an industry view. That said, all the evidence so far points towards legitimate freelancing as a major engine of growth and driver of the dominant business model used in the construction industry.





5. The Earnings of Freelance Construction Workers

In this section we compare the earning of freelancers to employees in order to ascertain whether or not they earn an income premium for forgoing holiday and sickness pay, as well as gaining a share in the value added that they create for business. We adopted the robust methodology used by the Office for National Statistics (ONS) in compiling employee earnings in the construction industry to ensure comparability of the freelance and employee earnings data.

The Annual Survey of Hours and Earnings (ASHE) (Office for National Statistics, 2017a) is the most comprehensive source of earnings information in the United Kingdom. However, one of the primary weaknesses of the ASHE, is that it does not cover the self-employed, and therefore offers no insights into the earning capacities of freelancers in the UK (Office for National Statistics, 2014). In this section, we analyse the payroll data of Hudson Contract – one of the construction industry’s largest freelance labour outsourced payroll service provider – comprising of a very large set of weekly payments to freelancers in the construction industry and offer a direct comparison to British employees by exactly matching the methodology of the ONS.

This section starts with a brief discussion of the data and a presentation of the methodology. We continue

by looking at hourly rates paid to freelancers in the construction industry and compare them to hourly rates paid to employees in the same sector. Paid hours worked are also reported. We upgrade these comprehensive data with weekly earnings figures realised by freelancers and employees and differentiate between full-time and part-time work in order to offer the most accurate comparison possible.

The data sample consists of weekly transactions carried out by Hudson to freelancers across different trades between April 2016 and April 2017. In order to offer a comparison to the Annual Survey of Hours and Earnings (Office for National Statistics, 2017a), the freelancers are assigned their according SIC code in respect to the work they specialise in. The weekly transaction received by Hudson doesn’t necessarily represent the total weekly income of a specific freelancer. Indeed, a freelancer could have spent a day on a construction-site managed through Hudson while he (they are almost entirely male) worked the other four days on a different site, therefore being represented in the sample with a downward biased weekly income. The most important step in the data selection procedure is to offer an accurate comparison between freelancers and employees, and therefore we remove observations where the data is inaccurate or incomplete. According to the ASHE: “*Full-time [is]*

defined as employees working more than 30 paid hours per week (or 25 or more for the teaching professions)*; while removing data for freelancers working less than 30 hours a week might lead to a biased sample, we did remove freelancers who worked less than an hour a week²⁷. The highest 10% of hours worked by UK employees in the SIC construction sector amounts to 48.5 hours per week (Office for National Statistics, 2017f); and provides us with a good benchmark for the likely total hours worked per week per freelancer. In order to be comparable to the ONS employee dataset as well as to remove inaccurate and incomplete data, we only consider freelancers that worked at most 55 hours per week²⁸. Freelancers receiving one-off payments and bonuses, or whose income is not comprehensive due to reimbursements for materials or similar are also excluded from the sample²⁹. The same is done for freelancers paid per job with no information on hours worked, and those where the information is inaccurate or incomplete³⁰. The final data sample consisted of 114,119 weekly transactions for 6,986 different freelancers. The sample consists of more than 20 different trades in the construction sector and offers a comprehensive coverage of the freelance workforce in the British construction industry. We follow the methodology of the Office for National Statistics and report the mean, the median, and different percentiles. The median is the income value at

which 50% of data values are above it, and 50% of data values are below it. Similarly, at the 10th percentile income value, 90% of the data values are above it, and 10% of data values are below it.

The hourly rates of pay for freelance and employee construction workers are presented in table 5.1 and Figures 5.1a and 5.1b. In order to offer a meaningful comparison of freelancers with employees, we rely on the Standard Industry Classification (SIC) proposed by the Office for National Statistics, and which provides a framework for the collection, tabulation, presentation, and analysis of data, while promoting uniformity (Office for National Statistics, 2009). The SIC 2007 Code F category, *construction*, is made up of three sub-categories: *construction of buildings (F41)*, *civil engineering (F42)*, and *specialised construction activities (F43)*. SIC Code F therefore depicts a wide and representative field of construction related activities. In order to account for employee holiday pay, which the Construction Industry Joint Council (2016) define as 30 days per year (i.e. 6 weeks or 12% of a 52 week year), we also make a 12% reduction in freelancer earnings. The results for hourly rates for both full and part-time workers are presented in Table 5.1 and Figures 5.1a. Freelancer adjusted earnings for 12% holiday pay are presented in table 5.1b.

27. This step lead to the exclusion of 23 freelancers. **28.** This step lead to the exclusion of 3,947 freelancers. **29.** This step lead to the exclusion of 593 freelancers. **30.** This step lead to the exclusion of 601 freelancers.

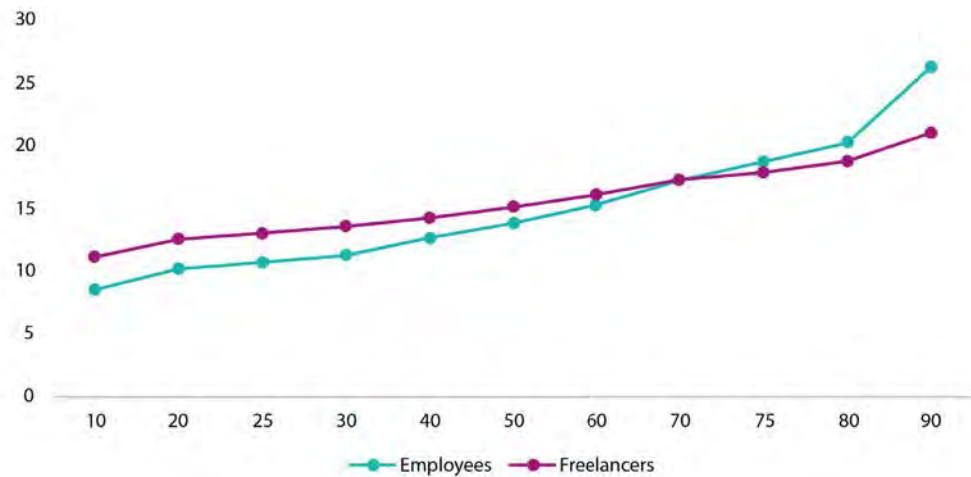
Hourly Rates of Pay

Table 5.1:
Hourly rate, SIC Code F:
Construction – Gross £³¹

	Number of jobs (thousands)	Median	Mean	Percentiles									
				10	20	25	30	40	60	70	75	80	90
ONS SIC F	918	13.74	16.17	8.44	10.00	10.50	11.20	12.50	15.17	17.13	18.45	20.17	26.22
Hudson F	6.9	15.00	16.41	11.00	12.46	13.00	13.50	14.19	16.00	17.16	17.78	18.72	20.89
Δ% to employees	/	9.17	1.48	30.33	24.6	23.81	20.54	13.52	5.47	0.17	-3.63	-7.19	-20.33
Δ% including 12% deduction due to employee holiday pay	/	-3.93	-10.69	14.69	9.65	8.95	6.07	-0.10	-7.18	-11.85	-15.20	-18.33	-29.89

Figure 5.1a:
Percentile Hourly Rate Distribution of Employees vs. Freelancers

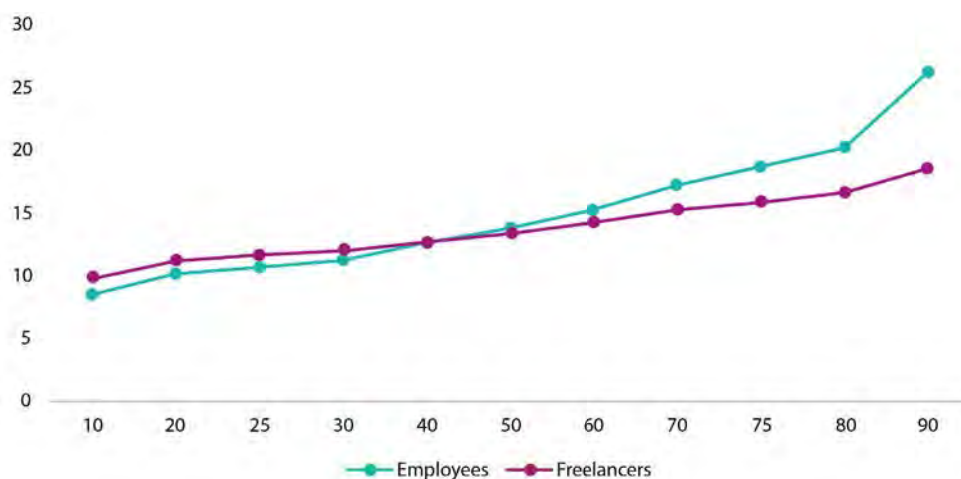
SIC Code F:
Construction – Gross £



31. ONS figures obtained from (Office for National Statistics, 2017d)

Figure 5.1b:
Percentile Hourly Rate Distribution of Employees vs. Freelancers

SIC Code F:
Construction – Gross £ after adjusting for employee holiday pay



Evidence from Table 5.1 points towards the superior earnings capabilities of freelancers against employees up to the 70th percentile. The results for the higher employee percentiles should be considered with care as the volatility of the observations, approximated by the coefficient of variation, more than doubles in comparison to lower percentiles. The coefficient of variation is a statistical measure evaluating the quality of a sample by considering how dispersed the individual observations in the sample are to one another. If the observations are close to one another, the coefficient of variation is low, indicating that the estimate is a reliable indicator of the observations in the sample. This means that certain top-performers strongly bias the observation upwards leading to a less-accurate representation of the typical employee in higher percentiles. So, we think the employee hourly earnings are likely be biased upwards by a

few top executive/managerial earners. On the other hand, the coefficient of variation for freelancers remains relatively stable, indicating the earnings in these percentiles are fairly typical. Nevertheless, as illustrated in Figure 5.1a the data illustrates that top-tier hourly earners in the construction industry are most often found amongst employees rather than freelancers. This result becomes more pronounced when we look at the adjusted freelancer hourly earnings in Figure 5.1b, where after accounting for unpaid holidays, employees earn more per hour among the top 50th percentile of earners. However, the opposite occurs when we look at the lowest 40th percentile of hourly earners where employees earn less per hour than freelancers. So, the lowest hourly rates paid to construction workers in the construction industry are among employees.

Paid Hours Worked

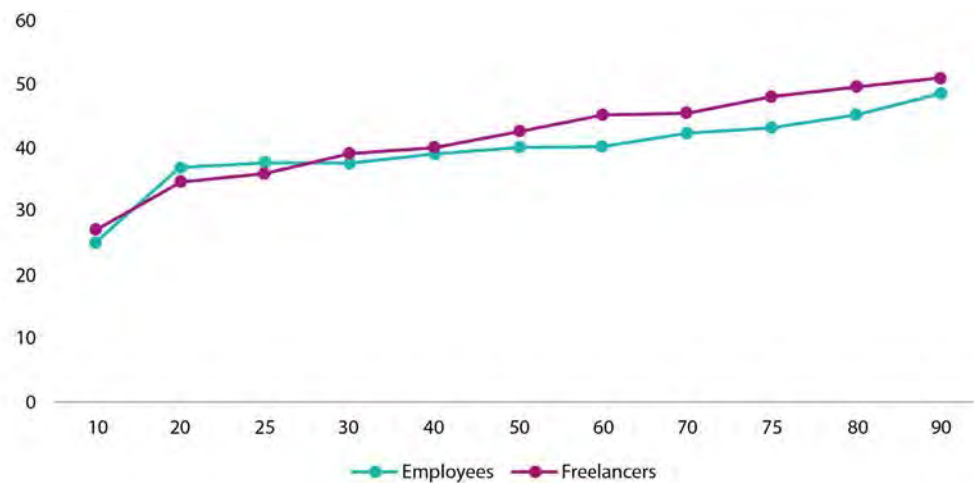
Table 5.2: Paid Hours worked, SIC Code F: Construction – Gross £³²

	Number of jobs (thousands)	Median	Mean	Percentiles									
				10	20	25	30	40	60	70	75	80	90
ONS SIC F	918	40.0	39.0	25.0	36.8	37.4	37.5	39.0	40.0	42.2	43.0	45.0	48.5
Hudson F	6.9	42.5	40.7	27.0	34.5	36.0	39.0	40.0	45.0	45.5	48.0	49.5	51.0
Δ% to employees	/	6.25	4.36	8.0	-6.25	-3.74	4.0	2.56	12.5	7.82	11.63	10.0	5.15

The number of hours worked is relatively similar for freelancers and employees, where the greatest difference is observed for the 60th percentile. A further aspect of the quality of the data set is therefore that it offers a reliable insight into the number of hours specific tradesmen, both freelancers and employees, are likely to work in a week.

Figure 5.2: Percentile Distribution of paid hours worked for Employees vs. Freelancers

SIC Code F: Construction – Gross £



32. ONS figures obtained from (Office for National Statistics, 2017f)

Weekly Earnings

The weekly earnings are considered by taking into account all freelancers who worked at least one hour per week. Of course, it is very likely that freelancers who only worked very few hours through Hudson in a week have also taken on other jobs that are not represented in our sample. In other words, the weekly earnings of freelancers in the sample stands for the lowest income that a freelancer could possibly have realised, while the weekly earnings of employees stand for the total leading to a negative bias against freelancers' income. So, while we argue that this is the most robust approach, we do accept that in some respects the freelancer earnings could be viewed as a 'worst case' of minimum possible weekly earnings. The results are not too dissimilar to hourly earnings. In table 5.3 and Figure 5.3a it is evident

that freelancer's weekly income exceeds that of equivalent employees up to the 70th percentile. Again, it is notable that the superiority of employee income above the 70th percentile is driven by a few exceptional top-earner employees (most likely senior executives/management), as displayed by the increased coefficient of variation. After adjusting freelancer's weekly income for the absence of 6 weeks holiday pay, the results change so that employees earn more among the top 50th percentile of earners while freelancers earn more among the bottom 40th percentile of earners. It is clear that worker status as an employee or freelancer is not a factor which distinguishes high from low earners in the construction industry. The worst paid workers are employees, but the highest paid workers are also employees.

Table 5.3: Weekly pay, SIC Code F: Construction – Gross £³³

	Number of jobs (thousands)	Median	Mean	Percentiles									
				10	20.2	25	30	40	60	70	75	80	90
ONS SIC F	918	560.0	630.3	233.5	361.2	402.5	437.1	498.1	630.0	718.7	770.0	833.8	1,054.2
Hudson SIC F	6.9	624.0	637.9	379.5	470.0	500.0	525.0	578.0	675.0	735.0	761.0	800.0	900.0
Δ% to employees	/	11.43	1.21	62.53	30.12	24.22	20.11	16.04	7.14	2.27	-1.17	-4.05	-14.63
Δ% including 12% deduction due to employee holiday pay	/	-1.94	-10.94	43.02	14.51	9.32	5.70	2.12	-5.71	-10.00	-13.03	-15.57	-24.87

33. ONS figures obtained from (Office for National Statistics, 2017b)

Figure 5.3a:
 Percentile Weekly
 Income Distribution
 of Employees vs.
 Freelancers
 SIC Code F:
 Construction – Gross £

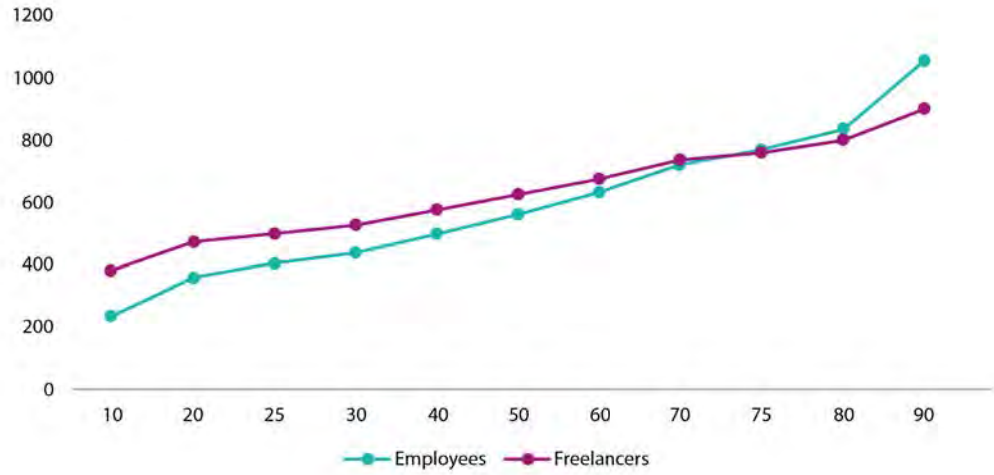
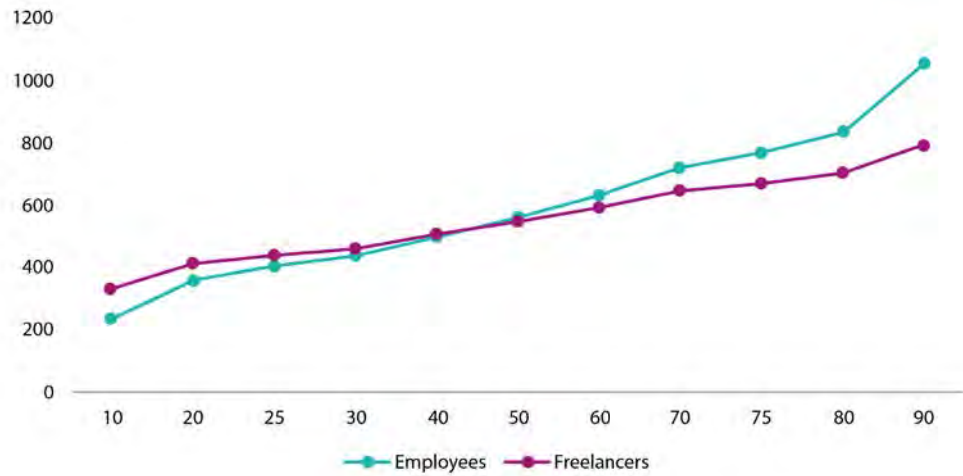


Figure 5.3b:
 Percentile Weekly
 Income Distribution
 of Employees vs.
 Freelancers
 SIC Code F:
 Construction – Gross
 £ after adjusting for
 employee holiday pay



In order to provide a more robust and consistent comparison between freelancer and employee earnings, we compare them by full and part-time work. Full-time employees are defined by the Office of National Statistics as employees working more than 30 hours per week. Table 5.4 offers a comparison between full-time employees and freelancers working more than 30 hours a week. Table 5.4 and Figures 5.4a for full-time workers only tell a very similar story to Table 5.3 and display the weekly income of freelancers exceeding that of employees up to the 70th percentile with employees earning

most among the highest paid construction workers. Again, the coefficient of variation for the higher percentiles indicates that the pool of top-earning employees is driven by a few outliers. After adjusting freelancer earnings for the lack of 6 weeks of holiday pay, it appears that employees still earn less than freelancers among the lowest weekly earners up to the 40th percentile but also earn more than freelancers for all workers above the 40th percentile. Hence the observation that employee status does not differentiate high from low earning construction workers is shown to hold true for full-time workers.

Table 5.4: Weekly pay full-time, SIC Code F: Construction – Gross £³⁴

	Number of jobs (thousands)	Median	Mean	Percentiles									
				10	20	25	30	40	60	70	75	80	90
ONS SIC F full-time	805	600.0	687.0	360.0	429.0	458.8	485.3	536.6	668.6	757.3	805.3	876.8	1,095.9
Hudson SIC F full-time	6.3	650.0	675.2	455.0	513.0	540.0	562.5	601.0	700.0	750.0	783.0	816.0	910.0
Δ% to employees	/	8.33	-1.72	26.39	19.58	17.70	15.91	12.00	4.70	-0.96	-2.77	-6.93	-16.96
Δ% including 12% deduction due to employee holiday pay	/	-4.67	-13.51	11.22	5.23	3.57	2.00	-1.44	-7.87	-12.85	-14.44	-18.10	-26.93

34. ONS figures obtained from (Office for National Statistics, 2017b)

Figure 5.4a:
 Percentile Weekly Income
 Distribution of full-time
 Employees vs. Freelancers

SIC Code F: Construction
 – Gross £

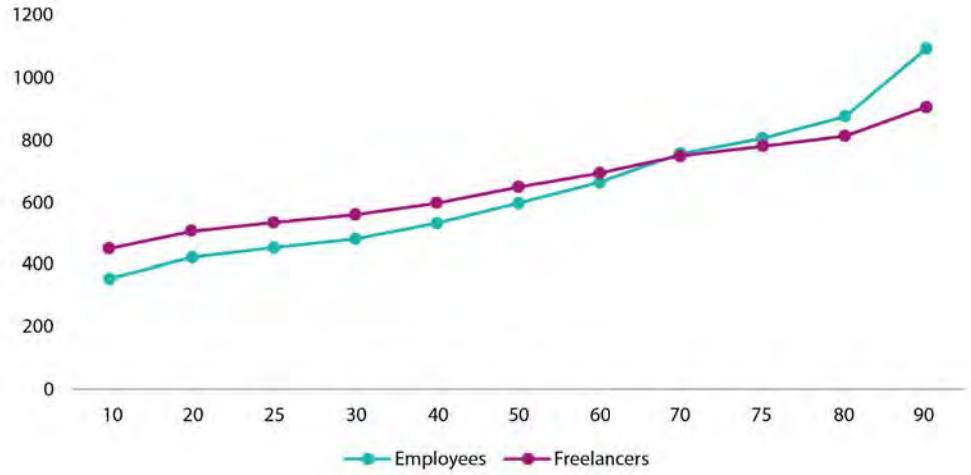
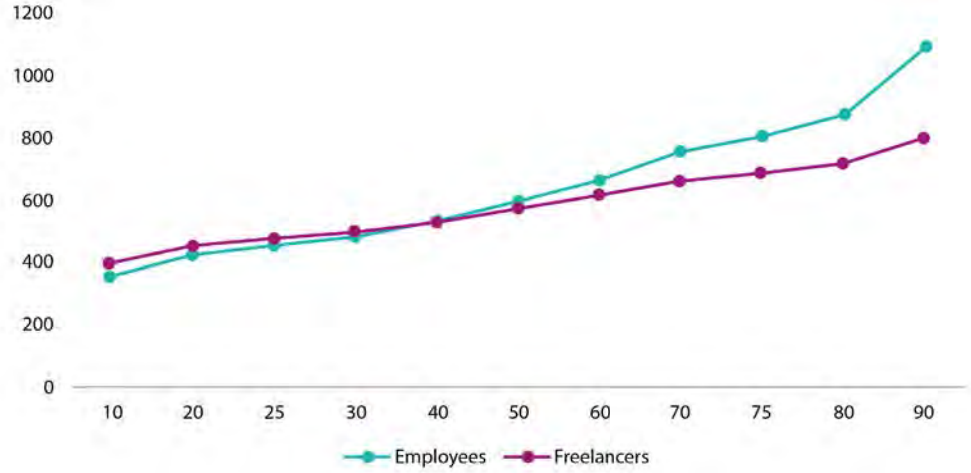


Figure 5.4b:
 Percentile Weekly Income
 Distribution of full-time
 Employees vs. Freelancers

SIC Code F: Construction
 – Gross £ adjusted for
 employee holiday pay



The investigation into weekly income is finalised by looking at part-time employees and freelancers who work less than 30 hours per week. The results are presented in Table 5.5 and Figure 5.5a where it is evident that across all quantiles, part-time freelancers consistently earn more than part-time employees throughout. This result holds even though the lowest amount of hours worked for freelancers in the 10th percentile is an hour per week, which is significantly less than the lowest amount worked for employees in the 10th percentile. Again, this outlines the negative bias

against freelancers' income when contrasting them against employees. The coefficient of variation for part-time employees at the 90th percentile jumps up from 8.3% to 23%, indicating the high weighting of outliers, whereas the sample of freelancers remains relatively homogeneous in comparison. The generic result that part-time freelancers earn more than employees continues to hold even when part-time freelancers' income is adjusted down by 12% in order to account for 6 weeks unpaid holiday (see Figure 5.5b).

Table 5.5: Weekly pay part-time, SIC Code F: Construction – Gross £³⁴

	Number of jobs (thousands)	Median	Mean	Percentiles									
				10	20	25	30	40	60	70	75	80	90
ONS SIC F full-time	113	184.0	226.9	92.0	126.4	138.3	150.0	158.3	206.9	225.0	240.0	263.0	N/A
Hudson SIC F full-time	4.4	335.7	364.4	150.0	216.4	240.0	260.0	300.0	372.3	413.2	444.0	472.5	530.0
Δ% to employees	/	82.45	60.60	63.04	71.20	73.54	73.33	89.51	79.94	83.64	85.00	79.66	/
Δ% including 12% deduction due to employee holiday pay	/	60.55	41.33	43.48	50.66	52.71	52.53	66.77	58.35	61.61	62.80	58.10	/

35. ONS figures obtained from (Office for National Statistics, 2017b).

Figure 5.5a:
 Percentile Weekly Income
 Distribution of part-time
 Employees vs. Freelancers

SIC Code F: Construction
 – Gross £

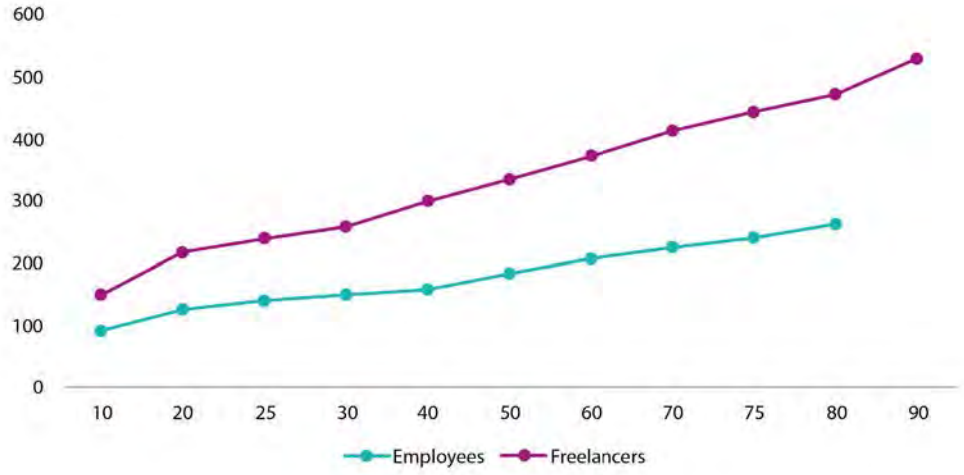
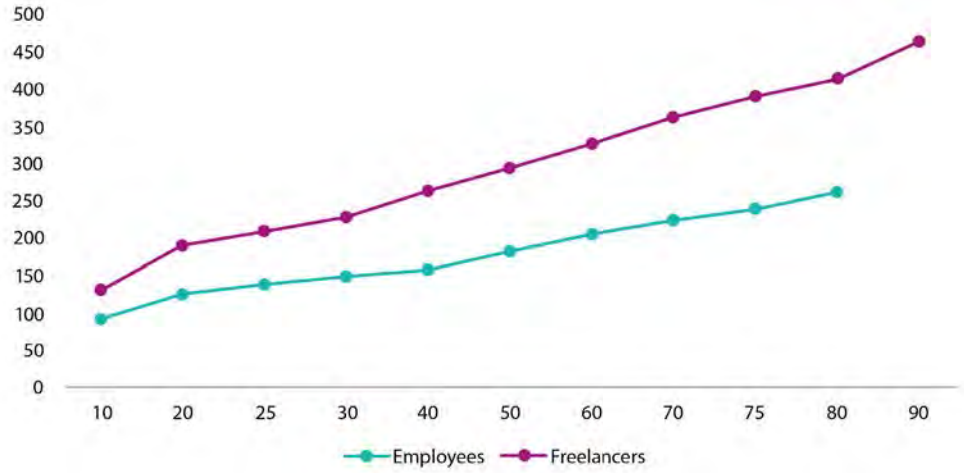


Figure 5.5b:
 Percentile Weekly Income
 Distribution of part-time
 Employees vs. Freelancers

SIC Code F: Construction
 – Gross £ adjusted for
 employee holiday pay



The results so far refute a common myth that the lowest paid vulnerable workers in the construction industry are typically freelancers. We find exactly the opposite outcome, where the typical low paid or precariat worker is in fact an employee. Full-time workers typically earn more in the lowest weekly earnings percentiles. Furthermore, the typical part-time freelance construction worker always earns more than their employee counterpart. However, employees perform somewhat better among full-time workers as the highest earners are employees. But it is certainly not all good news for full time employees as they also are paid the worst among the lowest percentile of earners.

So three clear lessons emerge. Firstly, whether a construction worker is an employee or freelancer is not a distinguishing factor of economic well-being

amongst full-time workers – both the typical best and worst paid worker is an employee. Secondly, among part-time workers, freelancers typically earn more throughout every percentile from the lowest to highest paid workers. Perhaps this should not be at all surprising as freelancers with multiple simultaneous projects are likely to be those who have highly sought-after skills or operate in activities with high employee downtime and so are able to generate high value added for their clients. Correspondingly, full-time freelancers may be working with a single client and hence expected to give volume of hours discounts. Thirdly, the results debunk a myth that freelancers are the most vulnerable lowest paid construction workers – all the statistical evidence refutes that belief with employees being the lowest paid workers among both full and part-time workers.

Appendix: Coefficient of Variation

The Coefficients of Variation (CV) are a reliable measure of data quality calculated by the ONS. The CV is defined as the ratio of the standard error of the estimate to the estimate itself, expressed as a percentage; so that if all factors are constant, the smaller the CV the higher the quality of the estimate (Office for National Statistics, 2014).

Table 5.6:
Hourly rate, SIC Code F:
Construction [CV] in %³⁶

	Percentiles											
	Median	Mean	10	20	25	30	40	60	70	75	80	90
ONS SIC F	1.0	0.9	0.7	0.5	1.0	1.0	0.8	1.1	1.3	2.2	2.1	4.8
Hudson F	14.2	57.1	8.8	11.1	11.7	12.3	13.2	14.9	16.0	16.8	17.6	19.9

Table 5.7:
Paid Hours worked, SIC
Code F: Construction [CV]
in %³⁷

	Percentiles											
	Median	Mean	10	20	25	30	40	60	70	75	80	90
ONS SIC F	0.0	0.4	3.7	0.4	0.1	0.3	0.3	0.0	0.6	1.0	0.2	1.5
Hudson F	27.2	24.7	39.8	34.7	32.9	31.6	29.3	26.1	25.1	24.8	24.6	24.4

Table 5.8: Weekly pay,
SIC Code F [CV] in %³⁸

	Percentiles											
	Median	Mean	10	20	25	30	40	60	70	75	80	90
ONS SIC F	1.3	0.9	3.2	1.5	1.1	1.3	1.0	1.4	1.9	1.8	2.3	4.1
Hudson SIC F	26.0	35.5	31.6	29.0	28.0	27.2	26.3	26.0	26.4	26.8	27.3	28.9

36. ONS data obtained from (Office for National Statistics, 2017e). **37.** ONS data obtained from (Office for National Statistics, 2017g). **38.** ONS data obtained from (Office for National Statistics, 2017c).

Table 5.9:
Weekly pay full-time, SIC
Code F [CV] in %³⁹

	Percentiles											
	Median	Mean	10	20	25	30	40	60	70	75	80	90
ONS SIC F full-time	1.1	0.9	1.0	1.0	0.9	0.7	1.1	1.1	1.7	1.8	2.5	4.5
Hudson SIC F full-time	15.7	28.9	11.4	12.5	13.0	13.5	14.7	16.9	18.3	19.1	19.9	22.1

Table 5.10:
Weekly pay part-time,
SIC Code F [CV] in %⁴⁰

	Percentiles											
	Median	Mean	10	20	25	30	40	60	70	75	80	90
ONS SIC F part-time	2.7	4.5	6.7	4.0	3.6	1.9	2.2	3.5	2.7	6.8	8.3	23.0
Hudson SIC F part-time	33.3	67.0	27.7	30.8	32.1	32.5	33.0	33.7	34.4	35.1	35.9	37.7

Appendix References

Office for National Statistics. (2014). Information paper – Quality and Methodology Information.

Office for National Statistics. (2017c). Table 4.1b: SIC2007 Weekly Pay – Gross 2017 CV.

Office for National Statistics. (2017e). Table 4.5b: SIC2007 Hourly Pay – Gross 2017 CV.

Office for National Statistics. (2017g). Table 4.9b: SIC2007 Paid Hours worked – Total 2017 – For all employees CV.

³⁹. ONS data obtained from (Office for National Statistics, 2017c). ⁴⁰. ONS data obtained from (Office for National Statistics, 2017c).

6. Conclusion

Freelance workers are often categorised as a small and underperforming version of entrepreneurial owner managers. At the other end of the spectrum they are sometimes depicted as a form of exploited worker, resulting from abuse of employer monopsony power.

In this report we explored the overlooked but more central economic functions of freelancers where they are the enablers of entrepreneurship rather than the entrepreneurial agents themselves. They also enable a construction industry business model, which makes high use of specialised skilled labour and sub-contracting firms. We show that freelancers play a key role in enabling economic efficiency through more efficient allocation of risk, enhanced productive efficiency, reduced fixed costs and financial requirements as well as facilitating market entry and greater competition. We show that freelance workers often share in the value added which they create.

Industry executives in our case study analysis carried out over three discrete time periods (2010, 2013 and 2017) and covering businesses from 55% of the sectors in the construction industry highlights that the model relies on the ability of firms to use freelancers. We also explored the nature of freelancer contracts and deployment by doing two intensive 'ground-up' estimates of the extent of the use of freelancers for legitimate purposes - complying with the definition of Burke (2012) - on a homebuilding and a state funded school building project. We find that an average of 57 per cent of work days and 51 per cent of headcount on these projects are accounted for by freelancers and among these, nearly all were legitimate freelancers hired and deployed to generate value added unique to freelance labour.

We also explored the economic well-being of freelancer workers in the construction industry by estimating and comparing their earnings to equivalent employees. We found that the most vulnerable workers are employees who earn less than freelancers among the lowest earning construction workers. This result holds true for both full and part-time workers. Part-time freelance construction workers earn more than part-time employees across all income percentiles. However, among mid to high weekly income percentiles for full-time workers, employees earn more than freelancers. The results highlight the diversity of income both among and between freelancers and employees. They clearly refute the notion that employee status is associated with better earnings performance of workers in the construction industry.

We argue that neglect of the importance of legitimate freelancers in prior studies can lead to inappropriate policy approaches to freelancers where they are either 'shoe horned' into employee status, classified as illegitimate economic agents, or motivated to become business owners. We show that the absence of a legitimate freelance sector of the workforce would have highly negative economic consequences; causing economic contraction, higher costs, and reduced employment as well as more highly concentrated and less competitive markets. We believe that this expanded and revised third edition of this report has continued to enhance our understanding of the economics and managerial dimensions of freelance labour in the construction industry, which is not only

of value to public policy and those in the industry itself, but also to the burgeoning field of researchers focused on the growing importance of flexible workforces and business models.



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