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A qualitative analysis of Cambridge regarding the suitability of Tax Increment Financing for infrastructure in the UK

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Being a dissertation submitted to the faculty of The Built Environment as part of the requirements for the award of the MSc Spatial Planning at University College London: I declare that this dissertation is entirely my own work and that ideas, data and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

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ABSTRACT

The shift in local government funding for infrastructure from public to private has facilitated an entrepreneurial environment in which local authorities must partner with the private sector to deliver the infrastructure that is needed in the UK. In light of this shift, local governments have begun to explore alternative sources of funding for infrastructure, including Tax Increment Financing (TIF). TIF provides the upfront costs in the form of a loan for an infrastructure project which is typically repaid back with business rates generated as a result of its development. This mechanism is widely employed across the U.S, however its perceived risk means the UK has been slower to adopt. This research aims to assess the suitability of Cambridge in delivering an infrastructure project using TIF. The reason for this, is that Cambridge is an important contributor to the UK economy and the area's growth is threatened by their poor connectivity and housing crisis. The research argues Cambridge is suitable to employ TIF as a financial tool, however this thesis also considers the wider implications of TIF in the national context and the challenges it presents. Future reforms in policy and greater collaboration between central and local government is needed in order for Cambridge, along with the rest of the UK to reach their infrastructure targets .

CONTENTS

ACRONYMS

TIF – Tax Increment Financing

CAM – Cambridgeshire Autonomous Metro

MHCLG – Ministry of Housing, Communities and Local Government

CPCA – Cambridgeshire and Peterborough Combined Authority

NIC – National Infrastructure Commission

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

1.1 Background

Urban infrastructure projects over recent years have been at the heart of many political campaigns across the world, winning the hearts of the public and securing votes, however, the difficulty is the question of delivering these large pieces of urban infrastructure and the responsibility behind funding them. This highlights the inherently political nature of urban infrastructure and financialisation's role within urban planning as Terill (2018) argues, if one is the beneficiary of a new rail service, one is more likely to support the candidate promising it. In turn, this exacerbates the intrinsically political nature of planning and development, particularly with regards to funding large infrastructure projects. At the same time as capturing political attention through grand infrastructure projects, these projects are also becoming financialised (O'Brien et al, 2019) in addition to, how alternative methods of funding are suited in the context of the UK forms the basis of this research thesis.

Harvey (1982) conveys how financialisation is spreading into public and non-profit sectors of society. After the financial crash in 2008, finance has become an important foundation within capitalist society and its subsequent effect on planning. Guironnet et al (2014:443) claims that "multiple portions of the urban built environment have morphed into financial assets" (Aalbers, 2012; Guironnet and Halbert, 2014; Leyshon and Thrift, 2007; Torrance, 2008 cited in Guironnet et al, 2016). In more recent times, financialisation within urban studies and planning has become more prominent, yet its conceptualisation has become highly contested by many scholars, such as Christophers' (2015) work on the limits of financialisation. This research understands financialisation as a concept, under which it is a socially, spatially and institutionally variegated process (O'Brien et al, 2019). Critically, it is important to understand the term variegated in respect to the differentiated process of financialisation between different countries. It must be considered that the process of financialisation realised in the US, for example will be different to that of the UK, thus the implementation of financial instruments by local state actors will also be variegated (Brown et al, 2017). This notion represents the formation of this research and its associated impacts on how infrastructure is financed and delivered within urban planning. As aforementioned, Christopher (2015) and Ward (2017) provide strong critiques on financialisation arguing it is subjective to the success of its outcomes. Further stating that the term does not incorporate societal, environmental, political and foreign actors.

1.2 Current debates

An OECD (2015) paper on infrastructure financing instruments and incentives highlights in various economies the decrease of public funding for infrastructure has forced local governments to explore alternative and increasingly privatised forms of funding for infrastructure projects. Substantiating this, the National Infrastructure Delivery Plan published by the UK government (2016) stated that 50% of Infrastructure Pipeline projects in 2020-2021 will be financed and delivered by the private sector. In turn, emerging debates around financialisation and urban studies have highlighted how the concept of TIF has become an innovative financial mechanism for local governments to generate greater funds for more infrastructure projects. TIF is an "increasingly popular local redevelopment policy that allows municipalities to designate a "blighted" area for redevelopment and use the expected increase in property (and occasionally sales) taxes there to pay for initial and ongoing redevelopment expenditures, such as land acquisition, demolition, construction, and project financing" (Weber, 2010:254). This form of financing infrastructure originates in the U.S and has been incrementally approved in the U.K. (Ward, 2018). In turn, a discourse associated with the risks of TIF emerges detailing what types of risks emerge when cities engage in such funding tools (Weber, 2010). It is therefore imperative that this thesis explores the perceptions and understanding of risks related to TIF. Also paramount to discussions of TIF is the intricate relationship it has with land values. Ward (2018) discusses the historical tendency of research to overlook the effects of land rent on infrastructure and financing debates. Hence, this thesis investigates the effect of land values in calculating risk, along with project viability.

1.3 Location of Research

Cambridge is a university city approximately 50 miles north of London, a 45 minute journey by train. It has a population of 124,000 (approx.) which is growing rapidly each year (Census, 2011). Cambridge local authorities are currently exploring the options of using TIF and other alternative funding mechanisms to deliver a large infrastructure project, the Cambridgeshire Autonomous Metro (Cambridgeshire and Peterborough Combine Authority, 2019). This research pursues the rationale of using TIF in Cambridge, a region relatively small in size but facilitating plans for infrastructural growth on an arguably disproportionate scale. With little research published on the delivery and financing of infrastructure in Cambridge, it presents itself as a suitable site to explore the possibilities of TIF in a small UK city.

1.4 Research Objectives

Curating the objective from an analysis of current theoretical understandings and discussions in these fields. This thesis seeks to address the following research objectives to respond to the thesis question, in order to make original contributions to this body of research:

1. To examine the effects the financialisation of land has had on the delivery of infrastructure projects in Cambridge.
2. To explore through risk and value capture if there is a division of responsibility between private and public actors involved in TIF infrastructure project in Cambridge.
3. To what extent is Cambridge a suitable location for TIF funded infrastructure projects to be delivered.

1.5 Structure Overview

The first chapter of this thesis has outlined the scope and context for this research. The second chapter provides an in-depth and extensive review of current literature on financialisation of land, the financialisation of infrastructure and the emerging literature surrounding the use of TIF. The following chapter provides a discussion on the data collection methods and an introduction to the case study. The next chapter will present the research findings and an analysis of their significance. The final section will summarise the research findings and conclude with future recommendations for research and policy.

2. LITERATURE REVIEW

This chapter aims to provide a definition of financialisation for the purpose of this thesis. It will engage and analyse current literature within financialisation, financialisation of infrastructure, TIF and land values. With the intention to highlight potential gaps from a variety of academic fields providing a rationale for this thesis' research objectives.

2.1 Financialisation

Financialisation defined by Aalbers (2015:1) is "the increasing dominance of financial actors, markets, practices, measurements and narratives, at various scales, resulting in a structural transformation of economies, firms, states and households." Yet, this is contested by many scholars, in particular, Christophers (2015) who argues financialisation is limited, conceptually and empirically and one must be mindful of the ways we think through the implications of financialisation and how they can work for us. Lawrence (2015) and Murphy (2015) do not share this view and argue financialisation is a lived process and needs to be more closely tied to economic-geographic analysis. Evidently, financialisation as a concept and process is highly contested and a factor this thesis must consider. This thesis makes an effort to contextualise the 'social phenomenon' where Ward (2017) elaborates on how the Great Recession, led governments of industrialised nations' austerity programmes to transform public services whereby finance has emerged central to many public imaginaries. In turn, Sbraggia (1996: 1+3) details how "public power has mobilized private money for public purposes", to the point that "local governments have been able to use the creativity of the financial market for their own purposes". In other words, financialisation has morphed into a form of entrepreneurial urbanism discussed by Harvey (1989), arguing that we are experiencing a growth in the political economy within contemporary cities. Importantly, Weber (2010) argues there is a lack of empirical research at the local level on the politics of financialisation, therefore this research will investigate the successful components of U.S infrastructure financing mechanisms and assessing its application in the city of Cambridge. Seemingly, this research will contribute to the growing empirical knowledge of local infrastructure financing in the UK. Deruytter et al (2019) supports this in their recent study of Brussels airport exploring how the state has shaped financialisation working 'on the ground'. They concluded that financialisation is a variegated process occurring in different contexts and scales from innovation in capital markets, to challenges facing local states in funding public services. Therefore, studying Cambridge will help to contextualised financialisation within this variegated discourse and provide an empirical understanding of local level politics of financialisation.

2.2 Infrastructure

Considering Ward's (2017) discussions around the central role finance plays within public services has transcended into the delivery of infrastructure. O'Brien et al (2019) stipulate how national government and funding reductions have resulted in local actors extending and initiating private sector participation and investment in urban infrastructure projects. Similarly, an OECD report (2015) details how national public deficits has driven many economies to significantly reduce their level of public funding allocated to infrastructure in order to decrease debt. O'Brien et al's (2019) discusses how research is only beginning to show how financialisation of urban infrastructure is unfolding in national and local contexts and its relationship to changes in governance. Subsequently, the financing of infrastructure is becoming increasingly more privatised, Flyveberg et al (2003) discusses how many infrastructure projects always over run on their projected costs, thus these costs have been exacerbated by austerity within the UK. This form of financing in the built environment and infrastructure echoes the work of Harvey (1989) and Sbraggia (1996) on how the local state has had to become more entrepreneurial in governing and financing infrastructure projects. A key argument underpinning much of the research on infrastructure concerns the uneven social and spatial uneven distribution of infrastructure. O'Brien et al (2019:1448) further argues how "infrastructure has been transformed into an asset in the international investment landscape", in turn, counteracting the primary goal of reducing spatial inequality in infrastructure projects. Pryke et al (2019) supports this as he argues this form of relational investment where geographical rates are accessible on a global scale, this demonstrates the functions of a continuous cycle of international investment assisting in infrastructure where communities are becoming polarised due to the capital distribution. In accordance with this, O'Brien et al (2018) indicates that it is unclear whether adequate resources exist for communities outside the very largest cities to enable significant investment in infrastructure. Therefore, this research will seek to focus on a smaller city context in Cambridge where resources aren't as prominent as they are in London.

Moreover, O'Brien et al's (2018) research suggests that the planning system is concerned with ensuring returns to private investors rather than producing public goods. This can be argued to some extent by the work of Inderst (2010) demonstrating how infrastructure as a public good is being unevenly distributed by financial and state actors reinforcing spatial inequalities across the UK. Critically, Cambridge should be able to help contextualise these debates around whether planning for infrastructure is for public good or assisting in the ever growing grasp of the private sector on public service. Flyveberg et al (2003) stated that stakeholders in large infrastructure projects do not always adequately represent publics and the local community, they recognised a need in their research, on

both democratic and pragmatic grounds, to properly involve publics in decision making. Notably, in both Flyveberg et al's (2003) and Inderst's (2010) there is an overwhelming negative focus on the financing of infrastructure and for this thesis it is also necessary to consider on the positives of infrastructure. Opposingly, Pike et al (2019) comments on the positive role infrastructure plays as a critical and complementary 'enabling' factor for city economies, societies and politics. Hence, this thesis will ensure this research investigates whether financing infrastructure is for public good or as a private asset whilst taking a balanced and fair approach towards this.

Another angle to consider within the financialisation of infrastructure debates is the work of Engelen et al (2010) who details the process of adaptation and improvisation performed by developers and local authorities to calculate the most efficient way to extract value from an infrastructure asset over its lifetime. Critically, Harvey (1989) suggests local authorities are becoming increasingly more entrepreneurial in their approach to financing and governing infrastructure. Flyveberg et al (2003) announced in the last decade we have experienced a rapid increase in the delivery of major infrastructure projects delivered by a mix of national and supranational government, private capital and development banks. O'Brien (2018) suggests this leads local state actors into partnerships with often untried and risky long-term arrangements with financial actors. Critically, this emphasis on funding, finance and governance has left questions over social and environmental impacts of these projects neglected (Chan et al, 2005). Principally this thesis will always seek to address the gaps around public involvement and non-financial concerns surrounding the nature of infrastructure projects.

2.3 Tax Increment Financing (TIF)

Tax Increment Funding has emerged from the shift to entrepreneurial local states where "contemporary problems for urban infrastructure is funding and the provisions of relatively stable, secure and predictable annual cash flows in order to pay for financing of an infrastructure project" (O'Brien et al, 2019:1452). One of the answers to this problem has been TIF, a financial mechanism which "allows municipalities to bundle and sell off the rights to future property tax revenues from designated parts of the city" (Weber, 2010:251). A key argument featured throughout Ward's (2018) research is how TIF has facilitated the displacement of poorer communities and gentrification of North American downtowns. Seemingly this has raised issues of democratic accountability, social justice and the right to the city (Ward, 2018). Crucially, TIF, until recently, had been limited to research in the U.S, such as the case study of Chicago where TIF funded a skyscraper boom in the city resulting in steady growth of the city's economy for many years (Weber, 2010). Briffault (2010) pinpoints the reason for

TIF's popularity in the US and argues that in the US nearly all TIF decision making is entirely decentralised, decisions are made by local government officials with very little central government interference. In contrast, the UK is highly centralised, therefore local governments exercise less power for decision making and TIF projects (O'Brien et al, 2019). Briffault (2010) goes further to suggest TIF in the U.S resembles enterprise zones whereas the UK bids are targeted in territorially defined sub-municipal areas to promote growth. In connection to this, Waite (2016) highlights the introduction of City Deals into the UK, considering the new combination of managerialist and entrepreneurial practices which reinforces the earlier notion of financialisation within local authorities. This thesis makes the case for exploring one of the few infrastructure projects to propose the use of TIF for its financing in Cambridge due to the premature nature of TIF research within the UK.

Flyveberg et al (2003) illustrates an important point around the consistent over running of infrastructure projects in both time and expense. Infrastructure projects do not adhere to set schedules and there always lies an element of risk within these types of projects. Beck (1992) argue we live in a 'risk society' and that any risk assessments should involve citizens and stakeholders to understand their experience and expertise. In relation to TIF, the discussions around risk are imperative to the success of a TIF project. Flyveberg et al (2003) suggests that a greater participatory approach results in decisions about risk leads to informed and more democratic decision making, this resonates with some of the earlier discussions around decentralisation for TIF (O'Brien et al, 2019). Intrinsically linked to the risk discussions is the importance of land value, where Kaika et al (2013) engages with debates around the mobilisation of land as a financial asset and financialisation as a lived process. Kaika et al (2013) argues that land undergoes a transformation whereby land allocated for development or infrastructure implementation increases in value. This concept is a fundamental underpinning to the coherence of a TIF project, as the uplift in value helps to secure revenue repayments of a TIF scheme. Leroy (2008) substantiates this with his work on TIF and formulates the assumption that TIF works best in areas where it can generate the greatest sales and taxes for the locality, demonstrating the dependence of TIF on land values. Ward (2018) demonstrates how this manifests in a TIF project where he considered the assumptions associated with TIF, that land value must increase for a project to be viable, and in the case of Edinburgh, questions were raised around the economic and financial assumptions underpinning the project due to the change in landowners. Accordingly, this research will seek to identify the potential risks and the impacts of land values of TIF in the context of Cambridge between public and private actors.

The use of TIF and alternative funding mechanisms derives from the age of planning in austerity. Peck (2012:646) discusses the extent to which local authorities are becoming more entrepreneurial and "continuously lobbying to experiment with more systemic forms of privatisation as a means to closing structural budget gaps". Entrenched within the discussion of TIF are its abilities, in an era of public cuts, to create the conditions for growth and capital accumulation (Ward, 2018). Subsequently, this discussion of TIF funding opens up scope for research on who gets to say and decide what types of infrastructure cities get, how it is funded, timescales and where the burden of responsibility lies (Pike et al, 2019). In this sense, empirical evidence must be produced to assess where this burden of responsibility falls in relation to TIF and its suitability for expansive use in different localities.

2.4 Land

A key notion underpinning financialisation, infrastructure and TIF agendas is the value of land. Harvey (1982) introduces the idea that land has become purely a financial asset, thus prioritising its exchange over it use value. In turn, profit-oriented land interests meddle with the contradiction to facilitate the restructuring of economic geography according to the greatest return on investment in the built environment (Ward, 2019). Thus, Ward (2017) defines this as the 'assetisation' of land, arguing it to be a process of financialisation which is driving neoliberalism. As aforementioned Pike et al (2019) stated that the process of financialisation was variegated, likewise Birch (2015:122) defines 'assetisation' as a "lived process progressing through social struggle and is a transformation of things into resources which can generate income without a sale", in this case that is land. Aalbers (2019) corroborates this further stating the global trend, noted by both Harvey and Lefebvre, is the idea of 'urban land grabbing' and how local states have made rising land prices and real estate prices a policy priority. This highlights the intrinsic link between financialisation and land which is the fundamental ideology of which TIF is built upon, whereby TIF extracts land value capture to provide capital investment for infrastructure projects. Harvey (1982) and Alshebabi and Suroor (2016:1090) recognise the "process of assetisation which relies on the ability to monetise (through borrowing) narratives as to potential future value, known as fictitious capital formation".

Although, Haila et al (2018) makes an important point regarding their work on land rent, it is not a flat ontology thus land prices and rental payments are also affected by many other factors, such as location and demand. Based on this, this research will seek to examine the role local contexts play in the delivery and appropriation of using TIF as a rationale for financing infrastructure. Ward (2019) argues that more research is needed on infrastructure at a local level in the UK, outside of London. Cambridge is a small

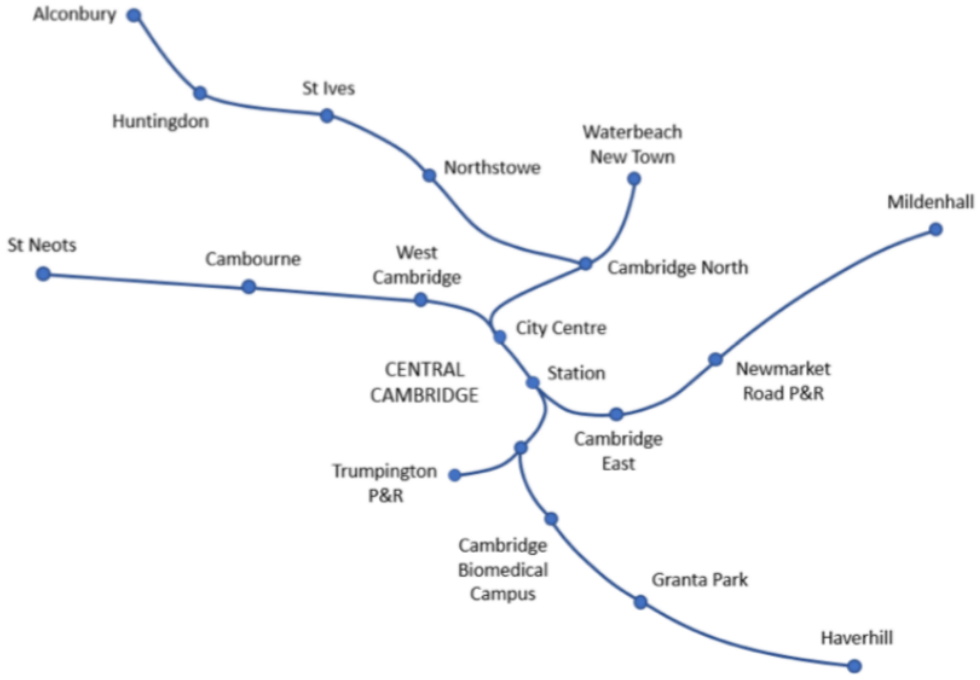
city in relative size to London and in accordance with discussions around financialisation of infrastructure and TIF funding underpinned land assetisation, this thesis will explore how these relationships intertwine on a local level in Cambridge. In summary, the lack of UK based TIF research on its suitability for financing infrastructure at a local level has shaped the discourse for this research.

3. METHODOLOGY

3.1 Background/Context

The concentrates on the city of Cambridge and its recent proposals for a new Cambridgeshire Autonomous Metro (CAM). Cambridge is one of the few cities in the UK which is contributing significantly to the UK economy given its relative size to other UK cities such as London, Birmingham and Manchester. Thus, the CAM project is the central focus on which this research methodology has been developed and it will be pivotal in addressing the key research objectives.

Figure 1. CAM Network Map – outlines the key corridors proposed to be served by the



Cambridgeshire Autonomous Metro.

Source: CAM Business Case Final Draft Report (2019)

3.2 Research Methods

My primary method for this research will be semi-structured interviews as they are a 'powerful method for generating description and interpretation of people's social worlds, and as such a core qualitative method' in ethnographic research (Ritchie et al, 2013: 178). Importantly, Weston et al (2001) argues that the use of a combination of methods strengthens both the research process and results. Complementing my desk-based research, interviews will seek to achieve methodological rigour in my results. Leitner et al's (2019) work on land transformations in Jakarta and Ward's (2018) research in Edinburgh, both adopted interviews as their primary research method, interviewing a number of relevant public and private actors in each project. Similar to this, case studies are a useful way to contextualise the understanding of theories and processes that could also 'contribute knowledge accumulation' and 'are likely to produce the best theory' (Flyvbjerg, 2006: 227). Thus, I focused on speaking to a range of stakeholders and protagonists of interests in and associated with Cambridge and TIF. Ward (2019) discusses the importance of interviews with 'experts' by following a thematic dialogue, and ensuring participants remain engaged throughout the interview. Interestingly, Clark (1998) interviewed elites and experts in a 'close dialogue' interview format and reveal important nuances in the facts of financialisation. Thus, where possible, interviews took place in a face-to-face format to establish a rapport and trust with the interviewee in an effort for interviewees to be more frank and honest in their responses (Jacobs et al, 2012).

This research adopted a multi-method approach to meet my objectives. Firstly, desk-based research allowed me to identify participants to interview and to analyse financial statements and reports from relevant development projects, in order to complement my primary research findings. Henceforth, this research also adopts the use of qualitative interviews, whereby Mason (1996: 39), elaborates on how interviews portray "people's knowledge, views, understandings, interpretations, experiences and interactions that are expressed through semi-structured interviews which are meaningful properties of the social reality". Similarly, Clark (1998) reflects on this with his work when interviewing elites and experts, it revealed important nuances in the stylised facts of financialisation, something to be considered when interviewing participants from certain stature. Following the transcription of all interviews, the analysis process of the methodology includes codification of interview respondents to extract material that will be discussed throughout the analysis. Critically, using TIF as a rationale will allow this research to address these research objectives in the case of Cambridge to assist in situating my research within the broader context of financialisation.

3.3 Limitations

It is important to consider limitations to the chosen methods of research in regards to measuring the objectives and my own positionality within interview settings. Leech (2002) and Dexter (1970) argue that elite interviews limit opportunity, so to avoid this I ensured all my interviews were balanced, using open-ended questions to interviewees to probe both positive and negative opinions and experiences. Critically, Valentine (1997) in Flowerdew & Martin (eds) criticises in-depth interviews claiming it presents interview bias in respondents answers which, in turn, highlights how interviewers cannot be objective or detached from their research. Further to this, Katz (1992: 496 cited in Valentine, 1997) articulates how the research relationships are 'peculiar, unequally initiated, situationally lop-sided, spatially dislocated, temporally isolated and extrinsic in purpose where it oozes with power'. However, a consensus among many scholars is that in-depth interviews provide a 'deeper' understanding of social phenomena than what could be extracted from solely quantitative data (Silverman, 2013: Rubin et al, 2012). Cochrane stresses the importance of "recognising the dynamics of global work and how they are presented in a local context, thus there is a greater justification for identifying the local 'movers and shakers' in studying urban elites and local power relations" (1998: 2122). With that in mind, I interviewed a range of stakeholders from local politicians, public sector workers, planners and experts on TIF and infrastructure funding. Although it must be noted that time, availability and resources resulted in some interviews taking place over the phone. Lastly, Latham and Hitchings' (2019:6) recent work on interview research highlights the absence of discussion in many studies about "how researchers develop their interviewing styles and practical interviewing experiences and thus shape their analyses." Therefore, within the analysis write up, this thesis will seek to develop a narrative of the interview experience considering how the context, nature and length of interviews may have shaped the responses of participants rather than factual quotes from research participants.

3.4 Ethical consideration

Throughout my research I must consider my interviewees and my own gendered influences in framing and interpreting interviews (Burgess, 2003). Payne (1951) argues the paternalistic attitudes towards women in interviewing, subsequently Payne claims this leads to dichotomous choices with coding answers. Rose (1997) further explains how positionality can be a mistaken understanding of the researcher possessing the perfect self-knowledge. Therefore, during my research I ensured professional relationships with participants were maintained in order to reduce any gendered influence and remove any perceived positions of betterment. Particular care was taken not to disclose any

personal information, therefore only contacting and scheduling interviews with participants using my formal university email address. Prior to the interviews, I explained the scope of my research to my participants, the interviews were then held in mutually agreed locations subject to their verbal and written consent. A full risk assessment was completed and approved before any research was undertaken. All participant responses are presented anonymously. All interview transcripts and recordings will be destroyed upon completion of this research.

4. DISCUSSION

4.1 Overview

Cambridge was the recipient of a £100 million City Deal grant back in 2011 towards transport infrastructure, following this is, it has been at the forefront of exploring alternative mechanisms of financing for infrastructure, including TIF (Cambridge City Council website, 2019). This chapter argues for the suitability of Cambridge to use TIF as a primary source of funding for infrastructure in the region. Firstly, the chapter begins with a comprehensive discussion around the research findings regarding the effects of financialisation on delivery of infrastructure. Following this, the discussion turns to an analysis of risks distributed between public and private actors. In turn, the research agrees with Ward's (2018) assumption that land values must be high in order to deliver TIF projects. Lastly, summating the research in the context of Cambridge and its local planning authority, assessing its viability to finance infrastructure using TIF, this research argues that TIF can be applicable for use in Cambridge.

4.2 The effects of a financialised environment on the delivery of urban infrastructure.

4.2.1 Overview

The assetisation of land has led to rocketing land and property values, challenging the delivery of urban infrastructure (Ward, 2017). This chapter argues the variegated process of financialisation is resulting in an emergence of alternative funding mechanisms for financing infrastructure (Pike et al, 2019). In turn, engaging with interview responses and literature it is argued the financialisation incorporates the use of increasingly risky and alternative sources of funding by local authorities to deliver infrastructure, of which Cambridgeshire Autonomous Metro is an example.

Aalbers (2019) discusses the shift towards municipal states funding of infrastructure experimenting with the use of financial products/mechanisms, such as TIF. Similarly, Weber (2010); Theurillat and Crevoisier (2013); Gonzalez and Oosterlynck (2014); Ashton et al (2016) and Van Loon et al (2018) express the idea of municipalities inviting and using finance to accomplish their goals. The idea of Tax Increment Financing migrating over from the US has been incrementally adopted within the UK (Weber, 2010). TIF emanates the idea that local governments are facilitating and serving the needs of private investors, playing a passive and facilitating role in the delivery and financing of infrastructure. Mckinsey

Global Institute (2016) argues that these public-private partnerships, using funding streams such as TIF are controversial as to whether they are more efficient and cost effective for local authorities.

Unlike the U.S, the highly centralised nature of the UK government results in local government have very little autonomy over decisions surrounding the funding and delivery of infrastructure (O'Brien et al, 2019). Applying this to the context of Cambridge, this research scrutinises the centralised powers of the UK government arguing how the local authority are struggling to acquire approval from the Treasury for the CAM, (TIF funded infrastructure project). On the topic of Cambridge, Deruytter and Derudder's (2019) research understands the tension that underline the governance of financialised infrastructure. Although this research does not directly explore the governance of infrastructure, the application of its theory will be useful in providing a basis for arguing that delivering sensitivity to the local, historical and political projections produce variegated outcomes of financialisation (ibid).

4.2.2 Local authorities entrepreneurialism

Evidently, the literature argues a need for alternative forms of funding to deliver urban infrastructure due to government cuts to funding. All interviewees discussed the challenge of bridging the gap between government funding and the cost of financing a large scale infrastructure project. The Cambridge Combined Authority receive £20 million a year in transport infrastructure, which does not cover the cost of a single piece of transport infrastructure, leaving a huge deficit in capital for infrastructure investment. Illustrating O'Brien et al's (2019) argument of the increasing reliance of private sector by the public sector in delivery of urban infrastructure. It became clear through a number of interviews that this produces substantial economic challenges for Cambridgeshire.

> *"We (Cambridge) are under severe pressure from central government to maintain economic activity"* (Interview 6)

Such statements reinforce the notion of centralisation in UK governance, reducing local authorities autonomy in infrastructure delivery, thus Cambridge must explore alternative funding mechanisms to deliver infrastructure.

4.2.3 TIF as an alternative funding source

Seemingly, this directs the participants' discussions towards alternative sources of funding for infrastructure where a number discuss the idea of land value capture and TIF. One interviewee argued:

> *"if the public purse significantly invest in infrastructure it is right that the value uplift created is captured for the use of further infrastructure funding."* (Interview 4)

This notion is echoed by a number of other interviewees, stating that capturing the value uplift should be paid back over the functional life of an asset, not a set number of years. This is supported by the Cambridge Combined Authority exploring the use of TIF and value capturing mechanisms, in conjunction with leveraging both private and government investment for infrastructure. In turn, interviewee #3 argues TIF provides greater flexibility for delivery of infrastructure. Interviewees synonymously emphasized TIF's previous success in delivering infrastructure, in reference to the London Battersea development sufficiently keeping up with repayments provides positive feedback. Critically, a number of respondents expressed their concern of the Treasury's resistance to the idea of TIF.

> *"Treasury is very uncomfortable with borrowing going on the public accounts, and currently greater uncertainty especially for TIF as the government are currently reforming business rates"* (Interview 3)

It suggests that similar to the U.S, for TIF to expand in the UK greater decentralised government is necessary.

4.2.4 Taxation vs Planning Policy

Thirdly, there needs to be a greater balance between taxation and planning policy, improving collaboration between the Treasury and local planning authorities. In other words, to utilise the tools of alternative funding for urban infrastructure solicits further devolution of powers to local authorities. One interviewee stipulates the extent that funding should come from government and general taxation and how much from the development process, arguing that currently there is no balance:

> *"the question of how that balance may be struck may be TIF"* (Interview 1)

Due to TIF placing taxes on future business rates from private businesses in order to pay back its initial upfront investment in government loans, infrastructure is delivered at a more cost efficient method. Interviewees identified the difference between tax on residential revenue compared to commercial revenue streams, in the wake of a site allocated for 'enabling' infrastructure.

> *"the government needs to start taxing residential in addition to commercial units in order to confidently generate the revenue required for infrastructure investment."* (Interview 4)

In support of this, an interviewee identified in the workings of the U.S taxation system that,

> *"...in the US by comparison has higher taxation and offers various incentives to developers compared to the UK local government"* (Interview 6).

They also place a high tax on residential and offer incentives for developers to build, whereas in the UK currently this taxation is low, and arguably developers control the rates of development. The MHCLG (2018) reinforces this, detailing the lack of coordination between taxation policy and planning policy in the UK. They argue that local governments must generate funding from the private sector due to the lack of government funding and taxation. Thus, if development is to occur it is mainly to ensure the developer makes an economic return.

4.2.5 Summary

In summary, evidence gathered for this chapter of research suggests that the cumulative effect financialisation has had on the difficulty of delivering infrastructure has been realised through local governments' need to seek alternative sources of funding. It is argued that the centralised notion of UK government is a fundamental restriction on progressing TIF at the desired rates of development. The research findings suggest greater collaboration between planning and taxation policy is needed to generate the surplus funding required for infrastructure investment.

4.3 Land value and risks for TIF in Cambridge

4.3.1 Overview

TIF funding is perceived amongst scholars, journalists and local authorities to be risky, historically these risks have unfairly fallen onto the local authority. This research supports that in the case of Cambridge, current proposals imply Cambridge local authorities will continue to burden the repayments and loss of control of infrastructure to private investors. This chapter will examine the definition of risk and the perception of risk between different localities. From this, the research advocates for enhanced efforts to be implemented in order to strike a more balanced distribution of risks between public and private actors. Secondly, the research suggests the undulation of land value is linked to the risk discussions as it is argued the greater the land value, the greater the value capture, which reduces risk. Cambridge benefits from high land values arguably reducing the risk associated with the future use of a TIF.

Flyveberg et al's (2003) work on infrastructure costs suggests costs are positively forecast, thus, this inevitably leads to consistent over runs on time and expenses/. This makes TIFs (a long term revenue) difficult to estimate. Furthermore, Beck and Giddens (cited in Flyveberg et al, 2003) argues we live in a risk society, whereby risk is often downplayed in promotions in order to gain political acceptance of projects. Ultimately, the projections turning out to be "non-measurable, insignificant or even negative for a project" (Flyveberg et al, 2003:4). Additionally, Chan et al (2005) articulates the absent arguments for environmental and social risks, that are likely to affect a project's expected returns on investment. Loosemore (2007) reiterates this point that risks are often allocated to parties absent of resources and expertise to manage the risk of effectively, commonly this is local authorities. Subsequently, this results in expensive project delays which fail to delivery services that provide value-for-money.

Flyvberg et al (2003) claims planning is required to assert long term supervision over the lifetime of a project in order to mitigate uncertainty. However, this could only be achieved by a highly trusting democracy. As aforementioned, MHCLG and participants commented on the lack of trust and communication between UK central government and local planning authorities. O'Brien et al (2019) supports the idea of risk-sharing infrastructure relationships between local government and private actors. He highlights the scope for collaborative risk mitigation strategies to reduce risk and increase the successful delivery of TIF funded infrastructure projects. In conjunction with this, land values provide the foundations on which a TIF is built upon. Recently, land value capture has attracted a lot of political attention due to its potential to aid in infrastructure investment. Ward (2019) stipulates that

the assetisation of land has provided a rationale for the use of TIF in financially leveraging against infrastructure cash flows. Despite this, Brill et al (2019:1) discusses how financialisation leads to 'the increasing reliance on private-led developments, such as land value capture, is resulting in spatial inequalities and homogenised urban forms.'(Beswick et al, 2018; Penny, 2017; Robin, 2018, Weber 2002,2010 cited in Brill et al, 2019).

4.3.2 TIF is Risky

The research findings argue that TIF is risky because the liability of repayments remains with the local authority if development does not provide sufficient business rate revenues to pay back. At present, the Treasury is uncomfortable with the extent of borrowing required for a TIF to go on public accounts. A scheme in Cambridge which almost came to fruition back in 2011 was at the last minute converted into the City Deal government grant at £100 million. One interviewee believed that

> *"'Trying to subsidise a transport system through rising property values, and that was the truth of what they were doing, to me, seems fundamentally dodgy"* (Interview 3)

Supporting the government's opinion of TIF's risk reliance on the UK economy, leaves both the public and private sectors sensitive to change. One interviewee vocalised: *"that TIF should adjust with the economy and not be fixed"* (Interview 1). In addition, the public's perception of TIF is of suspicion, especially when local governments are working with financially engineered products.

With that in mind, the London Battersea development, one of the first large scale TIF funded projects in England, placed a number of mitigation strategies in place to reduce the risk. One interviewee explained the strategies used in this project to mitigate the risk:

> *"They used a single large developer for the entirety of the project negotiating agreements to build a minimum of 65% of the total development. The local authority used a mixture of developer contributions and business rates, to reduce the threshold limit required for future revenues to reach to pay back the upfront loan. TfL reached an agreement to only build the Northern Line Extension once the main development of Battersea Power Station has been completed, thus they could begin to remunerate business rates on the commercial space. A team of private consultants and financial advisors calculated the financial risks and projected revenues."* (Interview 4)

Evidently, for Cambridge, the success of the scheme in Battersea highlights the potential to reduce risks in TIF infrastructural projects. Although, it must be noted that the perception of a successful scheme in London may not match one in Cambridge.

The perception of risk is subjective between localities. It was revealed in an economic independent study commissioned by the Cambridge Combined Authority that the Cambridge economy was under-valued and is doing better than previously recorded, thereby suggesting the economy would be strong enough to generate the necessary revenues for a TIF project. In conjunction with the strong economy, Cambridge holds high land and property values. Yet, research findings extrapolate the consequential risk of land values on TIF projects, named the 'Birmingham Boom', detailing;

> *"The risk that if the rest of England had a huge boom in land value, Battersea development would be building something having the rents of Croydon rather than Sloane Square"* (Interview 4)

Thus, in Cambridge this risk must be taken into consideration whereby changes in local land values could hinder the success of a TIF. Chan et al (2005) discusses the issue with environmental and social risks in projects. The research findings argue a number of potential development sites in Cambridge are airfields which require significant site clearance prior to development. This is touched upon by one interviewee who specifies:

> *"Cambridge has a lot of old airfield sites which require a lot of site clearance, often something not taken into account when assessing the risk of a scheme"* (Interview 5).

Within the context of planning, the same interviewee argued that these sites are labelled as

> *"high risk, are expensive to get off the ground and requires a lot of resources at the expense of the public sector".*

Thus, local authorities are having to find innovative ways in which to attract developer. One research participant argued this could be done by highlighting the obvious benefits to themselves rather than the risks to the local authority, throughout ensuring not to hinder development altogether.

4.3.3 Land Value

Land values play a pivotal role in any development process and particularly when exploring alternative funding mechanisms, TIF viability is dependent on high land values. A difficulty for Cambridge is the speculative release of land in which infrastructure will be built. Landowners are partially responsible for this, as it is argued

> *"how landowners have consistently resisted the idea of land value capture which is arguably distorting the UK housing market due to the public's obsession with home ownership"* (Interview 3).

With that, the University of Cambridge own substantial parcels of land which only exacerbates the difficulties of the local authority has in delivering infrastructure. In this case, for Cambridge the university *"has to make it worthwhile for them to bring forward land for TIF infrastructure to be built on"* (Interview 2), as ultimately the university prioritises its own interests, thus reinforcing the assumption that land owners have the ability to influence infrastructure.

Moreover, it is argued that TIF is only going to be successful in areas of high land values. Teresa (2017) stipulates that neighbourhoods with poorer residents, low and stagnant property prices are not favourable terrain for TIF districts. This is substantiated by research findings where one interviewee substantiates

> *"the ability of funding infrastructure is dependent on the land value"* (Interview 6).

Further research confirms this, through calculating the current CIL payment schedules from a randomly selected group of English local authorities. Table 1 below details the current price per SQM of CIL contributions which is a good indicator of land values. From this, it can be concluded that areas of higher land values are able to extract higher CIL levies. This reinforces the argument of land values significant influence on the success of TIF. As shown, Cambridge has one of the highest CIL payment schedules from the selected local authorities. Further research interviews concur that

> *"..in the north of England, for example, you are unable to rely on land value capture to the same level as you are in the South. For the same development, in the south, local communities would get a number of 'goodies' alongside the infrastructure provisions such as*

a new school due to the value uplifted in the area of which the north would not." (Interview 5) .

Table 1: The current CIL payment schedules for local borough councils across the UK (correct at time of writing)

Borough/Local Authority	CIL	Mayoral CIL Levy	Levy - p/sqm	Expenditure	Borough/ Local Authority	CIL	Mayoral CIL Levy	Levy - p/sqm	Expenditure
Bedford Borough Council	Yes	No	**Residential -** Zone 1 (£40); Zone 2 (£60); Zone 3 (£100); Zone 4 (£125); Zone 5 (£120) **Supermarkets** (£120)	Regulation 123 List - Infrastructure	**Haringey Council**	Yes	£35 per sqm	**Residential** -£265	5% retained for administrative costs. 15% Neighbourhood Proportion. 80% Strategic Proportion (infrastructure)
Cambridge City Council	Yes	No	**Residential** - (£125) **Retail** - (£75) **Student Accommodation** (£125)	Regulation 123 List - Infrastructure	**London Borough of Bexley**	Yes	£35 per sqm	**Residential** - Zone 1 (£40), Zone 2 (£60)	Regulation 123 List - Infrastructure
Chesterfield Borough Council	Yes	No	**Commercial** - (£80) **Retail** - Low Zone (£20); Medium Zone (£50); High Zone (£80)	Regulation 123 List - Infrastructure	**Trafford Council**	Yes	No	**Residential** - Cold Zone (£20); Moderate Zone (£40); Hot Zone (£80) **Apartments** - Cold Zone (£0); Moderate Zone (£0); Hot Zone (£65) **Retail Warehouses** - (£75) **Supermarket outside town centre** (£225) **Leisure** (£10) **Hotels** (£10)	Regulation 123 List - Infrastructure
Elmbridge Borough Council	Yes	No	**Residential** - (£125) All **retail development** (£50) **Supermarket** (£100) All **other uses** (£10)	Regulation 123 List - Infrastructure	**Royal Borough of Kensington and Chelsea**	Yes	£35 per sqm	**Residential** - Zone A (£750); Zone B (£590); Zone C (£430); Zone D (£270); Zone E (£190); Zone F (£110) **Extra Care Housing** - Zone A (£510); Zone B (£230); Zone C (£300); Zone D (£160) **Hotels** - (160) **Student Accommodation** - (£125)	Regulation 123 List - Infrastructure
Gedling Borough Council	Yes	No	**Residential:** Zone 1 (£0); Zone 2 (£45); Zone 3 (£70)	Number of infrastructure projects to be funded by CIL	**Southend-on-Sea Borough Council**	Yes	No	**Residential -** Zone 1 (£20); Zone 2 (£30); Zone 3 (£60). **Supermarkets** (£70)	Regulation 123 List - Infrastructure
Hackney Council	Yes	£35 per sqm	**Residential** - Zone A (£190); Zone B (£25); Zone C (£55); Zone D (£0) **Large Retail** (£150) **Student Housing** (£373)	Regulation 123 List - Infrastructure	**Swindon Borough Council**	Yes	No	**Residential** - Zone 1 (£0); Zone 2 (£55); **Retail** - Zone 1 (£0); Zone 2 (£100)	Regulation 123 List - Infrastructure
Waverley Borough Council	Yes	No	**Residential - More than 10 units** (Zone A: £395, Zone B: £372) **Residential less than 10 units** (Zone A: £452, Zone B: £435) **Retirement living** (Zone A : £118, Zone B: £100) **Retirement without affordable housing** (Zone A: £280, Zone B: £268) **Small convenience store** (£75) **Supermarket** (£65) **Town Centre Retail** (£25) **Out of Centre Retail** (£95)	Regulation 123 List - Infrastructure	**Tower Hamlets**	Yes	£35 per sqm	**Residential** - Zone 1 (£200); Zone 2 (£65); Zone 3 (£35) **Offices** (£90) **Retail** - Zone 1+2 (£70) **Hotel** (£180)	Regulation 123 List - Infrastructure

Source: Please see reference list

Henceforth, in Cambridge the Mayor's announcement of the proposal for the Cambridge Autonomous Metro (CAM), indicates that the county is exploring TIF and associated value capture mechanisms. The role of land value is reiterated here that

> *"Cambridge has the land values which can be captured for public purposes and provide suitable viability for a TIF to be able to generate the extra revenue to pay back the initial debt obligations"* (Interview 3).

Furthermore, extending the earlier debate on risk and land values, the local authority in Cambridge is considering negotiating with landowners at the early stages of the project; in order to

> *"acquire the land at its real value before it becomes an allocated site through the planning system which will see its value increase significantly"* (Interview 2).

Evidently, Cambridge has the land values to reduce the perceived risks in terms of revenue creation in a TIF funded project, with that confidence spreading to the proposals of the CAM scheme.

4.3.4 Summary

Overall, the research findings highlight the disproportionate burden of risk on local authorities. However, the London Battersea power station scheme demonstrates the potential to mitigate these risks and more evenly distribute risks between public and private actors. As indicated by Loosemore (2007) local authorities lack the resources and experience to manage this risk effectively due to the emphasis on the benefits on an infrastructure project, resulting in the risks remaining obscure. This chapter argues a successful TIF will only occur in places of high land values and where significant uplift in value can be captured, an environment Cambridge can offer. Although this may be true, the division of responsibilities of risk and land value capture requires further balance between private and public actors to improve confidence, not only from the public but from the Treasury and central government.

4.4 Cambridge is suitable for the delivery of TIF infrastructure

4.4.1 Overview

Cambridge meets the conditions discussed in this research for an environment that could accommodate TIF funded infrastructure. The city has excellent viability, high land values and good development pressures along with a demand for growth. The Letwin Review (2018) concluded that the extended time taken to deliver major infrastructure has a definitive impact on the speed of development. Thus, the need for achievable and deliverable infrastructure has never been higher. The research findings held a positive outlook on the future of TIF in Cambridge. The local authority is exploring TIF and other alternative mechanisms to fund a new Autonomous Metro underneath the city. Notably, this chapter considers the role of the planner with TIF bringing greater awareness to the impacts of austerity on local authority planning departments.

Beauregard (1989: 115) states "after decades of urban planning under the entrepreneurial paradigm, planners have become deal makers rather than regulators". To some extent this is true, currently in the era of austerity local authorities are increasingly reliant on the private sector to invest in urban infrastructure projects (Ward, 2017). As a result, planners are working with a neoliberalised agenda along with its paradigmatic mode of urban governance, urban entrepreneurialism and uneven development (Smith, 2008 cited in Teresa, 2017). Interestingly, it is argued by Teresa (2017) that the emergence of financial tools is altering planners' activities and rationalities. Coupled with Ward's (2018) work on the impact of austerity on local councils' and their an inability to pay for infrastructure is forcing planning departments to explore alternative options. Certainly, this occurs when planners have had to permit development partnerships with private investors in order to deliver and meet targets set by the central government. Correspondingly, the argument of planning theory arises with planners wrestling with the notion of technical experts and political actors (ibid). Ward (2018) illustrates this with the example of Chicago where planners found value rational for TIF but were aware of the potential misuse of power partnered with the flexible nature of TIFs. Clifford et al (2013) calls for the expert professional planner to be replaced with a more collaborative practitioner role, a community facilitator. Clifford et al (2013) argues that the decline in trust of the public with government, institutions and professionals has influenced this idea. Simultaneously, the UK planning system is viewed by the public as ensuring returns to private investors over producing public goods, leading to distasteful alliances between politicians and capital markets (O'Brien et al, 2018). Therefore, it can be reasonably assumed that TIF is enhancing this inherently political and private-led nature of planning.

4.4.2 Suitability of Cambridge

This chapter explores the viability of Cambridge as a suitable location for TIF urban infrastructure. The Mayor, Nigel Gawthrope is also experimenting with alternative funding streams, with research participants articulating how

> *"..the Mayor's vision, based on the Howard Garden City concept, is to create a web of transport links out to the market towns (creating value) to the city centre and transport people into the business hub"* (Interview 2).

This highlights the political appetite in the region to explore alternative funding for infrastructure, a practice not many local authorities in small cities are engaging. At the same time as, Cambridge's high land values providing confidence in the context of infrastructure funding, one interviewee pointed out that

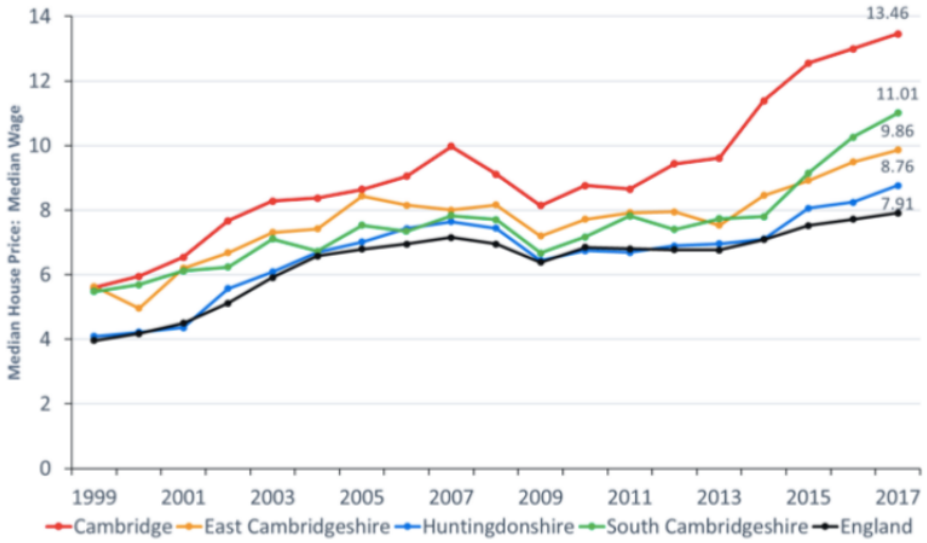
> *"for many people Cambridge is proving to be extremely expensive and people are being forced to move out"* (Interview 3).

Cambridge house prices are bordering those of London, yet research participants respected that

> "*if we stand still we might kill the very thing that makes us successful, we have to expand"* (Interview 5).

The following figure evidences the average house prices of Cambridge to be significantly higher than the national average, making Greater Cambridge one of the least affordable places to live (CPCA, 2019). Reinforcing the earlier discussions on land values, Cambridge's median house prices are in comparison much higher than surrounding areas of Huntingdon and South Cambridgeshire. It can be assumed the potential for infrastructure could exacerbate this difference further.

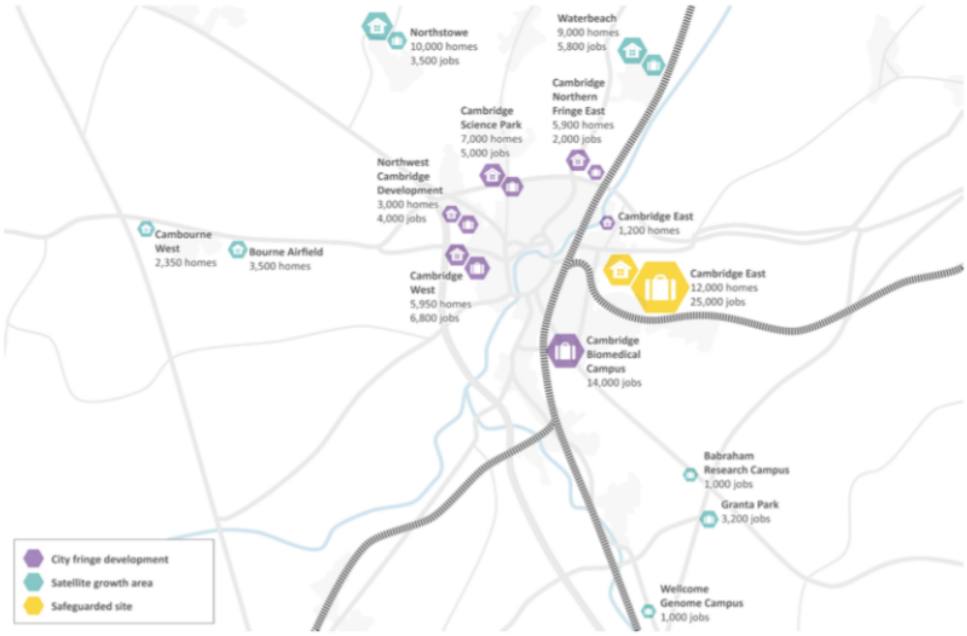
Figure 2: Median house price: median wage ratio in Cambridge, South Cambridge and England



Source: Office for National Statistics, Ratio of house price to workplace-based earnings (lower quartile and median), 1997 to 2017 (annual data for year ending Q3)

With regard to the proposals for the CAM Metro, one of the key arguments in the business case to be made to central government is the need for Cambridge to continue to grow. This is illustrated in the figure below, detailing the major developments planned for Cambridge and highlights the necessity for a comprehensive transport system to connect them altogether.

Figure 3: Future Development in Greater Cambridge



Source: CPCA – CAM Business Case Final Draft Report (2019)

Cambridge's economy is strengthened thanks to its bioscience, education and technology sectors, thus is an important contributor to the British economy. A report from the National Infrastructure Commission found that "*a chronic undersupply of housing and poor connectivity is putting growth and future success at risk*" (CPCA, 2019:42). This is echoed by an interviewee who argues that

> *"if infrastructure is unable to be delivered there is a danger that it could be choked off in the national context".* (Interview 3) .

With this intention for growth, one interview suggests for successful delivery of the CAM

> *"if Cambridge were to adopt a reformed taxation policy on residential as well as commercial on similar rates it would make infrastructure investment more viable. As currently the extra business tax does not cover the cost of other infrastructure services which are inevitable with further development."* (Interview 4).

Arguably, Cambridge boasts, high land values, political will and appetite for growth, therefore the use of TIF to deliver the CAM presents itself as a strong case to central government.

4.4.3 Issues

Comparisons of Cambridge with cities such as Chicago and London are not entirely indicative when it comes to suitability. Recalling earlier discussions where perceptions of risk vary between localities is fundamental to assessing Cambridge's suitability. A key concern raised by a number of interviewees is the unsympathetic allocation and delivery of infrastructure creating the potential for disparity between localities within Cambridge. Furthermore, this incorporates the arguments of land values and how Cambridge's high land values may further distort the regions land prices if infrastructure provisions is solely focused within the city centre. Interviewee 2 cites how

> *"Cambridge needs to put more money into deprived areas, to reduce the current disparity in land values".*

This is further addressed in an interview who explains that infrastructure could exacerbate issues of disparity

> *"where currently the city centre has high land values and areas like the Fens, north of the city, have low land values and a challenge for Cambridge is how to get schemes developed in those areas"* (Interview 1).

One reason for this, is that

> *"policies are not always contextual or site specific and a bland blanket policy for everyone is not necessarily the best way"* (Interview 6).

Therefore, an argument can be made here for local policy reform, in relation to TIF, to ensure planning is able to balance and achieve public wellbeing and meet private development whilst meeting the local needs of an area.

Another point to consider is that the notion of risk extends out to fluctuations in the national economy. One interviewee explains that

"in the likelihood of an economic downturn house builders will focus on areas where they will make high profits, for example areas of high development pressures and high land values. Historically this has been the city centre in Cambridge" (Interview 6).

This magnifies the risk of great disparity between Cambridge City Centre and the wider region. In terms of local opinion one interviewee summarised the findings of their own research where they found that

"view of the local population in Cambridge accept the need for development and expansion but request that it be done in an incremental and sensitive way" (Interview 3)

This suggests that the incremental nature of the TIF funding mechanism may be acceptable for Cambridge residents.

4.4.4 Role of planning

The planners objective is to balance the private and public interests and are regularly consulted for their 'expert' opinion from local and central government. The austerity cut in government funding has led to the financialisation of many planning activities and local authorities' ability to successfully deliver infrastructure requires significant funding from other sources (Ward, 2017). Accordingly, Interview 6 argues the difficulty in Cambridge is *"finding a way to strike a balance between large capital and finding credible flows of revenue to finance it".* In Cambridge the Combined Authority and the Mayor working on the CAM proposal are currently in negotiations with landowners to acquire land before sites become allocated in order to reduce costs.

One advantage Cambridge has in terms of infrastructure delivery according to one interviewee is

"..Cambridge possess an adopted strategic map incorporating strategic planning policy which makes infrastructure delivery much more straightforward as fewer stakeholders are involved that you have to negotiate with" (Interview 4).

Thus, making it much easier to acquire land for infrastructure development. With attention to the proposed CAM scheme by the Mayor, the Cambridge Combined authority

"holds the same compulsory purchase powers of the Mayor to be able to acquire land from landowners, or fight us through the system" (Interview 5).

This demonstrates the possibility for infrastructure to be delivered if the right development and delivery vehicles are created and receive the right political support. In reality, the inherent distrust of the Treasury towards local authorities remains, to the extent that the Mayoral powers are one of the only tools currently available to Cambridge to viably fund their Metro using TIF.

Finally, TIF assimilates the awareness of planner's roles in localities in this present climate of government funding cuts. Cambridge receives

"£20 million per year in funding for infrastructure and the local council (us) are clear to our districts and the developers that the council no longer have a chequebook to fund infrastructure" (Interview 5).

The alternative funding mechanism of TIF and others alike are the only realistic way in which Cambridge are going to be able to deliver infrastructure. Whilst the Treasury poses an indefinite resistance to the idea of TIF, the London Battersea project highlighted to an interviewee

"*that there are relatively low hurdles to overcome within public consultation regarding the financing mechanisms for infrastructure"* (Interview 4).

Additionally, this reiterates the issue of financial calculations in assessing the risk and the projected revenues to be generated from a future infrastructure project. Cambridge interviewees raised some concerns with the current cuts in public resources and in a TIF project the role of the planner comes into question.

"In the capacity of their role as a planner it begins to include that of a financial advisor, and as a local authority we do not have the resource or expertise to incorporate this, without extra funding or training" (Interview 6)

Such statement complements the work of Clifford et al (2013) on the role of the planner. These issues represent a need for greater collaboration and coordination between central government and local

planning authorities on planning and taxation policy as it is clearly a significant barrier in the delivery of infrastructure in Cambridge, and a perceived risk to future growth and development.

4.4.5 Summary

To summarise, the current austerity government has forced local governments to become entrepreneurial and innovative strategists in funding infrastructure. The research in Cambridge finds that they are in position where the financialisation of infrastructure and dependence on private sector funding is the only way in which they can viably fund infrastructure. The research findings show Cambridge as suitable for delivering TIF funded infrastructure as there is a danger that if infrastructure is not delivered quickly, the region could be in danger of being ***"choked off"*** (Interview 3).

The research further identifies a potential issue of disparity which unless addressed through changes to national policy will continue. Lastly, in the context of planning Cambridge's strategic map proves advantageous to the implementation of TIF. Additionally, the powers of the Combined Authority and political will of the Mayor presents a positive, forward-thinking city which the right risk-adverse public private partnerships are well on their way to successfully progressing with TIF infrastructure projects in the future. Despite this, an overriding concern is the centrality of UK government, it is clear that de-centralised powers are essential for Cambridge to deliver TIF infrastructure and continued to meet the economic demands set by the Treasury.

5. CONCLUSION

5.1 Summary of Research

This thesis has explored the effects of financialisation in the delivery of urban infrastructure using the rationale of TIF. The research selected Cambridge as a case study to explore its suitability for adopting TIF in its infrastructure projects, specifically the CAM Metro. Cambridge was chosen as its one of the few local planning authorities exploring alternative mechanisms, including land value capture and TIF and an area of the UK under researched in terms of infrastructure delivery and financing.

The research involved interviewing different stakeholders in Cambridge and London to understand their experiences and opinions on TIF to fund infrastructure. Desk-based research helped to support and corroborate the responses of participants ensuring significance and rigour in my data. Upon analysis, these methods deduced that Cambridge is a suitable and viable option for TIF funding of infrastructure. Nevertheless, planning and taxation policy reforms are required, in conjunction with greater devolved powers from central government to make TIF a popular and reliable form of infrastructural funding.

5.2 Research Results

The first of the research findings from this thesis concludes that financialisation has directly increased private sector involvement in infrastructure projects, inadvertently impacting on land and property values. Reflecting on the comparisons of TIF in the US, the UK's centralised governance is restricting the ability of local government to implement alternative funding streams to infrastructure investment. In Cambridge, the local authorities CAM proposals are exploring funding streams to present and argue the business case to the Treasury for their approval.

Another research finding related to the associated risks with TIF concluded that TIF is risky and the local authority continue to be burdened with the financial responsibilities, if TIF fails to generate the expected revenues. At the same time, there is potential for these risks to be mitigated and its suggested that the CAM project in Cambridge is seeking ways in which to redistribute this risk between the private and public actors. Coupled with the issue of land values, the danger of disparity within the Cambridge region must be considered, particularly if TIF revenue or infrastructure provisions are not evenly distributed.

The final research argument summates that TIF is a suitable tool for infrastructure delivery in Cambridge. From empirical studies on the U.S tax policies and success of one of the UK's first TIF projects in Battersea power station in London, it is possible for local authorities to plan provisions for TIF funded infrastructure. Critically, planning must evolve and adapt in order to accommodate these alternative forms of funding to deliver infrastructure.

5.3 Recommendations

This research has highlighted that there is an appetite amongst local authorities, including Cambridge for the introduction of a Land Value Tax, acknowledging that unearned wealth as a result of public infrastructure provision should be captured. This will help generate more funding for local authorities to deliver infrastructure on a less privatised scale and deliver the public good planning for infrastructure is intended for.

A political element identified was the need for future reforms to centralised powers of funding and calls for greater collaboration and trust to be built between the Treasury and local authorities. It is clear from this research that planning and taxation policies working in tandem would yield greater results for infrastructure delivery across the UK.

In terms of planning, a suggestion for clearer guidance in strategic frameworks detailing the use and implementation of financial mechanisms for infrastructure and its seamless incorporation into existing and future strategic plans. Moreover, in practice, central government need to curate policies which can be tailored to local/regional areas as its clear national blanket policy are not an effective strategy for delivering and funding infrastructure.

A limitation to this research is the focus on the Cambridgeshire Autonomous Metro scheme proposed in Cambridge which is still in its early stages. Therefore, a recommendation for future research to revisit the scheme to assess its outcomes and whether TIF was successfully adopted would be important to this research field. Whilst this research has addressed the conditions for a successful TIF and its viability within the UK and Cambridge, it would be useful for future research to also investigate who is responsible for ensuring planning and taxation policies to align, ensuring services provide for a public good whilst ensuring equitable returns for private investors would be useful.

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Figures and Tables

Figure 1: CAM Business Case Final Draft Report (2019) - https://cambridgeshirepeterborough-ca.gov.uk/assets/Uploads/CAM-SOBC-v2.1.pdf - date accessed 26.08.2019

Figure 2: Office for National Statistics (2019) https://www.ons.gov.uk/peoplepopulationandcommunity/housing/datasets/ratioofhousepricetoworkplacebasedearningslowerquartileandmedian - date accessed 27.08.2019

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APPENDICES

Appendix 1: Interview Schedule/Questions

Category	Question
Financialisation	What is your understanding of the financialisation of land?
	How do you understand land in terms of unlocking potential?
	How influential are landowners in the delivery of infrastructure projects?
	Who owns the land?
	How do you find that out?
	What roles does land value capture play in governing and implementing infrastructure projects?
Infrastructure/TIF/Risk	What other options are there than considering just TIF to fund infrastructure projects?
	Why is TIF used?
	The Financial Times view TIF as a risky financial tool for infrastructure projects, what is your opinion on this?
	Is TIF risky for local governments in their ability to fund local infrastructure projects?
	Who benefits from TIF, public or private actors?
	What do you think TIF does to help 'enable infrastructure' to assist in growth in a development of an area, for example Cambridge?
	What are the pros and cons for using TIF?
Cambridge	Have you heard of Project Cambridge?
	Do you know of any TIF funded infrastructure projects outside London?
	Why does Cambridge need TIF funding considering its relative size?
	What calculations are being made for delivery of TIF projects?
	Who makes decisions on TIF?
	Where are the number acquired?
	What extent are local people involved in the TIF process?

Appendix 2: Interviewees information

Interviewees	Key attributes
Interviewee 1	British Property Federation member of staff with experience in TIF and related policy.
Interviewee 2	Local MP, excellent local knowledge and previous Shadow Transport Minister
Interviewee 3	TfL member of staff who worked on Battersea development and research on land value capture.
Interviewee 4	Researcher at RICS
Interviewee 5	Cambridge Combined Authority planning staff, excellent knowledge on Cambridge.
Interviewee 6	Cambridgeshire City Council staff member in the planning department.

Appendix 3: Example of responses to one interview questions

Who are the beneficiaries of TIF infrastructure projects, public or private actors?
"Public bodies and the government have no money to invest in infrastructure and are requiring different orders of underwriting for infrastructure projects, typically from private investors."
"In order to deliver infrastructure the government must rely on private sector but to do it must be that the project generates the developer an economic return."
"Initially the university was the initiator because they wanted to connect a new housing development on one side of the city with the Biomedical Campus which is on the other, and then when people said well if you do that then why can't we have a bit more and make you know a more public system."
"A lot of unintended consequences come from not having the right mix of funding for housing and transport systems. There is quite a lot of new build that is very expensive and is now rented which was not what was expected which has led to another series of issues and problems."
" It is a tricky one, as we are all benefitting from past investment in infrastructure, which we didn't have to pay for or was paid from general taxation. So there isn't a direct link but say it comes more tricky when you have big lumps of infrastructure needed and people say that we're paying for things you don't really necessarily see, Obviously if there's a big investment needed it is how to spread that cost so it is not born on those people that just happened to be there at that time."
"We've got experience where the supplies outstrip demands and subject to thousands of planning rules having enough supply, developers have been able to get speculative schemes away and locally that goes down very poorly."
" I suppose it is ultimately for the public good, clearly this was land values to increased you put I that infrastructure and its ultimately about creating a better place. Let's suppose both parties gain, you've created the best place you otherwise wouldn't have been able to create and that's generated additional value. I suppose one of the reasons why our members really love TIF is that this sort of cash flow, a lot of the land value such as the sale you are paying as the developer is money upfront. But whereas with TIF you are always taking the benefit as its creator, therefore it feels fairer"
"For example, Battersea would not have occurred without the Northern Line extension, and that is a private stream going eventually to Malaysia. On the other hand it is are you genuinely creating jobs that wouldn't otherwise perhaps be in the UK, and I think you tend to emerge with quite mixed answers. I think it justifies the public involvement, in the sense that if you didn't have the local authority you wouldn't get those business rates, so it does work."
" In all its sort of a mixed economy where the two (public and private) tend to go together. One of the things I am regularly having to remind my colleagues is we will badly need to see development to be profitable and so our objectives are aligned."
" I think it makes it more important that, um, cause there's not now the resource in local authorities, that developers do have a spatial conscience and a legacy that they want to be involved in the life of these developments and provide properly to communities. I think as you say, the big winners in all of this are genuinely the landowners money that they have, you know, from agricultural land value to an allocation. And I might think that what is being squeezed are probably the developers, but I think the landowners, I think one of the arguments for this tax is that it is the landowners who literally win the lottery when they sell a parcel of land for residential development and all goes unseen."

RISK ASSESSMENT FORM
FIELD / LOCATION WORK

The Approved Code of Practice - Management of Fieldwork should be referred to when completing this form
http://www.ucl.ac.uk/estates/safetynet/guidance/fieldwork/acop.pdf

DEPARTMENT/SECTION BARTLETT SCHOOL OF PLANNING
LOCATION(S) LONDON/CAMBRIDGE
PERSONS COVERED BY THE RISK ASSESSMENT Zoë Smythe

BRIEF DESCRIPTION OF FIELDWORK Conducting face to face interviews with local council members, developers, consultants and local residents who are involved with the infrastructure project, 'Project Cambridge.

Consider, in turn, each hazard (white on black). If **NO** hazard exists select **NO** and move to next hazard section.
If a hazard does exist select **YES** and assess the risks that could arise from that hazard in the risk assessment box.
Where risks are identified that are not adequately controlled they must be brought to the attention of your Departmental Management who should put temporary control measures in place or stop the work. Detail such risks in the final section.

ENVIRONMENT	**The environment always represents a safety hazard. Use space below to identify and assess any risks associated with this hazard**
e.g. location, climate, terrain, neighbourhood, in outside organizations, pollution, animals.	Examples of risk: adverse weather, illness, hypothermia, assault, getting lost. Is the risk high / medium / low ? YES - **Risk of causing offence which may lead to personal attack/abuse –** LOW RISK - **Working within other establishments** – LOW RISK - **Working beside major roads –** LOW RISK - **Risk of attack/abuse and personal injury** – LOW RISK - **Risk of getting lost –** LOW RISK

CONTROL MEASURES	**Indicate which procedures are in place to control the identified risk**
☐	work abroad incorporates Foreign Office advice
X☐	participants have been trained and given all necessary information
☐	only accredited centres are used for rural field work
X☐	participants will wear appropriate clothing and footwear for the specified environment
☐	trained leaders accompany the trip
☐	refuge is available
X☐	work in outside organisations is subject to their having satisfactory H&S procedures in place

☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

- Respect must be paid to local procedures
- Ensure establishments has their own safety guidelines in place
- Whilst on premises follow their guidance
- Avoid having back towards the traffic flow on site
- Avoid areas known to be unpleasant
- Consult local community groups, Local Authorities, Police for information and possible contact names before setting out
- Do not enter unfamiliar neighbourhoods alone
- Walk with confidence and purpose
- Plan my route and ensure access to maps at all times
- Ensure a means of raising alarm if you are lost

EMERGENCIES	**Where emergencies may arise use space below to identify and assess any risks**
e.g. fire, accidents	Examples of risk: loss of property, loss of life

YES
- Loss of Life - LOW RISK

CONTROL MEASURES	**Indicate which procedures are in place to control the identified risk**
X☐	participants have registered with LOCATE at http://www.fco.gov.uk/en/travel-and-living-abroad/
☐	fire fighting equipment is carried on the trip and participants know how to use it
X☐	contact numbers for emergency services are known to all participants
X☐	participants have means of contacting emergency services
X☐	participants have been trained and given all necessary information
X☐	a plan for rescue has been formulated, all parties understand the procedure
X☐	the plan for rescue /emergency has a reciprocal element
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

EQUIPMENT	**Is equipment used?**	**No**	**If 'No' move to next hazard** **If 'Yes' use space below to identify and assess any risks**
e.g. clothing, outboard motors.	Examples of risk: inappropriate, failure, insufficient training to use or repair, injury. Is the risk high / medium / low ?		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

☐	the departmental written Arrangement for equipment is followed
☐	participants have been provided with any necessary equipment appropriate for the work
☐	all equipment has been inspected, before issue, by a competent person
☐	all users have been advised of correct use
☐	special equipment is only issued to persons trained in its use by a competent person
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

LONE WORKING	Is lone working a possibility?	Yes	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. alone or in isolation *lone interviews.*	Examples of risk: difficult to summon help. Is the risk high / medium / low?		

- Isolation in interviews – LOW RISK
- Travelling alone/risk of attach – LOW RISK

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
☒	the departmental written Arrangement for lone/out of hours working for field work is followed
☐	lone or isolated working is not allowed
☒	location, route and expected time of return of lone workers is logged daily before work commences
☒	all workers have the means of raising an alarm in the event of an emergency, e.g. phone, flare, whistle
☒	all workers are fully familiar with emergency procedures
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

- Specify dates and times or departure and return. If your plans change, inform someone as soon as possible
- Do not carry valuables or large sums of money unless required
- Carry a personal alarm
- Trust intuition – if you feel scared or uneasy, do not ignore it
- Avoid walking alone at night
- Stay on busy, well-lit roads
- Plan your journey in advance, tell someone which route you mean to take and estimated time or arrival at your destination

ILL HEALTH	**The possibility of ill health always represents a safety hazard. Use space below to identify and assess any risks associated with this Hazard.**
e.g. accident, illness, personal attack, special personal considerations or vulnerabilities.	Examples of risk: injury, asthma, allergies. Is the risk high / medium / low? - Personal attack – LOW RISK - Illness/injury – LOW RISK - Insect bites/allergic reactions – LOW RISK - Alcohol – LOW RISK - Food poisoning – LOW RISK - Medical conditions resulting from extended display screen equipment use – LOW RISK

CONTROL MEASURES	**Indicate which procedures are in place to control the identified risk**
☒	an appropriate number of trained first-aiders and first aid kits are present on the field trip
☒	all participants have had the necessary inoculations/ carry appropriate prophylactics
☒	participants have been advised of the physical demands of the trip and are deemed to be physically suited
☒	participants have been adequate advice on harmful plants, animals and substances they may encounter
☒	participants who require medication have advised the leader of this and carry sufficient medication for their needs
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

- Wait to be invited into home or location
- If the person is drink or aggressive, do not enter
- Try to conduct interviews in neutral locations
- Be aware of delicate issues involved with discussions or interviews
- Do not try to do too much in one day, especially if they work is to be followed by a long drive home
- Ensure sufficient rest is taken, lack of sleep can lead to accidents
- Know your limitations
- Do not be afraid to tell someone if your unwell and if you do stop work
- Be cautious of the first signs of allergic reaction and DO NOT ignore them
- Seek medical attention immediately for suspected anaphylactic shock
- No drinking on during field work and avoid excessive amounts evening before conducting fieldwork
- Avoid caffeinated drinks in hot weather as can enhance dehydration
- Take sufficient breaks from screen and ensure variation in posture and visual demands
- Lighting levels must be sufficient for all tasks at the workstation
- Ensure workspace has sufficient ventilation

TRANSPORT	Will transport be required	NO		Move to next hazard
		YES	X	Use space below to identify and assess any risks

e.g. hired vehicles

Examples of risk: accidents arising from lack of maintenance, suitability or training

Is the risk high / medium / low?

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

☒	only public transport will be used
☐	the vehicle will be hired from a reputable supplier
☐	transport must be properly maintained in compliance with relevant national regulations
☐	drivers comply with UCL Policy on Drivers http://www.ucl.ac.uk/hr/docs/college_drivers.php
☒	drivers have been trained and hold the appropriate licence
☐	there will be more than one driver to prevent driver/operator fatigue, and there will be adequate rest periods
☐	sufficient spare parts carried to meet foreseeable emergencies
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

DEALING WITH THE PUBLIC	Will people be dealing with public	Yes	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks

e.g. interviews, observing

Examples of risk: personal attack, causing offence, being misinterpreted.

Is the risk high / medium / low?

Causing offence – LOW RISK

- Risk of personal attack/abuse – LOW RISK
- Aggressive behaviour – LOW RISK

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

☒	all participants are trained in interviewing techniques
☐	interviews are contracted out to a third party
☒	advice and support from local groups has been sought
☒	participants do not wear clothes that might cause offence or attract unwanted attention
☒	interviews are conducted at neutral locations or where neither party could be at risk
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

- Stay calm, speak gently and slowly to participants
- Carry a personal alarm
- Seek training in good interview techniques
- Where possible vet interviewees first over the phone
- Where possible conduct interviews with an observer
- Always carry UCL ID card and prepared to identify yourself

WORKING ON OR NEAR WATER	**Will people work on or near water?**	**No**	**If 'No' move to next hazard** **If 'Yes' use space below to identify and assess any risks**
e.g. rivers, marshland, sea.	Examples of risk: drowning, malaria, hepatitis A, parasites. Is the risk high / medium / low?		

CONTROL MEASURES	**Indicate which procedures are in place to control the identified risk**
☐	lone working on or near water will not be allowed
☐	coastguard information is understood; all work takes place outside those times when tides could prove a threat
☐	all participants are competent swimmers
☐	participants always wear adequate protective equipment, e.g. buoyancy aids, wellingtons
☐	boat is operated by a competent person
☐	all boats are equipped with an alternative means of propulsion e.g. oars
☐	participants have received any appropriate inoculations
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

MANUAL HANDLING (MH)	Do MH activities take place?	No	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. lifting, carrying, moving large or heavy equipment, physical unsuitability for the task.	Examples of risk: strain, cuts, broken bones. Is the risk high / medium / low?		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
☐	the departmental written Arrangement for MH is followed
☐	the supervisor has attended a MH risk assessment course
☐	all tasks are within reasonable limits, persons physically unsuited to the MH task are prohibited from such activities
☐	all persons performing MH tasks are adequately trained
☐	equipment components will be assembled on site
☐	any MH task outside the competence of staff will be done by contractors
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

SUBSTANCES	Will participants work with substances	No	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. plants, chemical, biohazard, waste	Examples of risk: ill health - poisoning, infection, illness, burns, cuts. Is the risk high / medium / low?		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

- ☐ the departmental written Arrangements for dealing with hazardous substances and waste are followed
- ☐ all participants are given information, training and protective equipment for hazardous substances they may encounter
- ☐ participants who have allergies have advised the leader of this and carry sufficient medication for their needs
- ☐ waste is disposed of in a responsible manner
- ☐ suitable containers are provided for hazardous waste
- ☐ OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

OTHER HAZARDS	Have you identified any other hazards?	No	If 'No' move to next section If 'Yes' use space below to identify and assess any risks
i.e. any other hazards must be noted and assessed here.	Hazard: Risk: is the risk		

CONTROL MEASURES	Give details of control measures in place to control the identified risks

Have you identified any risks that are not adequately controlled?	NO	☒	Move to Declaration
	YES	☐	Use space below to identify the risk and what

action was taken	
Is this project subject to the UCL requirements on the ethics of Non-NHS Human Research?	No
If yes, please state your Project ID Number	
For more information, please refer to: http://ethics.grad.ucl.ac.uk/	
DECLARATION	The work will be reassessed whenever there is a significant change and at least annually. Those participating in the work have read the assessment.

Select the appropriate statement:

☐ I the undersigned have assessed the activity and associated risks and declare that there is no significant residual risk

☒ I the undersigned have assessed the activity and associated risks and declare that the risk will be controlled by the method(s) listed above

NAME OF SUPERVISOR Frances Bill

**** SUPERVISOR APPROVAL TO BE CONFIRMED VIA E-MAIL ****

FIELDWORK 5 May 2010