Gabriel M. Ahlfeldt[♣], Nancy Holman[•] & Nicolai Wendland[♦]

An assessment of the effects of conservation areas on value[*]

Final Report
May 2012

This research was commissioned by English Heritage. The views expressed in the report are those of the authors. They should not necessarily be taken to represent those of English Heritage

[♣] *Corresponding author*. London School of Economics and Political Science, Department of Geography and Spatial Economics Research Centre, Houghton Street, London WC2A 2AE, g.ahlfeldt@lse.ac.uk, www.ahlfeldt.com

[•] London School of Economics and Political Science, Department of Geography

[♦] Darmstadt University of Technology and URBANCONTEXT.

[*] This work has been commissioned by English Heritage who have supported the project financially and in terms of data provision. We thank the Nationwide Building Society for providing the house-price data. Kristoffer Moeller and Sevrin Waights have provided excellent research assistance with the preparation of the quantitative data set. We would also like to thank the following researchers for their time and dedication to servicing this project: Alexandru Gotca, Alkis Theodhori, Charlotte Degoulet, Clara B.G. Ganemtore, David Gundry, Erica Pani, Irène Fossé, Isabel Shirin Enyonam Wetzel, Julia Panayotou, Leona Lynen, Maike Rackwitz, Stefan Tornack, Syd Wayman.

Executive Summary

Motivation: The preservation and designation of built heritage

Since the 1960s, over 9,800 conservation areas have been designated in England. These areas are designated on the grounds of an external value of society that requires protection. For this purpose, the property rights of owners of buildings located in conservation are restricted. Changes that can be made to the external appearance of buildings are limited and the choice of materials restricted, which potentially increases the cost of altering and maintaining buildings. While the policy potentially imposes a cost on individuals, it can be justified on the grounds of a positive external heritage effect for which no market exists. Preservation policies may prevent heritage buildings from being removed in a scenario where the social, but not the private benefits exceed the private costs of maintenance. Also, so it is often argued, the social optimum achieved through the government intervention may eventually benefit the owners of buildings in conservation areas due the overall increase in the quality and stability of the built and natural environment and the removal of uncertainty regarding future changes in the character of the location. Moreover, a location within a conservation area comes with the additional, potential benefit of creating a unique sense of place-based identity, encouraging community cohesion and promoting regeneration. Measuring the net effect of the designation to the owners of buildings in conservation areas is important since a net-cost would indicate a distributional conflict among the broader society, including future generations who may enjoy the benefits associated with the preservation of these areas and the local residents would who are bearing the cost.

To date, there has been no rigorous study of these effects in conservation areas in England. This research project aims at filling this gap by investigating the costs and benefits that are associated with a location of a property in a conservation area in England. As with all intangible goods that are not directly traded on the market, valuing (built) heritage is challenging. We approach the question using a combination of quantitative and qualitative methods to overcome common limitations of research in this area. In a nutshell, we identify the effect the designation status has on the value of a property in a spatial hedonic analysis of property transaction prices. We complement the quantitative analysis with an investigation of the origins of the capitalisation effects in a textual analysis of interviews with local residents, conservation area officers, architects and real estate agents.

Report objectives and methodology I: Quantitative study

In the quantitative section of the report, we investigate the costs and benefits that are associated with a location of a property inside or near a conservation area in England based on capitalisation effect. We distinguish between a) a *heritage effect*, which is related to the specific character of buildings in conservation areas and b) a *policy effect* that stems from the legislation imposed to protect the character of conservation areas. The *heritage effect* is assumed to capitalise into property prices through a valuation of the characteristics that are specific to buildings in conservation areas. Capitalisation of *heritage effects* can be *internal*, i.e. affect the value of a property sharing the respective attributes, or *external*, i.e. affect the value of nearby properties, including those outside conservation areas.

We analyse the effect a conservation area has on the value of a property in a hedonic property analysis, i.e. a regression of observable transaction prices on the various housing and location characteristics of the composite good (housing). The motivation for the analysis rests on the idea of compensating differentials that have long been established in urban economics. Empirically, the challenge in identifying the effect of conservation areas lies in separating the heritage effect from potentially correlated internal property and external location characteristics, which are partially unobservable. In our analysis, we make use of the time dimension by comparing the change of property prices inside a newly designated conservation area to changes at otherwise similar locations that did not change in terms of the designation status. With this approach it is possible to separate the pure (short-run) *policy* effect of the designation from the *internal* and *external* heritage effects.

To rigorously analyse the effect conservation areas have on value with the methods described above, we have compiled a unique data set. This combines 1,088,446 observations on sales prices between 1995 and 2010 and data on property characteristics provided by the Nationwide Building Society, detailed information on location characteristics collected from various sources as well as a comprehensive digital map of 8,167 conservation areas in England accompanied by a detailed survey covering 9,637 areas, both of which have been provided by English Heritage. Merging these data sets within a GIS (Geographical Information System) environment sets the base for the comparison between sales prices of buildings inside and outside conservation areas. Our data set further allows isolating premia that are associated with spe-

cific attributes of a conservation area, such as being "at risk" or having Article 4 status. The data set covers more than 80 per cent of the conservation areas that were defined in 2010.

Report objectives and methodology II: Qualitative study

In the qualitative section of this report we seek to deepen our findings taken from the quantitative study. Here our goals are to understand some of the softer benefits said to emanate from conservation area designation including: the creation of a unique sense of place-based identity, encouraging community cohesion, and promoting regeneration (HM Government, 2010).[1] This 'instrumentalisation' of conservation policy, which seeks to encompass heritage values, economic values and public policy outcomes, has been identified as a key shift in the English policy context(Pendlebury, 2009; Strange, 2003). This is reflective of the notion of heritage not as a single definable entity, but as s political, social, cultural and economic "bundle of processes" (Avrami, 2000cited in Pendlebury, 2009: 7).

Qualitative data is collected through a series of interviews and questionnaires conducted with householders in 10 separate case study areas; interviews with conservation/ planning officers; and interviews with other property professionals. The areas were selected based on property premia (high/low); levels of deprivation (high/low); and location (inner London, outer London, and Gravesend outside the Greater London Area). The selection process generated matched pairs of conservation areas for each of these characteristics.

The residential questionnaires have been specifically designed to illicit opinions on:

- Place-based identity
- Architectural and environmental area base features
- Quality of new build
- Impressions of property value
- Attitudes toward planning

These themes were followed through in interviews with planning and property professionals so that a rich picture of the processes underpinning notions of value in each area could be explored.

[1] See for details HM Government (2010): *The Government's Statement on the Historic Environment for England*. London: DCMS.

Key questions and findings I

1) Do houses inside conservation areas sell for more or less than houses outside conservation areas?

This research question focuses on the overall net-benefit to owners of properties in conservation areas, which is a composite of *internal* and *external heritage* effects as well as positive and negative *policy* effects. The effect conservation areas exhibit on housing values is distinguished by the following characteristics: the size, condition, land use, location and vulnerability of a conservation area, the number of listed buildings inside a conservation area, the time of designation and a conservation area being at risk or having an Article 4 or world heritage status, among others.

Findings (a)

- **Unconditional estimates reveal high price premia of about 23.1% for properties inside designated conservation areas and about 16.5% for areas prior to designation.**
- **High numbers are partly driven by favourable property and location characteristics that are correlated with location inside a conservation area.**
- **The inclusion of a broad set of location and neighbourhood control variables raises the R^2 from 0.58 to 0.81 and 0.84, respectively.**
- **The most demanding conditional estimates still reveal a price premium for properties inside designated conservation areas of about 8.5-9.5%.**

Findings (b)

- **The estimated property price premium attached to a location inside a conservation area depends on various characteristics of the area. In particular, the premium tends to increase in the size of a conservation area and the time gone by since designation and is highest at suburban locations.**
- **Property prices are significantly lower in conservation areas that are classified as "at risk" compared to properties inside other conservation areas (apx 4%). On average, property prices inside conservation areas with "Article 4" status exceed property prices in other conservation areas by about 15%. The effect, however, is generally small when controlling for other factors and not significant in our preferred model.**

2) Does a location in the centre of the conservation area affect the value of a house relative to being at the edge, or just outside?

It is hypothesised that the *external heritage effect* created by the entire ensemble of protected heritage increases as one moves towards the centre of a conservation area and the "historic density" increases. It is also hypothesised that an *external heritage effect* exists at locations, which are just outside a conservation area but offer good access to these sites, and that the effect decreases as one moves away from the conservation areas.

Findings

- **External benefits increase as the surrounding mass of built heritage increases (indicative of positive externality).**
- **The conservation area premium at the boundary (0-50m) of about 10% roughly doubles once the innermost zone is reached (inside the conservation area, but more than 450m from the boundary).**
- **Just outside the conservation area (0-50m) there is still a significant premium of up to about 5%.**
- **The external premium declines in distance and becomes virtually zero at about 700m and statistically indistinguishable from zero at about 500m.**
- **There is a relatively steep decline in prices as one moves from the inner 0-50m ring to the outer 0-50m ring (about 5%).**

Key questions and findings I (continued)

3) Do houses that are in conservation areas or near to a conservation area have greater appreciation (or lower depreciation) in sales prices relative to houses further away from conservation areas?

Even though the designation status of a conservation area remains unchanged, the value that is associated with a location inside or near to a conservation area may change over time if the willingness to pay for the historic character of a conservation area increases (or decreases).

Findings

- **We find positive relative appreciation trends, i.e. the per centage premium attached to a location inside or near a conservation area increases over time.**
- **On average, prices of properties inside conservation areas grew at a rate that exceeded those in the control group by about 0.2% a year.**
- **Property prices close to conservation areas, still increased at a relative rate of about 0.1% per year.**
- **Time-varying treatment effects indicate that the relative appreciation in the *internal* area was particularly large during the period form 1995-2000.**
- **In the *external* area, relative growth follows a more regular trend.**

4) Are house prices affected by an area's status changing from being undesignated to being a conservation area?

From the change in housing values inside or near conservation areas (treatment groups) following designation relative to otherwise comparable houses (control group) the causal effect of designation, i.e. the pure *policy effect*, can be inferred.

Findings

- **We do not find a statistically significant designation effect.**
- **This is true for a broad range of specifications where we match treatment and control groups based on proximity and similarity in a range of location attributes**
- **Weak evidence (from some, but not all employed control groups) indicates a positive (though moderate) treatment effect for the buffer areas surrounding the treated conservation areas.**

Key questions and findings II

1) What aspects of living in a conservation area are most and least valued by residents?

This research question focuses on the overall lived experience of residents in conservation areas. The questions were designed to illicit the positive and negative aspects of the living environment and were left open to allow residents room to express their views widely. This is in keeping with the study of Townshend and Pendlebury (1999) who report residents' understandings of the concept of conservation areas to be broader than what is covered by legislation.

Findings

- **All of our case study areas, regardless of property premia or levels of deprivation expressed strong values attached to a green, peaceful residential environment.**
- **Most residents did express some level of satisfaction with their built environment; this was most pronounced in our high premia areas. Brentham Gardens and DeBeauvoir stand out here.**
    - **Our low premia areas were less likely to talk about the built environment in these questions regardless of levels of deprivation.**
- **The majority of our high deprivation cases talked about positive feelings of community and neighbourliness as favoured aspects of living in their area. They were, however, also most likely to report problems with community in terms of safety and cleanliness.**
- **Both high and low deprivation areas also frequently mentioned being located within an easy commute to jobs and amenities as a strongly positive aspect of their area.**
- **The average perception of distinctiveness and attractiveness in an area was significantly positively correlated with the estimated property price premium.**
- **A negative correlation was found between the premium and the level to which planning constraints were a concern.**

2) Do residents inside conservation areas perceive an impact on the value of their homes?

It is hypothesised that residents of conservation areas, especially those areas where there is a strongly positive attitude toward the built environment, will believe their neighbourhood is more valuable in financial terms than surrounding areas.

Findings

- **Most residents (renters and owners) regardless of area deprivation levels or property price premia saw their areas as expensive or very expensive.**
- **Homeowners were significantly more likely to report an impact in areas that were perceived as particularly attractive. Most homeowners, regardless of deprivation levels or property price premia, saw the price of their property as likely to increase in value or remain stable in the near future.**
- **In our high premia areas there was a feeling that the expense of the area was driving exclusivity and potential gentrification. There was a positive feeling that conservation area designation brought with it price stability.**
- **In our low premia, high deprivation areas there was a strong feeling that price exclusivity brought with it a 'better' class of resident.**

Key questions and findings II (continued)

3) Do residents have negative attitudes regarding the increased level of restrictions placed on their ability to alter their properties?

It could be hypothesised that placing additional regulation on home owners with regard to their ability to easily alter their properties would be considered to be a negative attribute to living in a conservation area.

Findings

- **We find that overall there is no universal negative attitude toward planning regulation.**
- **Those home owners who had applied for permission were generally more likely to have positive attitudes toward planning controls than those who had not applied. This suggests that experience with planning is, by and large, positive.**
- **Especially in our high premium, low deprivation cases, strong planning control was often linked back to protecting the coherence of a neighbourhood.**

4) Are residents of conservation areas likely to object to a neighbour's planning application?

The premise to this questions was to understand again how residents valued the architectural coherence of their area by testing whether or not they would be likely to object to a neighbour's planning application to alter the front or back of their property or to remove a significant tree from their garden.

Findings

- **Around 40% of our sample had objected to a neighbour's planning application. This was spread evenly amongst our high and low premium areas regardless of deprivation levels.**
- **There was a slightly greater tendency to report the likelihood of objecting to a neighbour's hypothetical application in our high premium, high deprivation neighbourhoods.**
- **The role amenity societies played in objections and generalised neighbourhood pressure against 'inappropriate' development was more frequently discussed in our high premia case studies.**
- **Most residents objected to a neighbour's application due to loss of a view, loss of light or loss of privacy. However, in our high premium neighbourhoods there were a strong proportion of responses that also mentioned loss of local character as a reason for objection.**

Key questions and findings II (continued)

5)	Is new build perceived to be of higher quality in conservation areas?

Government publications (HM 2010) suggest that one benefit to conservation areas is an increase in the quality and creativity of new build.[2]

Findings

- **Whilst most residents did note that there was new build going on in their areas, the majority did not believe that conservation area designation had helped to improve the quality of this build.**
- **This was in stark contrast to conservation and planning officers who all reported that the increased level of control and regulation afforded to them by designation helped them to negotiate a better overall quality of new build.**
- **In addition, some conservation officers also found that the perception of stringent regulations in conservation areas helped to engender better renovations and extensions made by householders.**

[2] See for details HM Government (2010): *The Government's Statement on the Historic Environment for England*. London: DCMS.

1 Introduction

The identity of cities and regions is often deeply entangled with the identity of their past. This past is mirrored in its idiosyncratic stock of built heritage, which consists of a wide range of structures of recognised architecture including buildings, bridges, monuments, churches, and palaces, among others. Various old inner city neighbourhoods, consisting of entire ensembles of historic buildings, provide a special ambience that is valued by its residents as an urban amenity, which increases local residential demand. The role of amenities for the attractiveness and the development of inner cities has been recognised and studied for several years now. It has been shown that urban amenities play a crucial role in creating a perceived benefit that drives up utility and that partially offsets higher cost of living in cities or metropolitan areas (e.g.Fusco & Nijkamp, 2009; Throsby, 2001).

In some cases, the existence of large ensembles of historical heritage can even serve to define the identity of a city as a whole – or at least large parts of it – as can be observed in, for example, Istanbul, Rome, Jerusalem or Cairo. Following the argumentation of Rizzo and Throsby (2006), built heritage contains a value that is twofold and may be seen as a composite of the pure economic value of a building – which, in principle, could be realised on the market – and an additional specific cultural value. These two are not necessarily highly (positively) correlated. A "remote religious building of little market value but with strong cultural or historical associations" easily serves as an example. If a city hosts a large endowment of built heritage, it thus contains a large stock of cultural capital that has to be separated from the pure economic asset value. This cultural capital may give rise to a flow of different goods and services over time, which may also have cultural value of their own. The role of the cultural capital of cities and the inherent importance of this asset has been recently underlined by many authors (e.g. Brueckner, Thisse, & Zenou, 1999; Glaeser, Kolko, & Saiz, 2001).

In an academic context, the benefits of cultural heritage are recognised as non-excludable and non-rival public goods. This is reflected in the demand structure, which can be differentiated into categories (Rizzo & Throsby, 2006). First, the pure existence of given items may be valued by residents and other individuals, even though they may not consume the services directly (e.g. even if they do not live in a designated historic building). Second, people may articulate the desire to keep open the possibility for future consumption of a certain item, which is known as *option demand*. Third, individuals or governments may want to preserve the object

for future generations, which would refer to its *bequest* value. In contrast to the *active-use* value (realised by the people, directly living in or close to those buildings or areas), these values may be described as *passive-use* values. These non-market benefits constitute the public goods character of cultural resources, making a case for their protection. Consequently, advocates argue for the preservation of cultural heritage that provides substantial value to society (Navrud & Ready, 2002). At the cost of private and public spending, single buildings and entire areas are therefore designated as built heritage and conservation areas (Benhamou, 2004).

While the general public good character provides a valuable service to society due to more attractive appearances of neighbourhoods and an identity-creating ambience, owners of designated buildings face constraints on altering the original appearance or fabric and potentially higher maintenance cost for the upkeep of their property. In response, government action is often taken in the form of direct and indirect interventions using instruments with monetary and non-monetary content. In the UK, instruments such as Conditional Exemption, Private Treaty Sales or Acceptance-in-Lieu serve as direct tax reliefs, while other arrangements include maintenance funds. These have been established to support owners by letting them benefit from capital tax concessions in return for granting public access and for preservation (Creigh-Tyte, 1998). However, many owners of listed buildings in England are ineligible for possible tax reliefs or subsidies. Eventually, the extent of either positive or negative policy effects for owners critically depends on local legislation and evidence can hardly be generalised across different institutional settings.

One of the challenges in evaluating preservation policies is that both the social benefits as well as the potential cost to the owners are often not directly observable. In the urban economics and cultural economics literature, an assessment based on (changes in) property prices has recently become popular. Two different effects need to be distinguished. First, the *direct* or *internal effect* is the relative premium or discount at which properties sell due to their designation status. Since heritage legislation not only aims at the mere conservation of the fabric of historic buildings because of its aesthetic or historic value but also often intends to compensate owners for restrictions on their property rights as well as related economic costs, this, indeed, is a crucial research question.[3] The internal effect is a net effect of the economic costs

[3] In England, owners apply for conservation consent to facilitate alterations on buildings. In 2008/2009, about 79% of all applications were granted and 63% of all applications were decided within 8 weeks.

an owner has to bear and possible positive price changes triggered by the designation as well as the related aesthetic and cultural value of the property. Second, since the original motivation for designation is to maintain or to increase the external value to society, i.e. the utility provided to users other than just the owners, one has to consider the *indirect* or *external effect*. Areas of interest tend to host clusters of historical buildings as well as other, non-designated, buildings in their direct vicinity. Due to a generally attractive appearance or jointly created distinctive charm (positive) price-spillovers amongst nearby buildings potentially lead to an increase in property value of both designated and non-designated buildings in such ensembles, which can typically be found in conservation areas. It is, therefore, important to correctly identify the effect of external value of heritage buildings, i.e. the spillover effect on other designated and non-designated buildings, to fully understand the social value as a whole. We refer to this social value as the 'heritage effect' as opposed to the 'policy effect', which is the price effect related to the different legal treatment of a designated property. Relatively few studies have assessed these external property price effects so far. Ahlfeldt and Maennig (2010) have estimated external effects and separated them from internal effects using a spatial econometrics approach. Building on their findings Ahlfeldt (2010) shows that the external effect embedded in property values in Berlin, Germany, amounts to as much as €1.4 billion; a magnitude that arguably justifies further attention in research.

In England, the designation of conservation areas started in 1967 and continues under the provisions 69 and 70 of the Planning Act 1990 (Listed Buildings and Conservation Areas).[4] Conservation areas are those that have been identified as having "special architectural or historic interest, the character or appearance of which is desirable to preserve or to enhance" (Section 69). The Planning Policy Guidance Note 15 (PPG15) states that a conservation area "may form groups of buildings, open spaces, trees, historic street patterns, village greens or features of historic or archaeological interest. It is the character of the areas rather than individual buildings that conservation areas seek to enhance". Consequently, designations are usually made on the basis of sustaining the local character of an area. While the historic importance of listed buildings is determined on a national level, conservation areas are designated on the grounds

4 However, the first legislation to protect the historic environment was enacted in 1882 when the Ancient Monuments Protection Act was passed to protect a small number of designated ancient monuments. More statutory measures came into force in the ensuing years, but it was the passage of the Ancient Monuments Consolidation and Amendment Act in 1913 that set out a more comprehensive legislative framework for the protection of ancient monuments.

of local and regional criteria. There is a limited consistency, because criteria for designation vary across the United Kingdom. This is consistent with Pendlebury's (2009) work on heritage, where the 'value' and meaning attached to the heritage itself is culturally inflected by the society defining what does and does not constitute special historical or architectural character. After the designation, the Local Authority has more control over minor developments and the demolition of buildings (Botrill, 2005). However, the protection an area receives when it is designated a conservation area is determined at the national level to reflect the wider interests of society.

There are currently around 9,800 areas, up from around 9,300 just two years ago, in 2009. Conservation areas vary in character and size. Many have strong historical links, for example an architectural style associated with a certain period. Given the existence of benefits to society, a pending threat lies in the fact that built heritage may be replaced even though a strong demand for its preservation exists.[5] This is one of the main arguments in favour of preservation policies, which seek to protect areas identified as particularly valuable to society.

It is a challenging task to assess the value of an intangible good such as built heritage, especially external heritage effects since they are not traded at market prices. Classical approaches of urban economics offer a feasible solution. If individuals value the heritage and consider it a local amenity, they will compete for locations close to a designated site. Consequently, this will drive up prices in direct proximity to restore the market equilibrium. The resulting price differential to otherwise comparable properties is known as the compensating differential. Reversing the argument, we are able to estimate any perceived value of locating close to an urban amenity such as a heritage area from an observable spatial pattern of property prices. Our proposed approach to analysing the value of conservation areas builds precisely upon this idea of compensating differentials. This approach, however, is limited to the *active-use* value discussed above, which are related to proximity to conservation areas. Only those benefits associated with a residential location inside or close to a conservation area can be expected to be recovered as a capitalisation effect. *Passive-use* values, e.g. to potential visitors or even future

[5] In England, the public appreciation of built heritage is approximated by the Taking Part survey released by the British government. Accordingly, in 2007/2008, 91.8 percent of the participants were in favour of saving historic features of local places.

generations and direct preferences related to the mere existence of heritage sites remain outside the scope of the method.

We complement the quantitative property market analysis with a qualitative analysis of selected conservation areas to gain further insights into the origins of the conservation area effects. A particularly high value attached to a location to a specific conservation area may result from the particular cultural and aesthetic value an area offers as well as associated community benefits like place attachment and social capital. It will depend on the procedures implemented during the designation process and the aesthetic quality of neighbouring areas. All of these attributes are not easily observable, which makes it difficult to address them with conventional quantitative methods. They are, however, crucial to our research question and the understanding of the costs and benefits of preservation policies more generally. Our method relies on a textual analysis of interviews with local residents, conservation area officers, and other property professionals. In the following, we will present our quantitative findings before complementing the results with a qualitative analysis. The quantitative research comprises four main questions along which the section will be organised. First, we assess the question whether houses inside conservation areas sell for more or less than houses outside conservation areas. Secondly, we look at how property prices change as one moves away from the conservation area boundaries, both toward the centre of a conservation area, as well as away from it. This is followed by exploring whether houses that are in conservation areas or nearby reveal greater appreciation (or lower depreciation) in sales prices relative to houses further away from conservation areas. The last part sheds light on the question of whether house prices are affected by an area's status changing from being undesignated to being a conservation area. The research questions are explained in more detail in section 2.2 and Table 1.

Section 2.1 introduces the relevant field literature, including the typical research questions and methods used (2.2). The data set and the methodology for retrieving and preparing the data are presented in 2.3, followed by descriptive evidence and summary statistics in 2.4. Our econometric analysis is in 2.5 and concluding remarks on the quantitative section are in 2.6. Section 3 adds evidence on the perceived effects conservation areas have on value based on the quantitative and textual analysis of 111 qualitative interviews in 10 selected conservation areas.

2 Quantitative Analysis

2 . 1 Literature Review

As laid out in the introduction, various positive effects of designated buildings and areas regarding appearance and ambience of neighbourhoods provide numerous different values to society. This research concentrates on the effects of the designation of conservation areas on the local areas inside and the surrounding areas. Typically, urban and real estate economists have looked at property prices and how they change depending on the designation status. A more pleasant atmosphere in a neighbourhood should increase sales prices. Another positive effect associated with designation is a symbolic character or cachet, displaying local commitment. Designated buildings enjoy a form of official *certification of quality* by government authorities, special public services, and possibly subsidised maintenance expenses. These benefits provide reduced investment risks for potential buyers and might raise the value of designated buildings. However, the potential benefits come at the cost of development restrictions that may prevent a property from being converted to its most profitable use. In the US, the responsibilities for upkeep and maintenance have been found to have a price-depreciating effect, particularly in cases of neighbourhood designation (Coulson & Leichenko, 2004; Leichenko, Coulson, & Listokin, 2001). Therefore, while *external effects*, that is, the influence on surrounding properties, are generally expected to be positive, the expectations regarding price impacts of heritage listings are ambiguous. The existent literature does not draw a clear picture. An interesting review of published studies (Leichenko, et al., 2001) reveals how the results depend on the samples and methods used. Eventually, the net-effect of pure designation on property prices is an empirical issue that needs to be investigated within the proper institutional setting where designation policies operate.

Valuing intangible goods

In general two popular categories of methods have been proposed to value intangible goods that are not traded on the market.[6] The first approach is to ask a representative sample of individuals about their potential willingness-to-pay (WTP) for certain public goods, such as

[6] More recently, subjective well-being studies have sought to evaluate the value of intangible goods via their impact on happiness measures, which are then translated into a monetary equivalent (see e.g. van Praag & Barrsma, 2005).

built heritage *(stated preferences).*[7] These studies are referred to as contingent valuation studies (CVS). They are particularly useful when the extent of option demand and maintaining heritage for future generations is to be approximated, since these values cannot be directly measured through market entry, i.e. preferences revealed in prices. However, this method typically carries a number of persistent problems related to the hypothetical nature of questions and strategic incentives to over- or underestimate the true perceived benefit related to the phenomenon in question, e.g. the designation of the own property.[8] The second category comprises different variations of hedonic price studies. These have a long history in economics research and are based on the idea that implicit prices can be derived for attributes of composite goods from market behaviour, reflected in observable prices and quantities, even if the attributes are not directly traded on the market *(revealed preferences).* This method sharply gained in popularity following the seminal article by Rosen (1974). The method can be applied to different attributes of dwellings, such as the number of rooms or bathrooms, the existence of an elevator or a fireplace, etc. Within this bundle of attributes, implicit prices for any component can be measured and the marginal WTP of consumers computed (Noonan & Krupka, 2010). There exists a rich body of literature regarding hedonic valuation, which has been summarised comprehensive reviews (e.g. Baranzini, Ramirex, Schaerer, & Thalmann, 2008; Ekeland, Heckman, & Nesheim, 2002; Palmquist & Smith, 2002; Sheppard, 1999). In this study, we focus on the (net) WTP for a location of a property inside or near a conservation area.

Empirical evidence

Amongst the first works using a hedonic price function to value the effect of designation is Ford (2003). By exploring house prices of Baltimore, he finds that buyers pay premia for houses within historic districts after their designation. In the meantime, several follow-up studies have created a relatively rich body of evidence for the US. These studies tend to produce rather mixed results. While Schaeffer and Millerick (1991) conduct an exercise similar to Ford, they find that the outcome depends on whether the designation has been realised by local or by national authorities. Designation on a national level was found to have a positive impact on

[7] Surveys of the existing stated preferences literature in the context of the valuation of cultural goods can be found in Snowball (2008) and Noonan & Krupka (2010).

[8] More on CV methods and arising methodological issues in Noonan (2003), Rizzo and Throsby (2006), and Towse (2010).

sales prices, whereas local designation status led to decreasing prices. One plausible explanation might be that national designation tends to identify buildings of a wider importance and tends to apply stricter evaluation procedures. Since one of the articulated goals of local designation includes fostering local development through increased tourism and marketing, small cities and communities might have incentives to designate buildings based on less rigid criteria. In line with this notion, Asabere et al. (1994) find a negative impact of local designation, with apartment prices decreasing by as much as 24 per cent compared to non-designated buildings. Other studies, which suggest positive price effects on designated buildings using hedonic valuation methods include e.g. Asabere and Huffman (1994), Deodhar (2004), Noonan (2007), and Ruijgrok (1989). Narwood et al. (2006), find that the increase in sales prices is stronger than the mere capitalisation of tax savings would suggest. This fact indicates an additional value generated by built heritage.

The reliability of estimates of a heritage policy's net effect is critically affected by the fact that heritage designation is not completely exogenous. Buildings characterised by outstanding architecture, prominent architects, notable former inhabitants or otherwise special historic importance are more likely to be designated. Noonan and Krupka (2008) suggest that designation might even depend on market prices, which makes establishing the counterfactual (i.e. what would have happened without the policy) a particularly challenging task. While the price effects of unobserved building characteristics are certainly an interesting topic on their own, they complicate the assessment of the pure policy effect. Therefore, recent studies have taken special care to disentangle policy effects from those of observed building characteristics. In the state-of-the-art works on the price effects of heritage designation, unobserved and time-invariant characteristics are eliminated by either comparing appreciation rates in appraised values (Coulson & Lahr, 2005) or by using a repeated sales framework (Noonan, 2007).

While all the above-mentioned studies apply hedonic valuation methods, they almost exclusively focus on *internal price effects,* i.e. is the impact of the policy and the cultural and cachet value on the property itself. The literature on *external effects*, the price spillovers to other properties in proximity, is still at a relatively early stage. Measurable positive externalities caused by the designated properties would provide an economic argument in support of the heritage preservation and justify the associated costs that have to be covered by either individual owners or - via compensations to owners - by society as a whole. While the question of owners' compensation for heritage constraints and obligations depends on local legislation,

the magnitude and the spatial extent of external effects attributable to the external appearance and historic value of designated properties should be more generalisable across different countries and governments. We would therefore expect external effects to be less sensitive to local legislation and empirical estimates to yield more uniform results. So far, Coulson and Leichenko (2001) find positive and significant spillover effects of designated buildings approximated by the per centage of designated buildings within a census tract. Each additional designation increases the price of the remaining houses within the same census tract by 0.14 per cent. Noonan (2007) also finds that the extent or strength of price spillovers increases as more building are designated within a neighbourhood. Ahlfeldt and Maennig (2010), who explicitly model the mutual dependence between designated and non-designated buildings, do not find a significant positive price effect on listed buildings but do show evidence for positive price spillovers to other buildings of up to 600 m. In the same vein, Lazrak et al. (2011) find strong internal effects of 26.9 per cent while the external effect reveals a 0.28 per cent increase for every additional listed building within a 50 m radius. Closely related to the external effect of heritage buildings, Ahlfeldt and Mastro (in press) investigate the effect of more than 20 residential historic buildings designed by world famous architect Frank Lloyd Wright. They find a property price premium associated with proximity to these buildings of up to 8.5per cent.

One notable aspect of the existing body of research is that most of the abovementioned work concentrates on study areas within the USA, accompanied by a small number of studies covering Canada (Shipley, 2000), and Australia (Deodhar, 2004; Penfold, 1994). In the USA, one of the reasons for an increasing quantity of research on this topic might be an environment in which the impact of preservation policies are hotly debated as a means for fostering the economic development of cities and the revitalisation of deprived old inner city districts.

Amongst the few European studies available, areas in the Netherlands have received some attention by Lazrak et al. (2011), Ruijgrok (2006) and Koster (2010), and the City of Berlin, Germany has been covered by Ahlfeldt and Maennig (2010). Some work has been done for the UK (Benhamou, 2004; Creigh-Tyte, 1998, 2000), though this is the first rigorous attempt to assess property price effects of conservation area designation based on a spatial hedonic analysis that covers the whole of England. Besides these few exceptions there is little evidence available for heritage effects in Europe. This is somewhat surprising, in light of the long history of European metropolises and their large stocks of historic building structures.

2 . 2 Key Questions

Since the 1960s, over 9,800 conservation areas have been designated in England. The statutory list regarding areas of interest is compiled by the Secretary of State for Culture, Media and Sport and based on the Planning (Listed buildings and Conservation areas) Act 1990. They are designated on the grounds of an external value to society that requires protection. For this purpose, property rights of owners of buildings located in conservation are restricted. Changes that can be made to the external appearance of buildings are limited and the choice of material is restricted, which increases the cost of altering and maintaining buildings. According to Section 55(1) of the Town and Country Planning Act 1990, relevant changes are defined as "carrying out of building, engineering, mining, or other operations in, on, over or under land, or the making of any material change in the use of any buildings or other land".[9] Accordingly, any wish to alter or demolish listed buildings requires the application for listed building consent to be issued by the relevant government authorities. Unauthorised works are regarded as criminal offences and would incur fines. Local authorities decide whether to approve the consent (Yu, 2008).

While the policy itself finds wide support in the UK (91.8% of the participants of the 2007/2008 Taking Part survey were in favour of saving historic features of local places), a tension remains between the interest of the wider society and the interests of an owner whose development rights are restricted. As discussed, the policy can be justified on the grounds of a heritage externality, which is not traded on the market due to its public good characteristics. Preservation policies may prevent heritage buildings from being removed in a scenario where the social benefits exceed the private costs of maintenance. Also, as it is often argued, the social optimum achieved through government intervention may eventually benefit the owners of buildings in conservation areas due the overall increase in the quality of the (built) environment and the removal of uncertainty regarding future changes in the character of the location. Additional arguments state that a location within a conservation area may create a unique sense of place-based identity, encouraging community cohesion and promoting regeneration. Measuring the net effect of the designation to the owners of buildings in conservation areas is important since a net-cost (i.e. negative effects) would indicate a distributional conflict among the broader society and future generations who may enjoy the benefits associated with the preservation of these areas and those local residents bearing the cost.

[9] See Office of Public Sector Information (1990).

This research project investigates the costs and benefits that are associated with a location of a property inside or near a conservation area in England. In line with the literature described above, we distinguish between a) a *heritage effect*, which is related to the specific character of buildings in conservation areas and b) a *policy effect* that stems from the legislation imposed to protect the character of conservation areas. The *heritage effect* is assumed to capitalise into property prices through a valuation of the characteristics that are specific to buildings in conservation areas. Capitalisation of *heritage effects* can be *internal*, i.e. affect the value of a property sharing the respective attributes, or *external*, i.e. affect the value of nearby properties, including those outside conservation areas.

As is the case for all intangible goods that are not directly traded on the market, valuing (built) heritage is challenging. In line with the literature discussed above, we analyse the effect a conservation area has on the value of a property in a hedonic property analysis. The motivation for the analysis rests on the idea of compensating differentials that have long been established in urban economics. Put simply, any benefit associated with an intangible good like (built) heritage as well as the pecuniary cost of a preservation policy must be compensated to maintain a spatial equilibrium. Assuming mobile residents, competition ensures that prices adjust to offset all costs and benefits associated with the location in conservation areas so that potential buyers are indifferent among otherwise comparable properties. Reversing the argument, the implicit price of the location factor "inside a conservation area" can be recovered from a hedonic property analysis, i.e. a regression of observable transaction prices on the various housing and location characteristics of the composite good (housing). In his seminal paper, Rosen (1974) provided the micro foundations for this increasingly popular approach in applied urban economics. From a policy perspective this method is desirable as it is based on clear theoretical foundations and on observable market behaviour rather than on stated preference surveys.

Empirically, the challenge in identifying the effect of heritage conservation areas lies in separating the heritage effect from potentially correlated internal property and external location characteristics, which are partially observable and partially unobservable. With the use of geographic information systems (GIS), it has become manageable to create spatial variables that capture various location characteristics even on a nationwide scale, which helps to separate the overall conservation area effect from other, potentially correlated location effects. The more challenging task is to separate the pure policy effect the designation has on the value of the properties from the effect of the features that typically motivated the designation of the

area. Recent statistical approaches can help to separate these effects by making explicit use of the timing of designations. In a quasi-experimental difference-in-difference analysis, the changes of property prices inside a newly designated conservation area can be compared to similar locations that did not change in terms of the designation status. This provides a strong counterfactual to explore the pure policy effect of the designation. Table 1 summarises the research questions we investigate and the methods discussed.

Table 1 Research questions

1)	Do houses inside conservation areas sell for more or less than houses outside conservation areas?
	This research question focuses on the overall net-benefit to the owners of properties in conservation areas, which is a composite of *internal* and *external heritage* effects as well as positive and negative *policy* effects. The effect conservation areas exhibit on housing values is distinguished by the following characteristics: the size, condition, land use, location and vulnerability of a conservation area, the number of listed buildings inside a conservation area, the time of designation and a conservation area being at risk or having an Article 4 or world heritage status, among others.
2)	Does a location in the in the centre of the conservation area affect the value of a house relative to being at the edge, or just outside.
	It is hypothesised that the *external heritage effect* created by the entire ensemble of protected heritage increases as one moves towards the centre of a conservation area and the "historic density" increases. It is also hypothesised that an *external heritage effect* exists at locations, which are just outside a conservation area but offer good access to these sites, and that the effect decreases as one moves away from the conservation areas.
3)	Do houses that are in conservation areas or nearby conservation areas have greater appreciation (or lower depreciation) in sales prices relative to houses further away from conservation areas?
	Even though the designation status of a conservation area remains unchanged, the value that is associated with a location inside or nearby a conservation area may change over time if the willingness to pay for the historic character of a conservation area increases (or decreases).
4)	Are house prices affected by an area's status changing from being undesignated to being a conservation area.
	From the change in housing values inside conservation areas following designation relative to otherwise comparable houses the causal effect of designation, i.e. the pure *policy effect*, can be inferred.

Questions 1) and 2) can be addressed by comparing prices of properties that sell at different *locations* with different designation statuses, but are otherwise comparable. To investigate 1) we present a broad range of descriptive statistics (Section 2.4) and make use of hedonic regressions that help to adjust for the timing of the transactions as well as the characteristics of the properties sold (including their location), which are not related to their designation status (Section 2.5). The separation of heritage and other location effects is essential for question 2), which therefore needs to be investigated by means of hedonic regressions. Questions 3) and 4)

are investigated by comparing transaction prices realised at both different *locations* and points in *time*. We make use of methods from panel econometrics that help to control for unobserved time-invariant characteristics so that the heritage value can be separated more precisely from potentially correlated location characteristics. We present the econometric methods used in more detail in Section 2.5.

2.3 Data

To rigorously analyse the effect conservation areas have on value with the methods described above, we have compiled a unique data set. This combines data on sales prices and property characteristics provided by the Nationwide Building Society, detailed information on location characteristics collected from various sources as well as a comprehensive digital map of conservation areas in England accompanied by a detailed survey, both of which have been provided by English Heritage. Merging these data sets within a GIS environment sets the base for the comparison between sales prices of buildings inside and outside conservation areas.

Housing transactions

The transactions data relates to mortgages for properties granted by the Nationwide Building Society (NBS) between 1995 and 2010. The data for England comprise 1,088,446 observations and include the price paid for individual housing units along with detailed property characteristics. These characteristics include floor space (m^2), the type of property (detached, semi-detached, flat, bungalow or terraced), the date of construction, the number of bedrooms and bathrooms, garage or parking facilities and the type of heating. There is also some buyer information including the type of mortgage (freehold or leasehold) and whether they are a first-time buyer.

Importantly, the transaction data includes the full UK postcode of the property sold allowing it to be assigned to grid-reference coordinates. With this information it is possible within a Geographical Information Systems (GIS) environment to calculate distances to conservation area borders and to determine whether the property lies inside or outside of these borders. Furthermore it is possible to calculate distances and other spatial measures (e.g. densities) for the amenities and environmental characteristics that will be used as control variables. Since the data set refers to postcodes rather than individual properties, it is not possible, however, to

analyse repeated sales of the same property. This is a limitation shared with most property transaction data sets available in the England, including the land registry data.

Conservation areas

The GIS data on the English Heritage sites include the precise geographical definition of 8,167 conservation areas (CAs). In addition there is information on the date of designation, the type of CA (urban, suburban or rural), the land use (residential, mixed, commercial or industrial), and Article 4 status.[10] The data set furthermore contains information about areas that received the status of world heritage sites in England.[11] Evidence of community support and risk status comes from the Conservation Areas Survey and is provided by English Heritage.

Neighbourhood characteristics

The main variables on neighbourhood characteristics are median income and ethnic composition. The income data is a model-based estimate of median household income produced by Experian for Super Output Areas of the lower level (LSOA). This is assigned to the transaction data based on postcode. The data on ethnicity is made available by the 2001 UK Census at the level of Output Area (OA). Shares of each of the 16 ethnic groups and a Herfindahl index[12] were computed to capture the ethnic composition of neighbourhoods.

Environmental variables

The environmental variables capture the amenity value of environmental designations, features of the natural environment, different types of land cover and different types of land use.

Geographical data (in the form of ESRI shapefiles) for UK National Parks, Areas of Outstanding Natural Beauty and National Nature Reserves are available from Natural England. National Parks and Areas of Outstanding Natural Beauty are protected areas of countryside designated

[10] The implementation of Article 4 Direction in conservation areas puts extra restrictions on the development of properties.

[11] According to the provided information, there are 59 conservation areas with the corresponding status as World Heritage. We note that the rather small sample does not allow us to draw general lessons about the effect of the status as such. The list of districts hosting conservation areas that are located within World Heritage sites is provided in the appendix.

[12] The Herfindahl index (HI) is calculated according to the following relation: $HI = \sum_{i=1}^{N} s_i^2$, where s_i is the share of ethnicity i in the LSOA, and *N i*s the total number of ethnicities.

because of their significant landscape value. National Nature Reserves are "established to protect sensitive features and to provide 'outdoor laboratories' for research" (National England website). Straight line distances to these designations were computed for the housing units as geographically located by their postcodes. Furthermore, density measures that take into account both the distance to and the size of the features were created.[13]

The location of lakes, rivers and coastline are available from the GB Ordinance Survey. Distance to these features is also computed for the housing units from the transaction data. The UK Land Cover Map produced by the Centre for Ecology and Hydrology describes land coverage by 26 categories as identified by satellite images. We follow Mourato et al.(2010) who construct nine broad land cover types from the 26 categories. Shares of each of these nine categories in 1km grid squares are calculated and the housing units take on the value of the grid square in which they reside.

The generalised Land Use Database (GLUD) available from the Department for Communities and Local Government gives area shares of nine different types of land use within Super Output Areas, lower level (LSOA). These nine land use types are domestic buildings, non-domestic buildings, roads, paths, rail, domestic gardens, green space, water and other land use. These shares are assigned to the housing units based on the LSOA in which they are located.

Amenities

The locational amenities variables capture the benefits a location offers in terms of accessibility, employment opportunities, schools quality and the proximity of cultural and entertainment establishments.

Employment accessibility is captured both by the distance to Travel to Work Area (TTWA) centroid and a measure of employment potentiality. TTWAs are defined such that 75 per cent of employees who work in the area also live within that area. Thus they represent independent employment zones and the distance to the centre of these zones is a proxy for accessibility to employment locations. A more complex measure of accessibility is the employment potentiali-

[13] Further detail on the construction of this density measure is included in the data appendix.

ty index (Ahlfeldt, 2011).[14] This is computed at the Super Output Area, lower level (LSOA) and represents an average of employment in neighbouring LSOAs weighted by their distance.

Key Stage 2 (ages 7-11) assessment scores are available from the Department for Education at the Super Output Area, middle layer (MSOA). School quality is thus captured at the housing unit level by computing a distance weighted average of the KS2 scores of nearby MSOA centroids.[15]

Geographical data on the locations of motorways, roads, airports, rail stations and railtracks are available from the GB Ordinance Survey. Distances were computed from housing units to motorways, A-roads, B-roads and rail stations to capture accessibility. Buffers zones[16] were created around the motorways and roads along with distance calculations to railtracks and airports in order to capture the disamenity noise effects of transport infrastructure.

Further data on local amenities were taken from the Ordinance Survey (police stations, places of worship, hospitals, leisure/sports centres) and OpenStreetMap (cafés, restaurants/fast food outlets, museums, nightclubs, bars/pubs, theatres/cinemas, kindergartens and monuments, memorials, monument, castles, attraction, artwork). Kernel densities for these amenities were computed for housing units using a kernel radius of 2km and a quadratic kernel function (Silverman, 1986). The radius of 2km is consistent with amenities having a significant effect on property prices only when they are within walking distance.

2.4 Descriptive evidence and summary statistics

In the following tables we present descriptive statistics of sales prices grouped into different categories. First, we will present comparisons of mean absolute sales prices inside different conservation areas with values outside all conservation areas in absolute prices (Table 2). We repeat the comparison using per square metre prices (Table 3). Next, we will differentiate the comparison by housing types (Table 4) and regions across England (Table 5). Table 6 of the descriptive statistics compares prices of properties inside specific types of conservation areas

[14] Further detail on the construction of the employment potentiality measure is included in the data appendix.

[15] This is calculated as an Inverse Distance Weighting (IDW) with a threshold distance of 5km and a power of 2.

[16] Further detail on the buffer sizes used is included in the data appendix.

(e.g. residential, industrial etc.) with the remaining conservation areas to give an explicit assessment of how the designation effect varies across the characteristics considered. The next table (7) comprises information on the growth of sales prices for both absolute as well as per square metre values for the period between 1995 and 2010. Growth indices are also are graphically illustrated in Figure 2 for conservation areas with selected characteristics (at risk, Article 4) and two control groups (all other conservation areas and areas outside conservation areas). A detailed summary table of housing characteristics for properties inside and outside of conservation areas is presented in Table 8. To substantiate the comparison of mean prices across categories we compute the significance levels in each case. We complement the presentation of the raw data in Tables (2-8) with box-plots that graphically visualise the distribution of property prices in the categories considered. For selected attributes, the distribution is also visualised in the form of kernel density estimates (Figure 9).

Table 2 presents summary statistics of property prices inside conservation areas (mean, standard deviation [S.D.], min. and max.), and a direct, unconditional comparison with the control group for the period between 1995 and 2010. The control group comprises all available sales prices across in England outside conservation areas.

Table 2 Comparison of mean sales values inside different conservation areas with values outside all conservation areas

CA type	Share at trans. inside all CAs (%)	Transaction price (£)				Control (outside)	Transaction price (£)				Difference			
		Mean	S.D.	Min	Max		Mean	S.D.	Min	Max	£	%	P-value	S.e.
All CAs	100	172,098	132,229	10,000	3,125,000	All units	139,634	94,811	6,500	3,340,000	32,464	23.2	0.0000	353
Industrial	0.28	166,600	102,029	24,000	565,000	All units	139,634	94,811	6,500	3,340,000	26,966	19.3	0.0000	6,212
Mixed	21.97	152,033	117,507	10,000	1,700,000	All units	139,634	94,811	6,500	3,340,000	12,399	8.9	0.0000	708
Residential	39.07	185,912	144,131	10,737	3,125,000	All units	139,634	94,811	6,500	3,340,000	46,278	33.1	0.0000	543
Commercial	2.47	131,326	93,409	19,000	975,000	All units	139,634	94,811	6,500	3,340,000	-8,308	-6.0	0.0001	2,084
Urban	43.45	160,368	130,315	10,000	3,125,000	All units	139,634	94,811	6,500	3,340,000	20,734	14.8	0.0000	513
Suburban	24.34	188,140	146,972	10,737	2,050,000	All units	139,634	94,811	6,500	3,340,000	48,506	34.7	0.0000	679
Rural	12.64	183,660	117,185	15,500	1,100,000	All units	139,634	94,811	6,500	3,340,000	44,026	31.5	0.0000	927
Large (>128,432m²)	80.95	171,829	133,847	10,000	3,125,000	All units	139,634	94,811	6,500	3,340,000	32,195	23.1	0.0000	387
Article 4 status	21.31	184,884	152,468	11,000	3,125,000	All units	139,634	94,811	6,500	3,340,000	45,250	32.4	0.0000	725
Pre 1981	59.34	172,327	134,795	10,000	3,125,000	All units	139,634	94,811	6,500	3,340,000	32,693	23.4	0.0000	445
Listed Buildings (>127/km²)	38.31	158,988	120,122	10,000	2,861,000	All units	139,634	94,811	6,500	3,340,000	19,355	13.9	0.0000	542
Receives Grants	1.66	98,781	68,711	15,000	565,000	All units	139,634	94,811	6,500	3,340,000	-40,852	-29.3	0.0000	2,539
At Risk	7.27	127,479	95,360	13,000	1,385,000	All units	139,634	94,811	6,500	3,340,000	-12,155	-8.7	0.0000	1,217
Community Support	62.33	176,611	140,260	10,000	3,125,000	All units	139,634	94,811	6,500	3,340,000	36,977	26.5	0.0000	437
In a World Heritage Site	2.41	159,854	112,401	11,250	1,280,000	All units	139,634	94,811	6,500	3,340,000	20,220	14.5	0.0000	2,110

Note: The threshold size for the 'Large', 'Listed Buildings' and 'Pre 1981' categories are the mean values of the conservation area size, listed building density and designation date.
The area categorisation data is only available from the conservation areas survey data; hence a corresponding breakdown outside conservation areas is not possible.
Grants refer to completed Heritage Lottery Fund's Townscape Heritage Initiative (THIs) schemes. A list of conservation areas with completed schemes of provided by English Heritage.

The first column describes different types of conservation areas for which we present summary statistics based on observed transaction prices. Properties outside of designated areas have been sold at a mean price of £139,634. When looking at the differences between individual types of conservation areas and the control group, it is evident that units within conservation areas tend to sell at higher prices than their undesignated counterparts. Based on these descriptive statistics there are only three types of conservation areas where properties sell at visible discounts compared to the control group. These are the commercial conservation areas, the areas at risk and those that receive grants. The discounts reach £8,308, £12,155, and £40,852 relative to the average sales prices referring to the whole sample. These correspond to differences of 6.0 and 8.7 per cent, which are highly significant (indicated by the low p-value). Interestingly, properties within conservation areas that receive grants sell at the highest discount and have a relatively low mean sales price of only £98,781. Given that grants are more likely to be distributed amongst regions with less financial endowments, this is in line with expectations.[17]

Areas with Article 4 status also reveal price premia as high as 32.4 per cent. This is an interesting finding given the additional restrictions imposed upon the owners. Conservation areas with evidence of community support (e.g. a residents' association or civic society) and within World Heritage Sites also yield high premia when compared to properties outside conservation areas, even though the premium is relatively low for the latter (26.5 and 14.5 per cent). In absolute terms, relative prices are highest in conservation areas with a residential character, with mean prices exceeding the total mean by £46,278 or 33.1 per cent. This category also includes the highest sales price in our property data set (£3.125 million).[18] In contrast, sales prices in conservation areas with a commercial character do not realise prices in excess of £565,000.

The conservation area characteristics available also allow differentiation between urban, suburban and rural areas. As property prices tend to differ significantly across these categories, it is important to consider these sub-samples separately. The largest differentials are found for housing units in suburban conservation areas, which on average, exceed those in the control group by £48,506 or 34.7 per cent. The largest sample is formed by urban housing. Large areas

[17] See e.g. http://www.english-heritage.org.uk/publications/faq-conservation-areas/faq.pdf

[18] It has been estimated that about 5% of all domestic buildings in Great Britain are located within conservation areas as calculated by (Bottril, 2005).

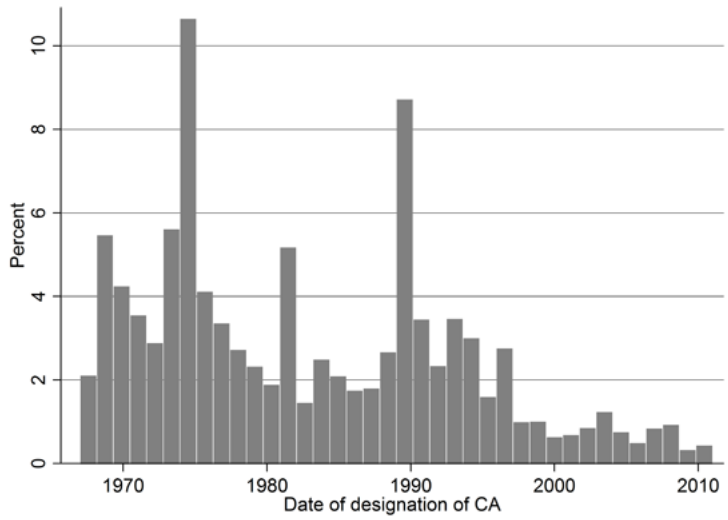
represent those protected areas that are larger than the mean in terms of land area (128.432m^2). They yield sales prices, which are 26.9 per cent above the outside mean.

Figure 1 depicts the distribution of conservation areas by the year of designation. Besides a tendency where new designations have become somewhat less frequent over time, there are two notable spikes. The first spike coincides with 1975 being the European Architectural Heritage year and the year after the Town and Country Amenities Act, which enlarged demolition control provision in CAs and required that preservation and enhancement proposals be prepared by local authorities.[19] Although the connection is less evident, the second spike coincides with DoE Circular 8/87 and the Town and Country Planning (Listed Buildings and Buildings in Conservation Areas) regulations 1987 (SI 1987 349), which increased control over demolition and development in conservation areas.[20] The downward trend in designation activity potentially reflects the need to preserve a large number of obvious candidates in the earlier years of the policy. Table 2 suggests that older conservation areas defined as being designated before the mean designation year 1981 are characterised by slightly higher price markups. This result will be supported by the regression analysis where we allow the conservation area premia to continuously vary in the time that has passed by since designation. Both findings are consistent with a particular appreciation of the character of those areas designated in earlier years or a cumulative effect of designation over time.

[19] Until 1974 conservation areas had been designated by County Councils whereas from April 1974 lower tier authorities were able to designate.

[20] In 1989 the Steinberg case made an impact, from which the "Steinberg Principle" emerged. Essentially, it states that new developments should make a positive contribution to preserving and enhancing the character of a conservation area.

Figure 1 Conservation areas by year of designation



Notes: Histogram shows the distribution of conservation areas by years of designation.

In the interpretation of the descriptive evidence presented, it is important to consider that these values refer to absolute sales prices, which abstract from the size of the properties considered. To compare the per unit prices of residential space, we compare prices in per square metre terms in all tables and figures in the remainder of this report. Table 3 replicates Table 2 with prices per square metre. Most implications do not change qualitatively. Residential conservation areas, with a square metre price of £511 above average prices in the control group, still realise the highest premia. They are followed by conservation areas with industrial, mixed and commercial character. Note that, when analysing prices per square metre, even conservation areas with a commercial character yield average sales prices that are £ 221 per square metre higher than those in the control group, which is about 16 per cent. This result stands in contrast to the discount in absolute prices and indicates that this discount is driven by size rather than value. The differential for areas at risk also switches sign, even though the small difference of only £5 with a standard error of 10 suggests a non-significant difference (p-value= 0.61). Our conditional estimates presented in the next section, however, consistently point to a small, but statistically significant discount.[21] The qualitative implications for all other categories remain unchanged compared to Table 2.

[21] In Table 10 we also decompose the effect of the assessed characteristic "at risk" into its components vulnerability, condition, and trajectory.

Table 3 Comparison of mean sales values inside different conservation areas with values outside all conservation areas (per m^2)

CA type	Share at trans. inside all CAs (%)	Transaction price (£/m²)				Control (outside)	Transaction price (£/m²)				Difference			
		Mean	S.D.	Min	Max		Mean	S.D.	Min	Max	£/m²	%	P-value	S.e.
All CAs	100	1,745	1,155	94	15,300	All units	1,367	772	66	18,054	377	27.6	0.0000	3
Industrial	0.28	1,742	894	293	4,609	All units	1,367	772	66	18,054	374	27.4	0.0000	51
Mixed	21.97	1,663	1,145	120	11,792	All units	1,367	772	66	18,054	296	21.6	0.0000	6
Residential	39.07	1,878	1,268	94	12,656	All units	1,367	772	66	18,054	511	37.4	0.0000	4
Commercial	2.47	1,588	1,134	213	10,957	All units	1,367	772	66	18,054	221	16.2	0.0000	17
Urban	43.45	1,797	1,297	115	12,656	All units	1,367	772	66	18,054	430	31.5	0.0000	4
Suburban	24.34	1,892	1,166	94	15,300	All units	1,367	772	66	18,054	525	38.4	0.0000	6
Rural	12.64	1,449	742	172	6,358	All units	1,367	772	66	18,054	81	5.9	0.0000	8
Large (>128,432m²)	80.95	1,735	1,151	115	15,300	All units	1,367	772	66	18,054	367	26.9	0.0000	3
Article 4 status	21.31	1,945	1,322	131	12,656	All units	1,367	772	66	18,054	578	42.3	0.0000	6
Pre 1981	59.34	1,752	1,165	115	15,300	All units	1,367	772	66	18,054	384	28.1	0.0000	4
Listed Buildings (>127/km²)	38.31	1,619	1,085	117	12,656	All units	1,367	772	66	18,054	252	18.4	0.0000	4
Receives Grants	1.66	1,041	596	122	4,894	All units	1,367	772	66	18,054	-326	-23.8	0.0000	21
At Risk	7.27	1,372	916	122	7,610	All units	1,367	772	66	18,054	5	0.4	0.6077	10
Community Support	62.33	1,853	1,247	94	15,300	All units	1,367	772	66	18,054	486	35.5	0.0000	4
World Heritage Site	2.41	1,592	945	125	7,232	All units	1,367	772	66	18,054	225	16.4	0.0000	17

Note: The threshold size for the 'Large', 'Listed Buildings' and 'Pre 1981' categories are the mean values of the conservation area size, listed building density and designation date.

Table 4 presents mean differences in property prices inside and outside conservation areas categorised by housing type. We consider four categories: detached, semi-detached, terraced, bungalow, and flat or maisonette. The largest available sample comes from flats or maisonettes, followed by terraced housing, both of which also yield the highest differential in average sales prices when looking at properties inside and outside of conservation areas. The differences amount to £ 414 and £ 255 or 23.6 and 20.8 per cent, respectively. Although somewhat surprising, the data indicates very similar square metre (mean) prices for detached and semi-detached houses. Notably, the highest sales price of £15,300 per square metre was realised for semi-detached properties in the Outer Metropolitan region (Table 5).

Table 5 uses the same classification scheme to compare prices inside and outside conservation areas in different regions. Not surprisingly the highest average prices are realised in the Greater London region (£2,710), where prices also exhibit the largest variation (standard deviation of £1,481). Prices per square metre vary as much as from £155 to £12,656. London also represents the area in which conservation areas yield the highest mark-ups compared to the remaining areas. The lowest – but still positive – differences are found in the Northern region. A map indicating the definition of corresponding regions can be found in the Appendix I.

Table 4 Comparison of mean sales values by housing type inside conservation areas with those of the same type outside all conservation areas

Housing type (inside CAs)	Transactions inside CA (%)	Transaction price (£/m²)				Control (outside)	Transactions outside CA (%)	Transaction price (£/m²)				Difference			
		Mean	S.D.	Min	Max			Mean	S.D.	Min	Max	£/m²	%	P-value	S.e.
Detached	4.69	1,588	876	115	9,737	Detached	95.31	1,424	682	109	11,110	164	11.5	0.0000	7
Semi-detached	4.29	1,544	941	147	15,300	Semi-detached	95.71	1,297	693	66	18,054	248	19.1	0.0000	6
Terraced	8.74	1,480	980	94	12,352	Terraced	91.26	1,225	735	78	13,604	255	20.8	0.0000	5
Bungalow	2.87	1,539	793	187	5,940	Bungalow	97.13	1,498	759	121	7,975	42	2.8	0.0334	20
Flat or Maisonette	19.50	2,165	1,371	117	12,308	Flat/Maisonette	80.50	1,751	1,024	67	11,429	414	23.6	0.0000	7

Table 5 Comparison of mean sales values within different types of conservation areas with values outside all other conservation areas

Region (inside CAs)	Transactions inside CA (%)	Transaction price (£/m²)				Control (outside)	Transactions outside CA (%)	Transaction price (£/m²)				Difference			
		Mean	S.D.	Min	Max			Mean	S.D.	Min	Max	£/m²	%	P-value	S.e.
Northern	5.47	1,040	570	151	3,888	Northern	94.53	982	500	78	4,441	58	5.9	0.0000	11
Yorks & Humberside	6.47	1,208	651	94	4,117	Yorks & Humberside	93.53	1,072	545	74	4,514	135	12.6	0.0000	9
North West	3.89	1,278	684	120	7,610	North West	96.11	1,053	537	82	5,000	225	21.4	0.0000	9
East Midlands	5.62	1,126	577	148	3,701	East Midlands	94.38	1,033	495	82	9,320	93	9.0	0.0000	7
West Midlands	3.39	1,230	638	136	5,850	West Midlands	96.61	1,121	554	66	17,142	109	9.8	0.0000	10
East Anglia	7.66	1,273	682	126	5,105	East Anglia	92.34	1,185	563	105	4,474	89	7.5	0.0000	9
Outer South East	8.83	1,524	809	117	6,818	Outer South East	91.17	1,428	697	86	7,975	97	6.8	0.0000	6
Outer Metropolitan	5.12	1,990	961	204	15,300	Outer Metropolitan	94.88	1,701	791	119	9,259	289	17.0	0.0000	8
London	14.52	2,710	1,481	155	12,656	London	85.48	1,975	1,074	67	18,054	735	37.2	0.0000	9
South West	12.31	1,364	753	115	8,529	South West	87.69	1,286	625	107	11,110	78	6.1	0.0000	6

Table 6 Comparison of mean sales values within different types of conservation areas with values inside all other conservation areas

CA type	Transactions inside CA (%)	Transaction price (£/m²)				Control	Transactions outside CA (%)	Transaction price (£/m²)				Difference			
		Mean	S.D.	Min	Max			Mean	S.D.	Min	Max	£/m²	%	P-value	S.e.
Industrial	0.28	1,742	894	293	4,609	Remaining CAs	99.72	1,745	1,156	94	15,300	-3	-0.2	0.9668	76
Mixed	21.97	1,663	1,145	120	11,792	Remaining CAs	78.03	1,768	1,157	94	15,300	-105	-5.9	0.0000	10
Residential	39.07	1,878	1,268	94	12,656	Remaining CAs	60.93	1,659	1,068	115	15,300	219	13.2	0.0000	8
Commercial	2.47	1,588	1,134	213	10,957	Remaining CAs	97.53	1,749	1,155	94	15,300	-160	-9.2	0.0000	26
Urban	43.45	1,797	1,297	115	12,656	Remaining CAs	56.55	1,704	1,032	94	15,300	93	5.5	0.0000	8
Suburban	24.34	1,892	1,166	94	15,300	Remaining CAs	75.66	1,697	1,148	115	12,656	195	11.5	0.0000	9
Rural	12.64	1,449	742	172	6,358	Remaining CAs	87.36	1,788	1,197	94	15,300	-339	-19.0	0.0000	12
Large (>128,432m²)	80.95	1,735	1,151	115	15,300	Remaining CAs	19.05	1,787	1,173	94	10,957	-53	-2.9	0.0000	10
Article 4 status	21.31	1,945	1,322	131	12,656	Remaining CAs	78.69	1,690	1,100	94	15,300	255	15.1	0.0000	10
Pre 1981	59.34	1,752	1,165	115	15,300	Remaining CAs	40.66	1,735	1,141	94	11,792	17	1.0	0.0358	8
Listed Buildings (>127/km²)	50.00	1,619	1,085	117	12,656	Remaining CAs	50.00	1,619	1,085	117	12,656	-204	-12.6	0.0000	8
Receives Grants	1.66	1,041	596	122	4,894	Remaining CAs	98.34	1,757	1,159	94	15,300	-715	-40.7	0.0000	31
At Risk	7.27	1,372	916	122	7,610	Remaining CAs	92.73	1,774	1,167	94	15,300	-402	-22.6	0.0000	15
Community Support	62.33	1,853	1,247	94	15,300	Remaining CAs	37.67	1,566	958	115	11,792	287	18.4	0.0000	8
World Heritage Site	2.41	1,592	945	125	7,232	Remaining CAs	97.59	1,748	1,160	94	15,300	-156	-8.9	0.0000	26

Note: The threshold size for the 'Large', 'Listed Buildings' and 'Pre 1981' categories are the mean values of the conservation area size, listed building density and designation date, respectively.

Table 6 compares how the mark-up found for prices inside conservation areas varies across the different types of conservation areas. As an example, we ask the question how the premium for industrial conservation areas differs from the premium found for the other types of conservation areas. With respect to the categorisation, the table resembles Tables 1 and 2. In line with the evidence presented in the previous tables, residential areas realised the highest average prices compared to the other areas, exceeding them by £ 219 or 13.2% (highly statistically significant). Areas with a commercial character realise the lowest premia. Conservation areas in suburban areas have a larger effect on property prices than urban and rural areas, while larger areas tend to have smaller effects compared to smaller areas. Conservation areas with Article 4 status realise rather large premia with prices exceeding the other areas by 15.1 per cent. Holding the status of being "at risk" reduces prices considerably by as much as 22.6 per cent, which, however, is not as much as the corresponding discount for grant-receiving areas (40.7%).

Total growth of mean prices of conservation areas is presented for absolute as well as per square metre prices in Table 7. The first row offers a comparison to trends outside conservation areas. The calculations cover the time period from 1995 to 2010 and also include average growth rates per annum. Table 7 demonstrates that residential and urban areas in particular outperform the remaining areas not only in terms of price levels but also in trends. They yield a growth in prices per square metres of more than 300 per cent. Holding the Article 4 status is associated with positive price developments, which tend to be slightly above the average price trend within conservation areas (average annual growth rates in per square metre terms of 9.5 vs. 9.1%). Areas at risk still enjoy growth rates that are higher than those of the control group (8.8 vs. 8.0%), but lower than the average inside conservation areas (9.1%). The corresponding trends are visualised in Figure 2 and present an easy comparison of the control group against all conservation areas as well as against isolated trends of the areas with Article 4 status or of those being at risk. Not surprisingly, the price trends depicted in Figure 2 reveal a peak in 2007 followed by a short but strong decline in 2008. The higher price level for properties inside conservation areas compared to the control group is clearly visible in both panels, while differences even increase over the years. Confirming the previous findings, conservation areas with Article 4 in terms of property prices outperform other conservation areas in levels and trend throughout the study period.

Table 8 presents housing and location characteristics of properties inside a conservation area compared to the outside sample. Interestingly, the distribution of transactions by housing type varies across both groups. While the majority of sold properties within conservation areas are

terraced houses (on average 33.5%) and flats (34.9%), the largest shares of transactions outside conservation areas belong to terraced (29.2%) and semi-detached housing (32.9%). In contrast, the numbers of bedrooms and bathrooms as well as the floor size are comparable in both groups. The median income in conservation areas is about 8.8 per cent higher than in the rest of the sample, while the share of white population is slightly below that of the control group (1%). The proportion of properties obtaining the leasehold status is significantly smaller inside conservation areas and 25 per cent below the comparison group. Entirely in line with intuition, properties sold inside conservation areas are significantly older (in terms of years since construction 98.4 vs. 50 years). The relationship between a property's sales price and its age is further explored in section 2.5, when we present the hedonic price analysis. While the percentage of houses with central heating is comparable across both groups, the existence of a garage can only be confirmed for 48.3 per cent of buildings within conservation areas compared to 73 per cent outside. Finally, transactions of new properties are relatively scarce in both samples, but as one might expect, are significantly (almost 30%) higher in the control group.

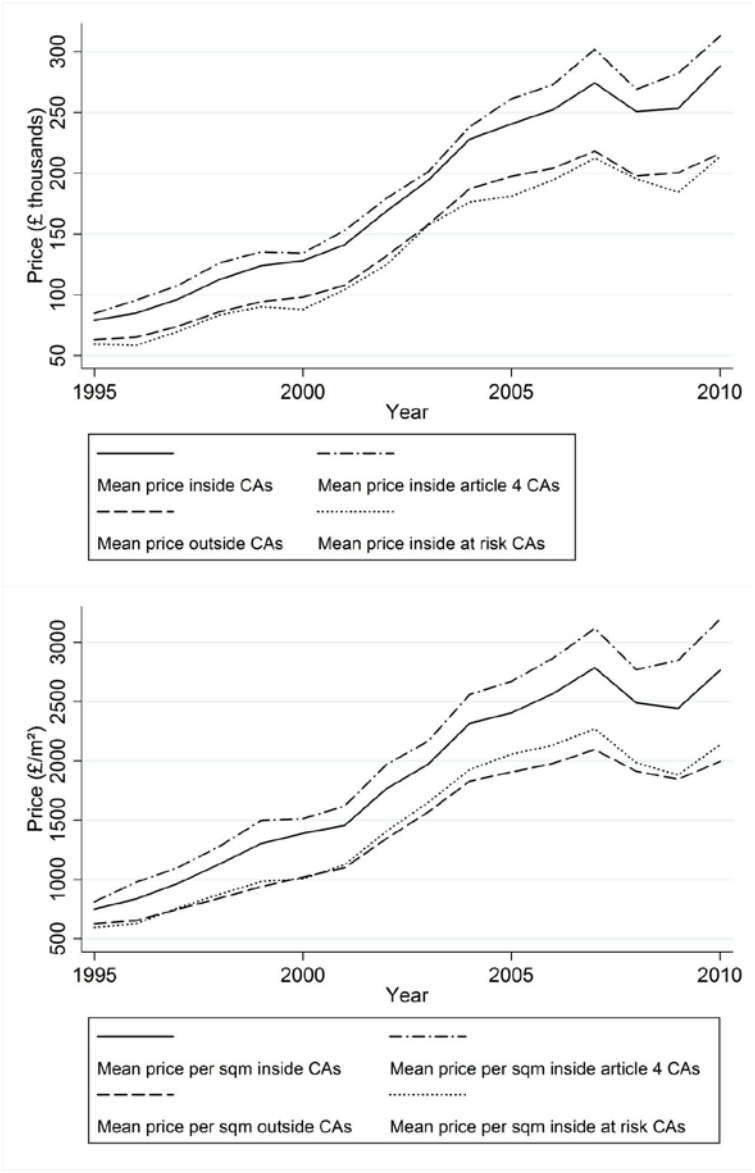
Table 7 Comparison of growth in mean sale values within conservation areas of different types, 1995-2010

CA type	Price (£) growth 1995-2010		Price (£/m²) growth 1995-2010	
	%	% p.a.	%	% p.a.
Outside CAs	241.4	8.5	217.7	8.0
All CAs	264.1	9.0	268.0	9.1
Industrial	225.0	8.2	253.8	8.8
Mixed	273.8	9.2	301.4	9.7
Residential	267.7	9.1	266.2	9.0
Commercial	229.2	8.3	270.4	9.1
Urban	288.5	9.5	302.7	9.7
Suburban	259.3	8.9	268.2	9.1
Rural	224.9	8.2	202.2	7.7
Large (>128,432m²)	263.9	9.0	266.0	9.0
Article 4 status	268.7	9.1	292.6	9.5
Pre 1981	256.6	8.8	259.6	8.9
Listed Buildings (>127/km²)	244.8	8.6	248.3	8.7
Receives Grants	240.4	8.5	217.7	8.0
At Risk	258.9	8.9	256.6	8.8
Community Support	266.9	9.1	280.6	9.3
World Heritage Site	250.8	8.7	305.4	9.8

Table 8 Comparison of housing and area characteristics of properties inside and outside conservation areas

Housing Type (inside)					Control (outside)					Difference		
	Mean	S.D.	Min	Max		Mean	S.D.	Min	Max	Total	%	P-value	S.e.
Detached (%)	12.1	32.60	0.0	100	Detached (%)	20.5	40.41	0.0	100	-8.5	-41.2	0.0000	0.14
Semi-detached (%)	17.7	38.14	0.0	100	Semi-detached (%)	32.9	47.00	0.0	100	-15.3	-46.4	0.0000	0.17
Terraced (%)	33.5	47.19	0.0	100	Terraced (%)	29.2	45.48	0.0	100	4.2	14.5	0.0000	0.16
Bungalow (%)	1.8	13.47	0.0	100	Bungalow (%)	5.2	22.26	0.0	100	-3.4	-64.6	0.0000	0.08
Flat (%)	34.9	47.68	0.0	100	Flat (%)	12.1	32.57	0.0	100	22.9	189.6	0.0000	0.12
Bathrooms	1.26	0.54	0	5	Bathrooms	1.30	0.59	0	5	-0.03	-2.5	0.0000	0.00
Bedrooms	2.48	1.04	1	11	Bedrooms	2.80	0.86	1	13	-0.31	-11.2	0.0000	0.00
Median income (£)	29647	9920	6150	85646	Median income (£)	27256	8128	3952	78744	2390	8.8	0.0000	29.74
White share (%)	92.2	10.37	7.1	100	White share (%)	93.2	11.49	0.5	100	-1.0	-1.0	0.0000	0.04
House age (years)	98.4	71.42	0.0	933	House age (years)	50.2	44.31	0.0	1002	48.2	96.0	0.0000	0.17
Floorsize (m²)	104	47.94	24.0	279	Floorsize (m²)	103.3	37.65	24.0	279	0.9	0.9	0.0000	0.14
New property (%)	5.0	21.86	0.0	100	New property (%)	7.1	25.76	0.0	100	-2.1	-29.6	0.0000	0.09
Leasehold (%)	63.5	48.14	0.0	100	Leasehold (%)	84.7	36.00	0.0	100	-21.2	-25.0	0.0000	0.13
Garage/Parking (%)	48.3	50.03	0.0	100	Garage/Parking (%)	73.5	55.89	0.0	100	-25.2	-34.3	0.0000	0.16
Central (%)	91.8	72.51	0.0	100	Central (%)	92.9	74.40	0.0	100	-1.2	-1.3	0.0000	0.09

Figure 2 Growth in mean sale values



Notes: Graphs show national averages of prices (per square metre) by year separately for properties inside and outside conservation areas.

Tables 2-8 compare differences in transaction prices between areas inside and outside conservation areas for various categories in terms of means and variances. We complement these tables with a graphical illustration in box-plots for a snapshot of the distribution of sales prices within each category defined above. Our boxplots present sales prices at the 1st, 25th, 50th (median), 75thand 99th per centiles, where e.g. the 50th per centile indicates a price that exceeds 50 per cent of the transactions in the sample. The box itself represents the area, in which 50 per cent of the observed prices are located. The yellow boxes correspond to the control groups defined in the tables above.

Figure 3 Values per m^2 by type of conservation area compared with values outside

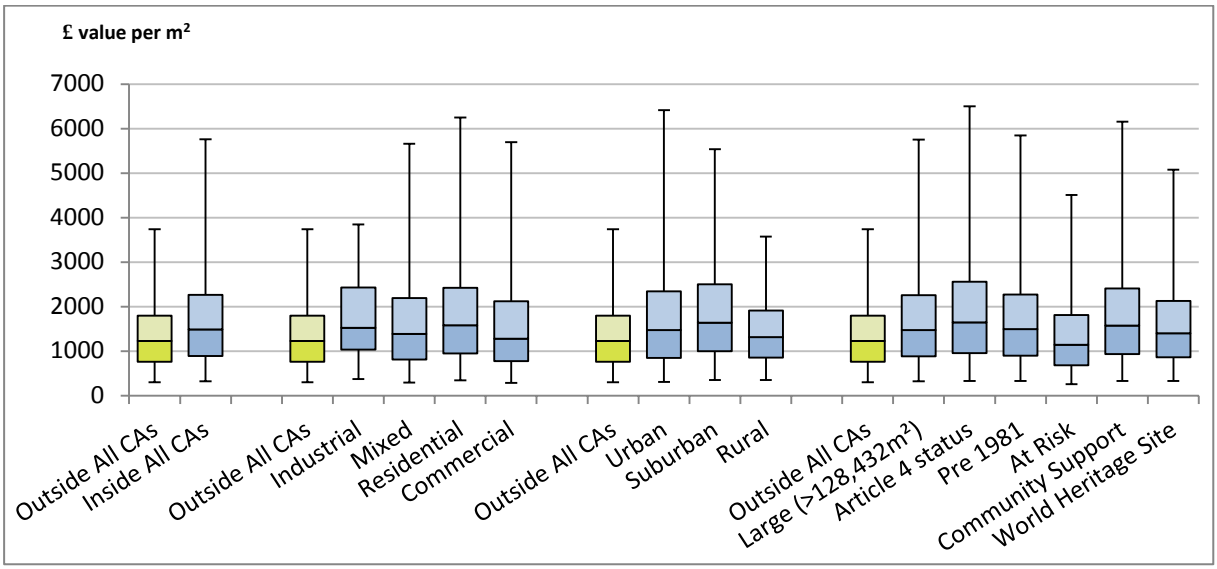


Figure 4 Values per m^2 by type of housing compared with values outside

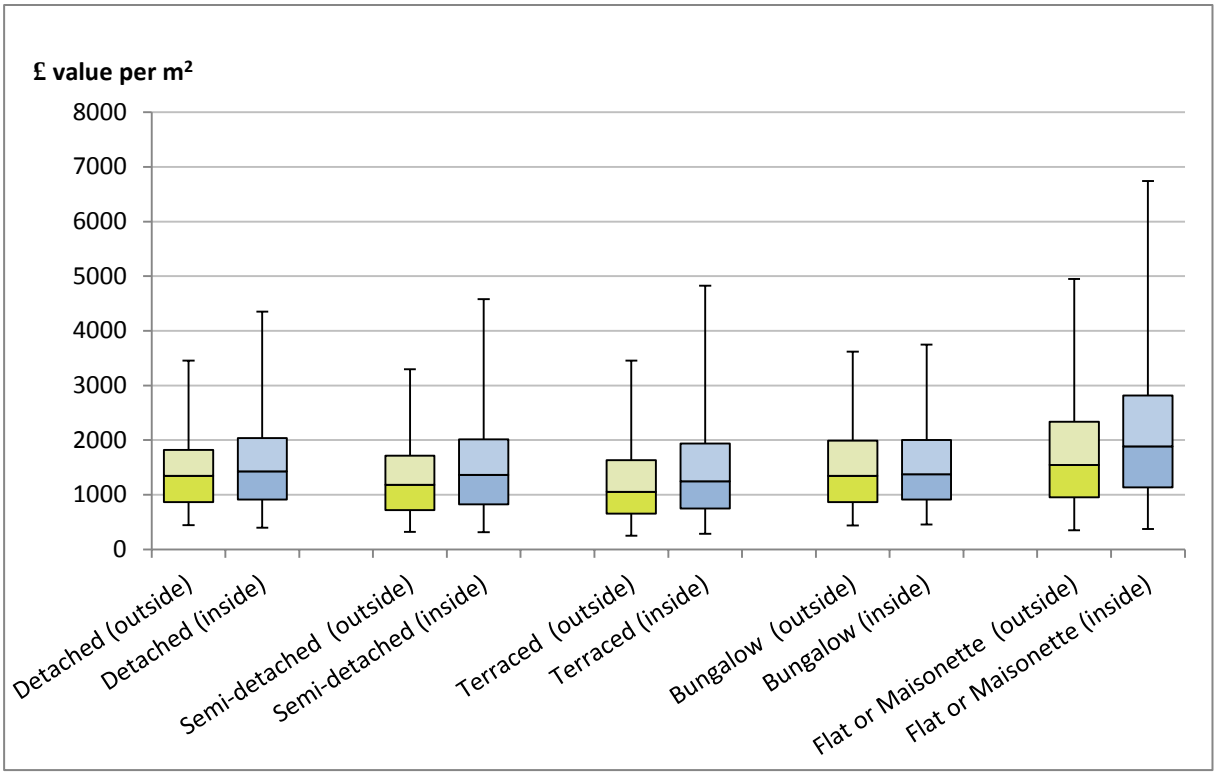


Figure 5 Values per m^2 by region compared with values outside

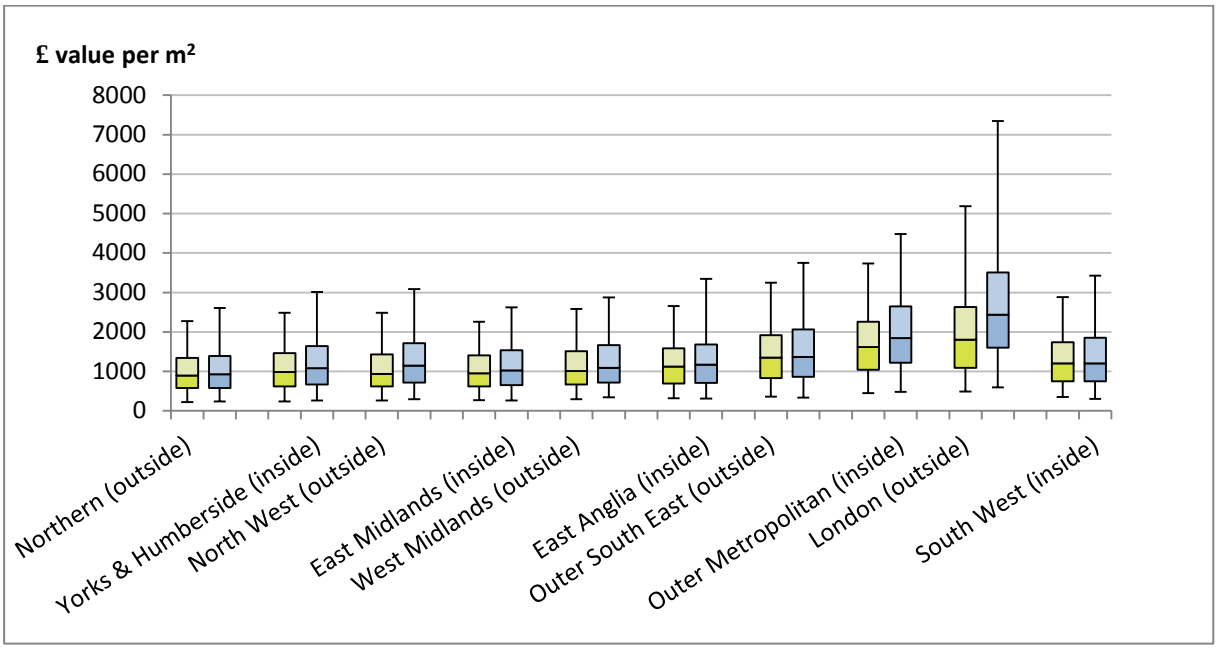


Figure 6 Values per m^2 by type of conservation area compared with values inside all other conservation areas

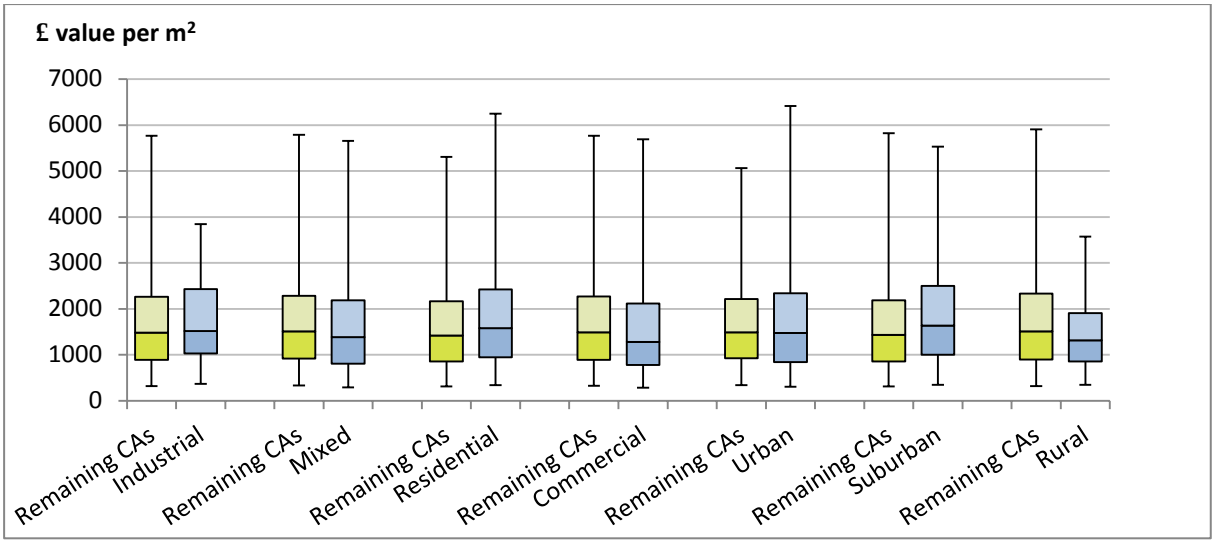
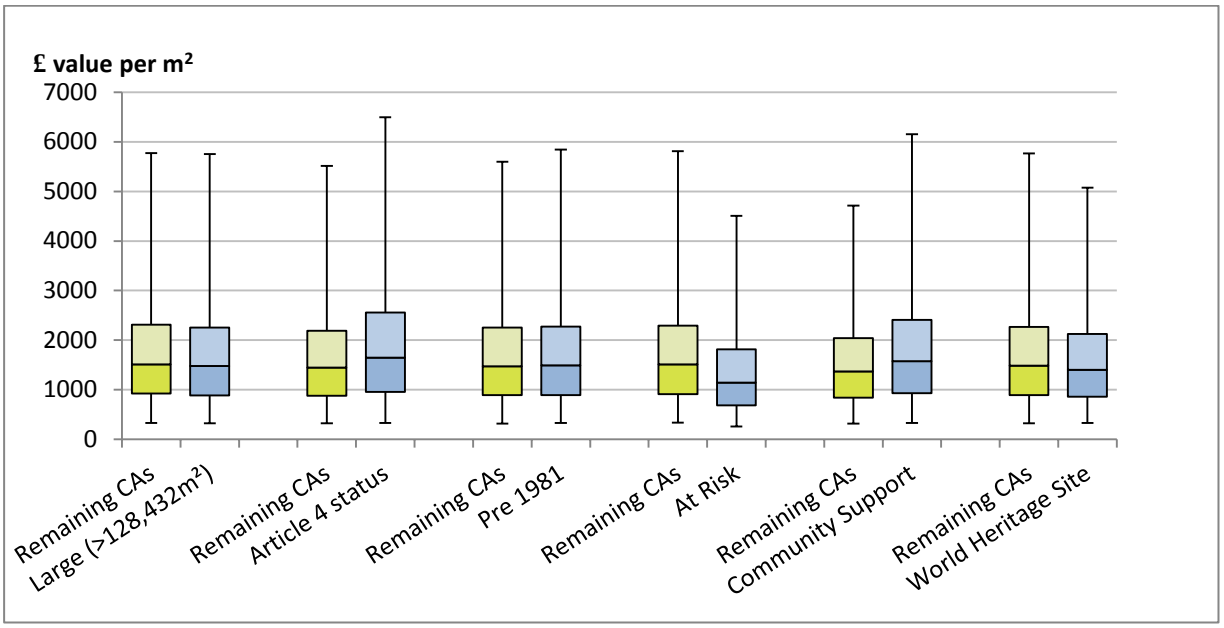


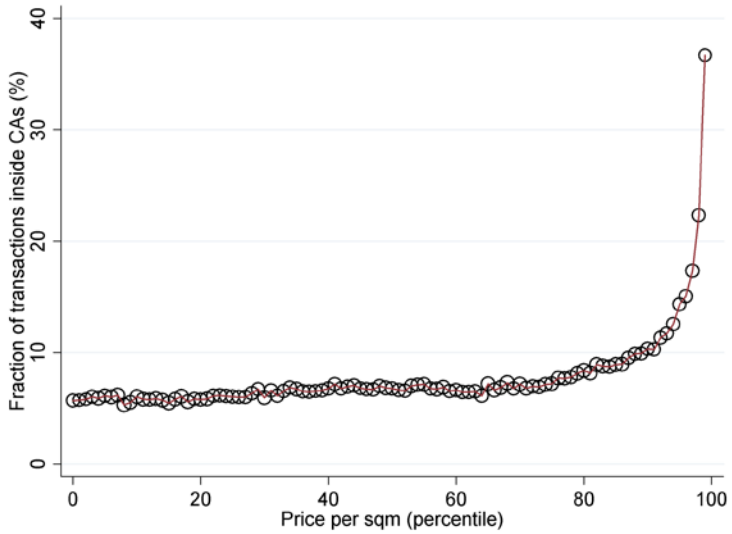
Figure 7 Values per m^2 by type of conservation area compared with values inside all other conservation areas



In general, all box-plots confirm that sales prices of properties inside conservation areas exceed those of their counterparts outside. Mostly, the implications from the categorisation remain unchanged as well. There are, however, some additional insights emerging from a comparison of prices at specific per centiles. Consider as an example the sample of suburban areas (Figure 3). While the mean value in Table 3 shows an average sales price of £1,892 per m^2, the median value given in the box-plot is slightly below that, indicating that the mean value is influenced upwards by some very high outliers. The length of the whiskers similarly indicates that the distribution is right-hand side skewed and that there are considerable price differences at higher price levels in particular. This pattern can be observed throughout almost all box-plots from Figure 3 to Figure 7. This observation is in line with Figure 8, which suggests that the fraction of properties transactions inside conservation areas in our sample steeply increases as one moves into higher price segments (defined as per centiles). Figure 9 compares the distribution of transactions by price per square metres for properties located outside conservation areas (control), properties inside conservation areas with Article 4 status (CA - Article 4), properties inside conservation areas at risk (CA - At Risk) and properties inside all other conservation areas (CA - No Article 4 / Not At Risk). The figure, again, indicates a larger proportion of relatively more valuable properties inside conservation areas compared to the control group outside conservation areas. Interestingly, this finding does not generalise to the same degree to conservation areas with Article 4 status, where the distribution of prices resembles the one of the con-

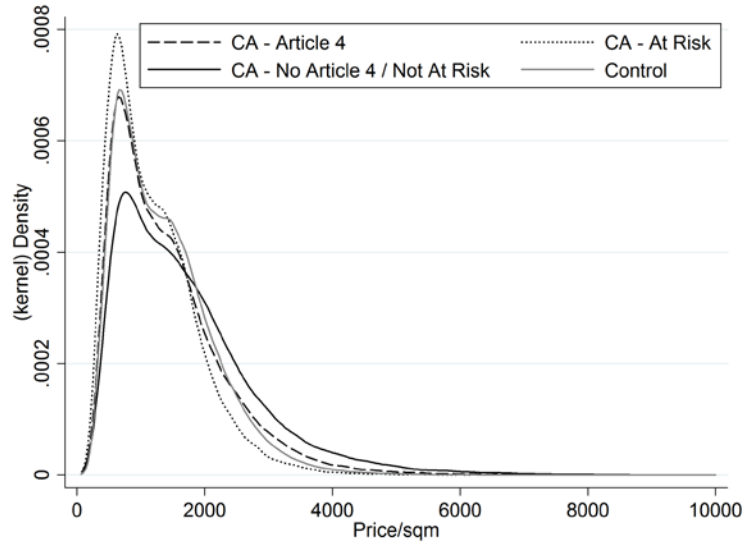
trol group. Properties inside conservation areas at risk even exhibit a lower probability of belonging to higher price segments than properties outside conservation areas.

Figure 8 Fraction of transactions inside conservation areas by price



Notes: Each dot indicates the fraction of property transactions occurring within conservation areas for a given price segment defined as a per centile of the distribution of transactions..

Figure 9 Distribution of house price transactions by price



Notes: Kernel density estimates use the Epanechnikov kernel function. To improve visibility, the figure focuses on the price segment below £10,000/sqm.

2.5 Econometric Analysis

2.5.1 Empirical Strategy

Average conservation area effects (1a)

Our baseline empirical speciation to address research question 1 takes the following form:

$$\log(P_{it}) = \alpha + \sum_h \beta_h H_{hit} + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \qquad (1)$$

where P_{it} is the price per square metre of floor space of a property i that sells at time t. S_j, L_k, N_l are structural property, location and neighbourhood characteristics. R_r and T_t are full sets of indicator variables capturing location and time effects, ε_{it} is a random error term and all other Greek letters stand for parameters to be estimated. Individually, the two sets of fixed effects control for otherwise not observed labour market characteristics and broader regional differences as well as macro-economic shocks that are common to the country. Through the full set of interaction effects, we control for unobserved heterogeneity specific to spatiotemporal grid cells (years x region). A detailed description of our control variables can be found in the data section.

H_{hti} are the indicator variables of interest, which denote whether a property i is sold within the boundaries of a conservation area. We distinguish three statuses h: a) inside the boundaries of a conservation area at a time t when the area enjoys designation status (76,217 or 7% of all observations), b) inside the boundaries before the conservation area was designated (7,795 or 0.72%), c) being inside a conservation area whose designation data is unknown (4,496 or 0.41%).

The conditional average time-invariant premium attached to a location of a property within a conservation area with one of these statuses will be reflected by the coefficients β_h. For designated areas, the respective coefficient indicates a composite of the internal (owning a property with heritage characteristics) and external (owning a property that is near to other buildings with heritage characteristics) *heritage* effects inside a conservation area and the respective *policy* effect. For locations inside conservation areas prior to designation, it presumably reflects the *heritage* effect, net of the absence of the *policy* effect.[22] From both parameters, a premium in percentage terms can be inferred applying the standard transformation for the interpretation of dummy variables in semi-log models (Halvorsen & Palmquist, 1980).

[22] In total, there are data are available for 9,637 conservation areas, out of which the designation date is unknown for 2,185. We have information on transactions for 7,821 conversation areas.

We run a number of variations of equation (1) in the following sequence. We start with a reduced specification only featuring the indicator variables H_h and the time (year) effects (1). We then subsequently add our sets of control variables S_j (2), L_k (3), N_l (4), and a full set of travel to work area (TTWA) fixed effects (5).In the next step, we replace the TTWA and year fixed effects with a full set of TTWA x year fixed effects, to not only control for unobserved time-invariant characteristics at the TTWA level and macro-economic shocks that are common to the country as a whole, but to also allow for heterogeneous trends at the TTWA level (6). Finally, we further strengthen our control for unobserved spatial heterogeneity by reducing the sample to transactions within a 2km distance of the nearest conservation area and increasing the set of location fixed effects to capture location characteristics that are common to properties that share the same nearest conservation area (7). As before, all of these 7,737 location effects are interacted with a full set of year effects, resulting in a total of 123,792 time-location effects controlling for unobserved levels and trends at a very local level. Throughout all specifications we cluster standard errors on the fixed effects used in the analyses. We note that the somewhat arbitrary 2km threshold in specification (7) is chosen to reflect what is typically assumed to be a maximum walking distance (Gibbons & Machin, 2005). It is supported by the results of the later stages of the analysis in the sense that it indicates a significantly narrower scope of spatial heritage externalities. We also note that these fixed effect units are significantly smaller than Local Authorities, so they should also capture unobserved location or policy effects that vary across Local Authorities. Throughout all models we set a handful of missing observations in a number of control variables to zero and introduce dummy variables that indicate the missing values for each of the affected control variables.

Conservation area effects by type (1b)

Equation (1) can be extended to account for interaction terms between the location in a conservation area and a particular characteristic *C* of the respective area *q* to separate the associated effects on value by observable features of the conservation areas.

$$\log(P_{it}) = \alpha + \sum_h \beta_h H_{hit} + \sum_q \beta_q H_{it}^{h=DES} \times C_q + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \quad (2)$$

Note that we introduce the interactive terms based on the indicator variable that indicates a location inside a conservation area boundary and a transaction while the respective conservation area enjoyed designation status ($H^{h=DES}$). Parameters β_q then indicate how the conservation area effect

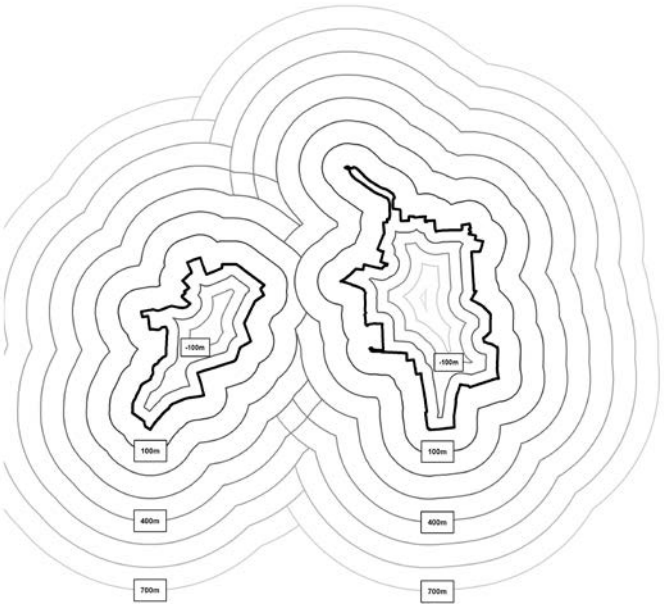
changes with the characteristics of conservation areas discussed above. Precisely, parameters β_q give effects relative to the base category, which is an urban residential conservation area of average age, size, number of listed buildings inside the conservation area and without any of the discrete features discussed in the data section (world heritage site, Article 4, at risk, etc.). All continuous variables that are interacted with the conservation area dummy are rescaled so that they have a zero mean. We also create dummy variables that control for missing values in the conservation area characteristics.[23] As with equation (1), we estimate equation (2) in seven alterations by incrementally increasing the set of control variables and the unobserved spatial heterogeneity allowed for.

Heritage Externalities(2)

To more flexibly account for the spatial pattern of heritage externalities, we replace the conservation area dummy in equation (1) with refined spatial variables. We therefore define impact areas inside and outside conservation areas in the form of mutually exclusive 50m buffers in either direction from the boundary. For the interior, we define nine 50m buffer rings up to a distance of 450m and one residual buffer covering all properties that are located inside a conservation area, and more than 450m away from the boundary. This relatively large innermost buffer is defined in response to a relatively small number of transactions in this area. For the exterior, we define 39 50m buffer rings up to a distance of 1950m to allow for one residual category within the 2km conservation area fixed effects described above. Figure 10 visualises the concept of overlapping buffer rings exemplarily for the conservation areas of West Hendred, Vale of White Horse and Oxfordshire. The situation of overlapping buffers is particularly interesting as one has to account for the external effect of proximity to two (or more) conservation areas on the price of a given property. This specific analysis is part of research question 2 *(heritage externalities)* introduced in section 2.2.

[23] In the same way we control for specific conservation area effects associated with a condition or vulnerability score of zero.

Figure 10 Buffer rings inside and outside of conservation areas



In our baseline equation, we define indicator variables that take the value of one if a property falls into a given internal (*ID*) or external (*ED*) distance interval, measured from the boundary of the nearest conservation area.

$$\log(P_{it}) = \alpha + \sum_u \beta_u ID_{uit} + \sum_v \beta_v ED_{vit} + \sum_{h \neq DES} \beta_h H_{hit} + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \quad (3)$$

In an alternative specification, we replace each of the outer dummy variables with a count measure for the number of distance interval buffers surrounding different conservation areas a transaction falls in. With this specification we account for the potentially complementary effect of having more than one conservation area nearby. For both alternative specifications the coefficients and 95% confidence intervals are plotted against distance and jointly form the non-linear heritage externality function.

Time-varying conservation area effects (3)

To assess how the effect of locating inside or near a conservation area on the value of a property changes over our study period, we extend specification (1) to account for the interaction effects of the heritage premium and time. Assuming a linear trend in relative appreciation rates, we introduce a variable denoting the year in which a property was sold ($TREND_t$).

$$\log(P_{it}) = \alpha + \sum_z \vartheta HA_{zi} + \sum_z \beta_z TREND_t \times HA_{zi} + \sum_{h \neq DES} \beta_h H_{hit} + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \quad (5)$$

, where HA_z denote our treatment areas of interest, for which an associated location premium is allowed to vary over time. We define two such treatment areas, a) all postcodes inside a conservation area, b) all postcodes within a 500m buffer ring. The coefficients β_z on the interactive terms HA_z *x TREND* then give the average yearly appreciation of properties located in these areas relative to the control areas defined as 500-2000m buffer around the conservation areas in the sample. Note that in this specification we focus on general trends of locations inside and near conservation areas irrespectively of changes in designation status. We control for the designation status via a dummy variable that denotes transactions taking place inside a conservation area whenever an area is not designated by the time a transaction takes place.

As a variation to specification (5) we replace the yearly trend variable with a full set of time effects (*T*) so that the heritage premium is allowed to vary more flexibly over time. Since we exclude the interactive term for the first year, all β_{tz} reflect treatment effects relative to the base year 1995.

$$\log(P_{it}) = \alpha + \sum_z \vartheta HA_{zi} + \sum_{t \neq 1995} \sum_z \beta_{tz} HA_{zi} \times T_{it} + \sum_{h \neq DES} \beta_h H_{hit} + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \quad (6)$$

Difference-in-difference analysis of designation effects (4)

In the last step of our analysis, we focus on the pure policy effect that is associated with the designation of a conservation area. Assuming that the heritage character of areas does not change subsequent to designation and an appropriate control area that provides a plausible counterfactual, the designation effect can be inferred from a comparison of prices before and after designation as well as from comparing locations inside and outside conservation areas. This common method to evaluate the effect of local policies is typically referred to as difference-in-difference (DD) analysis where in this case the first difference is taken over space (inside vs. outside a conservation area) and the second difference is taken over time (before and after designation).

The DD specifications we use are derived from equations (5) and (6). Rather than focusing on the general price trend inside conservation areas, we focus on the price adjustment that occurs following the designation of an area. For our before and after comparison, we can make use of 912 conservation areas that were designated later than 1995, the first year for which we observe property trans-

actions. Our specifications take into account that that these designations happened at different points in time. As before, we consider price adjustments inside a conservation area and spillovers into an area just outside of the newly designated areas.

Therefore we interact the dummy variables denoting our treatment areas HA_z with a dummy variable, which indicates whether, at the time of transaction of property *i*, the respective conservation area had already been designated ($POST_{it}$). Parameter β^{POST} gives the difference-in-difference estimate reflecting the difference in the appreciation of property prices in the treatment group (new conservation area) relative to the control group and can be interpreted as the causal effect of designation on property prices in conservation areas.

$$\log(P_{it}) = \alpha + \sum_z \vartheta HA_{zi} + \sum_z \beta_z^{POST} HA_{zi} \times POST_{it} + \beta_u H_{ui} + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \quad (7)$$

In an alternative specification, we allow for time varying designation effects by grouping transactions into "bins" depending on the number of years that have passed since the conservation area they fall in or are near to had been designated. Negative values indicate years prior to designation. These bins (*b*) are captured by a set of dummy variables PT_b.

$$\log(P_{it}) = \alpha + \sum_z \vartheta HA_{zi} + \sum_{b \neq 0} \sum_z \beta_{tz} HA_{zi} \times PT_{bi} + \beta_u H_{ui} + \sum_j \gamma_j S_{ij} + \sum_k \gamma_k L_{ik} + \sum_l \gamma_l N_{il} + \sum_r \sum_t \varphi_{rt} R_{ir} \times T_{it} + \varepsilon_{it} \quad (8)$$

With this more flexible specification we are able to capture the lagged effects of designation as well as the anticipation effects. H_u indicates controls for transactions in conservation areas where the designation date of the nearest conservation area is unknown.

As with all quasi-experimental analyses, the credibility of the counterfactual rests on the likelihood that the treatment group, in the absence of the intervention, would have followed a trend that is similar to the one of the control group, which is the identifying assumption. An appropriate definition of the control group is a critical element of the identification strategy. Besides using the entire population of transactions inside the 2km conservation area buffer discussed above, we consider a number of smaller sets in which we try to reduce the potential heterogeneity between properties in the treatment and control group. In a first attempt, we reduce the sample to a 2km buffer surrounding conservation areas that changed designation status during the observation period and which form our treatment group: a spatial match. As an alternative, we consider a number of matching proce-

dures that rest on the idea that properties inside conservation areas generally share similarities. Properties in conservation areas that did not change designation status therefore potentially qualify as a control group. To make the areas in the treatment and control group more similar, we select conservation areas based on similarities with those in our treatment group. We use a spatial matching procedure, where we only consider conservation areas within a 2km distance of the treated conservation areas as well as a propensity score matching that makes use of the broad location information we have access to (Rosenbaum & Ruben, 1983). For the matching procedure we only make use of variables that turn out to have significant impact in the auxiliary propensity score matching regressions.[24] We use a kernel density (Heckman, Ichimura, & Todd, 1997) as well as a nearest neighbour matching procedure, which produce a broader and a narrower group.

2.5.2 Empirical Results

Average conservation area effects (1a)

We apply the hedonic price method to our property data set. Therefore, we regress the collected sales prices per square metre on varying sets of control variables that capture property and location characteristics (see 2.2). Throughout all stages of the analysis we focus the presentation and discussion of results on the variables of interest.

We start with the cross-sectional hedonic price equation (1), which corresponds to a regression of the (log) sales prices per square metre on a dummy variable that indicates whether a property is sold inside a conservation area, distinguishing between three mutually exclusive categories: transactions that occur while the conservation area has designation status, before the time when the conservation area has been designated, and where the designation date is unknown (about 0.4% of the cases). The regression coefficient, following the usual transformation, gives the average premium in percentage terms at which properties inside conservation areas sell relative to all other properties.

Table 9 presents the results of regressions where we subsequently introduce variables that capture observable characteristics of the properties and their locations. Throughout all models transactions inside conservation areas, no matter to which of the three abovementioned categories they belong, sell at a significant premium. These premia decrease as the strength of the controls is increased. Interestingly, the premium is consistently higher for properties that sell inside conservation areas with

[24] A list of significant controls in propensity score matching regressions is included in the appendix.

designation status. We focus on the causal effect of designation on the property price more explicitly in the context of research question (4), but these results give a preliminary indication that the *policy effect*, which comes in addition to the *heritage effect* discussed above, might at least not have a significantly negative effect on property value. While the unconditional estimates (except for time effects) in column (1) show premia that are in the range of the descriptive evidence presented above, the effect comes down to about 8.4 per cent for properties inside conservation areas with designation status and 5.2 per cent for those inside conservation areas prior to designation. The premium for properties inside conservation areas where the designation date is unknown is reasonably close to the one estimated for designated conservation areas, indicating that most of the conservation areas in this category enjoyed designation status, even though the information has not yet been added to the records.

The decline in the estimated conservation area premia as controls for property and location characteristics are added indicates that the unconditional premium is partially driven by favourable property and location characteristics that are correlated with a location inside a conservation area. It is notable that the very broad and detailed set of location variables we use contributes significantly to the explanatory power of the model. The inclusion of location (and neighbourhood) variables raises the R^2 from 0.58 to as much as 0.81 (0.84). A detailed description of the control variables used and their generation is in Apendix I.

It would exceed the scope of this report to present and discuss individual coefficient estimates for all control variables. However, it might be interesting in the context of this research that the coefficient on a building's age is significantly positive throughout all specifications, indicating a certain appreciation of historic building stock in general. Figure 11 plots the conditional effect building has on property prices based on the model excluding all locational features (Table 9, column 2) and our preferred specification with strong controls for observable and unobservable spatiotemporal heterogeneity (Table 9, column 7). While we allow for non-linearity using a quadratic functional form, Figure 11 indicates that the age effect follows a positive and approximately linear trend in percentage (log) terms. The age effect is significantly reduced once we control for location (solid line). Still, a 100 years old building sells at a modest but statistically significant premium of about 2 per cent compared to a recently developed property that is otherwise comparable in terms of location and observable building attributes. To the extent that some of the buildings in conservation areas only exist due to the designation status, this age effect might be considered a secondary capitalisation mechanism of a location of a property in a conservation area. We note that we find a statistically significant

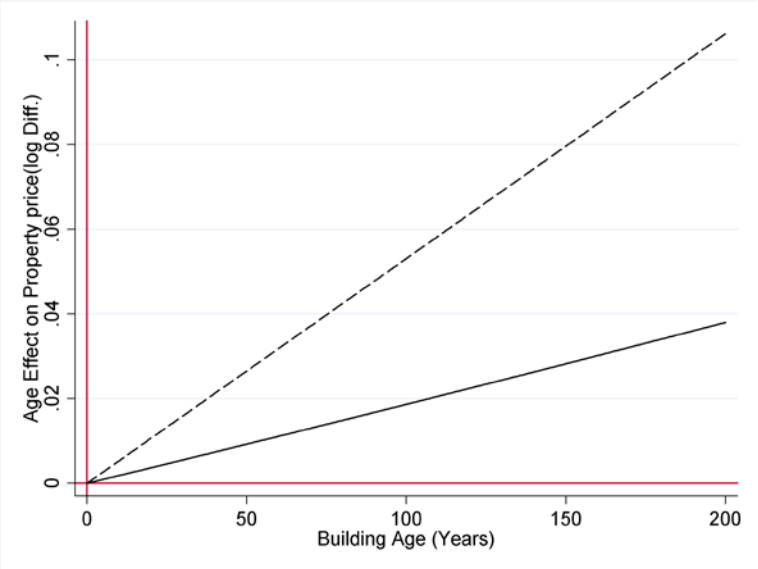
premium that is specific to new properties, i.e. properties that are within one year of their construction date, of about 10 per cent. Despite some notable variation in the point estimate across specifications, our results indicate that these properties that are presumably occupied for the first time sell at higher prices than even very old properties.

Table 9 Conservation area premium - conditional estimates

	(1) Natural logarithm of price per sqm	(2) Natural logarithm of price per sqm	(3) Natural logarithm of price per sqm	(4) Natural logarithm of price per sqm	(5) Natural logarithm of price per sqm	(6) Natural logarithm of price per sqm	(7) Natural logarithm of price per sqm
Transaction inside a conservation area at a time when des.	0.231***	0.196***	0.144***	0.098***	0.091***	0.091***	0.084***
	(0.002)	(0.002)	(0.001)	(0.001)	(0.005)	(0.002)	(0.002)
Transaction inside a conservation area at a time when not designated	0.165***	0.142***	0.036***	0.012*	0.024**	0.028***	0.052***
	(0.009)	(0.008)	(0.006)	(0.005)	(0.009)	(0.007)	(0.006)
Transaction inside a conservation area, designation data unknown	0.304***	0.272***	0.112***	0.080***	0.089***	0.090***	0.090***
	(0.016)	(0.015)	(0.009)	(0.007)	(0.020)	(0.010)	(0.009)
Year Effects	YES	YES	YES	YES	YES		
Hedonics Controls		YES	YES	YES	YES	YES	YES
Location Controls			YES	YES	YES	YES	YES
Neigh. Controls				YES	YES	YES	YES
TTWA Effects					YES		
TTWA x Year Effects						YES	
Nearest CA x Year Effects							YES
Study Area	ALL	ALL	ALL	ALL	ALL	ALL	INSIDE 2KM CA BUFFER
Observations	1088446	1088446	1088446	1088446	1088446	1088446	830055
R^2	0.514	0.580	0.805	0.841	0.863	0.874	0.913
AIC	1135699.9	975387.2	142690.6	-78028.2	-243313.4	-333545.3	-547097.0

Notes: See the data section for a description of control variables. Models include full sets of dummy variables denoting missing observations in location attributes. Standard errors in parentheses and clustered on fixed effects. $^{*}p< 0.05$, $^{**}p< 0.01$, $^{***}p< 0.001$.

Figure 11 Property price effect of building age



Notes: Figure illustrates the estimated effect of building age on (log) property prices based on model (2) (dashed) and model (7) (solid) from Table 9 using a quadratic functional form.

Conservation area effects by type (1b)

To provide conditional estimates on how the estimated conservation area effects vary with observable characteristics of the conservation area, we focus on transactions taking place within conservation areas at a time when these enjoy designation status and interact the respective indicator variable with a set conservation area characteristics as explained in the empirical strategy. We still control for the effects specific to property transactions inside conservation areas prior to designation or where the designation date is unknown, but we no longer report the corresponding findings to improve readability. Table 10 presents the results that correspond to specification (2).

For some features, our estimates consistently support the descriptive evidence from the previous section. Conservation areas with an earlier designation date yield higher premia, possibly due to cumulative effect over time or because the strongest candidates in terms of their heritage characteristics were the first to be selected for designation. Suburban areas tend to realise premia relative to the base category, which is an urban residential area, without discrete characteristics such as Article 4 or World Heritage status. In contrast to the descriptive evidence, our estimates unanimously indicate that the premium increases with the size of the conservation areas, possibly due to scale effects in the perceived heritage character. If significant heritage externalities exist, the mutual interactions that drive prices will be more pronounced in larger areas with more buildings with historic character. This is in line with the effect of the

number of listed buildings inside a conservation area, which is positive in all models with location controls, though not always significant. For other characteristics, the qualitative and quantitative implications depend on the specification chosen, which makes a more careful interpretation warranted. *In dubio*, we recommend an interpretation based on Table 10, column (7), which in our understanding has the strongest controls for observable features and unobserved spatiotemporal heterogeneity.

In this preferred specification, the respective interaction effect indicates a modestly positive, though not statistically significant price premium associated with a property location inside a conservation area with Article 4 status. Apparently, the additional powers to planning control that come with the restriction of "permitted development rights" either do not impose significant net-costs compared to other conservation areas or costs are compensated by associated benefits to the character of the area.

Among the conservation area features that yield a particularly large and consisted effects is the status of being "at risk". Relative to the reference conservation area type, the premium is significantly reduced in all models, by about 50 per cent in our preferred specification (8.2% vs. 4.1%). We note that the risk status we use in the analysis is determined in two standardised national assessments that took place in 2010 and 2011.[25] Since no earlier data is available we have to assume that the resulting assessment is representative for the entire study period.[26]

The assessment of whether a conservation area is defined as being at risk is based on three criteria: the condition, vulnerability and trajectory of an area. For each criterion, a score is generated based on the answers collected in a survey, which are then combined to determine the risk status. It is notable that "vulnerability" includes the Article 4 status among other criteria. Our multivariate analysis holds the effect of this sub-criterion constant by including the respective dummy variable. In model (8) of Table (10), we decompose the composite effect of

[25] The survey has been conducted annually by BDRC Continental since 2008. It explores the “perceived impact of historical features and conservation areas on appeal of properties” and corresponds to online responses of 147 branch managers or senior negotiators from estate agents. The data are used by English Heritage in the production of its *Heritage At Risk* register. We use the ‘2011 and 2010 risk assessments combined’ from the survey, i.e. the 2011 assessment where available and the 2010 assessment where no 2011 assessment is available.

[26] Due to this data limitation it is also not possible to associate changes in risk status with changes in conservation area premia.

being "at risk" into the components condition, vulnerability and trajectory to investigate the direct effects by replacing the "at risk" interactive with interactive effects of the input variables. Not surprisingly, higher risk scores attached to the (physical) condition and the trajectory of a conservation area reduce the premium paid for properties located inside conservation areas. An interesting finding is the significantly positive effect of higher vulnerability scores on prices inside conservation areas. The vulnerability score takes into account the presence of special plans and frameworks that should preserve the area's character and developments that threaten its special interest. Although it is not possible to perfectly disentangle these two alternative sources of vulnerability and risk with our data, it is notable that the positive association of higher vulnerability scores and property prices is in line with higher development incentives in these areas. It is also notable that after replacing the *at risk* dummy variable with the three input variables (condition, vulnerability and trajectory), the *Article 4* status exhibits a small, but positive and significant effect on the conservation area premium.

Table 10 Conservation area effects by attributes

	(1) Natural logarithm of price per sqm	(2) Natural logarithm of price per sqm	(3) Natural logarithm of price per sqm	(4) Natural logarithm of price per sqm	(5) Natural logarithm of price per sqm	(6) Natural logarithm of price per sqm	(7) Natural logarithm of price per sqm	(8) Natural logarithm of price per sqm
Transaction inside a conservation area at a time when designated	0.136***	0.107***	0.097***	0.079***	0.075***	0.075***	0.082***	0.071***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.009)	(0.003)	(0.003)	(0.005)
Transaction inside a conservation area at a time when not designated	0.165***	0.142***	0.035***	0.010*	0.024**	0.028***	0.053***	0.053***
	(0.010)	(0.008)	(0.006)	(0.005)	(0.009)	(0.007)	(0.006)	(0.006)
Transaction inside a conservation area, designation date unknown	0.326***	0.294***	0.120***	0.080***	0.101***	0.102***	0.090***	0.090***
	(0.016)	(0.015)	(0.009)	(0.007)	(0.019)	(0.010)	(0.009)	(0.009)
CA x Area in sqm of CA	0.000***	0.000***	0.000***	0.000***	0.000	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CA x number of listed buildings inside CA	-0.000***	-0.000***	0.000***	0.000***	0.000	0.000***	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CA x Years since designation (relative to 2011)	0.002***	0.002***	0.003***	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CA x CA type: rural	-0.113***	-0.049***	0.048***	0.043***	0.037***	0.036***	0.033***	0.030***
	(0.004)	(0.004)	(0.003)	(0.003)	(0.009)	(0.004)	(0.005)	(0.005)
CA x CA type: suburban	0.065***	0.073***	0.049***	0.034***	0.023	0.022***	0.003	0.003
	(0.005)	(0.004)	(0.003)	(0.003)	(0.018)	(0.006)	(0.004)	(0.004)
CA x CA land use: mixed	-0.112***	-0.106***	0.017***	0.018***	-0.007	-0.005	-0.018***	-0.013**
	(0.005)	(0.004)	(0.003)	(0.003)	(0.010)	(0.004)	(0.004)	(0.004)
CA x CA land use: commercial	-0.100***	-0.127***	0.034***	0.040***	0.027	0.030**	0.016	0.017*
	(0.012)	(0.010)	(0.008)	(0.007)	(0.020)	(0.009)	(0.008)	(0.009)
CA x CA land use: industry	0.123***	0.093***	0.283***	0.195***	0.148***	0.149***	0.076*	0.074*
	(0.025)	(0.024)	(0.020)	(0.018)	(0.035)	(0.028)	(0.033)	(0.033)
CA x CA is in World Heritage Site	-0.036*	-0.002	-0.037***	-0.029***	-0.002	-0.003	0.002	0.001
	(0.015)	(0.013)	(0.009)	(0.008)	(0.044)	(0.016)	(0.016)	(0.016)
CA x CA with local support	0.183***	0.149***	0.016***	-0.007***	-0.004	-0.004	-0.008*	-0.007*
	(0.004)	(0.004)	(0.002)	(0.002)	(0.009)	(0.003)	(0.003)	(0.003)
CA x CA has an Article 4 Direction implemented	0.108***	0.104***	0.019***	-0.008**	0.013	0.014***	0.006	0.010**
	(0.005)	(0.005)	(0.003)	(0.003)	(0.009)	(0.004)	(0.004)	(0.004)
CA x CA is at risk	-0.231***	-0.215***	-0.103***	-0.066***	-0.062***	-0.061***	-0.041***	
	(0.007)	(0.006)	(0.004)	(0.004)	(0.017)	(0.006)	(0.005)	

Conservation area effects by attributes (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CA x Condition score								-0.019***
								(0.003)
CA x Vulnerability score								0.005**
								(0.002)
CA x Trajectory								-0.012***
								(0.003)
Year Effects	YES	YES	YES	YES	YES			
Hedonics Controls		YES	YES	YES	YES	YES	YES	YES
Location Controls			YES	YES	YES	YES	YES	YES
Neigh. Controls				YES	YES	YES	YES	YES
TTWA Effects					YES			
TTWA x Year Effects						YES		
Nearest CA x Year Effects							YES	YES
Study Area	ALL	ALL	ALL	ALL	ALL	ALL	INSIDE 2KM CA BUFFER	INSIDE 2KM CA BUFFER
Observations	1088446	1088446	1088446	1088446	1088446	1088446	830055	830055
R^2	0.523	0.588	0.806	0.841	0.863	0.874	0.913	0.913
AIC	1115308.2	955903.3	137051.8	-80816.1	-246160.9	-336710.1	-548219.8	-548322.1

Notes: See that data section for a description of the controls. All models include a set of dummy variables denoting observations with missing values in conservation area and location characteristics, zero scores in condition, vulnerability and trajectory as well as dummy variables denoting transactions inside conservation areas before the time of designation or where the designation date is unknown. Continuous variables are rescaled to a zero mean before creating the interactive term to improve interpretability. Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Heritage Externalities (2)

The results presented above show that prices are generally higher the larger a conservation area is in which a property is located. Assuming that the *policy effect* associated with a designation of a conservation area does not depend on the size and that the not directly observed *heritage effect* has been separated appropriately from correlated location effects, one interpretation for this finding is that the mutual (positive) external effects among larger numbers of buildings inside conservation areas drive the results. To account for the presence of heritage externalities more explicitly, we extend our specification by spatial variables that should capture otherwise not explained variation in sales prices that presumably can be attributed to external heritage effects. As discussed in the empirical strategy (2.5.1), we define a set of 50m distance rings inside and outside of conservation area boundaries, each one denoted by an individual dummy variable. These variables capture any unobserved spatial variation that is systematically associated with a straight line that orthogonally crosses one of the about 7,800 conservation areas, which are the nearest neighbour to one of the more than 1 million transactions in our sample. We assume that the internal buffer rings capture effects that are associated with the cumulative effect of the mutual externalities of heritage buildings, which should increase as one moves towards the centre of a conservation area. The external buffers capture the effects of spillovers on properties that are located not inside, but near a conservation area. Residents of these properties still benefit from an ease of access to the heritage amenity and potentially derive an aesthetic (or other) utility from a direct proximity.

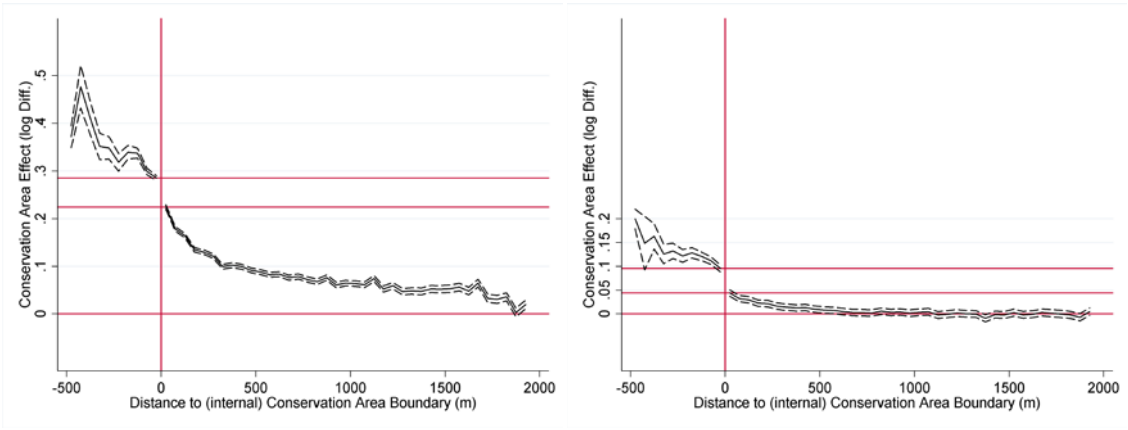
We run specification (3) in the seven variations used in Tables 9 and 10, but limit the presentation to versions that correspond to models (1) and (7) since the other models just yield a mix of both findings as one would expect.[27] In Figure 12, we plot the estimated coefficient estimates jointly with the 95 per cent confidence intervals. In line with the intuition described above, prices decline as one moves towards the conservation area boundary from the inside of the area and as one moves away from the boundary outside the area. As in the previous models, the estimated premia are significantly lower in the model with strong controls (right). Still, the conservation area premium at the boundary (0-50m) of 9.5 per cent roughly doubles once the

[27] As in the estimation tables, the effects measured in log-differences can be interpreted approximately in percentage terms. The exact percentage premium can be computed according to the standard formula (Halvorsen & Palmquist, 1980).

innermost zone is reached (inside the conservation area, but more than 450m from the boundary). Just outside the conservation area (0-50m) there is still a significant premium of close to 5per cent. This external premium declines in distance and becomes virtually zero at about 700m and statistically indistinguishable from zero at about 500m. This spatial scope is very similar to the evidence provided by Ahlfeldt and Maennig (2010), who detect heritage externalities within a range of about 600m, though in a different institutional context (Berlin, Germany). It is notable that this specification chosen proved a different counterfactual for local prices inside the conservation area compared to Table 9 and 10, where heritage spillovers to nearby areas remained unconsidered. Instead of comparing the prices inside conservation are to all prices outside conservation areas, the comparison is made to the outermost distance ring (1950-2000m). As a result, properties benefiting from heritage spillovers of a nearby conservation area are not considered in the counterfactual. To the extent that the price effects found near to conservation areas are driven by external heritage effects, this refined specification gives a cleaner estimate of the conservation area premium.

Another interesting feature of Figure 12 is the relatively steep decline in prices per square metre as one moves from the inner 0-50m ring to the outer 0-50m ring (about 5%). Notably, the discontinuity seems considerably more pronounced in the model with strong controls (right). Several (non-exclusive) explanations may account for this pattern. Firstly, the external heritage effect will decline abruptly as one moves out of the conservation area if a significant proportion is attributable to an aesthetic utility and the visibility of historic properties, which in most settings is limited to a very local area, e.g. due to narrow streets and frequent corners. Secondly, there could be an internal heritage effect, which determines the boundary of the conservation area, and directly capitalises into the price of buildings with such characteristics. Thirdly, there may be other benefits such as a specific place identity and a particular community involvement from which residents receive a utility and which are exclusive to the area inside the conservation area boundary. Minimally, however, our results again indicate that the potentially negative policy effects associated with a location in a conservation area on property values, if at all present, are relatively small compared to the (internal and external) heritage benefits.

Figure 12 Heritage externalities - buffer dummies



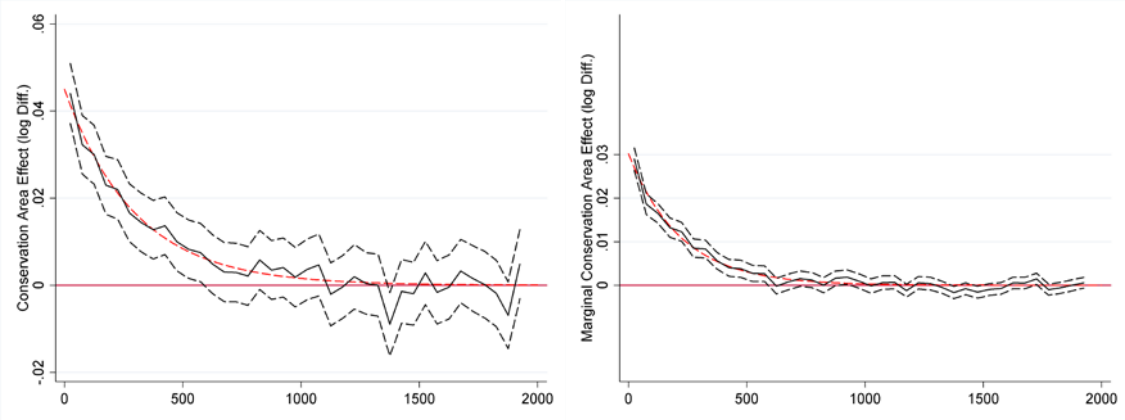
Notes: Both figures are based on equation (3) type estimations using dummy variables denoting buffer rings. The left (right) figure uses the controls from Table 9, column 1 (7). The black solid line connects the point estimates, centred on the middle of a distance interval (e.g. 25m for 0-50m), the black dashed lines similarly indicate the 95% confidence intervals.

One limitation of the specification with dummy variables based on a specific distance interval to the *nearest* conservation area is that it ignores the potentially complementary effect of having more than one conservation area nearby. Since conservation areas are frequently designated in clusters, i.e. close to each other, the specification above will not only capture the value associated with the nearest conservation area but also with other nearby areas. To overcome this limitation we refine our proximity measure for the external heritage effects. Instead of using (0,1) dummy variables that indicate whether a property locates within a given distance interval from the nearest conservation area (e.g. 0-50m), we use a variable that counts the number of distance buffers (e.g. 0-50m) around all conservation areas a property falls in. With multiple nearby conservation areas, this variable takes values larger than one and the respective coefficients then give the marginal effect associated with having one additional conservation area at a given distance.

Figure 13 compares the estimated external conservation area effects based on the dummy (left) and the count (right) measure using the specification with the strong controls (Fig. 7, right, Table 9, column 7). The results generally shoe a very consistent pattern. In both cases the externality effect declines roughly at an exponential rate, as evident from a comparison with the dashed red line, which represents an exponential function that we fit into the point estimates. We note that this is an important finding, relevant even beyond this research project, since it supports the general exponential decay in the spatial effect of various amenities. It is frequently assumed *a priori* in empirical and theoretical urban economics research. The

point estimates in the count model (right) are somewhat smaller compared to the buffer dummy model (left), which is conclusive as they refer to the marginal effect of *one* nearby conservation area, while the dummy coefficients capture the effects of *several* nearby conservation areas. Both models yield a very consistent scope of the spatial externality, which becomes statistically indistinguishable from zero just after 500m in each case. It is notable that the estimated decay function based on the count measure resembles the one found by Ahlfeldt and Maennig (2010) not only in terns if the spatial scope but also in terms of the marginal effect close to the boundary. An additional conservation area adjacent to a property increases its value by about 3 per cent, which is about the effect Ahlfeldt and Maennig found for nearby monuments and landmarks in Berlin.

Figure 13 External conservation area effects - buffer vs. count measure



Notes: Both figures are based on equation (3) type estimations using the controls from Table 9, column (7). The left (right) figure is based on dummy variables that indicate a location within a given distance to the nearest conservation area (a count of conservation areas within a given distance). The black solid line connects the point estimates, centred on the middle of a distance interval (e.g. 25m for 0-50m), the black dashed lines similarly indicate the 95% confidence intervals. The red dashed line shows an exponential function fitted into the point estimates.

Time-varying conservation area effects (3)

In addressing research question 1 we have estimated the average premium associated with a property's location inside a conservation area across all types of conservation areas and the entire study period (*1a*). We have also investigated how the premium varies with respect to several characteristics of an area (*1b*) and in distance to a conservation area (*2*). We now turn our attention to a potential heterogeneity in the conservation area effect with respect to time. Identifying the effect that the incidence of a designation has on property value will be the objective in the next section. For now, we control for the designation effect through a variable that denotes the designation status and focus on the change in the conservation area effect

over our 15-year study period while looking at all conservation areas, including those that do not change designation status.

To identify a time-varying component in the effect a location inside or close to a conservation area has on the value of a property, we define a variable that indicates a location inside (*internal*) or near to (e*xternal*) a conservation area that has been designated at any point in time during the study period. We then interact these dummy variables with a linear time *trend* to estimate the average yearly appreciation of properties falling into each of these groups relative to properties that are further away from a conservation area. The 500m threshold is chosen in light of the results presented and discussed in the section above. Table 11, column (1) presents our estimates based on our preferred and most demanding baseline specification (Table 2, column 7). We find a highly statistically significant and positive effect of a location in either of the groups on appreciation. On average, prices of properties inside conservation areas grew at a rate that exceeded the one of those in the control group by about 0.2 per cent a year. Property prices close to conservation areas, still increased at a relative rate of about 0.1 per cent per year.

To allow for more flexibility in the functional form of the time-varying component, we replace the trend-based interactive terms with a full set of treatment x year dummies, omitting 1995, which then serves as a base year. Baseline results are in column 2 of Table 11. The time-varying treatment effects are plotted in Figure 14. The time varying treatment effects support the finding of positive relative appreciation trends, showing that price growth in both treatment areas has steadily outperformed the control group. Notably, the time-varying treatment effects indicate that the relative appreciation in the *internal* area was particularly large during the period from 1995-2000. In the *external* area, relative growth follows a more regular trend.

There are at least two alternative (non-exclusive) explanations that can account for the higher long-run appreciation. On the one hand, relative prices will increase if there is a shift in relative demand, i.e. because people increasingly value proximity to heritage sites because of a change in preferences. On the other hand, following Hilber and Vermeulen's (2011) argument, prices will respond relatively stronger to positive income shocks in areas where supply is more constrained. Historic designation potentially constraints supply of housing by limiting the degree to which new buildings can be developed or existing buildings can be extended. If this is the case, a demand driven increase in price will lead to a potential spillover of demand into neigh-

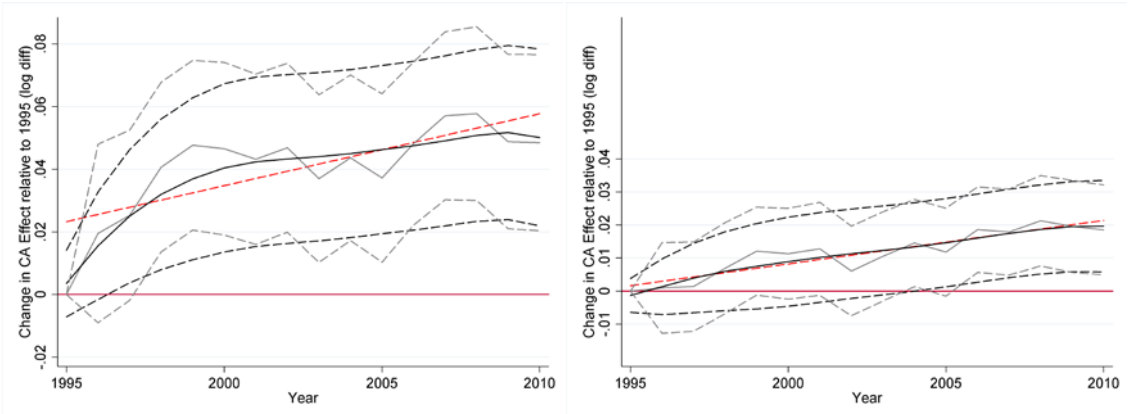
bouring areas and to subsequent price increases. It is, therefore, difficult to separate the origins of the detected price effect into demand and supply side factors.

Table 11 Conservation area effects - trends

	(1) price		(2) price
Internal x Trend	0.002***	(0.000)	
External x Trend	0.001***	(0.000)	
Internal x Year Effects			YES
External x Year Effects			YES
CA Area Controls	YES		YES
Hedonics Controls	YES		YES
Location Controls	YES		YES
Neigh. Controls	YES		YES
Nearest CA x Year Effects	YES		YES
Study Area	INSIDE 2KM CA BUFFER		INSIDE 2KM CA BUFFER
Observations	830055		830055
R^2	0.913		0.913
AIC	-548371.3.3		-548436.3

Notes: Conservation area controls include a dummy variable for whether a transaction falls into the boundaries of a CA (internal) or into a 500m buffer (external) as well dummies indicating if at the time of a transaction a CA was designated or the designation data is unknown. Coefficients for specification (2) are visualised in Figure 14. See the data section for a description of control variables. Models include full set of dummy variables denoting missing observations in location attributes. Standard errors in parentheses and clustered on fixed effects. $^{*}p< 0.05$, $^{**}p< 0.01$, $^{***}p< 0.001$.

Figure 14 Time-varying effects



Notes: Both figures illustrate the results of one estimation of specification (6). Baseline results are in Table 11, (2). Time-varying treatment effects for the *internal* (*external*) area are illustrated in the left (*right*) panel. Black lines show the lowest smoothed point estimates (solid) and confidence intervals (dashed) of the treatment effects relative to the base year (1995). The actual estimates are in grey. The dashed red line represents a linear fit to the point estimates.

Difference-in-difference analysis of designation effects (4)

Throughout the previous analysis we treated the conservation area effect as a composite of internal and external *heritage effects*, i.e. effects associated with the distinguishing character-

istics of the buildings in a conservation area and the neighbourhood character they constitute, as well as a *policy effect* that is associated with the legal status a conservation area enjoys. While we have implicitly assumed that the otherwise unobservable character of an area, including the buildings therein, should have a positive effect on the willingness to pay of potential and actual buyers, the effect is less clear for the designation status itself. On the one hand, there may be a premium associated with the security that the status-quo in the areas is preserved by legislation. On the other hand, the legislation, by limiting changes that can be made to a building, could decrease the attractiveness of a property to the owner, potentially reducing the willingness to pay. Separating the two effects is difficult since the unobserved building characteristics that lead to designation are obviously correlated with the designation status and the policy treatment.

To separate the pure effect of designation associated with a designation status from the unobserved local characteristics we can make use of 912 new designations that occurred after 1995 so that we can observe how prices respond to the policy treatment. With the difference-in-difference specification (7), we establish a counterfactual for the price trend in the treated areas via a control group while at the same time controlling for unobserved differences between the two groups that are time-invariant. While this is a powerful identification strategy in theory, the credibility of a causal effect derived from such an identification strategy rests on an appropriate control group. Such a group of observations, which is not treated but shares many similarities with the treatment group, is more difficult to find in quasi-experiments than in actual experimental research, from which the methodology is borrowed. In response to these concerns, Table 12 presents treatment estimates using a range of different treatment groups. We use our most demanding baseline specification (Table 9, column 7) as a starting point, since we believe it is particularly important to control for unobserved spatiotemporal heterogeneity at a very local level in a specification that identifies the treatment from a comparison over time and –on a very disaggregated scale - across space.

The benchmark specification uses all properties that lie within 2km of the nearest conservation area. As was the case for the time-varying treatment estimates presented above, we define two HA_z dummies, one for transactions inside conservation areas and another for transactions inside a 500m buffer drawn around the conservation areas that were designated during the study period. Effectively, this specification estimates the effect of two related, but technically

separate treatments at the same time: being located in a conservation area that is being designated and locating close to such an area while being exposed to potential spatial spillovers.

One interesting finding of Table 12, column 1 is that the coefficient on the inside dummy variable ($HA_{z=inside}$) with about 3.5 per cent is very close to the difference between the effects found for properties inside conservation areas being designated and those within conservation area boundaries prior to designation (0.086 vs. 0.053, see Table, 9, column 7). At the same time, we do not find a statistically significant designation effect. This indicates that the difference between the two groups found in Table 9 is not driven by the varying designation status, but by otherwise unobservable correlated characteristics. This is in line with the general finding that conservation areas with earlier designation dates tend to produce higher premia compared to those designated more recently (see Table 10 and the descriptive section). As discussed previously, there are at least two possible explanations for this pattern. Firstly, the strongest candidates may have been the first to be selected for designation. Secondly, it may take some time for a conservation area to diverge substantially in appearance from an otherwise comparable, but not designated area. It is difficult to separate the two effects with the data available. However, our results suggest that if a cumulative designation effect over time existed, a significant capitalisation effect on average would take longer than our observation period (about 15 years).

The designation effect is also very close to and not statistically significantly different from zero in a range of specifications where we try to match treatment and control groups more closely. This is true both when we increase homogeneity based on space or based on a matching on observable location characteristics. In model (2), we consider only a 2km buffer surrounding the treated conservation areas. Model (3) reduces the control group to properties within conservation areas that are within 2km of the treated areas (and do not change designation status during the observation period). In models (4) and (5) we use a propensity score matching procedure to find a subset of similar, untreated conservation areas that serve as a control. We use kernel (4) as well as nearest neighbours (5) matching to define a broader and a narrower treatment group.

One final concern with model (1) in Table 12 is that the designation effect could be confounded with the general appreciation trend in conservation areas found in the section above. A positive trend associated with the value added to a property due to a location inside a conser-

vation area irrespectively of changes in designation status could mask a negative designation status, even though our specification is set up to minimise such problems through strong controls for unobserved spatiotemporal heterogeneity. In column (6), we therefore repeat column (1) estimates including the full set of time-varying treatment measures used in Table 11, column (2) and Figure 14. Reassuringly, the point estimate changes only marginally.

Another interesting feature of models (1), (2), and (6) is that we find a moderate, but positive and significant treatment effect for the buffer areas surrounding the treated conservation areas. Such a joint effect of an insignificant designation effect inside and a positive effect just outside conservation areas can be explained with the presence of countervailing effects associated with the policy that cancel each other out inside, but not outside the conservation area. As discussed, the policy potentially delivers cost and benefits to owners in conservation areas. On the benefit side, owners gain from a sense of security regarding the appearance of their neighbourhood. On the cost side, owners face potential costs from some restrictions regarding possible alterations of their properties. At the edge of a conservation area, property owners may receive some of the benefits, while not being exposed to the cost. Evidence for such a pattern, however, can be interpreted as weak at best, given the insignificant results when using the particularly carefully selected control groups in (4) and (5).

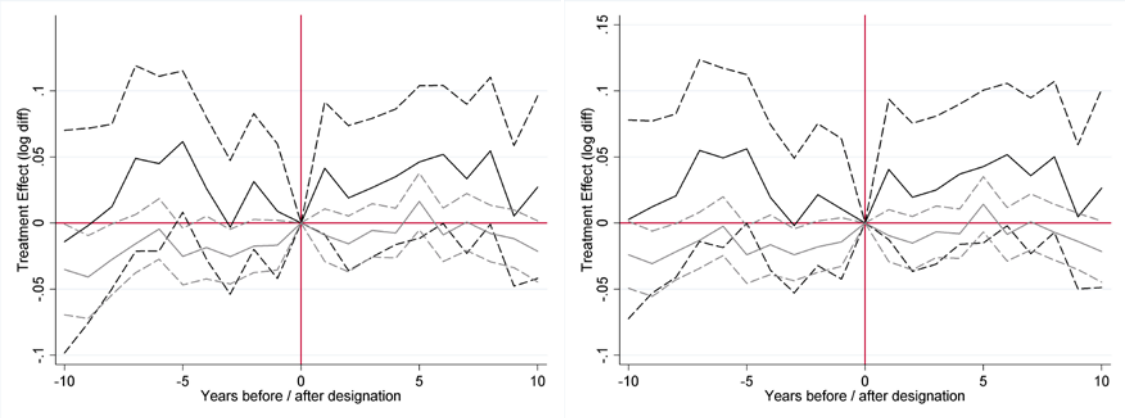
Overall, the evidence provided suggests that the policy effect seems to be small both inside as well as near to conservation areas, indicating that the positive composite price effect found in the previous specifications is likely to be caused by correlated internal and external heritage effects rather than the designation policy itself. This notion is supported by the results of a specification-(8)-type estimation where the designation treatment effect is allowed to vary by years prior to and after designation to account for potential anticipation and gradual adjustment effects (see Figure 15). We exemplarily show the estimation results for two specifications with time-varying designation effects that correspond to models (1) and (2) in Table 12. While there is some volatility in the relative trend, the results do not reveal a conclusive pattern that would support the existence of a positive adjustment around the designation dates in either case.

Table 12 Conservation area premium - designation effect

	(1) Natural logarithm of price per sqm	(2) Natural logarithm of price per sqm	(3) Natural logarithm of price per sqm	(4) Natural logarithm of price per sqm	(5) Natural logarithm of price per sqm	(6) Natural logarithm of price per sqm
Inside treated CA x Post Designation	0.013	0.010	-0.004	0.019	-0.180	0.005
	(0.010)	(0.010)	(0.013)	(0.066)	(0.189)	(0.010)
Within 500m Buffer of treated CA x Post	0.017***	0.014***	0.007	0.008	0.013	0.014***
	(0.004)	(0.004)	(0.009)	(0.010)	(0.011)	(0.004)
Inside treated CA	-0.036***	-0.021**	-0.025*	0.002	-0.019	-0.033***
	(0.007)	(0.007)	(0.010)	(0.049)	(0.114)	(0.007)
Within 500m Buffer of treated CA	-0.007*	0.001	0.004	-0.004	0.010	-0.006*
	(0.003)	(0.003)	(0.008)	(0.008)	(0.008)	(0.003)
CA Effects	YES	YES	YES	YES	YES	YES
Hedonic Cont.	YES	YES	YES	YES	YES	YES
Location Cont.	YES	YES	YES	YES	YES	YES
Neigh. Cont.	YES	YES	YES	YES	YES	YES
Nearest CA x Year Effects.	YES	YES	YES	YES	YES	YES
Internal x Year Effects						YES
External x Year Effects						YES
Control Area (excluding treatment)	2KM BUFFER (ALL CAs)	2KM BUFFER (TREATED CAs)	INSIDE CAs WITHIN 2KM OF TREATED CAs	INSIDE CAs MATCHED ON KERNEL	INSIDE CAs MATCHED ON NEAREST NEIGHBOR	2KM BUFFER (ALL CAs)
Observations	830055	301978	93446	104658	109045	830055
R^2	0.913	0.921	0.934	0.937	0.931	0.913
AIC	-548479.1	-196404.3	-67424.3	-83152.2	-82062.5	-548654.4

Notes: CA Effects are dummies for internal and 500m buffer rings around all CAs, a dummy for unknown designation date, and post x update interactives for the internal and external area. See the data section for a description of control variables. Models include full set of dummy variables denoting missing observations in location attributes. Standard errors in parentheses and clustered on fixed effects.. $^{*}p< 0.05$, $^{**}p< 0.01$, $^{***}p< 0.001$.

Figure 15 Time-varying designation effects



Note: Estimates are based on specification (8) using the same control variables and the control group as in Table 12, column 1 (left) and 2 (right). Black (grey) solid lines indicate the point estimates for the area inside newly designated conservation areas (in the 500m buffer).Dashed lines indicate the 95% confidence intervals.

2 . 6 Concluding remarks

Internationally, historic preservation policies are among the most significant planning policies used to overcome coordination problems in the market. These policies aim to increase social welfare at the cost of restricting individual property rights. Assuming that the overall cost and benefits of the owners of properties inside or near to conservation areas are reflected in the price of the corresponding properties, we investigate the effects conservation areas have on value in England in a spatial hedonic analysis of property prices.

First descriptive evidence suggests that properties inside conservation areas sell at significant premia, although the effect varies substantially across types of conservation areas, types of buildings, and regions. This finding is confirmed by a hedonic regression analysis where conservation area effects are estimated conditional on a broad set of control variables including property and location characteristics (*average conservation area effects)*. Even when controlling for a particularly rich set of property and location attributes and unobserved spatiotemporal heterogeneity, our conditional estimates indicate a premium of about 8.5 per cent for otherwise comparable properties located inside a conservation area. The premium even increases to 9.5 per cent if the external on nearby areas is accounted for. This indicates that the cost to the owners associated with restricted opportunities to extend and modify their properties is overcompensated by positive factors associated with a location inside a conservation area. These potentially include the internal and external heritage character of buildings in the area, a certain security regarding the future appearance of the neighbourhood or forms of

social capital, place identity and community involvement that are specific to conservation areas. It is, however, not possible to separate these potential determinants based on the findings from the quantitative analysis alone.

Moreover, we find evidence that significant heritage externalities exist as indicated by premia that increase in the size of conservation areas and significant spillovers to nearby areas, which are otherwise difficult to explain. In line with previous evidence from other institutional contexts (see the literature review) we find that these externalities, which are at the heart of the motivation for preservation policies, potentially account for up to 4 per cent of the value of properties located just outside conservation areas and become statistically indistinguishable from zero after about 500m. Within this range, our non-parametric estimates indicate that the effect declines in distance following an exponential decay function. Within conservation areas, moving towards the centre where heritage density is highest, increases the premium by up to 100 per cent compared to a location at the edge the conservation area boundary *(heritage externalities)*.

From a comparison of property prices across space and time we find that the property price premium attached to a location inside as well as near to a conservation area has significantly increased over time *(time-varying conservation area effects)*. The formal act of designation at the same time does not exhibit a statistically significant impact on property prices inside a conservation area when comparing the trend to carefully selected properties outside the newly designated areas *(difference-in-difference analysis of designation effects)*. From the analysis of *price adjustments* it is possible to conclude that in the *short-run*, designation has a neutral effect on property price, indicating that the positive and negative effects to the owner, if existent, cancel out each other. It is, however, difficult to separate the determinants of the *long-run* appreciation trend within conservation areas into demand (change in preferences) and supply (building constraints) side factors without an analysis of quantity adjustments, which are outside the scope of this report. We note that from the results presented it is not possible to conclude on the (non-)existence of demand or supply driven price spillover effects of conservation areas to the wider housing market area. Also, the even broader potential benefits to potential visitors, future generations and those who value heritage directly and irrespectively of a physical contact remain outside the scope of our analysis.

Overall, our results suggest that the pure *policy effect,* i.e. the effect associated with the specific legal treatment that comes with the act of designation, is relatively small and that the relatively high prices realised inside and near to conservation areas result from an appreciation of a particular character that is specific to these areas - a *heritage effect*.

3 Qualitative Analysis

This section of the report will comment on the findings of the qualitative research that has been conducted in our selected conservation areas, which are outlined below. The overall purpose of the qualitative analysis is to add depth to the quantitative analysis, which has examined the economic impacts of conservation area designation through a combination of descriptive statistics as well as hedonic property price and difference-in-difference analysis. We therefore seek to examine the 'soft' impacts of conservation area designation through the use of structured interviews with residents, property professionals and conservation area officers. Based on the residential interviews, we are also able to associate individual price premia estimated for conservation areas with area characteristics such as aesthetic quality or perceived cost of planning constraints, which are otherwise difficult to include in a quantitative analysis. We note that the surveys are not designed to be representative so that our results do not necessarily generalise to the entire population living in conservation areas.

3.1 Key questions and context

The qualitative analysis is designed to open out our reading of the policy effect of designation into the purported softer benefits of living in a conservation area. Government publications list these benefits as wide-ranging including environmental quality, place based identity, more active social communities and better quality more creative new build in Conservation Areas.[28] In order to better understand these more intangible policy impacts we propose to undertake a series of structured interviews with conservation area officers, property professionals and residents in selected CAs.

Our questionnaire (a copy of which is located in Appendix II) was designed to illicit opinions on the themes of environmental quality in both the built and natural environments; perceptions of property value; place-based identity and levels of community engagement; and, for homeowners, experiences with planning applications both in terms of applying for permission and objecting to neighbours' applications. Through these questions we hoped to better understand both the values residents placed on their neighbourhoods and their perceptions of the lived experience of conservation area planning.

[28] See for details HM Government (2010): *The Government's Statement on the Historic Environment for England*. London: DCMS.

Our residential survey covered in total 111 respondents using a survey of 47 questions of both a quantitative and qualitative nature. The analysis of the survey results proceeds in two main stages. In the first stage we conduct a descriptive quantitative analysis of a broad range of quantitative multiple-choice questions. The objectives at this stage of analysis are twofold. Firstly, we further explore the origins of the significant variation in conservation area premia found in the quantitative part of the paper. In particular, we investigate how individual conservation area premia can be associated with the perceived attractiveness and distinctiveness of the built environment and the perceived constraints to alterations of properties. Secondly, the quantitative summary of the survey results gives an overview of the emerging pattern on perceived costs and benefits associated with living in a conservation area, which helps to guide the in-depth textual analysis of the qualitative answers. In the second stage we substantiate our findings based on a textual analysis of the more open questions in which respondents were allowed to comment relatively freely on the positive and negative factors they relate to living in a conservation areas. Linking to the first stage, the three core themes we focus on in this second stage are perceptions of property values, perceptions of the built environment and overall attitudes toward planning. Before we present our findings from the survey analysis, we describe the selection process of our study areas, of which the estimation of individual property price premia is an essential ingredient.

3 . 2 Conservation area premia

The selection process for our study areas is based on the property price premia realised inside conservation areas, among other criteria. Before discussing the selection process in detail, we present our estimation strategy for individual conservation area premia and the resulting distribution in this section. We note that we will not only use these premia in the selection process, but also in a comparison with selected indices generated based on the residential survey outcome. With this approach it is possible to shed some light on the origins of heterogeneity in conservation area premia that cannot be investigated with typical quantitative data alone.

We estimate individual premia for a sample of about 2,907 conservation areas with a minimum number of transactions inside and outside the area. Essentially, we compare the adjusted mean (log) property prices per square metre of properties located inside one of these conservation areas to the respective mean price inside a 1km buffer area surrounding the conser-

vation areas. We run individual regressions for each conservation area *j* to control for the effect of the timing of transactions.

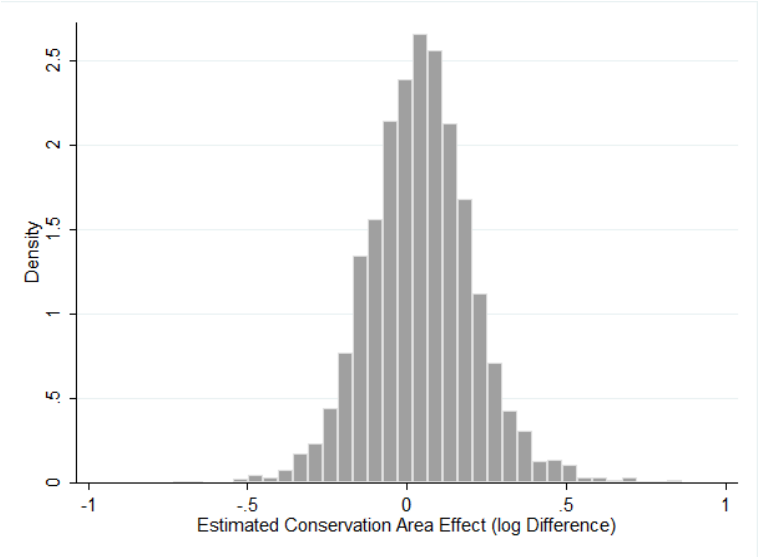
$$\log(PSQM_{ij}) = \alpha_j + \beta_j CAD_{ij} + \xi_j YEAR_t + \varepsilon_{ij} \quad (9)$$

where PSQM is the price per square metre floor space, CAD_j is a dummy variable denoting transactions inside conservation area *j* and *YEAR* is a yearly trend variable. We use an algorithm that selects conservation areas based on a minimum number of five transactions inside a conservation area and at least another five inside the 1km buffer area, but outside any other conservation area. With this procedure, the individual conservation area premium $\widehat{\beta_j}$ can be recovered, mapped and investigated with respect to the local characteristics. Unlike the approach used in the quantitative section, the resulting premia are adjusted for the timing of the transaction and – through the use of per square metre prices – the size of a property only, but are otherwise unconditional. By focusing on a small area inside and outside a conservation area boundary, we hold most of the location factors constant so that a resulting premium reflects the gross effect of the overall differences in the built environment, including *internal* and *external* heritage effects.[29] The advantage of this approach is that instead of an estimate of the average conservation area effect, we obtain the full distribution of individual effects, though limited to conservation areas with sufficient transactions inside and just outside the boundaries.

Figure 16 shows the distribution of conservation are premia ($\widehat{\beta_j}$), which, in line with the evidence provided in the previous section is centred on a positive mean. Moreover, the histogram shows that there is a significant degree of dispersion in conservation area effects, whose origins we investigate in this section.

[29] The limited use of control variables is also motivated by the low number of minimum transactions (five inside and five outside the conservation area boundary), which helps to increase the number of conservation areas considered.

Figure 16 Conservation Area Effects - Histogram

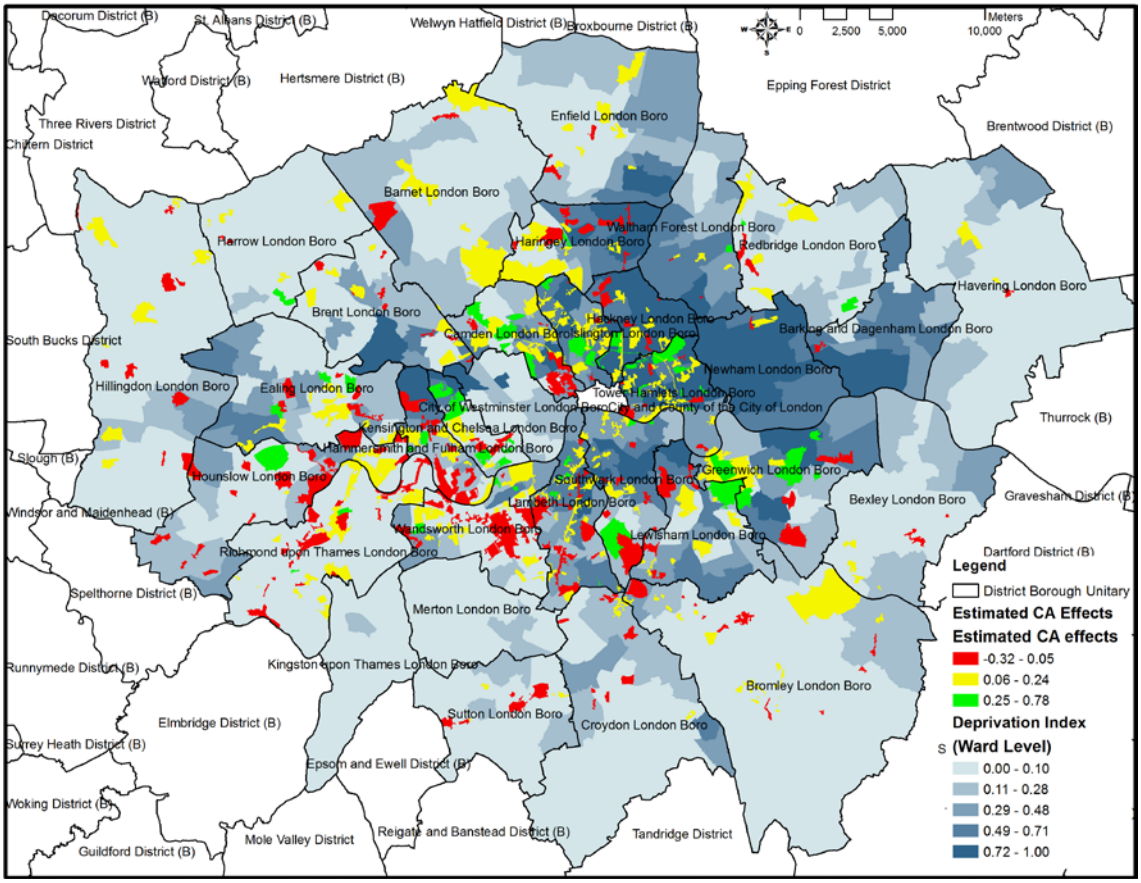


Notes: Figure plots the distribution of individual conservation area effect plotted according to equation (9).

Figure 17 plots the estimated premia for 513 conservation areas in the Greater London Area (GLA) area against the background of the 2007 Index of Multiple Deprivation, which is one of the section criteria for our conservation areas. The Index of Multiple Deprivation is a well-established measure of deprivation used in English local government, which is comprised of weighted and combined measures of deprivation in the areas of income, employment, health and disability, education (skills and training), barriers to housing and services, crime and the environment. We distinguish between three categories of conservation area premia: High (green), average (yellow) and low (green). The boundaries of the categories are chosen using the Jencks (1977) algorithm, which maximizes differences across categories and minimises differences within.

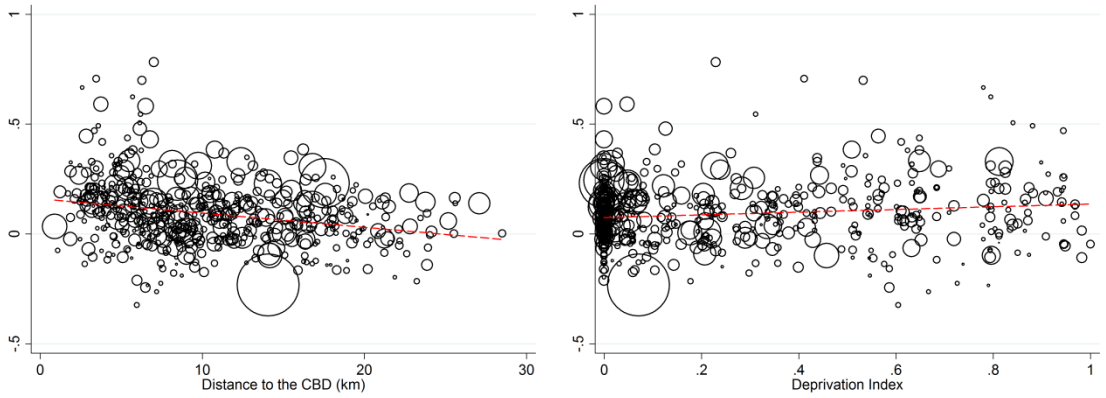
Figure 18 illustrates the correlation of the premium realised and two of our main selection criteria for the qualitative case studies. The scatter plots indicate a weakly positive (negative) relationship with the deprivation in the area (distance to the CBD), although there is substantial variation in the effect.

Figure 17 Conservation area premia and deprivation in Greater London I



Notes: Conservation area premia are estimated according to equation (1) and the basic selection criteria discussed above. We use the Index of Multiple Deprivation, which is a well-established measure of deprivation used in English local government.

Figure 18 Conservation area premia and deprivation in Greater London II



Notes: Conservation area premia are estimated according to equation (1) and the basic selection criteria discussed above. We use the Index of Multiple Deprivation, which is a well-established measure of deprivation used in English local government. Distance to the CBD connects the geographic centroid of a conservation area with the location of the tube station Holborn via a straight line. The size of the circles indicates the size of a conservation area in terms of total land area.

3 . 3 Case study selection

Our area selection was guided by the quantitative data and relies on the estimated conservation areas premia described above. We choose both high and low premium conservation areas in inner and outer London in deprived and less deprived wards based on the 2007 Indices of Multiple Deprivation. We also selected two areas outside of London with high and low premia. The following schematic explains the selection process:

Table 13 Case study selection for qualitative interviews

Step 1	Step 2	Step 3	Step 4
Inner London	High Premium	High Deprivation	De Beauvoir (Hackney)
		Low Deprivation	Ladbroke (RBKC)
	Low Premium	High Deprivation	St Marks (Hackney)
		Low Deprivation	Courtfields (RBKC)
Outer London	High Premium	High Deprivation	Brentham Gardens (Ealing)
		Low Deprivation	Sheen Road (Richmond)
	Low Premium	High Deprivation	Bowes Park (Haringey)
		Low Deprivation	St Matthias (Richmond)
Outside London	High Premium	X	Riverside (Gravesham)
	Low Premium	X	Overcliffe (Gravesham)

Notes: The selected conservation areas are mapped in Figure A2 in Appendix II.

These areas were also varied in terms of their application of Article 4 Directions and whether or not there was an active amenity society in the area. Whilst our first consideration was to select areas that met the criteria contained in Table 13 it was felt that it was also important to cover these aspects of conservation areas where practicable. The next table (14) lays out these conditions in each conservation area.

Table 14 Conservation areas descriptive characteristics

Conservation Area	Article 4	Amenity Society
De Beauvoir	YES (2008)	YES (and is associated also with the Kingsland Society for the purposes of planning)
Ladbroke	YES (VARIOUS - done via street and property)	YES (Ladbroke Association)
St Marks	YES (2008 - not all properties covered)	YES (Covered by the Dalston group)
Courtfields	YES (VARIOUS - done via street and property)	NO (but there is a society based around the garden)
Brentham Gardens	YES (1976)	YES (Brentham Garden Suburb)
Sheen Road	YES (VARIOUS - done via street and property)	NO
Bowes Park	NO	YES (Bowes Park Community Association for both Ealing and Haringey)
St Matthias	YES (VARIOUS - done via street and property)	NO
Overcliffe	Yes (2008)	NO
Riverside	Yes (2008)	NO

Teams of two research assistants were sent into each area to carry out a door to door survey with residents. One feature that was immediately apparent was the relative ease some researchers found in approaching residents for interviews and the difficulty that others experienced. Those areas with an active amenity society appeared to be much more engaged in responding to the questionnaire, this was most notable in Brentham Gardens where our researchers reported that residents were especially enthusiastic about talking about their area. This can be counterpoised with both Overcliffe and Riverside in Gravesham where our researchers found it particularly difficult to get residents to consent to interviews. These points will be discussed further in the report when the general views of residents about living in individual conservation areas are discussed. The total number of interviews carried out in each area is listed in Table (15).

Table 15 Conservation areas number of residential interviews

Conservation Area	No of Interviews	Notes
De Beauvoir	14	
Ladbroke	16	
St Marks	13	
Courtfields	6	
Brentham Gardens	14	
Sheen Road	10	The RAs noted that this was a small conservation area with relatively few properties. Ten interviews represent a good sample size.
Bowes Park	15	
St Matthias	16	
Overcliffe	6	RAs reported that the area was in some respects run down (see photos) and the individuals were not at all interested in discussing the area.
Riverside	1	The area was mainly flatted and the RAs could not gain access for interviews.

3.4 Area descriptions

This section gives a brief overview of each conservation area. The purpose of this section is to note the specific characteristics of each place and comment on any features or pressures that might impact on resident perceptions. These attributes may include things that are specific to the conservation area itself like architectural integrity or estate layout, general area traits like green space, traffic or litter, and pressures emanating from outside the area such as development pressure or population changes. As we have chosen diverse areas in diverse economic circumstances both in inner and outer London it can be expected that contextual factors will be entangled with the lived experience in each conservation area.

De Beauvoir

De Beauvoir conservation area is our case study for inner London that has both a high premium and a high level of deprivation. It is located in the London Borough of Hackney and was initially designated in 1971 and was extended in 1977 and 1998 when it incorporated the modern Local Authority development, the Lockner Estate. This extension was done under consultation with residents of the estate who voted in favour of the extension, though the response rate was low (Hackney, 1998: p.2) and was considered important as the estate abuts one side of De Beauvoir Square.

De Beauvoir Town is notable as the first large-scale, formally planned housing development in Hackney. It was commenced in the 1830's by Richard De Beauvoir and its formal street pat-

terns and layout are in stark contrast to the relative informality and irregularity of the rest of the borough. The housing in the area (see photo 1 p. 126) surrounding the square is in the Victorian Jacobean style with Dutch style gables; the other Victorian houses within the area have Italianate features (Hackney, 1998, p. 4).

The area suffered considerable decline from the 1930s with houses divided into multiple occupancy dwellings, dilapidation, back-yard industrialisation, and bomb damage. By the 1950s there was great pressure on the area in the form of Hackney's wholesale redevelopment plan, which sought to demolish much of the estate. However, with the publication of the Civic Amenities Act in 1967 and considerable action from an active local residents association the area was preserved through the listing of several key buildings, the declaration of a General Improvement Area (as opposed to a Renewal Area) and eventual conservation area status.

Currently the area experiences similar pressures to many inner London neighbourhoods. Interview data suggests that house prices are considered to be high and there is development pressure to find sites for higher density development. The general features to consider about De Beauvoir are its relatively consistent architectural style (with the exception of the now included Lockner Estate); its standing as a long time conservation area in the borough; its historically strong level of community interest; the pressures it feels from the need to develop at higher densities in nearby areas; and the relative poverty of its immediate neighbours.

Ladbroke Estate

The Ladbroke Estate conservation area is our case study for inner London that has a high property premium but a low level of deprivation. It is located in the Royal Borough of Kensington and Chelsea and was one of the first conservation areas designated in the borough in 1969 and was the first, in 1976, to have a proposals statement prepared for it.

The Ladbroke Estate conservation area takes in most of the original Ladbroke Estate, which was developed in the 19th Century. It was declared an "outstanding" area by the Secretary of State for the Environment in 1975, which enabled it to receive grants and loans for its preservation, these special measures ceased to have effect in 1980.

The conservation area is situated in Notting Hill. The properties that make up Ladbroke Estate were built from 1821 to the 1870s with the prime activity falling in the years between 1840 and 1868 (See photo 2 p.126). During this time and until the opening of the Hammersmith and

City Railway in 1864 it remained fairly inaccessible. This alongside the slum conditions found in the potteries just adjacent to the estate made properties difficult to sell.

Like De Beauvoir, the Ladbroke Estate also suffered from dilapidation and property subdivision after the war. However, unlike De Beauvoir the area has experienced a substantial rise in property values, driven at least in part by substantial interest from wealthy foreign investors looking for property in London. This has led to a diminution of "traditional Chelsea" residents, a comment made to us frequently in a number of our door-to-door surveys. In addition to this 'loss of the typical resident' Ladbroke is also faced with other unique development pressures brought by an influx of capital and tight planning regulations, which limit how homes can be expanded. Chief amongst these concerns is the rise in the number of subterranean extensions in the area. This has led the Ladbroke Association to write a report into the impact of subterranean developments.

The general features to consider about in Ladbroke are its relative architectural integrity; its history as an outstanding and longstanding conservation area in the borough; its location relative to central London; its fashionable position as a part of Notting Hill; and internal development pressure to add value to homes.

St Mark's

St Mark's conservation area is our inner London case study that has a low premium with high levels of deprivation. Like De Beauvoir it is located in the London Borough of Hackney. In 2007 a conservation area appraisal was completed for St Mark's laying out its history, it local value and its strengths and weaknesses.

St Mark's is noted as an enclave of fairly well preserved middle class Victorian speculative development, which was laid out and built in the mid-1860s. One thing to note here is that as this development was speculative it does not have the 'planned' aspects that some of our other conservation areas possess. The market area on Ridley Road, which lies just south of St Mark's has become one of the most prominent street markets in Hackney. Between the 1920s and the 1950s it was populated with Jewish traders and is currently home to stallholders from Asian, Turkish, Caribbean and African backgrounds. This adds to the multi-cultural and lively feel of the area (Hackney, 2008, p. 7).

St Mark's has the advantage of having many listed buildings and Buildings of Townscape Merit that help to create a sense of local coherence. Many of the front gardens in the Victorian houses survive and there are a number of street trees and the green space around St Mark's church that add to its residential character. However, the conservation area is situated near a very busy road; litter is a problem; there is a lack of public open space; some areas and houses appear neglected and there has been some loss of architectural character (especially windows and doors) (Hackney, 2008, pp. 89-39). In addition to these factors, spillovers from the Olympics, the regeneration of Dalston and the extension of the East London Line will also impact on St Mark's.

Courtfields

Courtfields conservation area is our inner London case study that has a low premium and low level of deprivation. It is located in the Royal Borough of Kensington and Chelsea. It was designated in a piecemeal fashion beginning in 1971 with the Collingham Gardens with additions made in 1973 and 1975, which created Courtfields conservation area and finally a further extension in 1985, which expanded Courtfields to what is seen to-day. Courtfields is surrounded by major roads including Earl's Court Road, the Cromwell Road (A4) and the Old Brompton Road. There are also a number of hotels and other commercial uses in the area.

Courtfields contains a mixture of properties from the 1870s many of which are 2-3 storey terraces and paired villas with stucco; later properties from the 1890-1900s are typically brick in a reaction against the earlier Italianate properties of the 1870s; and there are some mews developments, which have been converted to residential use. There are also a number of notable private garden squares in the conservation area.

In the period following the First World War up until the mid-1980s many of the homes were converted to multiple occupancy and some buildings were converted to hotel use as families could no longer afford to occupy entire structures (RBKC, 1985, p. 2). Current features to consider in Courtfields are pressures caused by hotel developments and traffic.

Brentham Gardens

Brentham Gardens is our outer London high deprivation and high premium case study located in the London Borough of Ealing. It was designated as a conservation area in 1969 and subject to an Article 4 Direction in 1976 and a further Article 4(2) Direction in 2007. Brentham Garden

Estate was developed in the early 20th century based on the principles of the Garden City movement. As such the estate has been carefully laid out and follows the designs of Raymond Unwin and Barry Parker, the architects of Letchworth Garden City and Hampstead Garden Suburb (Ealing Council, 2008, p. 4). It was founded with social aims in mind and was a leader in the co-partnership suburb movement. There are roughly 650 cottages and houses on the estate along with recreational facilities and allotments. The area was laid out in phases with the later Parker and Unwin phases having curving street patterns. This is in contrast to much of the surrounding urban development, which is typified by rectilinear streets and terrace housing. This and many cottage style properties gives Brentham Gardens a village like feel. The primary factors influencing Brentham Gardens are its overall coherence as a planned development; its active amenity society and pressure from homeowners to extend and alter their properties.

Sheen Road

The Sheen Road conservation area, which is located in the London Borough of Richmond and was designated in 1977, is our high premium low deprivation outer London case study. The Sheen Road forms part of the linear development that links Richmond with East Sheen. Its buildings date from the 18th century to the late 19th century (See photo 4 p.127). Sheen Road itself is a busy urban road with mixed use ranging from small businesses to residential. Notably the road contains two mid-19th century almshouses - the Hickeys Almshouses and the Houblons Almshouses both of which have a courtyard style. Residential properties in the area tend to be set within gardens with mature trees. There are also rows of large terraced houses to the north of Sheen Road. The primary issues for Sheen Road have come from unsympathetic alterations causing the loss of traditional architectural features; loss of front gardens to parking; lack of coordinated and poor quality street furniture and paving; traffic domination and a poor cluttered pedestrian environment; and the loss of original shopfronts (Richmond Borough Council, undated-a, p. 1).

Bowes Park

Bowes Park conservation area is located in the London Borough of Haringey, although part of the Bowes Park development is also in the London Borough of Enfield. Technically Haringey is an inner London Borough but as the conservation area spans the two boroughs and made the best overall fit in terms of deprivation and property premium it was selected as a case study.

Bowes Park was designated a conservation area in 1994 and represents our low premium, high deprivation case study.

The conservation area is focused on early Victorian suburban development that happened before the development of the local railway station. Bowes Park consists of a variety of early Victorian housing, including semi-detached villas and small and large terraced houses. As these were developed before the railway station the early residents were typically wealthy Londoners who did not require public transport (Haringey Council, 1999, p. 1). Many of the older houses are in yellow brick. Newer homes are often in soft red brick of the Queen Anne Revival. Bowes Park also has one of the best preserved Victorian shopping areas in the Borough in the form of the Myddleton Road, which, according to the Supplementary Planning Guidance (SPG) written for the area in 1999, has been described by local people as "...a jewel in decline (Haringey Council, 1999, p. 2). Since the publication of the SPG in 1999 the road has gone through further decline with a loss of some of the traditional shops like the bakeries and butchers. In addition, it would appear that fewer of the original shopfronts remain unaltered. Current features to consider in this area will be overall levels of deprivation and pressures from homeowners wishing to alter their properties.

St Matthias

St Matthias conservation area was designated in 1977 and represents our outer London low deprivation, low property premium case study. The area' focal point is St Matthias' Church, which was consecrated in 1856 during the period when the South Western Railway was extended to Richmond (See photo 5 p.128). The extension of the railway brought with it development. In the St Matthias area this was in the form of primarily high class villas on the slopes of the hill leading up to the church. In terms of architectural style, St Matthias has a mix of mid and late Victorian buildings ranging from large detached villas to terraced mews. The townscape here is considered to be of high quality (Richmond Borough Council, Undated-b, p. 1) with a variety of building styles and architectural details along with front gardens forming a cohesive residential mix. St Matthias is also located near to the river Thames, the Terrace Gardens and Richmond Park, offering a number of nearby amenities to residents. The council notes in their conservation area appraisal that development pressure, which could damage this landscape setting via the obstruction of views, skylines and landmarks to be of concern

along with the loss of architectural features, loss of front gardens for parking, and a domination of traffic (Richmond Borough Council, Undated-b, p. 2).

Overcliffe and Riverside

Overcliffe and Riverside were selected as the two conservation areas to be examined outside of London. Overcliffe has a low property premium and Riverside has a high property premium. As has been stated previously, both proved very difficult for our researchers. Overcliffe residents for the most part did not wish to engage with the research process, though we were able to gain 6 interviews. In Riverside there was little residential development, what development there was, was in the form of blocks of flats, where only one interview was obtained. As there was so little engagement from Riverside, Overcliffe will be the area discussed below.

Overcliffe is part of the early 19th century Rosherville New Town development in Northfleet. The houses in Overcliffe having been developed in the mid- 19th century (See photo 6 p.128). The area is a mixture of villas and terraced houses, some of which have views northward toward the river Thames. The area is valued for the survival of its historic layout, its historic buildings and its location on top of the chalk cliffs (Gravesham Borough Council, 2009, p. 1). There are a number of features that impact on the area, including high traffic volumes along some of the roads; poor quality modern buildings both inside and just outside the conservation area; loss of architectural features; graffiti; and the dominance of parked cars in the area.

3 . 5 Quantitative survey analysis

This section provides an evaluation of the perceived costs and benefits associated with living in conservation areas based on the residential interviews conducted in our door-to-door surveys which comprised multiple-choice questions and longer answers designed to illicit more nuanced detail from the respondents. A full list of bar charts showing the distribution of answers to all quantitative questions is in Appendix II.

We proceed in three steps. Firstly, we compare the estimated conservation area premia discussed in Section 3.2 to indices created based on the survey responses. With this approach we seek to gain further insights into the origins of the premia paid for living in a conservation area and the variation in the premia paid. Secondly, we focus on two questions from the survey that indicate how satisfied residents are with living in a conservation area and how they perceive the location adds value to their properties. We compare the answers to these questions to

conservation area characteristics and answers in other questions to understand the determinants of the perceived value of living in a conservation area. Thirdly, we organise the answers on selected questions by types of respondents to shed light on how perceived costs and benefits vary across groups of residents.

Comparison of estimated conservation area premia and survey results

The transactions based conservation area premia estimated according to the methodology described in section 3.2 form a revealed preferences index of the net-benefits of a location in a conservation area. This index has microeconomic foundations and is objective in the sense that it is derived from observable market behaviour. Based on this index alone, however, it is not possible to fully uncover the determinants of conservation area premia. While insights can be gained, in principle, by comparing how the premium varies in observable characteristics of the conservation area, one limitation to this approach is that for the critical features on the costs (planning permission constraints) and benefits (attractiveness and distinctiveness) side it is difficult to make observations based on existing data sources. We overcome this limitation by comparing the estimated premium to indices based on the answers to the survey question. We create these indices by asking specific questions on conservation area characteristics to which residents can express their agreement in five categories "strongly disagree", "disagree", "neither agree nor disagree", "agree" and "strongly agree". To these answers we assign numeric values (-2, -1, 0, 1, 2), so that the mean attitude can be expressed in a numeric value. These values, by conservation area, can then be compared to the estimated conservation area premia.

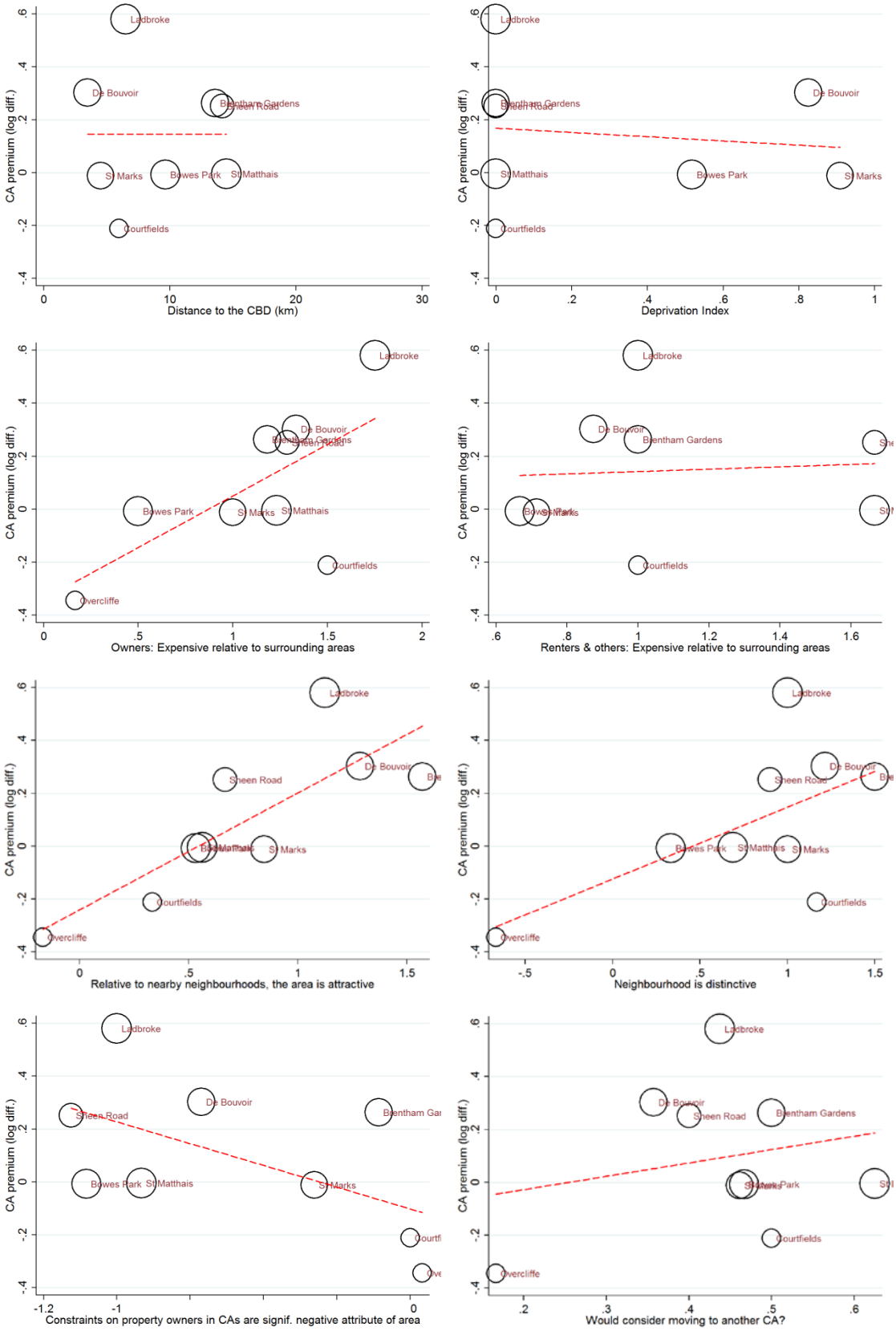
Figure 19 shows a series of scatter plots that make the comparison. In the first row, we replicate Figure 18 to compare the relationship between conservation area premia and our indices of centrality and deprivation among the case study areas to the broader set of conservation areas. Reflecting the selection process, our case study areas are somewhat concentrated toward closer distances from the CBD and low or high deprivation areas. Similar to Figure 18, trends in the relationships between conservation area prices and distance to the CBD and deprivation are weak at best.

The second row compares the market based assessment of prices inside conservation areas relative to the surrounding areas, to self-assessment of value made by those living in the areas. There is a clearly positive relationship between the estimated price premium and the assess-

ment by homeowners, while no similarly defined relationship is evident based on the answers from renters. This pattern is intuitive in the sense that homeowners can reasonably be expected to be more familiar with the market value of properties in their neighbourhood. The well defined positive relationship is also encouraging as it suggests that the answers derived from the survey are generally informative. The third row compares the premia to the resident's assessment of the (relative) attractiveness and distinctiveness of their area. Both panels suggest a clearly positive relationship between the quality of the built environment and the premia paid for living space. This can be interpreted as (descriptive) evidence of a willingness to pay for high quality (historic) architecture.

In the left panel of the last row we associate the conservation area premium with perceived costs of the planning restrictions in the conservation areas as reported by the interviewees. We find that higher premia are paid in areas where residents were more likely to reject the presence of such problems, indicating the possibility that constraints may impose a perceived cost on owners, which reduces the willingness to pay for residing in a conservation area. In the last scatter plot, we compare the revealed preference index of relative conservation area attractiveness (the premia) to a stated preference indicator of satisfaction of living in an area. We assume that satisfied locals are more likely to consider moving to another conservation area if they were to move. Despite a weakly positive trend, the figure shows a significant degree of dispersion, indicating that a higher attractiveness of the area as revealed by the market does not necessarily lead to higher satisfaction with living in the area. This is comprehensive since higher prices at least partially compensate for the higher attractiveness of living in a conservation area and the individual measure of satisfaction reflects the respondent's benefits from living in a conservation area net of the higher living costs (due to higher rents or mortgage payments).

Figure 19 Fig: Determinants of conservation area premia I



Notes: Dot size indicates the number of respondents. Riverside is omitted due to the low number of responses (one). The scale axis in columns 3-4 indicates the mean score on a scale from -2 (strongly disagree) to 2 (strongly agree).

Figure 19 provides descriptive evidence that the willingness to pay for residing in a conservation area increases as the quality of the built environment increases and decreases when the constraints placed on owners are perceived as a problem. Both dimensions, however, are possibly interrelated since the higher quality of the built environment in conservation areas may be a direct outcome of more stringent planning policy. It is, therefore, difficult to conclude on either of the effects based on descriptive evidence alone. The isolated effect of the quality of the built environment and development constraints can be separated in a multivariate regression.

Table 16 shows the results. Columns (1) and (2) correspond to the bivariate linear fits depicted in Figure 19. The quality of the built environment in itself is the stronger predictor of the conservation area premia as reflected in the highly significant coefficient estimate and the more than twice as high explanatory power of the model (R2 of 0.666 vs. 0.32). When estimated conditional on each other, column (3) confirms the presence both effects are significant in each case. Moreover, these two variables jointly explain about 84 per cent of the variation in premia across the admittedly low number of nine conservation areas considered. Despite the relatively high explanatory power, a concern remains that the estimates are driven by unobservable conservation characteristics not accounted for in the model. The low number of observations puts a significant constraint on the number of factors that can feasibly be controlled for in a multivariate regression model. Columns (4) and (5) introduce variables that account for two likely additional determinants of conservation area premia. In (4) we introduce a 0,1 dummy variable denoting conservation areas with Article 4 status, to control for the additional powers of planning control that come with this status. In (5), we introduce the (self-reported) household income to control for a potential sorting effect of richer households that could exhibit stronger preferences for high quality built environment and therefore drive the results. The estimated effects of the variables of interest change only marginally, despite the low number of observations, which lends some robustness to the findings.

Table 16 Determinants of conservation area premia II

	(1)	(2)	(3)	(4)	(5)
	CA premium (log diff.)				
Relative to nearby neighbourhoods, describe the attractiveness of the CA	0.443**		0.398**	0.381**	0.467*
	(0.106)		(0.067)	(0.075)	(0.110)
Constraints on property owners in CAs are signif. negative attribute of area		-0.411	-0.307*	-0.299*	-0.337*
		(0.228)	(0.110)	(0.109)	(0.111)
CA has an Article 4 Direction implemented				0.078	0.037
				(0.077)	(0.110)
Household income in P1000/year					0.001
					(0.002)
Constant	-0.241**	-0.184	-0.413**	-0.439*	-0.653*
	(0.062)	(0.169)	(0.078)	(0.112)	(0.148)
Observations	9	9	9	9	9
R^2	0.666	0.320	0.838	0.858	0.925
AIC	-4.0	2.4	-8.5	-7.7	-11.4

Notes: Standard errors in parentheses. Riverside is omitted due to the low number of responses (one). Model includes a dummy variable controlling for missing values (1) in Article 4 Status. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

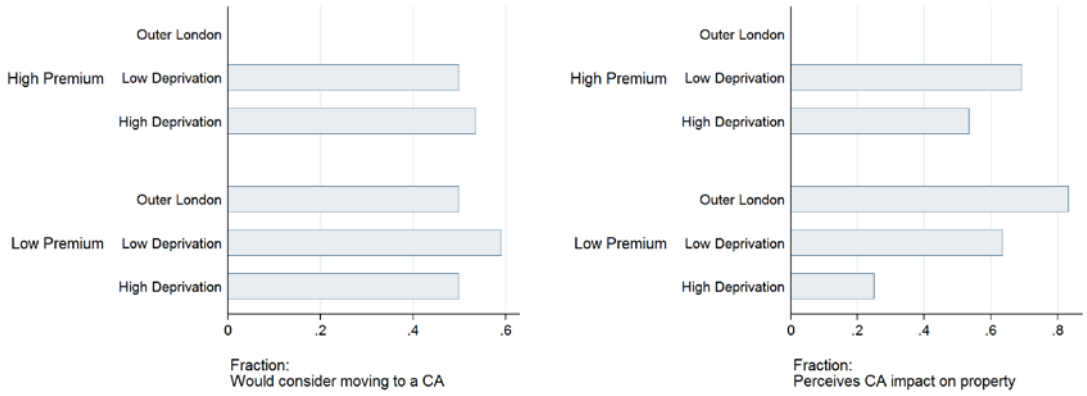
Perceived value and satisfaction

From the answers to the survey questions we can derive two indicators on perceived value and general satisfaction related to the location of a property in a conservation area. Firstly, we asked residents whether- if they were to move house - they would consider moving into another conservation area. We assume that a positive attitude toward moving into another conservation area is a reflection of an overall positive experience in the current conservation area. As noted above, it is important to keep in mind that higher prices at least partially compensate for the higher attractiveness of living in a conservation area and that the individual measure of satisfaction reflects the respondent's benefits from living in a conservation area net of the higher living costs (due to higher rents or mortgage payments). Secondly, we asked residents whether they think the location in a conservation area impacts on the value of their property. We note that all respondents who felt an impact also responded that they perceived their neighbourhood to be significantly more expensive than the surrounding areas. For our sample, the perception of impact is, thus, equivalent to the perception that the conservation area adds value to the property. Unlike the first indicator, we view this as a gross measure of the attractiveness of the area.

The bar charts below summarise the responses to the two questions by conservation area categories. The left panel does not show a great deal of systematic variation in satisfaction across the conservation area categories considered (premium / deprivation). The right panel instead reveals a more systematic pattern with respect to added value due to the location of a

property in a conservation area. A significantly larger proportion of owners of properties in high premium conservation areas noted an effect on value (as compared to owners of properties in low premium conservation area). This is true for low, but especially for high deprivation areas. In less advantaged areas the perception that conservation area status adds value to properties is more pronounced. One explanation would be that (architectural) attractiveness and other (positive) neighbourhood attributes that are correlated are particularly large relative to surrounding areas in generally deprived areas. Notably, a large majority of owners noted added value in our low premium outer London case study area (Overcliffe), although the observation is based only on six respondents.

Figure 20 Perceived value and satisfaction I



Notes: Figure shows the fraction of respondents who answered with "yes" to questions 6 and 18. The question on added value was answered by owners only.

To further investigate the determinants of individual satisfaction and perceived value added, we run a number of logit regressions where the binary outcomes of the two questions (yes vs. not yes), by respondent, are related to the answers to a selected number of other questions in the survey. We also add indicator variables that capture the location, premium and deprivation status of the respective conservation areas.

The results are in Table 17. All effects are expressed in marginal terms so that they reflect the impact of a change in any explanatory variables on the probability of a positive outcome. In light of limited degrees of freedom we faced a trade-off in the selection of variables. On the one hand we we aimed at minimising the number of variables included into the model. On the other hand, our ambition was to control for a broad range of possible benefits from the a more appealing external environment and closer social integration as well as positive and negative attitudes towards planning constraints. Even though we start off with a relatively small

selection of questions from the survey, a large number of variables still turn out to be insignificant (models (1) and (3)).

The only significant effect on satisfaction we find is that, all else equal, owners are generally more likely to consider moving to another conservation area (an about 40% high chance). One explanation is that higher living costs (via rents or mortgage payments) in more desirable conservation area fairly well compensate for the benefits, except that owners get the extra benefit of owning an asset that appreciates at a faster rate compared to properties outside conservation areas.

Perhaps not surprisingly, we find that the likelihood of perceiving an impact on value is higher in conservation areas with a high estimated price premium (about 20%). Even conditional on this effect, living in an area with buildings perceived as being generally attractive (strong or very strong agreement), ceteris paribus, increases the likelihood of perceiving an impact on property prices by about 70 per cent. The probability of reporting an impact on value was higher for owners of properties outside London compared to inner and outer London. Another interesting finding is that members of community groups, *ceteris paribus*, were less likely to report an impact on value. We also find that older respondents or those with a higher household income were generally more likely to associate a significant effect on value.

Due to the large number of insignificant variables we apply a stepwise deletion procedure, where in each iteration the least significant variable is dropped until either all remaining coefficients are significantly different from zero or no more than four variables remain in the model. The corresponding results are in columns (2) and (4). Most of the results discussed above remain qualitatively unchanged. One change is that the likelihood of considering a move to another conservation area, *ceteris paribus*, now diminishes by about 2.3 per cent for each year spent in a house within a conservation area (3).

We note that due to the more comprehensive control for a broader set of determinants models (1) and (3) remain our preferred models. We present models (2) and (4) mainly to illustrate that the estimates are fairly robust across alternative model specifications.

Table 17 Perceived value and satisfaction

	(1) Logit Would consider moving to a CA	(2) Logit Would consider moving to a CA	(3) Logit Perceives CA impact on property	(4) Logit Perceives CA impact on property
Inner London (d)	0.035		-0.702**	-0.646***
	(0.238)		(0.255)	(0.219)
Outer London (d)	0.176		-0.414*	-0.386*
	(0.208)		(0.201)	(0.187)
High Premium CA (d)	-0.042		0.195*	0.181*
	(0.116)		(0.085)	(0.098)
Low Deprivation CA (d)	-0.097		-0.098	
	(0.142)		(0.106)	
Owner (d)	0.422***	0.381***		
	(0.114)	(0.098)		
Years lived in the house	-0.017	-0.023*	-0.007	
	(0.012)	(0.010)	(0.012)	
Neighbourhood rates as distinctive (d)	0.118		-0.054	
	(0.134)		(0.103)	
Neighbourhood rates as attractive (d)	-0.030		0.714***	0.488*
	(0.163)		(0.208)	(0.201)
Member of community group (d)	-0.206	-0.116	-0.173*	-0.175*
	(0.131)	(0.122)	(0.070)	(0.074)
Number of neighbours known	0.009	0.014	-0.007	
	(0.013)	(0.011)	(0.009)	
Constraints in the area considered problematic (d)	-0.051		-0.022	
	(0.168)		(0.161)	
Constraints are important in maintaining attractiveness (d)	0.115		-0.092	
	(0.166)		(0.075)	
Female (d)	0.105		0.024	
	(0.119)		(0.108)	
Age	-0.003		0.011***	0.007*
	(0.004)		(0.004)	(0.004)
British (d)	-0.053		-0.015	
	(0.136)		(0.089)	
Household income in P1000/year	0.001		0.002*	0.002*
	(0.001)		(0.001)	(0.001)
Sample	All	All	Owners	Owners
Observations	111	111	72	72
Pseudo R2	0.133	0.010	0.353	0.330
AIC	171.4	148.8	86.4	72.2

Notes: Marginal effects dy/dx at the mean. (d) is for discrete change of dummy variable from 0 to 1. Models include controls for missing values (d) for discrete change of dummy variable from 0 to 1. Standard errors in parentheses. * p < 0.10, * p < 0.05, *** p < 0.01

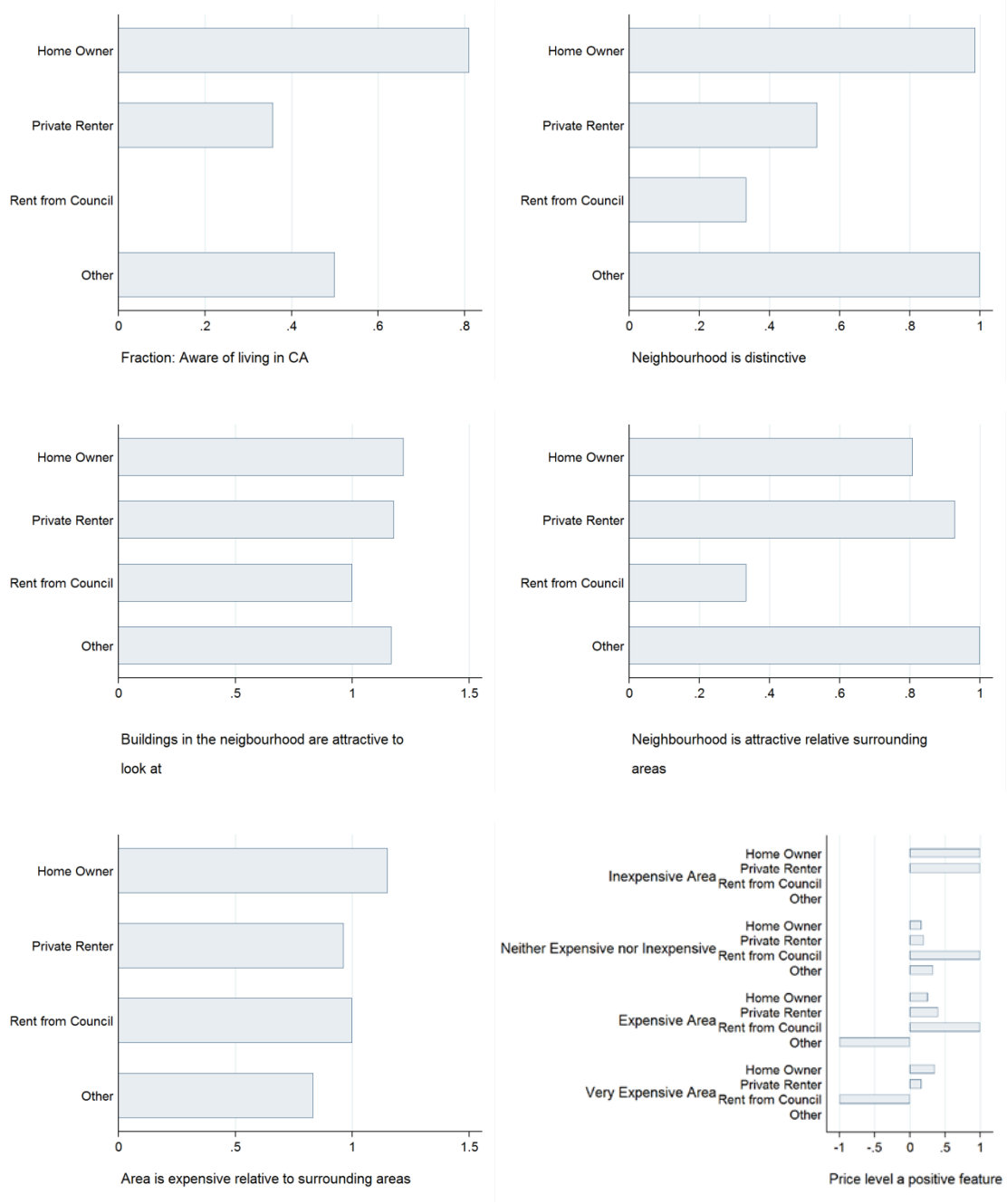
Benefits and costs by groups

Our results so far suggest that owners of properties in conservation areas benefit from high appreciation rates and, compared to renters, have a better assessment of the conservation area premium, and are generally more likely to consider a conservation area as a future place

to live. In this section, we shed some light on how perceived costs and benefits of living in a conservation area vary across different population groups.

Figure 21 distinguishes the responses given to selected questions by tenure status. Not surprisingly, owners are much more frequently aware of living in a conservation area than are renters. About 80 per cent of them are aware of the status of the area they are living in. Irrespective of the varying awareness of the conservation area status, all tenure groups perceive their neighbourhood as distinctive and attractive relative to the surrounding areas and the buildings in their neighbourhoods as generally attractive to look at (as reflected in the positive mean score). In general, homeowners express a slightly more positive attitude toward their areas than renters, especially those who are in socially rented accommodation. Homeowners are also more likely to perceive their areas as expensive relative to other areas. An interesting finding is that irrespective of whether the area is perceived as expensive or inexpensive, all tenure groups tend to view the local price level as a positive feature. The notable exceptions are the groups "other tenure" and "rent from council" in expensive and very expensive areas who are dissatisfied with the high prices. It has to be noted, however, that the number of observations per cell becomes relatively small in the disaggregated analysis so that the figure shows tendencies as best.

Figure 21 Perceived conservation area effects by tenure



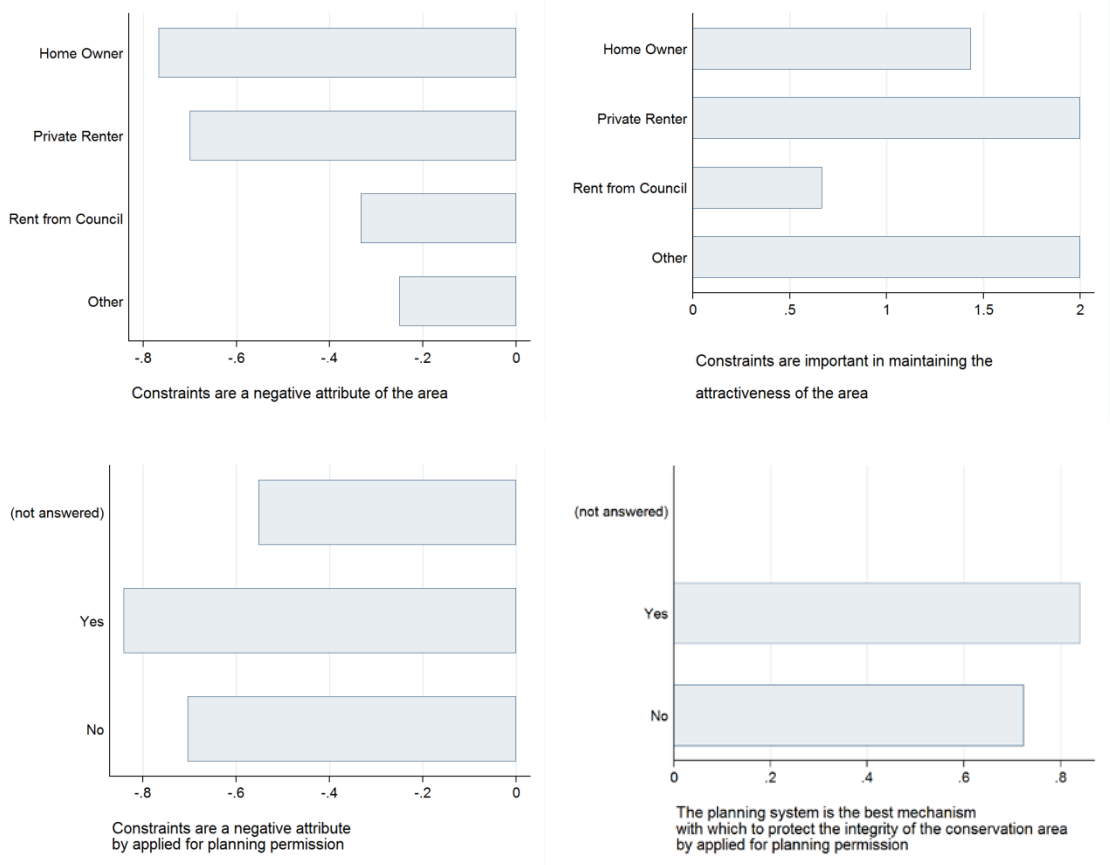
Notes: Where not indicated by "Fraction" the scale axis indicates the mean score on a scale from -2 (strongly disagree) to 2 (strongly agree).

As with the benefits, there is also the possibility that (perceived) costs may vary significantly across population groups. The extra constraints regarding planning permission could be argued to more directly affect owners than renters. If there were serious concerns across all conservation areas one would expect owners to express a more negative attitude. Similarly, one would expect those owners who actually applied for planning permission to express a more negative attitude towards the constraints - and possibly the planning system - following a negative ex-

perience. While the results discussed above show that the conservation area premium is significantly reduced in areas where planning constraints are perceived as a problem, Figure 22 suggests that such problems may not be a genuine feature across all conservation areas.

In the case study areas, the attitudes toward the planning constraints were generally positive. This is reflected in disagreement with constraints being a negative feature across all tenure groups, and in particular home owners, and agreement with constraints being generally important for maintaining the attractiveness of an area. Disagreement with constraints being a negative feature and agreement with the planning system being the best mechanism with which to protect the integrity of the conservation area is slightly larger among those who actually had applied for planning permission. These findings are in line with a clear majority of owners who have applied for planning permission ranking their own experience as positive or very positive (the full distribution of answers is in Appendix II).

Figure 22 Planning and constraints

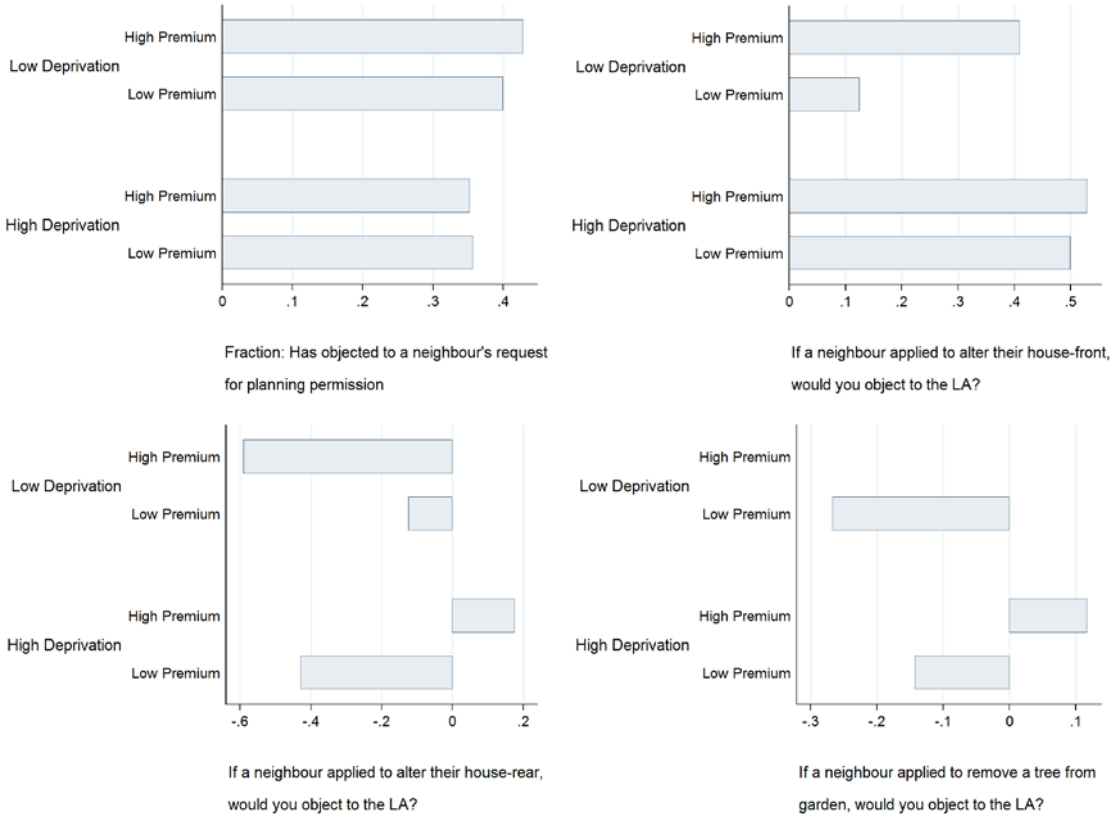


Notes: The scale axis indicates the mean score on a scale from -2 (strongly disagree) to 2 (strongly agree). In the lower panels, “yes” and “no” categorise respondents’ answers by whether they had (not) previously applied for planning permission.

Our results strongly suggest a significant premium associated with living in a conservation area, which at least partially seem to be attributable to the attractiveness of the built environment, which makes the case for designation. A valuation of this quality should not only be reflected in higher prices of properties relative to otherwise comparable properties, but also in objections towards changes to the existing building pattern. Figure 23 summarises the survey responses on the questions asking whether residents would object or ever had objected to such changes.

Our survey results show that about 40 per cent of the respondents had already objected to a neighbour's request for planning permission. While there is a slight tendency of higher objection rates in low deprivation areas, the variation across deprivation and premium categories is generally rather moderate. Asked about objections to hypothetical applications, the answers varied more significantly across conservation area categories and also depended on the type of application in question. While there is a clear tendency to object to alterations of the front of buildings, especially in high deprivation areas and high premium areas, changes to the back of a property or removals of a tree generally seem to be less of a concern.

Figure 23 Objections to neighbour's planning request



Notes: Where not indicated by "Fraction" the scale axis indicates the mean score on a scale from No (-1) via Maybe (0) to Yes (1).

3 . 6 Textual Analysis - Initial area based characteristics

In the opening section of the textual analysis we will be commenting on the initial qualitative questions, which asked residents to describe what they liked most (Question 9) and least (Question 10) about living in their area. Here we examine individual responses about living in the specific neighbourhood defined by the conservation area. Respondents were encouraged to answer freely and reflect on their preferences. This means that some comments relate directly to conservation area status and some comments are more general in nature. We feel these findings allow us to build an overall picture of the characteristics that are most and least valued by residents. In addition, it will aid in theory building when we relate the responses to the particular place based characteristics of each conservation area.

In order to analyse this data the interview transcripts were input into textual analysis software (TAMS Analyzer 4.30). This programme allows for interview data to be thematically coded by the researcher. This material can then be recalled, searched and organised via the software so that patterns in the data can be analysed. The first step in the data analysis is the reading and

re-reading of all of the relevant responses made by individual residents. In this step the analyst is looking for themes to emerge from the data. These subjects are then defined and the data is coded in the software accordingly so that unique area characteristics or common patterns can emerge.

The following list represents the key ideas that emerged from the data collected on Question 9 and Question 10 in the survey. Interestingly, the themes here that cover what might broadly be considered the environment, including both the appearance and distinctiveness of the built environment; the quality of the natural environment; and the social environment in terms of community and neighbours are entirely consistent with the themes that emerged in Townshend and Pendlebury's earlier work on what residents valued in the inner-urban conservation areas in Tyne and Wear. The most important and relevant of our themes are emboldened and are the ones that are reported on here.

- **positive and negative features of the built environment;**
- **positive and negative features of the local community;**
- **positive and negative features of the local environment;**
- positive and negative features of local governance;
- **positive and negative locational features**
- positive and negative features of property value
- **negative views about planning**
- negative features of development pressure (both inside and outside the area)
- and positive and negative features of the area being “not like London”

We will know go through the most notable of these themes grouping the conservation areas by levels of deprivation.

Positive & Negative features of the built environment in areas of HIGH deprivation

To begin this section we will first look at the code definition for built environment. Responses that were coded in this way generally spoke of heritage, building types, building layout, and property upkeep in either positive or negative ways. This section includes responses from Bowes Park, Brentham Gardens, De Beauvoir, St Mark’s and Overcliffe conservation areas.

All five commented positively on the built environment, however both Brentham Gardens and De Beauvoir, our high premium areas, noted these features on a much larger scale. This finding

is entirely consistent with the descriptive statistics noted above where we show that there is a tendency for residents of high premium areas to value their built environment more strongly than those residents in low premium conservation areas (see Figure 19 and Table 16). In Brentham Gardens the responses often centre on the historical design of the estate as a garden suburb. Residents greatly value its "villagey feel" and the cottage style of many of the homes. They also spoke frequently of the architectural variety in property types linking this to the intentions of the original estate designers, its human scale and the pride that local residents take in their homes. One resident went as far to say, "One of the reasons why we moved here in the first place is because we think it is a really nice area and we feel this has much to do with the fact that it is a conservation area.".

De Beauvoir, which was also very much a planned development, also evokes a positive response regarding the built environment. This comes not only from the residents we surveyed but also from local planning officers and estate agents who describe De Beauvoir as a sought after and architecturally cohesive area. Residents praise it for having a "village feel" and a great deal of architectural variety, as one respondent noted "They are like English heritage ... it is a typical English city landscape". Road layout and building layout are enjoyed in De Beauvoir and a blanket Article 4 Direction is applied by the council in order to maintain the planned features of the development. The fact that there have been road closures to quieten traffic and that the houses are often set back leaving space for front gardens are noted and valued by residents, who also comment that there is a general pride in De Beauvoir that extends to home maintenance. This view is corroborated by planning officers who note that there is a high degree of community involvement in planning linked to a strong affiliation with the built environment.

In contrast in Overcliffe, Bowes Park and St Mark's, our low premium/ high deprivation areas, few positive comments on the built environment were made. The Overcliffe area garnered only one such notation. Here the resident in question stated that there were many beautiful old Victorian houses, but also stated that sadly these were a bit run down and in need of repair. In Bowes Park three responses were coded positively. Two of these said that there was a "homey feel" to the area and the other stated that the street looked quite pleasant. In St Mark's the four comments on the built environment revolve around the church, which is valued for its form and for the green space that it provides and for its curvilinear streets and trees. Whilst St Mark's does have an Article 4 Direction on properties inside the conservation

area and does indeed have some quality Victorian properties, the speculative rather than planned nature of its initial development has perhaps left it appearing somewhat less distinctive than its nearby neighbour, De Beauvoir.

In terms of negative features of the built environment four comments were made. Two of these were in Overcliffe where the area was depicted as run down and having 'ugly buildings'. One was in Bowes Park where the respondent noted shabby upkeep and poor maintenance of properties and the other was in De Beauvoir where a resident thought it to be "too urban". Overall, respondents did not specifically mention the built environment as one of their "least favourite aspects of living in their area".

Positive and Negative features of the built environment in areas of LOW deprivation

Here the reflections on both positive and negative features of the built environment in Courtfields, Ladbroke, Sheen Road and St Matthias will be examined. Unlike the high deprivation areas the positive comments on the built environment in this instance are evenly spread. In addition, whereas both Brentham Gardens and De Beauvoir (our high deprivation/ high premium areas) received a great many observations about specific architectural style, estate layout and a "village-like" feel our low deprivation conservation areas had no such comments. Here the responses tended to coalesce around good property upkeep and blander or less specific comments about architectural beauty and character.

In terms of negative responses on the built environment, there are again very few given. Of the six comments made, which were evenly spread in Courtfields, Ladbroke and St Matthias, four were regarding development just outside the conservation area and two were personally specific about house size and house characteristics.

Positive and negative features of the Community in areas of HIGH deprivation

Each of the high deprivation conservation areas, with the exception of Overcliffe, had a strong positive response regarding the community, which here includes comments that mention neighbourliness, a community feel, a sense of security and overall levels of cleanliness. In this instance cleanliness was included in the positive community code as the problems associated with litter and dog fouling were often viewed as a lack of community spirit by respondents.

In Bowes Park the over-riding response people made regarding the community was that they had good and positive relationships with their neighbours. In Brentham Gardens residents also talked about good relationships with neighbours but they extended this to an overall "community atmosphere" or "feeling of belonging". Several respondents linked this back to the original "...utopian ideal of connecting different sorts of families" that grew out of the estate's development as a garden suburb. In Brentham Park people also noted a high level of community involvement and cited local newsletters and social clubs as evidence of this.

In De Beauvoir and in St Mark's there was perhaps more of an inner London bias, with frequent comments about multiculturalism, dynamism and social mixing. One comment from De Beauvoir typifies this "...it is a really mixed area ... there is a very mixed social strata of people living here. I imagine in other conservation areas it is like all very rich people but here there are lots of tenants, it is not all privately owned so there's a lot of people from different social backgrounds and I like that." There were also frequent reflections in both St Mark's and De Beauvoir that the area was considered to be safe.

The findings for negative feelings about community were also interesting. All areas, with the exception of Brentham Gardens reported at least some difficulties in this field. In fact, Overcliffe only reported negatively in this field and typically cited crime and fear of crime as negative community attributes. In Bowes Park the majority of the responses also mention crime or fear of crime. Likewise in St Mark's residents mention crime as an issue, although there were only four negative comments regarding community coded for St Mark's. De Beauvoir had the highest number of negative responses. Here problems in the form of drugs, crime, aggressive cyclists, anti-social behaviour and burglary were all noted. The most prevalent response can be best typified by one De Beauvoir resident who said that the feature she liked least about living in the area was ... "The abuse, the fact that because we're quiet and because we look prosperous that we are there to be preyed upon...The fact that the drug dealers use that corner because it is quiet and it's accessible from the main road and all the clubbers come back from town in this direction particularly since the station opened and the fact that their clients then shoot up or use the road for a toilet, particularly my neighbours' gardens and the old lady's parking space.".

Positive and negative features of the Community in areas of LOW deprivation

Positive feelings about community were not high on the agenda for respondents in our low deprivation areas. Whilst all four did list some aspect of community or neighbourliness when asked what they liked the most about living where they did these comments were often rather bland. Only in Courtfields was any sort of community involvement mentioned outright and this was in the form of the Garden Square Committee, which was noted as a good way to get involved with local issues. The rest of the responses mentioned social class, good neighbours, community pride and an overall feeling of safety as positive features.

In terms of negative views on community aspects again there was little data generated. Here it would appear that community issues are not a particular problem for the low deprivation conservation areas. The primary community oriented responses focused on a loss of traditional residents to rich and foreign in-comers (Ladbroke) and incursions made by tourists (Ladbroke) and night-time revellers (St Matthias).

It is important to note here that there was no discernible pattern in listing community as either a favoured or least favoured aspect of living in a particular conservation area based on property premia. The clear differences here were seen, as one might expect between high and low deprivation neighbourhoods.

Positive and negative features of the Environment in areas of HIGH deprivation

Responses regarding the environment refer to green spaces, open spaces and quite or calm landscapes. In our high deprivation areas the majority of residents in both Bowes Park and Brentham Gardens specifically noted that their areas were quiet, green and spacious. Perhaps somewhat surprisingly given the earlier answers regarding the dynamism of De Beauvoir and St Mark's, residents here also commented on quiet and green spaces as a favoured aspect of living in the neighbourhood. The residents of Overcliffe made no positive comments relating to the environment in their response as to Question 9.

In terms of negative features linked to environmental quality difficulties in parking, traffic and rubbish were listed amongst the things least liked, but again these comments were not on a wide scale and could be easily assumed for most urban environments.

Positive and negative features of the Environment in areas of LOW deprivation

In our low deprivation areas green space and openness were amongst the chief features valued by residents. In each of the four study sites green, greenspace, and greenness are mentioned repeatedly. In the Royal Borough of Kensington and Chelsea the private Garden Squares (See photo 3 p.127) are clearly popular and in St Matthias and Sheen Road the proximity to the river and the parks that populate Richmond are well loved. The green spaces within the conservation areas in the form of private front gardens and street trees are also noted as particularly positive.

Much like our high deprivation case studies noise, traffic and parking are negative features noted by the residents. The only real differences here are that litter is rarely brought up as an issue in these areas and in Richmond noise from Heathrow is a strong negative area attribute.

Again there is no pattern of response between high and low premium conservation areas and all of our case studies, with the exception of Overcliffe, make similar comments regarding the positive and negative aspects of the local environment.

Positive features of Locational Advantage in areas of HIGH deprivation

Interestingly, when asked about their positive experiences of living in the conservation area, a high number of residents responded that they had distinctive locational advantages. In Bowes Park, for example, being located near to public transport and conveniently close to London was a highly prized feature of the area and this is supported by area estate agents who commented that this was a major 'selling' feature of the area. In Overcliffe, this was the predominant feature mentioned by residents. In addition, ease of transport and a central location were also clearly important for the residents of De Beauvoir and to a lesser extent St Marks. The only anomaly here is Brentham Gardens, which whilst having both the Central and Piccadilly line relatively close by, chose other features as more important when responding to the question "What do you like most about living in your area?".

Positive of Locational Advantage in areas of LOW deprivation

The same features can also be found in the low deprivation conservation areas with being located near to local amenities like parks, shopping and restaurants and close to local transport high on the list of positive area features. In St Matthias, for example, being proximate to the

train station and able to quickly and easily commute into central London was considered a positive area feature as was being near to local shops and local parks. Here what we see is a value emanating not from any particular community, environmental or architectural attribute but rather ease of movement and ease of access to desirable residential amenities.

Again there was no common pattern based on property premia associated with this feature of the conservation area.

Positive and negative features of Property Value ALL areas

Strikingly, when asked to talk about their favoured and least favoured area characteristics very few residents mentioned property values. This was true for both high and low deprivation areas. Only one resident in Brentham Gardens, one in St Mark's and one in Bowes Park discussed property price in this context with two of them noting that the areas held their value and with the homeowner in Bowes Park simply commenting that it was cheaper to buy a property in the area than in surrounding neighbourhoods. In our low deprivation conservation areas again only three residents commented on the value of their properties. This time all three responses were negative noting that the area had become too expensive. The subject of property value will be taken up later when Questions 21 and 23 are discussed.

Negative features of Planning Control ALL areas

For the most part residents did not list overly burdensome planning control as one of their least favoured characteristics of living in the area. In the low deprivation case studies this feature was only mentioned three times, with each of these being in a different conservation area. In high deprivation areas 'overly strict' planning controls were cited in Question 10 by two residents of Overcliffe, one resident in St Mark's and one in De Beauvoir. More interestingly, difficulties with planning control were noted the most by respondents in Brentham Gardens (four in total). This is striking as Brentham Gardens is the conservation area that ranks most highly amongst its residents for it architectural coherence, design and layout. All four respondents commented that the local planning authority was inflexible and limited what homeowners could do with their properties.

Concluding comments on area base characteristics

The above section begins to help us get a better overall picture of what people value about living in their areas and what aspects they find problematic. Some of these, the quality of the built environment or problems with planning control are clearly related to the designated status of the neighbourhood. Other characteristics like locational advantage or crime might be true of any urban area. The key here is to unpick some of these to build up an idea of the advantages and disadvantages of living in these environments.

The first is that clearly people value green and peaceful residential environments and this was a consistent positive attribute listed in all the conservation areas studied no matter their location, level of deprivation or property premium. Perhaps of more interest was the role of the built environment and community in two of our study areas. Residents of both Brentham Gardens and De Beauvoir, which are both high premium, high deprivation areas, rated these features highly. Comments on the built environment tended to be specific noting estate layout, architectural features and a human scale. Remarks made about the community, especially in Brentham Gardens, spoke to engagement, neighbourliness and social mix. None of our other case studies responded in this way when asked what they like most about living in the area. Whilst the comments regarding the built environment in our high premium, low deprivation areas were somewhat more muted and less specific the descriptive statistics point to a positive relationship between a favourable residential rating of the built environment and property premia.

In addition the responses to what people liked least about their areas also raises some interesting avenues for further analysis. Here issues of criminality and litter are obvious problems in two of our high deprivation case studies. Environmental problems relating to noise, traffic and pollution are also common amongst all the areas. As was stated above perhaps the most interesting finding to emerge thus far is the tension between a valued built environment in Brentham Gardens and an antagonistic relationship with local planning control.

3 . 7 Textual analysis - Property values, the built environment and attitudes toward planning.

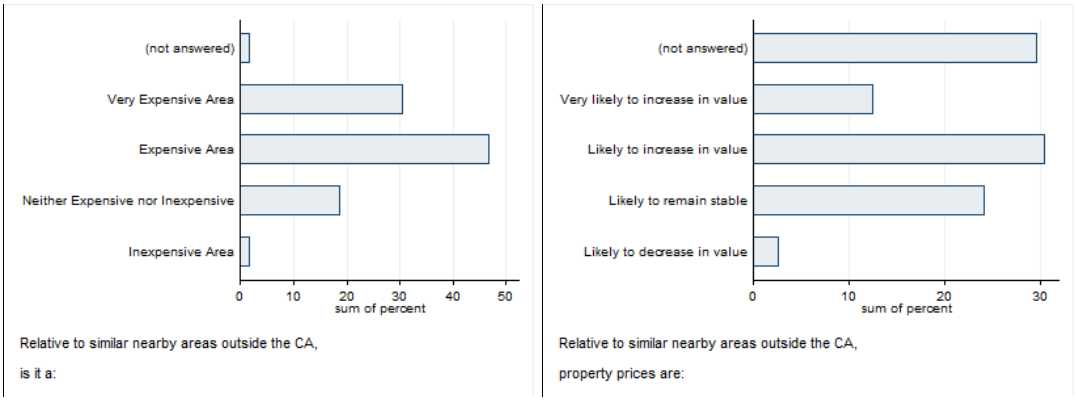
In the following section of the report we will focus on four core themes that were particularly relevant to the material that we gathered. These are: perceptions of property values, perceptions of the built environment, overall attitudes toward planning and perceptions of the quali-

ty of new build in conservation areas. One advantage of using a textual analysis programme is that one can juxtapose relevant codes against each other to see how various responses interact at an individual and case study level. This means, for example, that comments originating in two different themes like 'a positive view on the local built environment' and 'a positive view on planning' can be drawn out of the data and grouped by respondent and area and then further sub-divided by high or low premium areas. This gives the researcher the ability to analyse any patterns that may emerge through the inter-relationships built up between thematic categories.

Attitudes about property values

Residents were given two opportunities to discuss property values in their areas. The first was a question asked to all respondents giving them the opportunity to rate their area as expensive to inexpensive on a 5 point scale. They were then asked whether or not they saw this as a positive or negative feature, and were asked to discursively explain why they responded in this way. As can be seen from the following bar chart most respondents in our case studies saw their area as more expensive than other neighbourhoods in the borough. Homeowners were also given an opportunity to rate their properties' likelihood of increasing or decreasing in value relative to other neighbourhoods in the borough and to then explain why they felt this to be was the case. The great majority of home owners expected their area to increase in value or at least remain stable in relative terms.

Figure 24 Perceived price levels and trends



Notes: The bar charts illustrate the distribution of answers to questions 19 and 22.

What is immediately apparent from the textual data is the subtly different ways high and low premium residents responded to these questions. In both instances there were positive and

negative views regarding the expense of living in these areas but the tenor of these comments varied with the premium attached.

Taking the high premium areas first, the negative comments regarding property values coalesced around the fact that exclusivity was or was fast becoming a problem. In Brentham Gardens, for example, residents comment that it would be a "pity if the area becomes somewhere with only wealthy people"; that the area was now "unaffordable". One homeowner also observed that this push to exclusivity - driven by property price increases - was counter to what the original designers of Brentham Gardens had intended. S/he comments "I think the architects were very careful with not making it all one socio-economic group because they have little houses around the road and then bigger ones at the top. They obviously wanted social mix so becoming exclusive is not good." Residents of De Beauvoir also remarked on increasing selectivity being driven by a crisis in affordability, thus creating divides in who could and could not live in the area.

In our high premium, low deprivation neighbourhoods the negative comments are qualitatively different. In Richmond's Sheen Road there was only one negative comment registered regarding property price. In Ladbroke, however, there were a number of responses that noted how escalating property prices had brought with them a 'new type' of resident to the area driving subterranean developments, increasing absentee homeowners who were not involved with the local community, and stripping Ladbroke of its older "bohemian and artistic" communities that had once made Ladbroke distinctive. This reflects a potential trend in some areas for a type of super or re-gentrification of specific neighbourhoods where the area characteristics are highly desirable to a new class of 'global' resident (Lees, 2003). In Ladbroke numerous comments were made about the exclusivity of the space and how rich new foreign investors favoured its pleasant built environment. A comment that was also borne out in our interviews with local property professionals, most especially local estate agents who were quick to point out this phenomena.

In terms of the positive impacts of high property prices, our high premium neighbourhoods tended to mention the impact they felt that conservation area status made. Residents frequently stated that designation brought with it a desirability in property form and a stability in property price making the areas sought after commodities. In De Beauvoir inhabitants noted that in relation to the rest of Hackney their neighbourhood was "settled and attractive", which

meant that values were likely to increase. Another resident stated that, as the conservation area was typified by quiet streets and was small, people actively sought to live there, which in turn kept prices buoyant. In Brentham Gardens conservation designation was also specifically linked with stable or rising prices - “There are stable prices thanks to the conservation area” and “I think it is expensive because it is a conservation area” were common remarks.

In Sheen there was less of a tendency to mention the designation status specifically, with more of an emphasis on simply noting that the area itself was desirable and “at the forefront of the housing market”. In Ladbroke the positive comments were slightly different. There was a great deal of reflection on the fashionability of Notting Hill (where Ladbroke is located) and its attractiveness to wealthy international investors again pointing to a process of re-gentrification (Lees, 2003). In fact, this was by far the dominant comment made by residents and was also emphasised by local planning officers and estate agents. In addition, and unlike the other high premium areas, people were much more likely to comment that as richer residents were being attracted to the area, its upkeep and general appearance would improve. This then leads to a positive cycle whereby an area with an already distinctive and pleasant built environment is further looked after by an increasingly wealthy pool of residents. This phenomena was also reported by planning officers in several of our case study boroughs where it was noted that the relative wealth of residents impacted significantly on the quality of the built environment irrespective of, for example, Article 4 Directions.

Turning now toward our low premium case studies we see a slightly different pattern emerging with respect to positive and negative attitudes toward property value. There are very few comments regarding the creation of exclusive communities that price out locals or those on lower incomes. There were only three comments made that would fall into this category. One was made by a long term resident of St Matthias who was a homeowner. S/he states that prices have “...thinned out the type of people who are purchasing here”; and two comments from St Mark’s made by renters who show anger at the inflation of property values and the pushing out of local populations. The other type of negative comment made here and seen only in a limited way in the high premium areas revolves around properties not being ‘worth’ their value as other areas in the borough are “way more attractive” or for the ‘quality of the houses it is just not worth it”. This reflects the experiences of our researchers who went into Overcliffe and responses made by estate agents who tried to direct us to other conservation areas in the borough.

Positive remarks regarding property value in our low premium areas varied by level of deprivation. In two of our high deprivation case studies, Bowes Park and St Mark's, residents were far more likely to indicate that high property values made the area safer and cleaner. This was frequently linked to the 'type' of individual able to afford the neighbourhood. Limiting the number of DSS (Department of Social Security) tenants, keeping the 'trashy' or 'rougher' people out were noted by respondents as positive aspects of higher property values. Interestingly, residents of our high deprivation case studies were much less inclined to associate high property values with designation status.

In our low deprivation, low property premium areas, specifically St Matthias, respondents did talk about their properties being located in desirable, expensive and sought after areas. Here residents saw the utility value of this noting, for example, that their house was an investment, and a good area meant a good return on this investment. One resident likened this effect to owning a Picasso as opposed to "...something from a random painter." This was very similar to our other low deprivation neighbourhoods in high property premium areas where financial value was not necessarily linked to designation.

Attitudes about the built environment and planning

The next issue we will explore in the textual analysis will be how people related their feelings about the built environment with their views on the planning system. Attitudes on planning are taken from Questions 10, 34, 36 and 38.[30] As was discussed earlier in the report, most respondents had fairly positive views on the planning system and this level of satisfaction actually increased for those who had previously applied for permission. In addition, as we have already seen Question 10 did not specifically probe for answers related to regulation but asked residents what they least liked about their neighbourhood; when respondents spontaneously offered answers on planning they were coded in this way. Questions 34, 36 and 38 were more specific. In Question 34 we asked residents if they had ever applied for planning permission on their current property and, if so, how they would rate this experience. This gave us tangible evidence of people's actual interactions with regulation. In Question 36 we asked generally if they felt it was important to protect the integrity of conservation areas and in Question 38 we

[30] Both questions 34 and 38 are the discursive parts of a short series of questions on attitudes toward planning.

asked whether or not the planning system was the best mechanism to facilitate this protection. Our goal with these questions was to better understand how residents of conservation areas viewed regulation in both actual and imagined circumstances.

We have coupled these views on planning with residents' impressions of the quality and distinctiveness of their local environments. Initially we considered that case studies with more locally valued environments might also have more favourable views on planning. However, early data pointed to a trend in Brentham Gardens where there was a great deal of positive sentiment expressed about the architecture and layout of the estate alongside some very negative attitudes about planning and regulation. We therefore wanted to explore the interaction of these themes in our high and low premium conservation areas.

Taking our high premium cases first we see that most residents rated their area as more distinctive than did their low premium counterparts (with the exception being Courtfields who rated themselves slightly more highly than did Ladbroke). This attitude was also supported by the textual evidence with the residents of both Brentham Gardens and De Beauvoir commenting that the distinctiveness and architectural quality of their neighbourhoods was an important factor in the pleasure that they found living in the area.

Several interesting trends emerge when looking at the interplay between positive and negative attitudes regarding the built environment and positive and negative attitudes regarding planning in our high premium cases. The first is that there is very little data coded as 'negative attitudes towards the built environment', which is entirely consistent with the data shown above (see Figure 19 and Figure 21). The next thing that is outstanding is the volume of positive remarks from Brentham Gardens, our area with the most highly ranked level of distinctiveness. Here, as was stated earlier, residents commented on the planned layout of the estate and the village feel that this gave the neighbourhood. They also frequently mentioned that planning regulation was tight and obtrusive.

By merging the themes into one report broken down by respondent and area what is also apparent is that individuals in Brentham Gardens making wholly negative comments in Question 10 (e.g. those individuals making impromptu negative statements about planning) had nearly all had what they considered to be, a bad experience trying to alter their homes and of these all but one made no positive comments about the area's distinctiveness. It would appear that

for these residents the economic cost of applying for permission outweighed the area's architectural appeal.

The other factor that is of interest here, is that for those residents making positive comments on the planning system, most link this back to a need to maintain the character of the area. Even in one instance when the resident's own experience with regulation was less than positive their response to questions 36 and 38 indicate a strong feeling that without planning, the architectural integrity of Brentham Gardens would be at risk. The resident states, "I do think there is a unique architectural interest here and if standards are relaxed, even slightly, it is a very slippery slope to losing the character of the neighbourhood.". This is again consistent with the findings of Townshend and Pendlebury (1999) who note that conservation area residents often have a strong affinity with conservation status.

In De Beauvoir, our other high premium, high deprivation case study there were numerous positive comments regarding the built environment, which is again highly consistent with the manner in which residents rated their area in terms of distinctiveness. Unlike Brentham Gardens, inhabitants of De Beauvoir were also less likely to make negative comments about planning; in fact the only critical statement made was linked to the "undesirability" of listed building status and the controls this placed on property owners. The majority of statements about planning control noted the reasonability of the council planners and the ease with which applications were processed.

In our two low deprivation cases Sheen and Ladbroke the responses were slightly different. In Sheen residents' opinions were mixed. Some saw the importance of planning and its role in controlling and maintaining character, whilst others saw this as an overly bureaucratic process. In Ladbroke the opinions were different. Here there were several residents who commented that they had negative experiences with planning permissions that were denied and that they believed that the RBKC had been unfair or too rigid when dealing with their applications. However, and far more interestingly, there were numerous comments from residents who had been denied permission but who stated that they saw the reasonableness in this action. An excellent example of this was one resident who stated, "...we weren't allowed to take out any fireplaces for example ... we would have quite liked to do that, but on the other hand we respect if people can't do that in old houses if it preserves them. So, it was a decision that went against us as individuals but I thought that it was probably correct in a more overall perspec-

tive.". Another comment perhaps helps us to understand why residents are more prone to taking this "overall perspective". Here one homeowner notes that, "The borough places a lot of importance on preserving the look of the environment, so I think they allocated resources to it and I think we therefore have a positive mind-set towards heritage ... so even if they would refuse something we would like to do, we would understand the rationale behind it.". Here what we see, is a borough that is clearly seen to be making an effort regarding conservation by its residents. This has payoffs not only in the quality of the built environment but also in general levels of awareness amongst residents who are then better able to accept decisions on a societal rather than an individual level. The RBKC has a strong, well resourced group of planning officers dedicated to conservation and clear policies that direct them. In the current budgetary climate this is not always the case. In another borough we surveyed, there was an expression of concern that having built up a good conservation area team, recent cuts to council finance have meant that the team has now been reduced to a single officer. They fear that the positive benefits that they are currently reaping from the work undertaken by the conservation area team, including work with local communities, will be lost with this reduction. More interestingly still, the planning officers commented that this loss of continuity in the conservation area team would disproportionately impact areas of deprivation since the loss of knowledgeable and skilled professionals would rupture the links between less affluent communities and access to conservation area tools.

Moving on to the low premium areas we see a different pattern emerge, especially for Bowes Park and Overcliffe two of our high deprivation areas that were ranked as the least distinctive by their inhabitants. In Bowes Park, a limited number of residents stated that there was "nothing special" about their area and that it was not one that people tended to identify with strongly. They also said that the planning system itself was poor and expensive and did not work as well as it could in terms of conservation. One homeowner commented, "The borough of Haringey doesn't impose the planning restrictions strongly enough. There are all sorts of ugly shutters on the fronts of shops on Myddleton Road and all sorts of things have been done. The resident's association is always fighting with the local authority over not enforcing planning restrictions." As was noted by planning officers in Haringey, in conservation areas without Article 4 Directions, like Bowes Park, often the maintenance of local character and the enforcement of planning policy is down to the engendering of local pride in the area and the raising of awareness of designation status.

In Overcliffe, the negative attitude towards both planning and the built environment was more pronounced. A few residents seemed genuinely shocked that they lived in a conservation area and many simply described the area as poor, ill maintained, ugly and unpleasant. They talk about planning being inconsistent, ill-informed, and confusing. Looking at how both Bowes Park and Overcliffe have rated themselves in terms of distinctiveness it is perhaps not unsurprising that regulations that restrict how homeowners can alter their properties are less popular in these areas.

Whilst little data was generated for Courtfields regarding attitudes toward planning our other low deprivation, low premium case study produced a number of statements. For the residents of St Matthias, in Richmond, there were a clear majority of inhabitants who spoke of a need for regulation to protect the built environment. This is best typified by the comments of one homeowner who when asked why planning was important in a conservation area stated, “Because you don’t want your neighbour to paint his house pink! So, protecting your architecture helps to maintain a certain level of quality.”. The few negative comments regarding planning regulation in St Matthias typically revolved around the length of time it took to receive permission.

Objections - real and virtual

In this next section of the report we will turn to the way in which our residents voiced opinions about objecting to both real planning applications and hypothetical applications to alter the front or back of a nearby property or to remove a significant tree from a garden close by. As was noted previously, around 40 per cent of our sample had objected to a neighbour’s application and this was generally evenly spread between levels of deprivation and property premia. In terms of hypothetical applications there was more of a tendency to report the likelihood of objection in high premium, high deprivation areas. By looking at the textual data our researchers collected we hope to uncover some of the attitudes driving this behaviour and better understand any differences between high and low premium cases.

Taking our high premium areas first, three phenomena stand out as dominant in the data. The first is perhaps the most expected, that is that when residents do object to a neighbour’s request for planning permission it is often driven by personal motives. The primary reasons given for why an objection was lodged with the council involved: being overlooked, the loss of sunlight and/or the loss of a significant or cherished view. These motivations are clearly linked to

the homeowner's enjoyment of their property rather than to the aesthetic or heritage quality that is intrinsic to the neighbourhood as a whole. It is perhaps also true that these aspects - a more private dwelling, good access to sunlight and a pleasant outlook - are all factors that impact on how property owners interact with their homes, value their homes in the sense of ideals, aesthetics and the often less tangible qualities we grow to love about the spaces in which we live, and arguably may also increase their financial value.

The second feature of the data in our high premium areas that is particularly interesting is the frequency with which amenity societies or generalised 'neighbourhood pressure' were mentioned in conjunction with making objections. This is best typified by two comments, one made in Brentham Gardens and one in Ladbroke. In Brentham Gardens the homeowner stated that "If I did not feel the Brentham Society was doing enough I would definitely object". In Ladbroke the resident explained that permission had been given to a near neighbour to alter the roofline of their property, which in turn would change the skyline of the garden square. As s/he stated, "...there was such pressure in the neighbourhood that despite the approval the person did not go ahead with the build". These comments are also well supported by evidence gathered from planning and conservation officers in the relevant boroughs. Here an officer, when speaking about one of our high premium cases, noted that, "...the residents there are very conservation minded... nothing slips through the net in terms of enforcement... if someone puts a ladder up against their wall we will hear about it, they act as our eyes and ears". This willingness to interact with planning, especially as part of an organised amenity society was a commonality shared amongst our high premium areas.

Finally, there was also evidence that many of the objections in the conservation areas that made up our high premium cases were predicated on a genuine sense of trying to maintain the character of the area. This extends to objections based on the loss of significant trees and changes that would alter the form or style of the built environment. Again, interview responses are entirely consistent with the comments made by local planning officers who all took time to explain that their residents had a "heightened awareness of conservation" and were intent on "keeping the character of the area and stopping detrimental development".

Only four individuals in our high premium areas spoke about reasons for not objecting to a neighbour's planning application. Two of these were in Brentham Gardens and two were in De Beauvoir. In the case of Brentham Gardens one respondent again raised the Brentham Society

stating they felt it was unnecessary to object as the Society does this in an organised way. The other resident has not felt the need to object as there has been no development that they deemed out of keeping. This is almost mirrored in De Beauvoir where one homeowner has never objected as they believe the conservation area rules should be stringent enough to stop 'outrageous' development, and the other has found nothing unreasonable proposed by neighbours.

In our low premium case studies the first thing that is apparent is the reduction in detailed comments made by residents on both reasons for and against objecting. Here we see our high deprivation areas commenting very infrequently on reasons as to why they would have objected to a neighbour's planning application. Most of these statements were focused on intensification of use and the redevelopment of sites into flats, with one comment in Overcliffe noting that they would object if they felt that the development was out of keeping with the area. In terms of reasons why these residents would not object there was a belief that generally people should be able "..to do whatever they want within the perimeter of their own home as it is private property" and notably in Overcliffe, a view that "...the area is not that unique" so there was no real reason to object.

Homeowners in our areas of low deprivation (Courtfields and St Matthias) commented the most regarding reasons for objecting. The responses are an even mix between objections to an intensification of use in the form of commercial developments and flats, concerns about loss of light, and concerns about the character of the area. There was only one comment from St Matthias regarding reasons not to object. This was a case where a householder chose not to lodge a complaint (unlike other area residents, who did) as the proposed development was to the back of the property.

Perceptions of the Quality of New Build

The majority of residents (80%) reported seeing some type of new build happening in their neighbourhood. When asked if they felt that the new build was of better quality because it was in a conservation area a small majority of residents responded that they did not. Looking at the textual data taken from Q14 we see almost no pattern emerging. Some residents responded positively that new extensions were in keeping with surrounding properties, whilst others noted that the new build they had seen was detrimental to the area. Some of the negative comments could be tied back to fears about intensification of use as was typified by this

homeowner who stated, "There is a development just behind us where they are replacing an old industrial building with some modern flats. Most of the residents complained but the Council is going to allow it.". Later on in the interview data there is a linkage made between the conversion of properties into flats and the increased pressure this placed on parking in the neighbourhood.

Whilst residents may have appeared 'lukewarm' on the subject of new build in conservation areas it was a topic about which conservation/planning officers and property professionals were far more passionate. Every council officer reported that the extra statutory powers accorded them and the increased attention given to conservation areas made new build more thoughtful and integrated. Most spoke of a "weight" that policy gave them in negotiating the size, massing and integration of new structures into the fabric of the area. All also commented that without these added powers it would have proved impossible to guide development. In fact, one council noted that new build outside conservation areas now rarely received the attention of design officers as cut backs had made this a difficult service to provide.

One other factor that was discussed by the planning officers we surveyed was the impact perception of regulation had on new build, especially alterations undertaken by homeowners. Here officers noted that many homeowners believed the regulations enforced in conservation areas were far more stringent than they were in reality. This led to many alterations being undertaken at a far higher standard as the starting point was already set in the mind of the homeowner. This in turn led to a sort of virtuous circle whereby neighbours who also decided to undertake renovations followed suit, using for example wooden sash replacement windows where these were not a strict requirement. In the end the integrity and fabric of the area was well preserved through this process, especially in areas where residents were better able to pay for better quality materials.

3 . 8 Concluding remarks

The location of a property inside a conservation area potentially creates tensions between the advantages of residing in an attractive and distinctive area and the disadvantages of additional planning control imposed to maintain the character of the area. We have analysed these costs and benefits as perceived by the residents living in 10 selected conservation areas using a combination of qualitative and quantitative methods. Merging individually estimated conservation area premia, which form a *revealed preference* index of the net-benefit or cost associat-

ed with location in a conservation area, to *stated preference* indicators generated based on the survey answers we gain insights into the determinates of the value conservation areas add to properties. Descriptive evidence suggests that a higher (perceived) quality of the built environment is positively correlated with conservation area premia, while the opposite is true for (perceived) problems with planning control. While attractive and distinctive character is generally acknowledged across different types of conservation areas and tenure groups, a negative attitude toward development constraints in conservation areas and the planning system more generally did not prove a general phenomenon.

One of the most interesting findings regarding attitudes about planning control in our textual data is the manner in which, especially in the conservation area of Ladbroke, residents rationalised and accepted planning decisions that were not necessarily favourable to them. This helps to illustrate the importance of building up a general understanding of conservation policy in the local population and also helps to explain some of the importance local residents place on the integrity of the built environment. It is also important to note here that often these attitudes are also disseminated by amenity societies and groups of local residents who not only help spread the message about area integrity but also help to enforce planning control through making formal objections to planning applications and offering a type of 'peer-pressure' on neighbours wishing to alter their properties in unsympathetic ways.

While homeowners are more aware of living in a conservation area than renters and also more likely to consider moving into another conservation area, they do not report a particular dissatisfaction with planning constraints. Also, owners who had previously applied for planning permission did not report a significantly more negative attitude toward planning constraints and, on average, described their experiences during the planning process as positive. These findings are in line with a strong interest in maintaining the character of the area, which is reflected in a relatively high proportion of respondents who had objected to applications by a neighbour (around 40%) and an even higher proportion of respondents who would consider objecting if necessary. The textual analysis substantiates a general acceptance of the need to constrain individual property rights in the interest of maintaining the character of an area, at least where it is perceived as attractive and distinctive.

One clear area of difference between our high and low premium conservation areas came in how they perceived the economic costs in the form of property prices and rents of residing in

their neighbourhoods. Our high premium cases were far more likely to be concerned about increasing exclusivity and the pressures of gentrification and sometimes "super gentrification" (Lees, 2003). They also were likely to note that designation status brought with it certain standing that helped to maintain and even improve property values. In our low premium, high deprivation cases, residents were more likely to conceptualise high property values as a positive way of maintaining a "better quality of resident", whereas their counterparts in low deprivation neighbourhoods typically spoke about property values and the investment potential of their homes.

Overall this work shows that conservation areas remain a generally popular planning tool. This is especially true for areas with high property premia regardless of levels of local deprivation. In addition, the extra constraints placed on householders are generally not perceived as overly burdensome, a factor that again is strengthened in areas that are thought of as distinctive by their residents. Planning officers also consider the policy effective and especially note both the heightened ability to push for high quality new build in designated areas and the increased community activity, especially in areas considered to be particularly distinctive.

Appendix I: Quantitative Section

Table A1: Variable description

Dependent Variable	
Price	Per square metre transaction price in £ of the corresponding plot of land (expressed as natural logarithm). Transaction data from the Nationwide Building Society (NBS).
Independent Variables	
CA Effects	Dummy variables denoting property transactions taking place within the boundaries of an currently existing conservation area, in a conservation area at the time when designated or where the designation date is unknown as well as various buffer areas surrounding current or treated conservation areas.
Fixed Effect Control	Travel to Work Areas, nearest conservation area catchment areas and interactives with year effects
Housing information	Set of property variables from the NBS including: Number of bedrooms, number of bathrooms, floor size (in square metre), new property (dummy), building age (years), tenure (leasehold/freehold), central heating (full: gas, electric, oil, solid fuel), central heating (partial: gas, electric, oil, solid fuel), garage (single or double), parking space, property type (detached, semi-detached, terraced, bungalow, flat-maisonette)
Neighbourhood information	Set of neighbourhood variables including: median income (2005, LSOA level), share of white population at total population (2001 census, output area level), share of mixed population at total population (2001 census, output area level), share of black population at total population (2001 census, output area level), share of Asian population at total population (2001 census, output area level), share of Chinese population at total population (2001 census, output area level), Herfindahl of ethnic segregation (including population shares of White British, White Irish, White others, Mixed Caribbean, Mixed Asian, Mixed Black, Mixed other, Asian Indian, Asian Pakistani, Asian others, Black Caribbean, Black African, Black other, Chinese, Chinese other population, 2001 census output area)
Conservation area Characteristics	Set of characteristic variables for conservation areas from English Heritage including: Conservation area land use (dummy variables for residential, commercial, industrial or mixed land use), conservation area type (dummy variable for urban, suburban or rural type), conservation area size (dummy for areas larger than mean of 128,432.04 square metres), conservation area (square metre), conservation area has an Article 4 Direction implemented (dummy), oldness of conservation area (dummy for areas older than mean of 1981), conservation area at risk (dummy), conservation area with community support (dummy), conservation area is World Heritage Site (dummy)
Environment Characteristics and Amenities	Set of locational variables processed in GIS including: National Parks (distance to, density), Areas of Outstanding Beauty (distance to, density), Natural Nature Reserves (distance to, density), distance to nearest lake, distance to nearest river, distance to nearest coastline, land in 1km square: Marine and coastal margins; freshwater, wetland and flood plains; mountains, moors and heathland; semi-natural grassland; enclosed farmland; coniferous woodland; broad-leaved/mixed woodland; urban; inland bare ground

Further notes on data methods

Other amenities	Set of locational variables created in GIS including: Average key stage 2 test score (MSOA averages as well as interpolated in GIS), distance to electricity transmission lines, A-Roads (distance to, buffer dummy variables within 170m), B-Roads (distance to, buffer dummy variable within 85m), motorway (distance to, buffer dummy variable within 315m; buffer distances refer to the distance were noise of maximum speed drops drown to 50 decibel), distance to all railway stations, distance to London Underground stations, distance to railway tracks, distance to bus stations, distance to airports, densities of cafés, restaurants/fast food places, museums, night-clubs, bars/pubs, theatres/cinemas, kindergartens, monuments (memorial, monument, castles, attraction, artwork), hospitals, sports/leisure centers, police stations and worship locations, distance to Travel to Work Areas, employment potentiality (based on Travel to Work Areas with an time decay parametre of 0.073).
Neighbourhood Distance Controls	Set of neighbourhood distance dummy variables created in GIS including: Distances outside conservation area border (up to 50m, 100m, 150m, 200m, 250m, 300m, 350m, 400m, 1km, 2km and 3km), distances inside conservation area border (up to 50m, 100m, 150m, 200m)

1. *Employment potentiality*

The employment potentiality index is computed at the Super Output Area, lower level (LSOA) and represents an average of employment in neighbouring LSOAs weighted by their distances. Employment potentiality is calculated for each Lower Layer Super Output Area i (LSOA) based on employment in all other LSOAsj using the following equation:

$$\mathrm{EP_i} = \sum_j \mathrm{E_j} \mathrm{e}^{-\mathrm{a}\,\mathrm{d_{ij}}}, with\ i \neq j,$$

where d measures the straight line distance converted into average travel time and Employment the absolute number of workers in the respective LSOA. The indicator is weighted by a decay parametre of $\mathrm{a} =$ -0.073 as estimated by Ahlfeldt(2005). Internal distances are calculated as:

$$\mathrm{d_{ii}} = \frac{1}{3}\sqrt{\frac{\mathrm{Area_i}}{\pi}}$$

2. *Kernel densities for National Parks, Areas of Outstanding Natural Beauty and National Nature Reserves*

The kernel density is a measure that takes into account both the proximity and the size of NPs, AONBs and NNRs. Every 100x100m piece of designated area is assigned a point and the density of these resulting points calculated for 10km kernels and a quadratic kernel function (Silverman, 1986, p. 76, equation 4.5)around each housing unit using a kernel density method. The result is similar to calculating a share of NP area within a circle apart from the fact that the

points are additionally weighted by distance to the housing units according to a normal distribution.

3. Buffers for motorways and roads

The buffer sizes for the different roads are as follows: B-Road (85m), A-Road (170m) and Motorway (315m). These distances are calculated based how far it is expected that the noise from traffic travelling at the speed limit of the respective roads (Steven, 2005) would decline to an assumed disamenity threshold level of noise of 50db (Nelson, 2008).

4. Land cover map Broad Categories

Table A2: Land Cover Broad categories

1	Marine and coastal margins
2	Freshwater, wetlands and flood plains
3	Mountains, moors and heathland
4	semi-natural grasslands
5	Enclosed farmland
6	Coniferous woodland
7	broad-leaved/mixed woodland
8	urban
9	Inland bare ground

Notes: Categories adopted from Mourato et al. (2010).

Table A3: Districts covering areas with world heritage status

5	Amber Valley Borough Council
1	Bath & North East Somerset Council
1	Bradford City Council
2	Canterbury City Council
27	Cornwall (UA)
1	County Durham UA
3	Derby City Council
3	Derbyshire Dales District Council
5	Liverpool City Council
1	London Borough of Camden

Notes: The numbers refer to the numbers of sites in each district

5. Propensity score matching regression

In order to determine the control group for the difference-in-difference specification a propensity score matching approach was employed. We used a stepwise elimination approach in order to determine which variables have a significant impact on propensity score. With a significance level criterion of 10% the following variables remained in the final CA propensity score estimation:

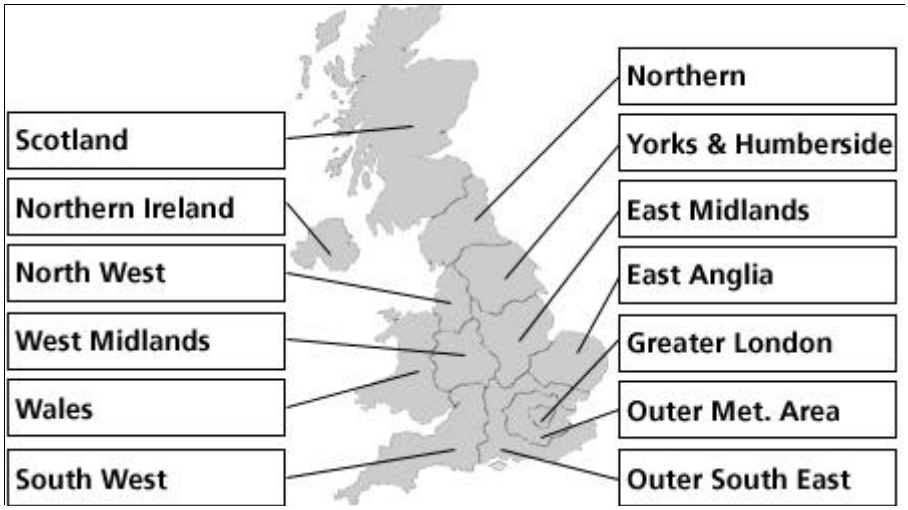
CA characteristics: Urban, Commercial, Residential, Industrial, World Heritage Site, At Risk and Article 4 Status.

Environmental characteristics: Land Cover Type 9 (Inland bare ground), Land Cover Type 3 (Mountains, moors and heathland), distance to nearest National Nature Reserve, distance to nearest National Park, National Park (kernel density) and Area of Outstanding Natural Beauty (kernel density).

Neighbourhood characteristics: Median Income and Ethnicity Herfindahl index

Amenities: Distance to nearest Bar, distance to nearest Underground Station, distance to nearest Hospital, distance to nearest Motorway and distance to nearest TTWA centroid.

Figure A1: Definition of regions



Notes: Figure taken from the English Heritage Website.

Appendix II: Qualitative Section

Figure A2 Selected conservation areas

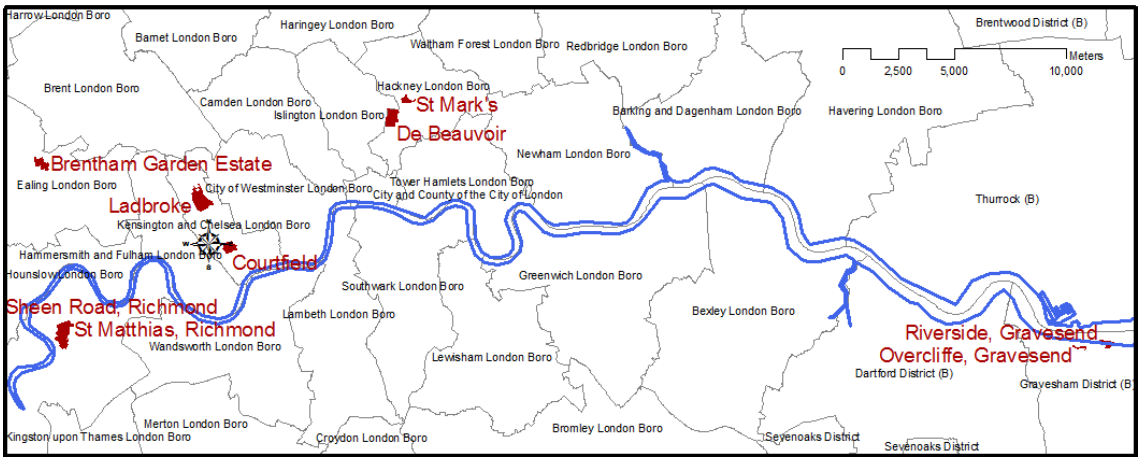


Figure A3 Conservation Area Photos



Photo 1 Victorian housing in De Beauvoir – Dutch Gables



Photo 2 Street view of housing types in Ladbroke, RBKC

Figure A3 Conservation Area Photos (continued)



Photo 3 View of the Garden Square in Ladbroke



Photo 4 Street view of housing types in Sheen, Richmond



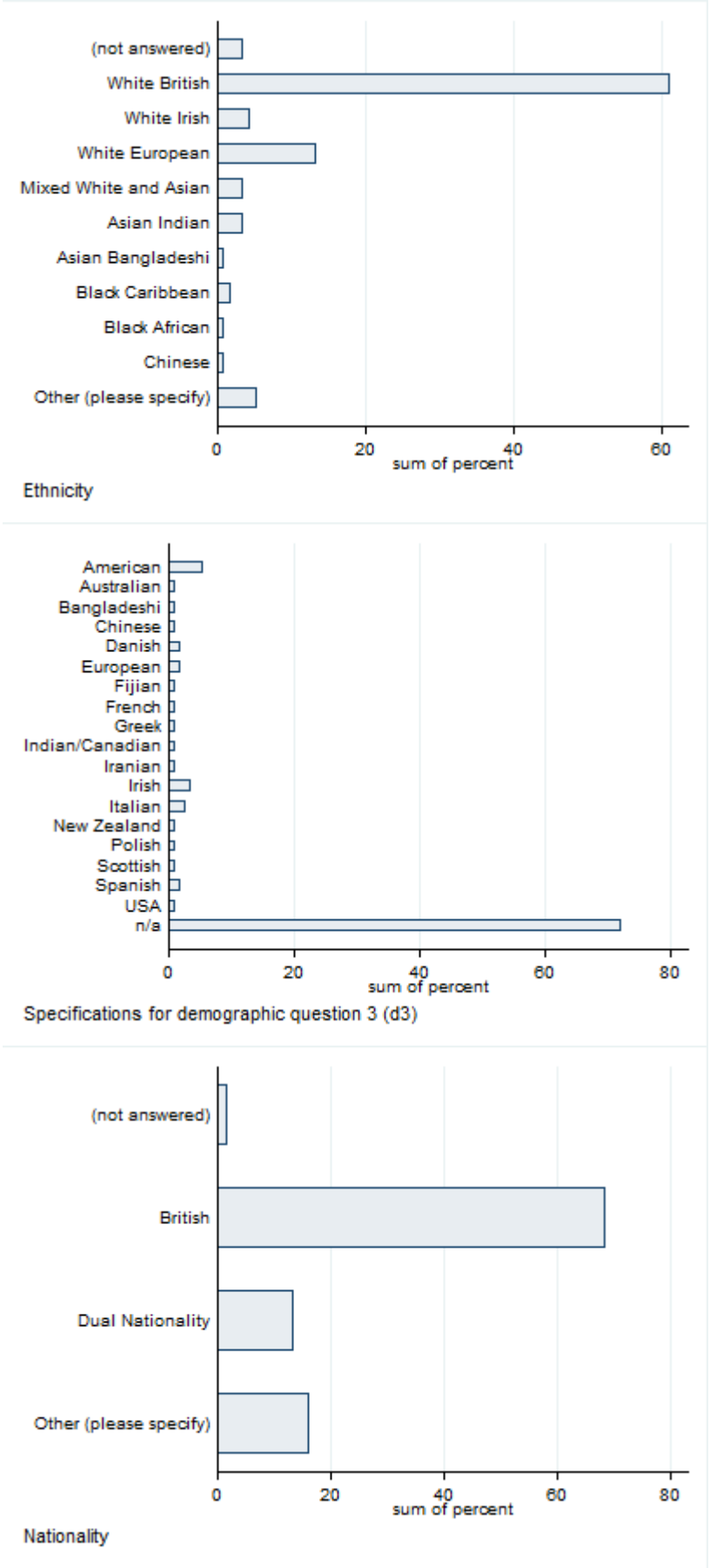
Photo 5 Street view of housing types in St Matthais, Richmond

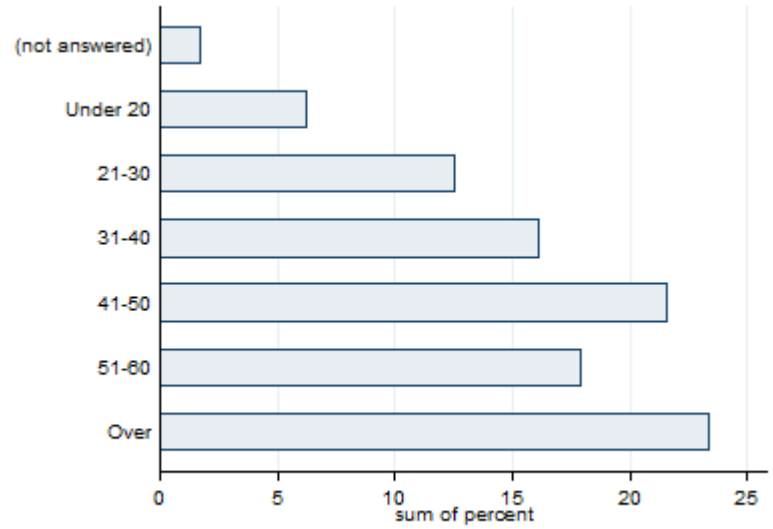
Figure A3 Conservation Area Photos (continued)



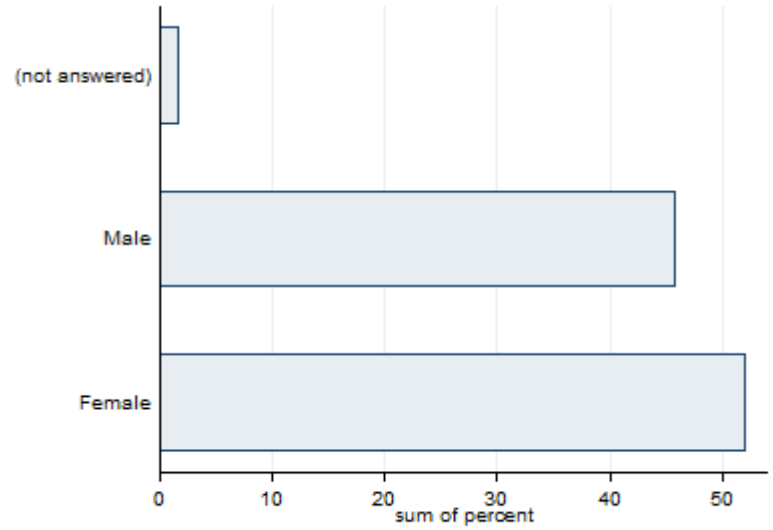
Photo 6 Street view of housing types in Overcliffe, Gravesham

Figure A4 Distribution of answers to survey questions

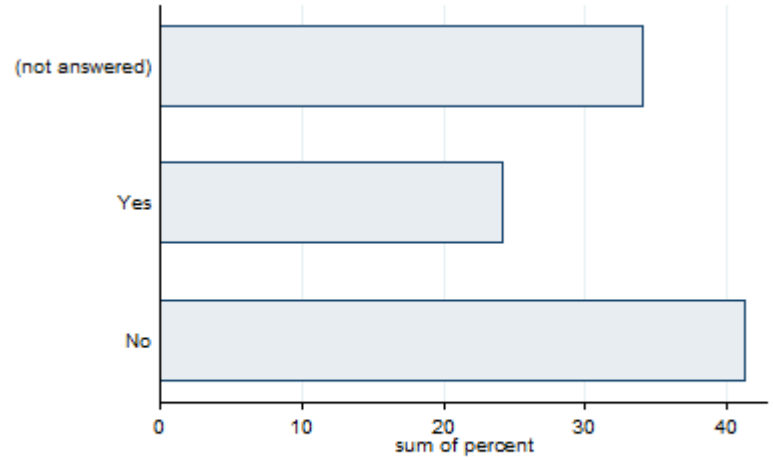




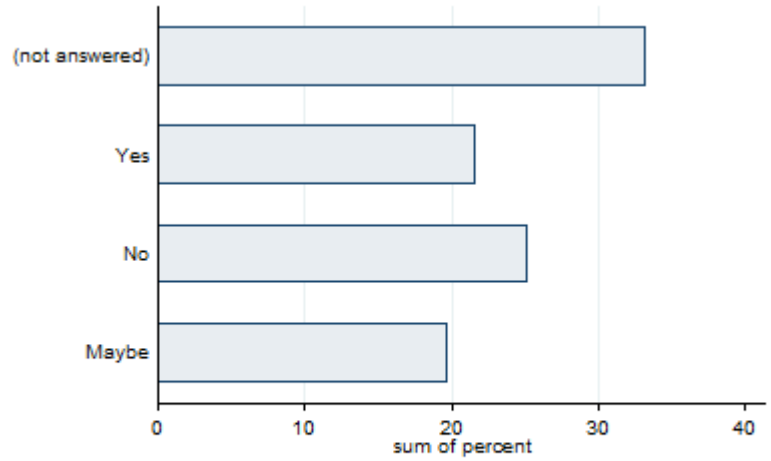
Age range



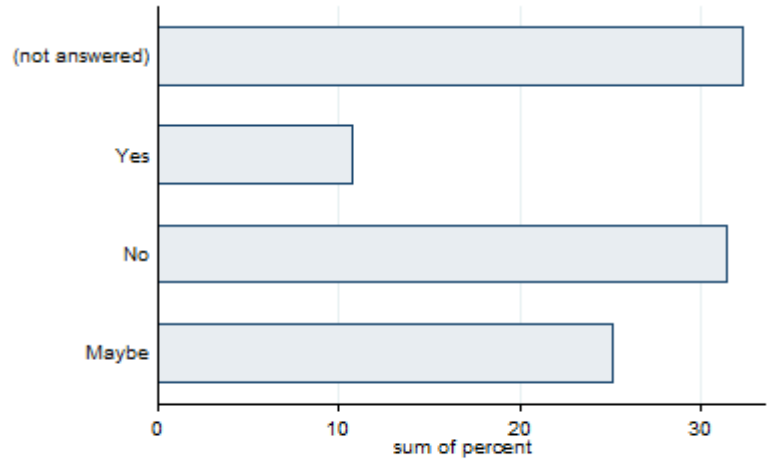
Gender



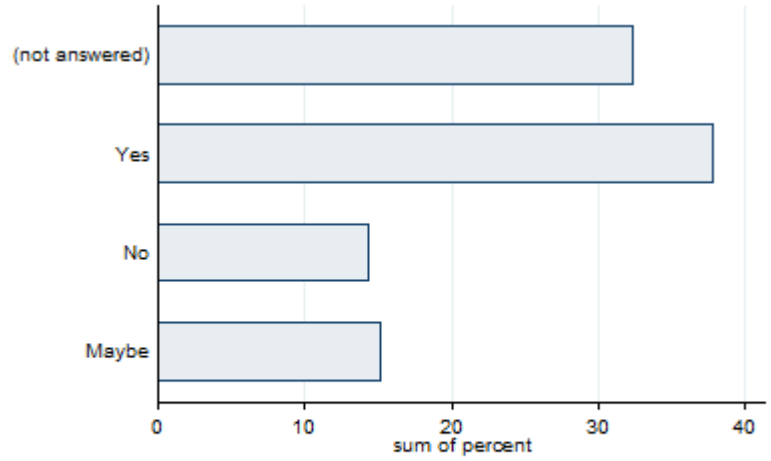
At your current residence, have you ever objected to a neighbour's plan request?



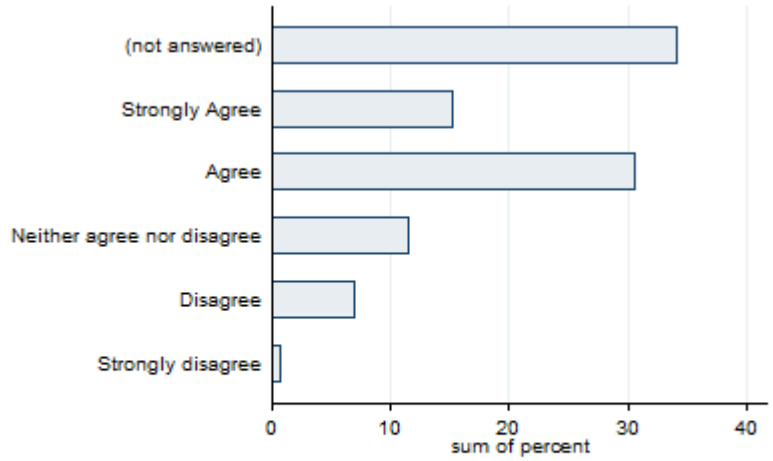
If a neighbour applied to remove a tree from garden, would you object to the LA?



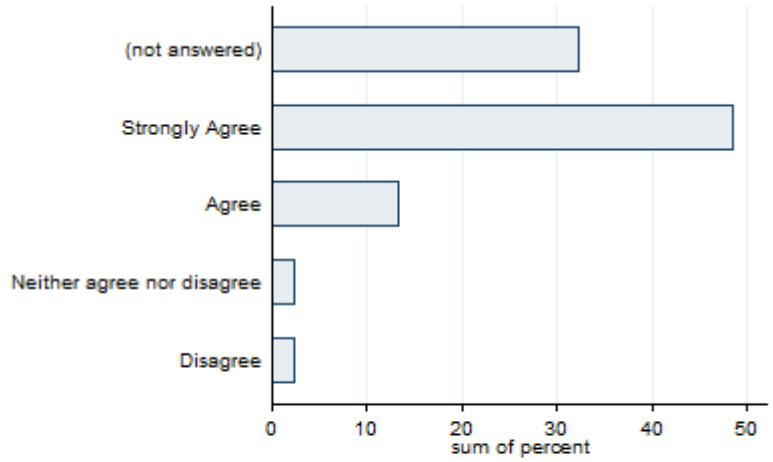
If a neighbour applied to alter their house-rear, would you object to the LA?



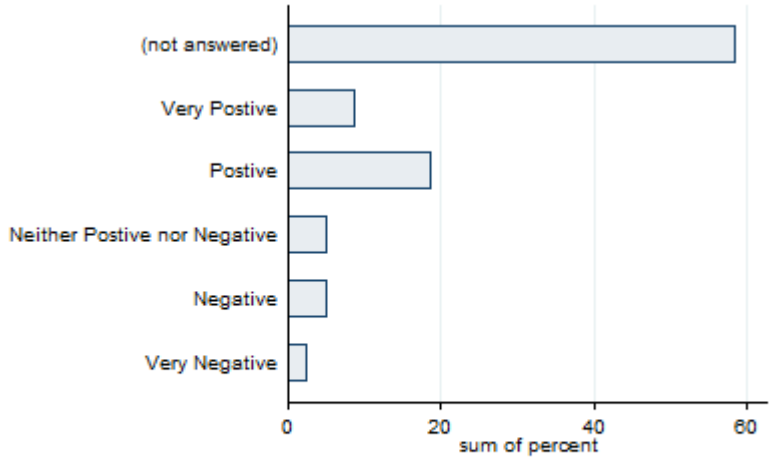
If a neighbour applied to alter their house-front, would you object to the LA?



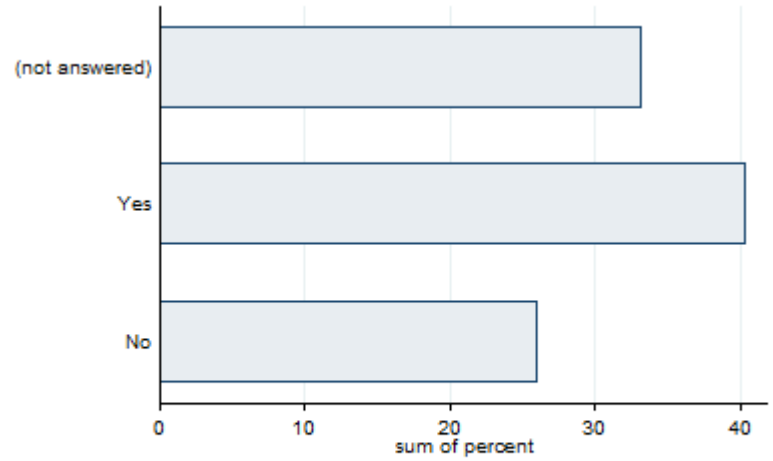
The planning system is the best mechanism with which to protect this integrity



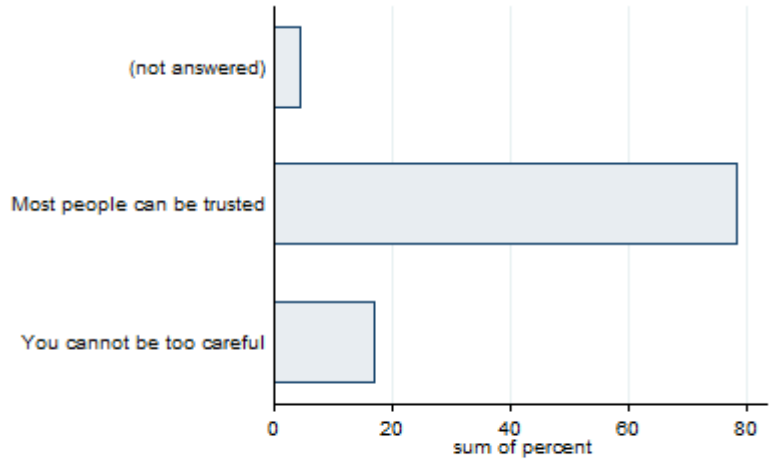
It is important to protect integrity of CAs (architectural or historic character



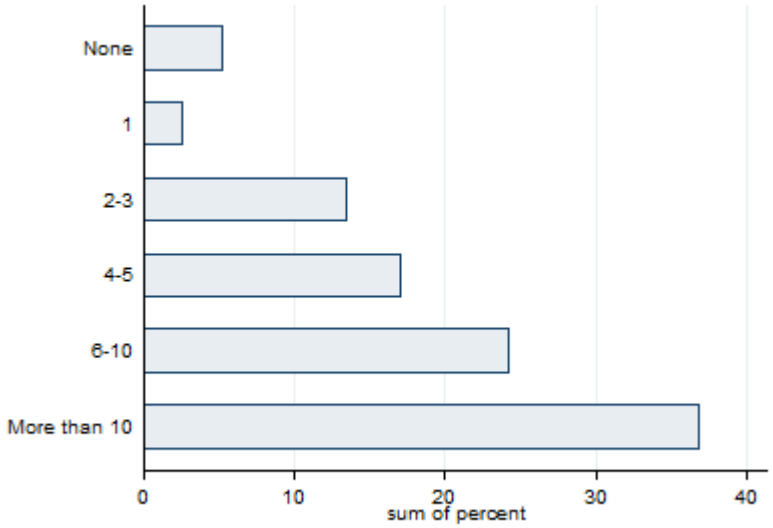
On a scale of one to five, please rate your experience



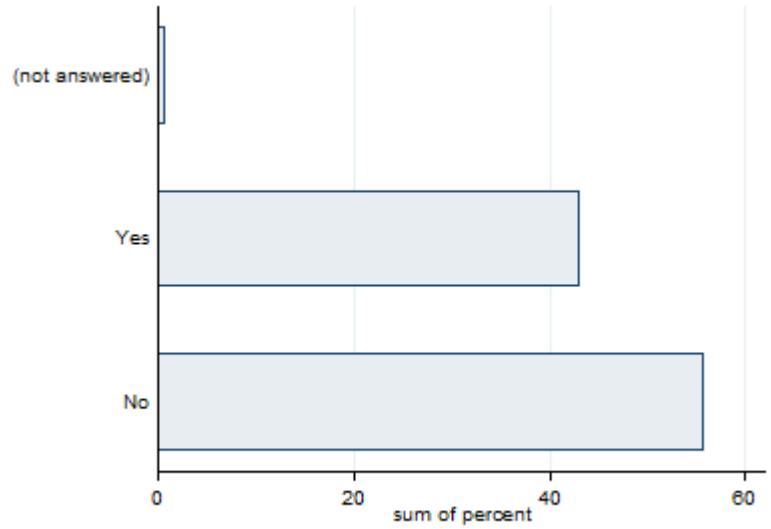
Have you ever applied for planning permission relating to your current residence



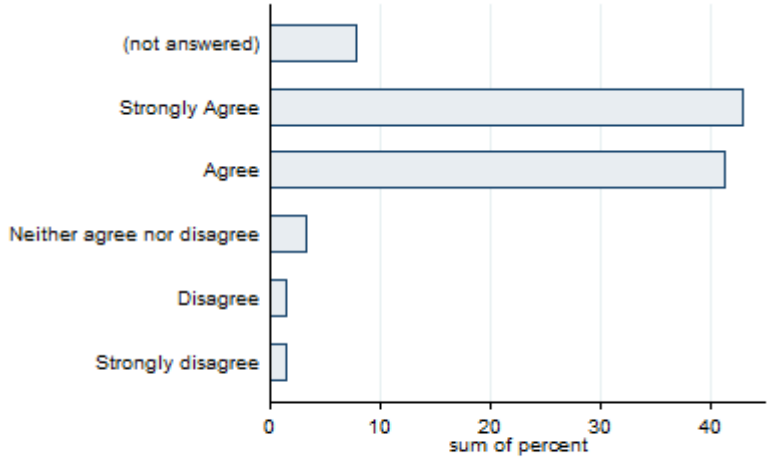
Would you say, most people can be trusted, or you can never be too careful?



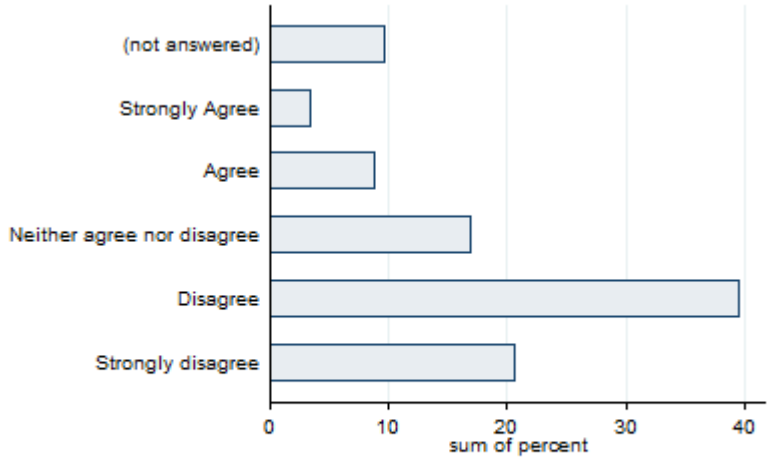
How many of your neighbours do you know by name?



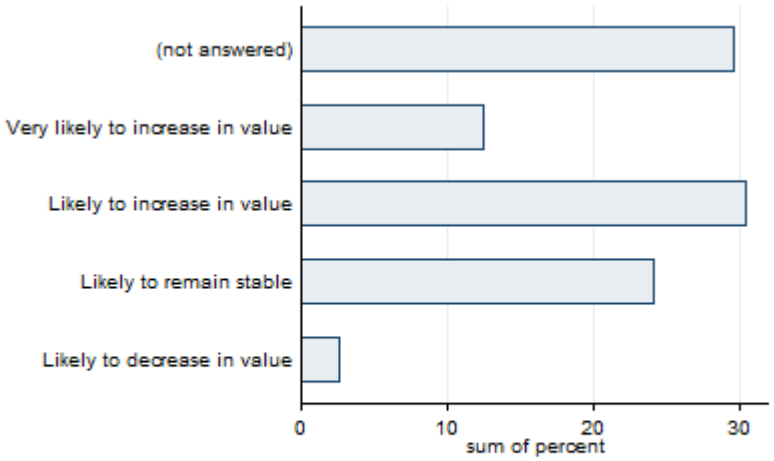
Are you a member of any community groups?



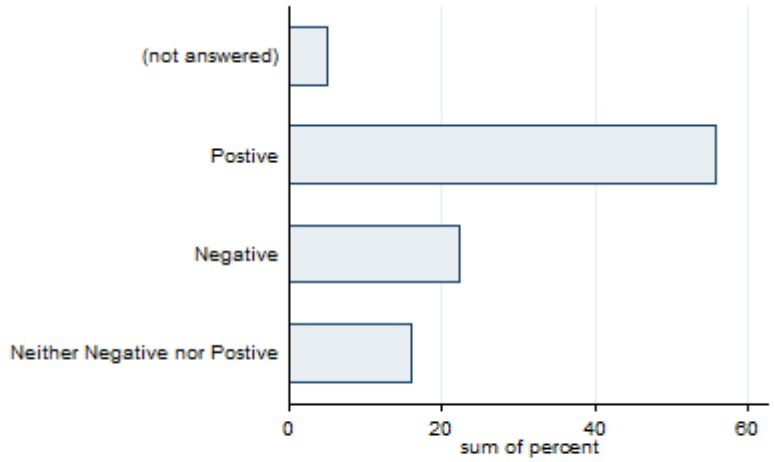
Constraints on property owners in CAs are important to maintain attractiveness



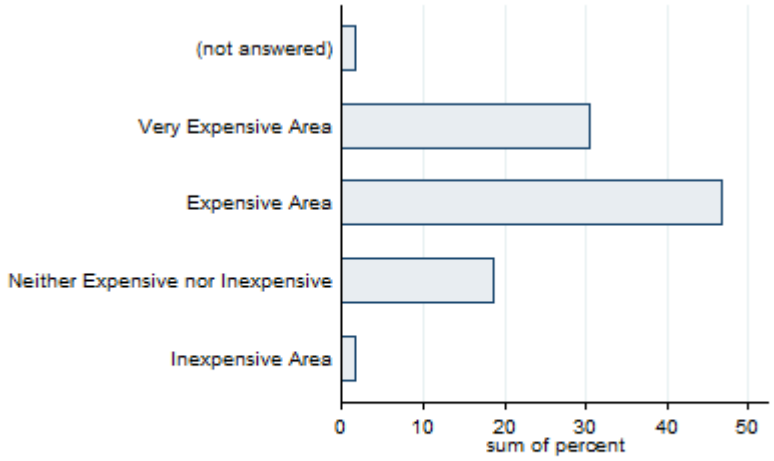
Constraints on property owners in CAs are signif. negative attribute of area



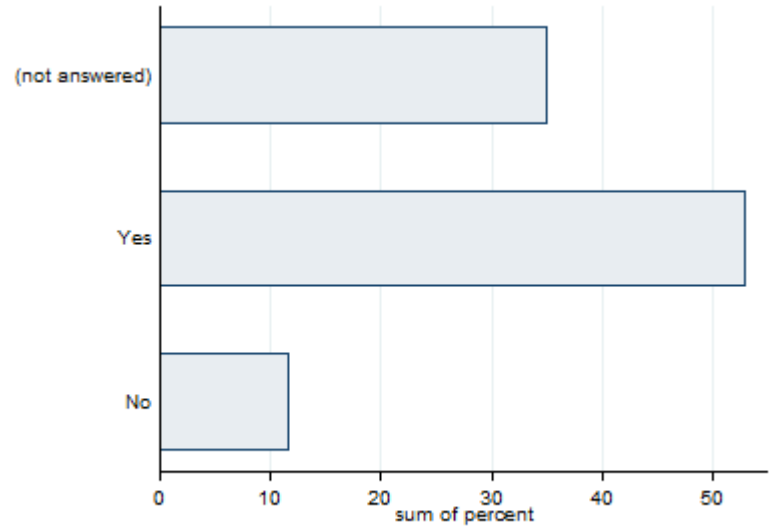
Relative to similar nearby areas outside the CA,
property prices are:



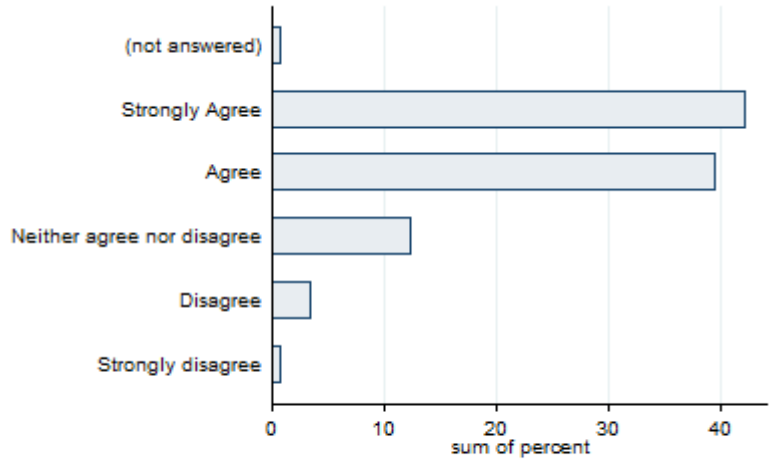
Do you see this as a postive or negative feature
of this area?



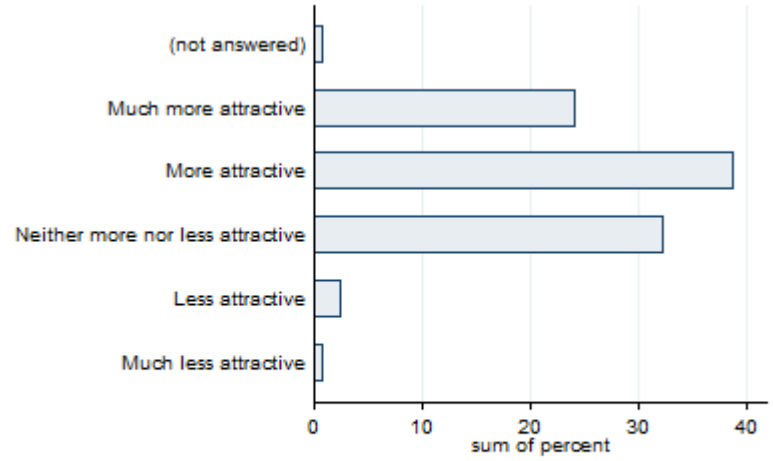
Relative to similar nearby areas outside the CA,
is it a:



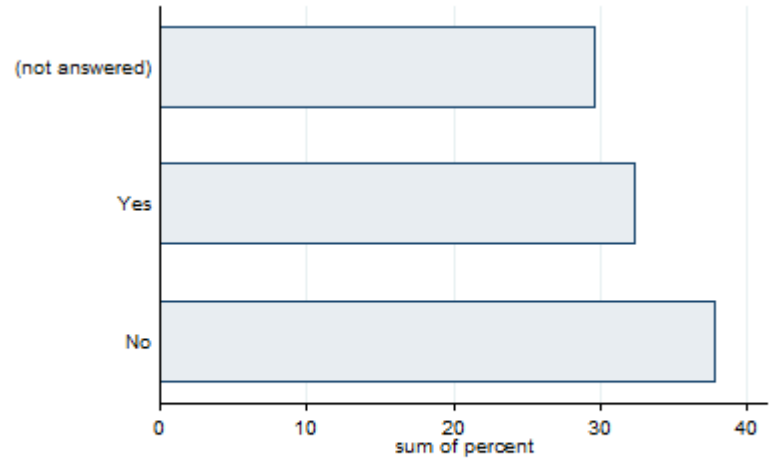
Living in a CA impacts the value of your property?



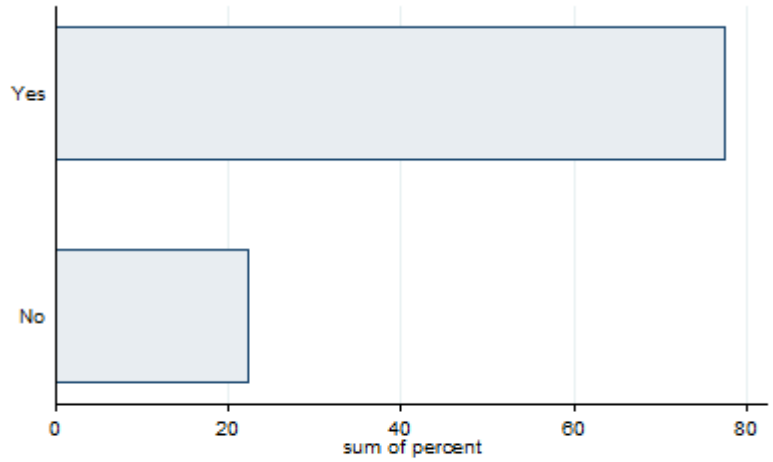
The buildings in my neighbourhood are attractive to look at



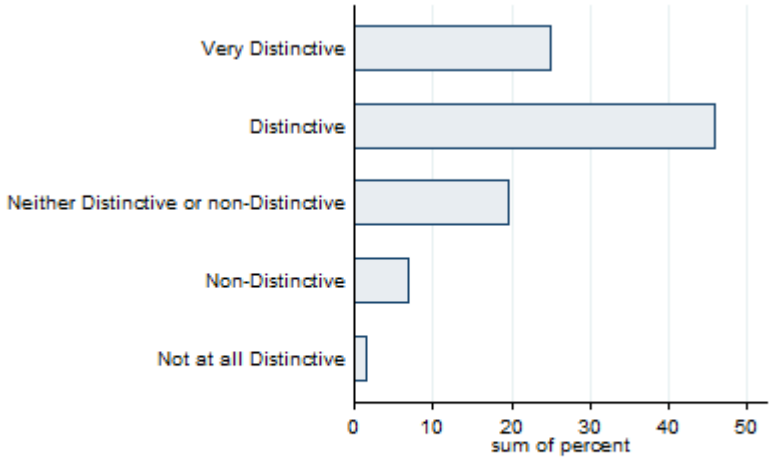
Relative to nearby neighbourhoods, describe the attractiveness of the CA



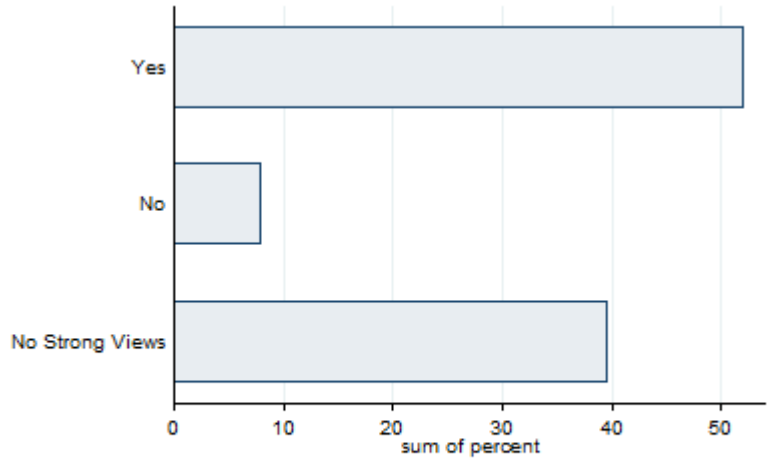
The fact that the new development is in a CA has made it of better quality



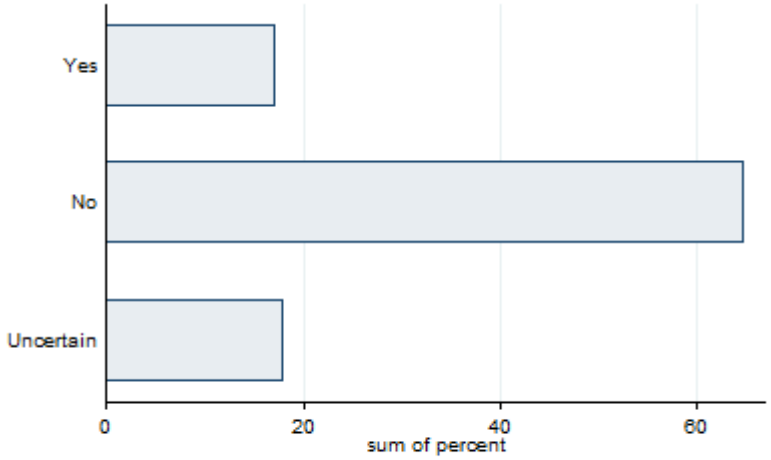
Have you noticed any new building occuring within the area in which you live?



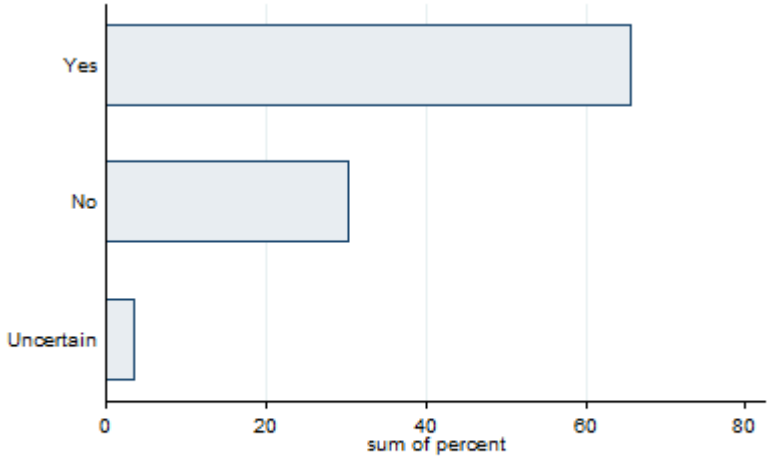
On a scale of one to five how would you describe your neighbourhood?



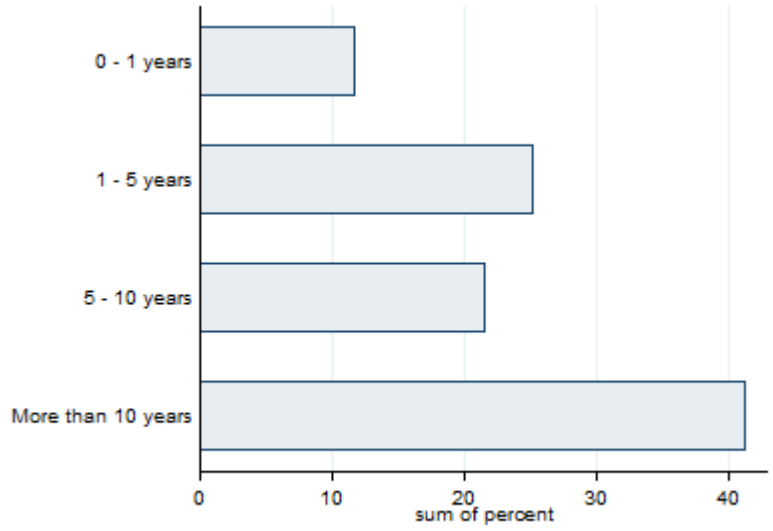
If you were to move house would you consider moving to another CA?



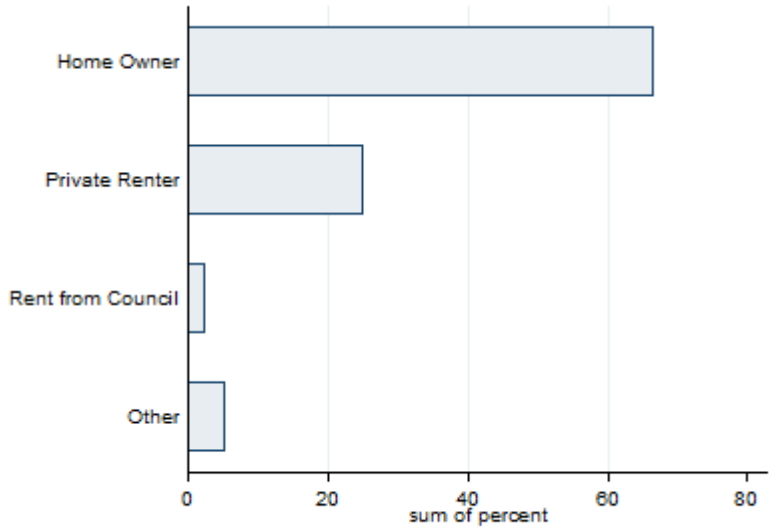
Did you live in a Conservation Area prior to moving to this one?



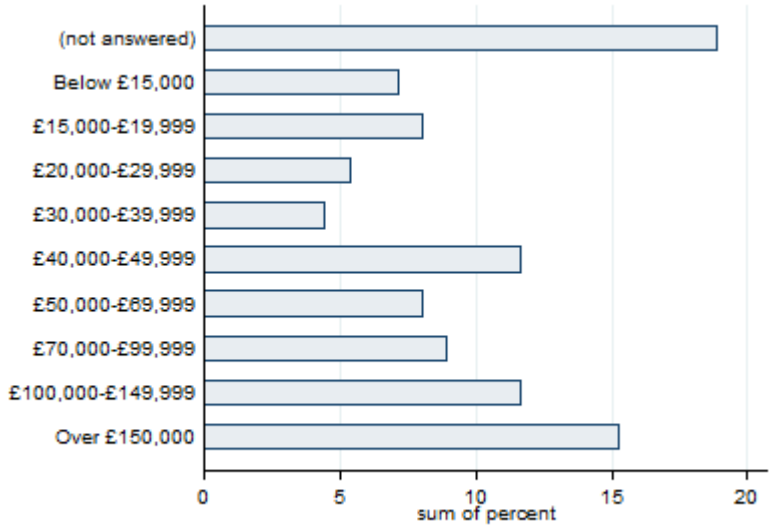
Are you aware that you live in a Conservation Area?



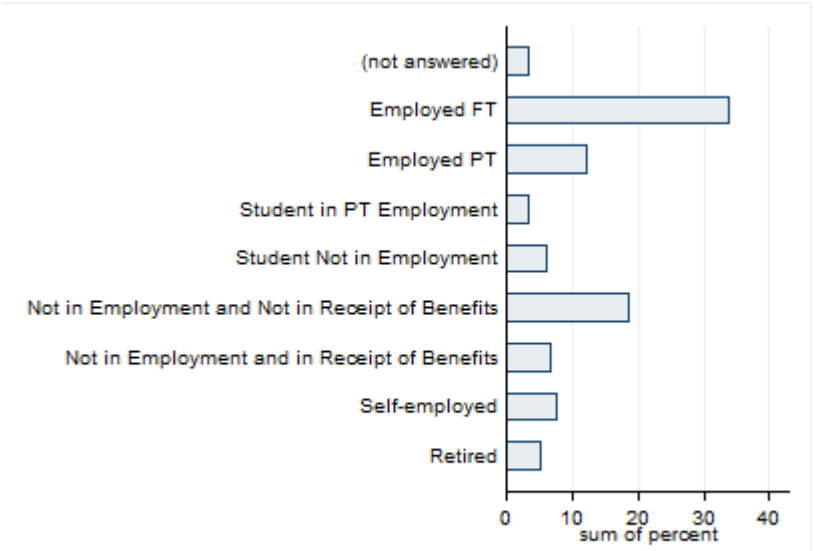
How long have you lived in this house/flat?



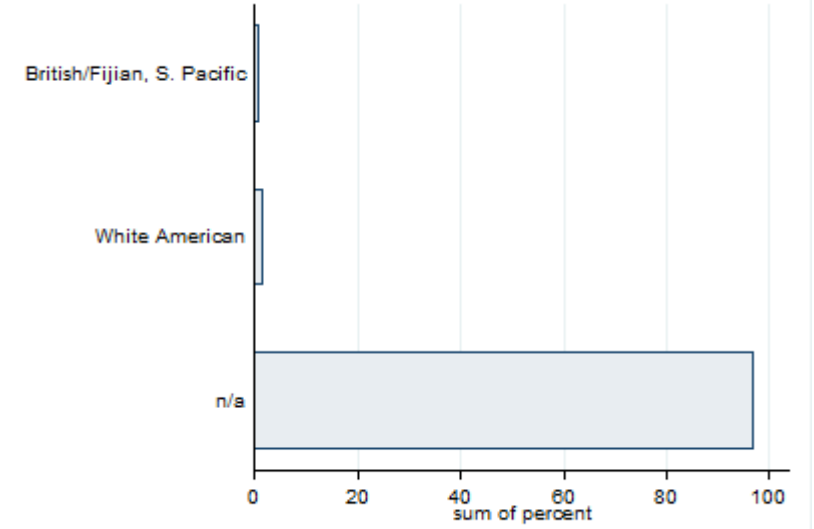
What is your tenure?



What is your household income?



What is your employment status?



Specifications for demographic question 4 (d4)

I D

RESIDENTIAL SURVEY

1. What is your tenure
   - Home Owner
   - Private Renter
   - Rent from Council
   - Other

2. How long have you lived in this house/flat?
   - 0 - 1 years
   - 1 - 5 years
   - 5 - 10 years
   - More than 10 years
3. Are you aware that you live in a Conservation Area?
   - Yes
   - No
   - Uncertain
4. If yes, can you please name the Conservation Area? (Please write response below)

5. Did you live in a Conservation Area prior to moving to this one?
   - Yes
   - No
   - Uncertain
6. If you were to move house would you consider moving to another Conservation Area?
   - Yes
   - No
   - No Strong Views
7. Please explain your response.

8. Could you please describe for us the physical environment of the Conservation Area where you live (i.e. green spaces, quality of buildings, is it well looked after, is it clean and tidy? Is it dirty?)

9. What qualities do you **Most** like about living in this area?

10. What qualities do you **least** like about living in this area?

11. On a scale of one to five with one being very distinctive (architecturally or historically) and five being not at all distinctive, how would you describe your neighbourhood? **(Please circle one answer)**

    1. Very Distinctive
    2. Distinctive
    3. Neither Distinctive or non-Distinctive
    4. Non-distinctive
    5. Not at all Distinctive

12. When someone asks what area of London you live in, what do you say? (Prompt do they use an area name, a postcode, a street name?)

13. Have you noticed any new building (this includes extension, brand new buildings and major renovation) occurring within the area in which you live? **(If no go to Q16)**

    - Yes
    - No

14. How would you describe this new development in terms of its quality?

15. Do you think that the fact that the new development is in a Conservation Area has made it of better quality?

- ○ Yes
- ○ No

16. Relative to other neighbourhoods close by, how would you describe the physical attractiveness of the NAME Conservation Area? **(Please circle one answer)**

1. Much more attractive
2. More Attractive
3. Neither more nor less attractive
4. Less Attractive
5. Much less attractive

17. On a scale of one to five with one being strongly agree and five being strongly disagree, how would you rate the statement: “The buildings in my neighbourhood are attractive to look at.” **(Please circle one answer)**

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly Disagree

18. Do you think living in a conservation area impacts the value of your property? **(HOME OWNERS ONLY)**

- ○ Yes
- ○ No

19. Relative to similar areas in the Borough located outside of the (NAME) Conservation Area, would you say that this is a:
    - ○ Very Expensive Area
    - ○ Expensive Area
    - ○ Neither Expensive or Inexpensive
    - ○ Inexpensive Area
    - ○ Very Inexpensive Area
20. Do you see this as a positive or negative feature of the area
    - ○ Positive
    - ○ Negative
21. Could you please explain your answer?

22. Relative to similar areas in this Borough located outside of the (NAME) Conservation Area, would you say that property prices are: **(HOME OWNERS ONLY)**

- ○ Very likely to Increase in Value
- ○ Likely to Increase in Value
- ○ Likely to Remain Stable
- ○ Likely to Decrease in Value
- ○ Very Likely to Decrease in Value

23. Could you please explain why you think property prices here are as you have described above?

24. On a scale of one to five with one being strongly agree and five strongly disagree, could you rate the statement: "The constraints placed on property owners in conservation areas regarding planning permission are a significantly negative attribute to living in the area." **(Please circle one)**

1. Strongly Agree
2. Agree
3. Neither Agree nor Disagree
4. Disagree
5. Strongly Disagree

25. On a scale of one to five with one being strongly agree and five being strongly disagree, could you rate the statement: "The constraints placed on property owners in conservation areas regarding planning permission are important in maintaining the attractiveness of the area." **(Please circle one)**

1. Strongly Agree
2. Agree
3. Neither Agree nor Disagree
4. Disagree
5. Strongly Disagree

26. Are you a member of any community groups? (If no please skip to Q29)

- Yes
- No

27. If yes, could you please list these and tell us if you consider them to be local in focus

28. If yes, could you tell us how you became involved in them?

29. How many of your neighbours do you know by name?
    - None
    - 1
    - 2-3
    - 4-5
    - 6-10
    - More than 10
30. Generally speaking, would you say that most people can be trusted, or that you cannot be too careful in dealing with people?
    - Most people can be trusted
    - You cannot be too careful
31. How would you describe the area in terms of social mix? (ethnicity, class, age)

THIS ENDS THE SECTION FOR NON-HOMEOWNERS
PLEASE SKIP TO THE FINAL SECTION FOR ALL
RENTERS.

32. Have you ever applied for planning permission relating to your current residence (Including Conservation Area Consent and Consent under Tree Preservation Orders)? **(If no skip to Q35)**

- ○ Yes
- ○ No

33. On a scale of one to five with one being very positive and five being not at all positive could you please rate your experience ? **(Please circle one)**

1. Very Positive
2. Positive
3. Neither Positive nor Negative
4. Negative
5. Very Negative

34. Could you explain your answer?

35. On a scale of one to five with one being Strongly Agree and five being Strongly Disagree could you please rate the following statement: “It is important to protect the integrity of conservation areas (i.e. it is important to protect the architectural or historic character of the area)? **(Please circle one)**

1. Strongly Agree
2. Agree
3. Neither Agree nor Disagree
4. Disagree
5. Strongly Disagree

36. Could you explain your answer?

37. On a scale of one to five with one being Strongly Agree and five being Strongly Disagree could you please rate the statement: “The planning system is the best mechanism with which to protect the integrity of the conservation area?
    1. Strongly Agree
    2. Agree
    3. Neither Agree nor Disagree
    4. Disagree
    5. Strongly Disagree
38. Could you explain your answer?

39. If someone on your street was applying for permission to alter the **front** of their property in a way that would make it clearly different from the current building pattern (i.e. removing a garden wall, adding a dormer window, changing the style of window) would you be likely to make an objection to the LA?

- Yes
- No
- Maybe

40. Could you explain your answer?

41. If someone on your street was applying for permission to alter the **back** of their property in a way that would make it clearly different from the current building pattern (i.e. building an extension, replacing a garage, adding a roof terrace) would you be likely to make an objection to the LA?

- Yes
- No
- Maybe

42. Could you explain your answer?

43. If someone on your street was applying for permission to remove a significant tree from their garden would you be likely to make an objection to the LA?

- Yes
- No
- Maybe

44. Could you explain your answer?

45. At your current residence, have you ever objected to a neighbour's request for planning permission?

- Yes
- No

46. Can you explain the circumstances?

We would now like to ask you a short series of demographic questions base on the UK Census. Please remember that all responses that you give are completely anonymous.

1. Gender
   - Male
   - Female
2. Age Range
   - Under 20
   - 21-30
   - 31-40
   - 41-50
   - 51-60
   - Over
3. Nationality
   - British
   - Dual Nationality (i.e. British + another nationality - Please specify)
   - Other please specify

4. Ethnicity
   - White British
   - White Irish
   - White European
   - Mixed White and Black Caribbean
   - Mixed White and Black African
   - Mixed White and Asian
   - Asian Indian
   - Asian Pakistani
   - Asian Bangladeshi
   - Black Caribbean
   - Black African
   - Chinese
   - Other please specify

5. What is your employment status?
   - Employed FT
   - Employed PT
   - Student in PT Employment
   - Student Not in Employment
   - Not in Employment and Not in Receipt of Benefits
   - Not in Employment and in Receipt of Benefits

6. What is your Household Income?
   - Below £15,000
   - £15,000-£19,999
   - £20,000-29,999
   - £30,000-£39,999
   - £40,000-£49,999
   - £60,000-£69,000
   - £70,000-£99,000
   - £100,000-£149,999
   - Over £150,000

Literature

Ahlfeldt, G. M. (2010). Architektur, Ökonomie – Architekturökonomie. *Perspektiven der Wirtschaftspolitik, 11*(4), 340-355. doi: 10.1111/j.1468-2516.2010.00343.x

Ahlfeldt, G. M. (2011). If Alonso was right: Modeling Accessibility and Explaining the Residential Land Gradient. *Journal of Regional Science, 51*(2), 318-338.

Ahlfeldt, G. M., & Maennig, W. (2010). Substitutability and Complementarity of Urban Amenities: External Effects of Built Heritage in Berlin. *Real Estate Economics, 38*(2), 285-323.

Ahlfeldt, G. M., & Mastro, A. (in press). Valuing Iconic Design: Frank Lloyd Wright Architecture in Oak Park, Illinois. *Housing Studies, 28*(1).

Asabere, P. K., & Huffman, F. E. (1994). Historic designation and residential market values. *Appraisal Journal, 62*(3), 396.

Asabere, P. K., Huffman, F. E., & Mehdian, S. (1994). The Adverse Impacts of Local Historic Designation: The Case of Small Apartment Buildings in Philadelphia. *Journal of Real Estate Finance & Economics, 8*(3), 225-234.

Avrami, E. M., R. and Torre, M. (2000). *Values and Heritage Conservation Los Angeles*: The Getty Conservation Institute.

Baranzini, A., Ramirex, J., Schaerer, C., & Thalmann, P. (2008). *Hedonic Methods in Housing Markets: Pricing Environmental Amenities and Segregation*: Springer Verlag.

Benhamou, F. (2004). Who Owns Cultural Goods? The Case of Built Heritage. In V. A. Ginsburgh (Ed.), *Economics of art and culture: Invited papers at the 12th International Conference of the Association of Cultural Economics International; 187-202; Contributions to Economic Analysis, vol. 260. Amsterdam; London and New York: Elsevier*.

Botrill, C. (2005). *Homes in Historic Conservation Areas in Great Britain: Calculating the Proportion of Residential Dwellings in Conservation Areas*. Environmental Change Institute.

Bottril, C. (2005). *Homes in Historic Conservation Areas in Great Britain: Calculating the Proportion of Residential Dwellings in Conservation Areas*.

Brueckner, J. K., Thisse, J.-F., & Zenou, Y. (1999). Why Is Central Paris Rich and Downtown Detroit Poor? An Amenity-Based Theory. *European Economic Review, 43*(1), 91-107.

Coulson, N. E., & Lahr, M. L. (2005). Gracing the Land of Elvis and Beale Street: Historic Designation and Property Values in Memphis. *Real Estate Economics, 33*(3), 487-507.

Coulson, N. E., & Leichenko, R. M. (2001). The Internal and External Impact of Historical Designation on Property Values. *Journal of Real Estate Finance & Economics, 23*(1), 113-124.

Coulson, N. E., & Leichenko, R. M. (2004). Historic preservation and neighbourhood change. *Urban Studies, 41*(8), 1587-1600.

Creigh-Tyte, S. W. (1998). The Built Heritage in England: The History and Development of Government Policy. *Cultural Trends, 32*.

Creigh-Tyte, S. W. (2000). The Built Heritage: Some British Experience. *Recherches Economiques de Louvain, 66*(2), 213-229.

Deodhar, V. (2004). Does the Housing Market Value Heritage? Some Empirical Evidence. *Macquarie Economics Research Papers, 403*.

Ealing Council. (2008). *Brentham Garden Estate Conservation Area Character Appraisal*. London: Ealing Council.

Ekeland, I., Heckman, J., & Nesheim, L. (2002). Identifying Hedonic Models. *American Economic Review, 92*, 304-309.

Ford, D. A. (1989). The Effect of Historic District Designation on Single-Family Home Prices. *Real Estate Economics, 17*, 353-362.

Fusco, G., & Nijkamp, P. (2009). *Cultural Tourism and Sustainable Local Development*. Aldershot: Asgate.

Gibbons, S., & Machin, S. (2005). Valuing rail access using transport innovations. *Journal of Urban Economics, 57*(1), 148-169.

Glaeser, E. L., Kolko, J., & Saiz, A. (2001). Consumer city. *Journal of Economic Geography, 1*(1), 27-50. doi: 10.1093/jeg/1.1.27

Gravesham Borough Council. (2009). *Overcliffe Conservation Area Character Appraisal*. Gravesham: Gravesham Borough Council.

Hackney. (1998). *De Beauvoir Conservation Area: Designation of Extension*. London: Hackney Council.

Hackney. (2008). *St Mark's Conservation Area Appraisal*. London: Hackney Council.

Halvorsen, R., & Palmquist, R. (1980). The Interpretation of Dummy Variables in Semilogarithmic Equations. *American Economic Review, 70*(3), 474-475.

Haringey Council. (1999). *Bowes Park Conservation Area: Character Assessment and Policy Statement SPG 3.3*. London: Environmental Services Haringey Council.

Heckman, J. J., Ichimura, H., & Todd, P. E. (1997). Matching as an Econometric Evaluation Estimator: Evidence from Evaluating a Job Training Programme. *Review of Economic Studies, 6*, 605-654.

HM Government. (2010). *The Government's Statement on the Historic Environment for England*. London: DCMS.

Town and Country Planning Act 1990 (1990).

Jenks, G. F. (1977). *Optimal data classification for choropleth maps, Occasional Paper, No. 2*. Kansas: Lawrence.

Lazrak, F., Nijkamp, P., Rievald, P., & Rouwendal, J. (2011). *The market value of listed heritage: An urban economic application of spatial hedonic pricing*. Vrije Universiteit Amsterdam, Reserach Memorandum.

Lees, L. (2003). 'Super-gentrification: The case of Brooklyn Heights, New York City'. *Urban Studies, 40*(23), 2487-2509.

Leichenko, R. M., Coulson, N. E., & Listokin, D. (2001). Historic Preservation and Residential Property Values: An Analysis of Texas Cities. *Urban Studies, 38*(11), 1973-1987.

Mourato, S., Atkinson, G., Collins, M., Gibbons, S., MacKerron, G., & Resende, G. (2010). Economic Analysis of Cultural Services. In U. N. E. A. Report (Ed.).

Narwold, A., Sandy, J., & Tu, C. (2008). Historic Designation and Residential Property Values, International Real Estate

Review. *International Real Estate Review, 11*, 83-95.

Navrud, S., & Ready, R. C. (2002). *Valuing cultural heritage: Applying environmental valuation techniques to historic buildings, monuments and artifacts*. London: Edward Elgar.

Noonan, D. S. (2003). Contingent Valuation and Cultural Resources: A Meta-Analytic Review of the Literature. *Journal of Cultural Economics, 27*(3), 159-176.

Noonan, D. S. (2007). Finding an Impact of Preservation Policies: Price Effects of Historic Landmarks on Attached Homes in Chicago, 1990-1999. *Economic Development Quarterly, 21*(1), 17-33.

Noonan, D. S., & Krupka, D. J. (2010). Determinants of historic and cultural landmark designation: why we preserve what we preserve. *Journal of Cultural Economics, 34*, 1-26.

Noonan, D. S., & Krupka, D. J. (2011). Making—or Picking—Winners: Evidence of Internal and External Price Effects in Historic Preservation Policies. *Real Estate Economics, 39*(2), 379-407. doi: 10.1111/j.1540-6229.2010.00293.x

Palmquist, R., & Smith, V. K. (2002). The Use of Hedonic Property Value Techniques for Policy and Litigation. In T. Tietenberg & H. Folmer (Eds.), *The International Yearbook of Environmental and Resource Economics* (pp. 115-164). Cheltenham: Elgar.

Pendlebury, J. (2009). *Pendlebury*. London: Routledge.

Penfold, V. (1994). *Heritage Controls and Property Values: A Study of four Sydney Conservation Areas.* University of New South Wales.

RBKC. (1985). *Courtfileds Conservation Area Proposals Statement*. London: RBKC.

Richmond Borough Council. (undated-a). *Sheen Road Conservation Area 31*. Richmond: Richmond Council.

Richmond Borough Council. (Undated-b). *St Matthais Conservation Area 30*. Richmond: Richmond Council.

Rizzo, I., & Throsby, D. (2006). Chapter 28 Cultural Heritage: Economic Analysis and Public Policy. In A. G. Victor & T. David (Eds.), *Handbook on the Economics of Art and Culture* (Vol. Volume 1, pp. 983-1016): Elsevier.

Rosen, S. (1974). Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition. *Journal of Political Economy, 82*(1), 34-55.

Rosenbaum, P. R., & Ruben, D. B. (1983). The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrica, 70*(1), 41-55.

Ruijgrok, E. C. M. (2006). The Three Economic Values of Cultural Heritage: A Case Study in The Netherlands. *Journal of Cultural Heritage, 7*, 206-213.

Schaeffer, P. V., & Millerick, C. A. (1991). The impact of historic district designation on property values: An empirical study. *Economic Development Quarterly, 5*(4), 301-312.

Sheppard, S. (1999). Hedonic Analysis of Housing Markets. In E. S. Mills & P. Cheshire (Eds.), *Handbook of Regional and Urban Economics* (Vol. 3, pp. 1595-1635). Amsterdam: North-Holland.

Shipley, R. (2000). Heritage Designation and Property Values: Is there an Effect? *The International Journal of Heritage Studies, 6*(1), 83-100.

Silverman, B. W. (1986). Density Estimation For Statistics and Data Analysis. *Monographs on Statistics and Applied Probability*.

Snowball, J. D. (2008). *Measuring the Value of Culture*. Berlin: Springer.

Strange, I. a. W., D. (2003). The changing roles and purpose of heritage conservation in the UK. *Planning Practice and Research, 18*(2-3), 219-229.

Taylor, L. O. (2003). The Hedonic Method. In K. J. Boyle, P. A. Champ & T. C. Brown (Eds.), *A Primer on Non Market Valuation* (pp. 331-393). Dordrecht: Kluwer.

Throsby, D. (2001). *Economics and Culture*. New York: Cambridge University Press.

Townshend, T., & Pendlebury, J. (1999). Public participation in the conservation of historic areas: case studies from the North East of England. *Journal of Urban Design, 4*(3), 313-331.

Towse, R. (2010). *A Textbook of Cultural Economics* (1 ed.): Cambridge University Press.

van Praag, B. M. S., & Barrsma, B. E. (2005). Using happiness surveys to value intangibles: The case of airport noise. *The Economic Journal, 115*(January), 224-246.

Yu, M. (2008). *Built heritage conservation policy in the United Kingdom*.

If you require an alternative accessible version of this document (for instance in audio, Braille or large print) please contact our Customer Services Department:
Telephone: 0870 333 1181
Fax: 01793 414926
Textphone: 0800 015 0516
E-mail: customers@english-heritage.org.uk