

OXFORD ECONOMICS

The amenity benefits of the Port of London Authority's stretch of the River Thames

July 2015

**A report for the Port of London
Authority**



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ECONOMICS**

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1 Executive Summary

Economic activity adjacent to the Thames

- Just over 1 million people are employed in wards adjacent to the Thames. Both in absolute terms and relative to the numbers employed elsewhere, employment in Thames-side wards in London is more important than in Essex or Kent.
- Thames-side wards in Greater London are specialised in mining, quarrying and utilities, being home to the UK head offices of some of the world's major oil companies. There is also an above average concentration in business services. In both Essex and Kent, Thames-side wards tend to be more concentrated on retail and transport & storage.

The wards adjacent to the River Thames as a home

- On average, it is estimated that being next to the River Thames increases the value of house prices in a ward by 12.6%.
- Depending on location, in 2013, London residents were prepared to pay between £22,600 and £126,100 more for a property (£74,300 on average) to live in wards bordering the River Thames.

Tourism benefits

- Some 4.7 million people visit Thames or maritime-related attractions which publish visitor statistics. In addition, between 1½ and 2 million people travel on tour or charter boats up the Thames, with a share of the 3 million river bus journeys also being taken by tourists.
- At least 23.3 million people visit the attractions located by the side of the Thames which publish visitor statistics.
- Some 99,000 people are employed in the tourism industry in wards adjacent to the River Thames. They are estimated to produce a £2.4 billion gross value added contribution to GDP.

Sport and health implications

- It is estimated that people go walking or cycling on the Thames towpath on at least 9,960,000 occasions each year.
- A conservative estimate suggests participants value the benefits that participating in sport on the Thames or its towpath at £132 million a year.

- Participating in sport on the towpath and on the Thames also brings benefits to the economy in terms of foregone treatment costs, reduced absenteeism and greater productivity at work.

2 Introduction

The River Thames is an iconic symbol of London and England. The City was founded on the Thames and nowadays its stretch provides a corridor of green landscape, offering opportunities for outdoor recreation and habitats for wildlife, close to local communities. The Port of London Authority is the statutory authority in charge of governing the tidal stretch of the River Thames; its responsibilities include maintaining and supervising navigation, alongside protecting the river's environment.

The core purpose of this project is to investigate and whenever possible, value the amenity benefits the Port of London Authority's stretch of the Thames delivers to residents, day-trippers and tourists. The analysis begins by looking at the economic activity that occurs in Thames-side wards. It proceeds to explore the same areas as homes to the population and the premium they pay for living close to the river. The report examines the importance of the Thames and its banks as a location day-trippers and tourists visit. It examines the towpath and river's role as an area where sport is practiced.

It is recognised that the quality of the environment of the Thames does contribute or even improve amenity value. Fishing in a healthy and thriving river, provides more fish to catch. Visiting a reserve is enhanced if there are birds feeding on the mudflats of the Thames. Rowing, walking or boating in or near clean waters makes it a more pleasant experience and increases the health benefits. However the value of the environment is a complex and emerging field which will be considered separately.

2.1 Report structure

The report is structured as follows:

- Chapter 3 investigates the economic activity the wards adjacent to the river specialise in and how this varies along the river's length.
- Chapter 4 estimates the premium people are willing to pay to live in a ward adjacent to the Thames.
- Chapter 5 focuses on the River Thames as a tourist attraction, detailing employment and economic activity generated visitors to the Thames.
- Chapter 6 details the numbers participating in sport on the towpath and river and how much they value this activity.
- Chapter 7 concludes.

3 Economic activity in Thames-side wards versus adjacent ones

Key points

- The latest data suggest just over 1 million people are employed in wards adjacent to the Thames. Both in absolute terms and relative to the numbers employed elsewhere, employment in Thames-side wards in London is more important than in Essex or Kent.
- Thames-side wards in Greater London specialise in mining, quarrying and utilities, being home to the UK head offices of some of the world's major oil companies. There is also an above average concentration in business services.
- Compared to London, the river-side wards in both Essex and Kent are far less specialised in business services. Their focus tends to be more retail and transport & storage.

3.1 Industrial activity next to the Thames

This chapter investigates the types of economic activity that occur along the Thames. It looks to see what type of industries are present and how their scale compares relative to elsewhere in the rest of the capital and two counties of Essex and Kent. In that way it looks to see what type of industrial activity is concentrated next to the Thames.

Some industries have to be located on the waterside. These include ports/wharves, dredging, water transport, those involved in berthing and mooring, etc. Others are free to locate anywhere, for example, business service firms like accountants and lawyers.

Knowing which industries Thames-side wards specialise in may be informative about the firms' motives in making their location decisions. Firms may opt to locate somewhere because of a range of factors including proximity to customers, goods transport links, skilled labour, raw materials and their competitors. It may alternatively be the price of the land available or because it is in an attractive location.

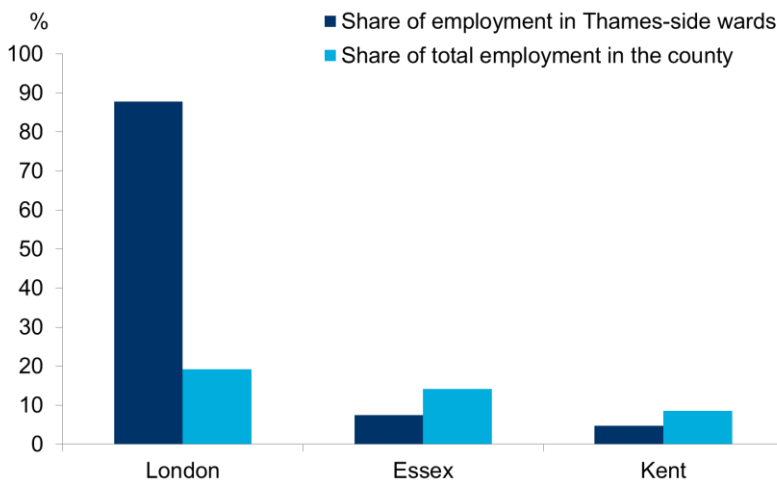
3.2 How many people are employed in wards next to the Thames

The Office of National Statistics' (ONS) Business Register and Employment Survey contains data on employment split by industry for each council ward. The analysis below explores how the industries in which people are employed in the wards adjacent to the Thames in Greater London, Essex and Kent differ from the rest of the capital and two counties.

In total in 2013, just over 1 million people were employed in wards next to the River Thames. Of these, some 882,000, 75,000 and 47,000 people were employed in Thames-side wards in London, Essex, and Kent, respectively. At 88% of total, employment in the capital therefore dominates employment in the wards adjacent to the river (Chart 3.1).

The wards adjacent to the Thames are more important in relative terms (as well as absolute) in London, than the two counties to the east. The employment in the wards next to the Thames was 19.2% of total employment in the capital in 2013. This compares to 14.1% in Essex and 8.5% of total employment in Kent.

Chart 3.1: Employment in Thames-side ward in London, Essex and Kent in 2013



Source: ONS, Oxford Economics

3.3 The industrial specialisation in Thames-side wards in Greater London

The industries that employed the most people in wards next to the Thames in London in 2013 were professional, scientific and technical services (132,500 people or 15% of total in London wards by the Thames) and business administration and support services (102,300 people or 11.6%). This is to be expected as these two industries are the largest employers in Greater London.

To investigate if there is any specialisation of employment within wards next to the Thames relative to Greater London as a whole, Column 4 in Table 3.2 contains a specialisation index versus Greater London.¹ This is a location quotient which measures a region's industrial specialisation relative to a larger geographic unit (in this case Greater London). It is computed as each industry's share of employment in all wards in London next to the Thames divided by the industry's share of Greater London employment. A location quotient over 1 means that the Thames-side wards have a higher concentration of employment in an industry than London as a whole. A number below 1 suggests that

¹ This follows Prothero, R. (2007), 'An analysis of London's employment by sector', GLA Economics Working Paper 24.

employment in Thames-side wards is less concentrated in that industry relative to the capital as a whole.

The index of specialisation suggests the industries in which Thames-side wards in Greater London are concentrated relative to the rest of the capital are public administration and defence (1.9), mining, quarrying and utilities (1.6) and finance and insurance (1.3). But a closer inspection suggests the public administration and defence and finance and insurance results reflect particular wards (including Whitehall and Canary Wharf in Docklands) in which there is a significant concentration of people working in one industry. These two results do not generalise to the rest of the Thames-side wards. This is illustrated by a measure of geographical concentration calculated in Column 5, where the numbers range between 0 and 1, where 0 suggests employment is fairly evenly spread across all Thames-side wards and 1 where it is concentrated in a solitary Thames-side ward.²

Table 3.2: Industrial breakdown of employment in wards next to the Thames in London in 2013 versus the local area

| Industry | Numbers employed | Percentage share of employment | Index of industrial specialisation versus Greater London | Index of geographical concentration in wards adjacent to the Thames |
|--------------------------------------|------------------|--------------------------------|--|---|
| <i>Column 1</i> | <i>Column 2</i> | <i>Column 3</i> | <i>Column 4</i> | <i>Column 5</i> |
| Agriculture, forestry & fishing | 200 | 0.0% | 0.6 | 0.1 |
| Mining, quarrying & utilities | 7,700 | 0.9% | 1.6 | 0.0 |
| Manufacturing | 18,800 | 2.1% | 0.9 | 0.0 |
| Construction | 19,800 | 2.3% | 0.7 | 0.0 |
| Motor trades | 4,500 | 0.5% | 0.7 | 0.0 |
| Wholesale | 31,400 | 3.6% | 1.0 | 0.0 |
| Retail | 46,300 | 5.2% | 0.6 | 0.0 |
| Transport & storage | 34,700 | 3.9% | 0.8 | 0.0 |
| Accommodation & food services | 66,300 | 7.5% | 1.0 | 0.1 |
| Information & communication | 78,400 | 8.9% | 1.2 | 0.1 |
| Financial & insurance | 87,600 | 9.9% | 1.3 | 0.5 |
| Property | 16,100 | 1.8% | 0.8 | 0.1 |
| Professional, scientific & technical | 132,500 | 15.0% | 1.1 | 0.1 |
| Business administration & support | 102,300 | 11.6% | 1.1 | 0.1 |
| Public administration & defence | 79,200 | 9.0% | 1.9 | 0.4 |
| Education | 50,000 | 5.7% | 0.7 | 0.0 |
| Health | 54,600 | 6.2% | 0.6 | 0.0 |
| Arts, entertainment, recreation | 51,500 | 5.8% | 1.1 | 0.1 |

Source: ONS, Oxford Economics

Looking at Columns 4 and 5 together, suggests wards next to the river are specialised in mining, quarrying and utilities (1.6 in Column 4). Given the central London location's this mostly reflects the UK head and administrative offices of

² The measure of concentration used is a Herfindahl–Hirschman Index (HHI) which measures of the share of employment in wards relative to all next to the Thames. It has been normalised so its values range between 0 and 1.

some of the world's major crude oil extraction firms (for example, both BP and Shell have offices in wards next to the Thames). To a lesser extent it also reflects some aggregates are processed and handled in the capital's outer areas. This is followed by information and communication (1.2), with over 35,000 people employed in computer programming, consultancy and related activities in wards next to the river. Some 31,000 management consultants and over 22,000 accountants, bookkeepers, auditors and tax consultants mean that professional, scientific and technical services are concentrated in Thames-side wards (1.1). Likewise, over 21,000 cleaners and 19,000 employment agency staff for business administration (1.1) and creative arts and sports activities workers for arts, entertainment and recreation (all 1.1).

Overall, it is noteworthy most of the industries which are concentrated in Thames-side wards in London are in the service sector. In principle, these businesses could locate anywhere. Their choice of location close to the Thames is likely to do with it being an attractive location and other factors rather than the physical benefits it delivers.

3.4 The industrial specialisation in Thames-side wards in Essex

Analysis of the industrial structure of employment in Essex shows Thames-side wards are specialised in transport & storage (2.2 in Table 3.3) and retailing (1.9). The transport & storage result partly reflects the river, due to the Port of Tilbury. This will only increase with the expansion of the new deep water port at London Gateway at Thurrock, which opened in November 2013 (the year to which the data relate). But it also reflects the nexus of transport links around Thurrock which mean there is a considerable transport & storage presence locally. The specialisation in retailing is heavily a function of the Lakeside Retailing Park. Across both industries the high index of specialisation is a function of employment in a few wards rather than along the whole riverside across the county (both score 0.3 in the Index of Concentration shown in Column 5 of Table 3.3).

Other industrial sectors in which Thames-side wards specialise in Essex are mining, quarrying & utilities (1.6 in Column 4), motor trades (1.5) and accommodation & food services (1.3). Of these only accommodation & food services are a major employer, with 6,200 jobs in wards next to the river. Over 5,000 of these are in restaurants and pubs and bars. The attractiveness of the river-side may influence these firms' location decisions. The index of concentration suggests it is fairly widespread across the wards neighbouring the river (0.1 in Column 5).

Table 3.3: Industrial breakdown of employment in wards next to the Thames in Essex in 2013 versus the local area

| Industry | Numbers employed | Percentage share of employment | Index of industrial specialisation versus Essex | Index of geographical concentration in wards adjacent to the Thames |
|--------------------------------------|------------------|--------------------------------|---|---|
| <i>Column 1</i> | <i>Column 2</i> | <i>Column 3</i> | <i>Column 4</i> | <i>Column 5</i> |
| Agriculture, forestry & fishing | 0 | 0.1% | 0.4 | 0.3 |
| Mining, quarrying & utilities | 1,100 | 1.5% | 1.6 | 0.2 |
| Manufacturing | 4,400 | 5.9% | 0.7 | 0.2 |
| Construction | 2,800 | 3.7% | 0.7 | 0.0 |
| Motor trades | 2,200 | 2.9% | 1.5 | 0.3 |
| Wholesale | 3,700 | 4.9% | 1.1 | 0.4 |
| Retail | 15,800 | 21.0% | 1.9 | 0.3 |
| Transport & storage | 8,300 | 11.0% | 2.2 | 0.3 |
| Accommodation & food services | 6,200 | 8.2% | 1.3 | 0.1 |
| Information & communication | 1,000 | 1.3% | 0.4 | 0.1 |
| Financial & insurance | 2,300 | 3.0% | 1.0 | 0.2 |
| Property | 1,500 | 2.0% | 1.1 | 0.1 |
| Professional, scientific & technical | 3,600 | 4.7% | 0.7 | 0.1 |
| Business administration & support | 7,100 | 9.4% | 1.1 | 0.1 |
| Public administration & defence | 1,600 | 2.1% | 0.5 | 0.3 |
| Education | 5,500 | 7.3% | 0.6 | 0.0 |
| Health | 5,200 | 6.9% | 0.5 | 0.1 |
| Arts, entertainment, recreation | 3,000 | 4.0% | 0.9 | 0.1 |

Source: ONS, Oxford Economics

3.5 The industrial specialisation in Thames-side wards in Kent

The three industries in which Thames-side wards in Kent are most concentrated in are construction (2.4 in Column 4 of Table 3.4), transport & storage (1.9) and retail (1.6). In the case of construction and retail, the results are heavily dependent on Stone where there is lots of employment in both, explaining the high geographical concentration index scores of 0.4 and 0.5, respectively (in Column 5). The jobs in transport & storage are more evenly spread across all the wards next to the river.

Other industrial sectors in which Thames-side wards in Kent are specialised in are manufacturing and wholesale (both 1.2) and mining, quarrying & utilities and business administration and support (both 1.1). These are more widespread across the riverside-wards.

Table 3.4: Industrial breakdown of employment in wards next to the Thames in Kent in 2013 versus the local area

| Industry | Numbers employed | Percentage share of employment | Index of industrial specialisation versus Kent | Index of geographical concentration in wards adjacent to the Thames |
|--------------------------------------|------------------|--------------------------------|--|---|
| <i>Column 1</i> | <i>Column 2</i> | <i>Column 3</i> | <i>Column 4</i> | <i>Column 5</i> |
| Agriculture, forestry & fishing | 0 | 0.0% | 0.1 | 1.0 |
| Mining, quarrying & utilities | 700 | 1.4% | 1.1 | 0.2 |
| Manufacturing | 3,800 | 8.1% | 1.2 | 0.1 |
| Construction | 7,300 | 15.5% | 2.4 | 0.4 |
| Motor trades | 700 | 1.5% | 0.7 | 0.1 |
| Wholesale | 2,300 | 4.8% | 1.2 | 0.3 |
| Retail | 10,100 | 21.3% | 1.6 | 0.5 |
| Transport & storage | 4,400 | 9.2% | 1.9 | 0.1 |
| Accommodation & food services | 3,000 | 6.3% | 0.9 | 0.2 |
| Information & communication | 1,400 | 2.9% | 1.0 | 0.3 |
| Financial & insurance | 600 | 1.3% | 0.4 | 0.3 |
| Property | 600 | 1.3% | 0.9 | 0.3 |
| Professional, scientific & technical | 1,400 | 3.0% | 0.6 | 0.1 |
| Business administration & support | 4,600 | 9.8% | 1.1 | 0.2 |
| Public administration & defence | 800 | 1.8% | 0.4 | 0.7 |
| Education | 2,600 | 5.5% | 0.5 | 0.1 |
| Health | 2,200 | 4.6% | 0.4 | 0.1 |
| Arts, entertainment, recreation | 800 | 1.7% | 0.4 | 1.0 |

Source: ONS, Oxford Economics

Compared to London, the river-side wards in both Essex and Kent are far less specialised in business services. Their focus tends to be more retail, construction and transport & storage.

4 Using property prices to estimate the value of living near the river

Key points

- On average, it is estimated that being next to the River Thames increases the value of house prices in a ward by 12.6%.
- Depending on location, in 2013, London residents were prepared to pay between £22,600 and £126,100 more for a property (£74,300 on average) to live in wards bordering the River Thames.

The tidal Thames area has an impressive natural and historic heritage, which is of national and international importance. The Thames adds considerably to the quality of life of those who live and work there, by creating a positive sense of place thanks to the varied landscape it can offer. The river is therefore very popular and residents attach a high value to living in its proximity; this is reflected in land and property prices.

A number of studies have sought to estimate the economic value people place on living close to an attractive environment using house prices. GLA Economics has published two papers (2003)^{3,4} that look at the difference in property prices due to proximity to green space in London. This involves a regression analysis, trying to control for other characteristics such as housing density, deprivation, education levels, crime, travel and health accessibilities. Both GLA Economics studies show higher property values exist in areas with a higher percentage of green space holding all other factors constant. For example, the 2003 working paper shows a 1% increase in the amount of green space in a ward is associated with a 0.3%-0.5% increase in the average house price in that ward.

In this chapter, a similar regression analysis is undertaken to investigate the extent to which proximity to the River Thames impacts average house prices in London wards. Several academic papers found that river proximity (Li and Brown (1980)⁵), water view (Sharp and Krausse (2006)⁶) and higher percent of water surrounding a property (Leggett and Bockstael (2000)⁷) have a significant effect on house prices. We include variables to control for other factors, such as residents' average income or educational attainments, trying to isolate the

³ GLA Economics, (2003), 'Valuing greenness: Is there a segmented preference for housing attributes in London?', Working Paper 3.

⁴ GLA Economics, (2003), 'Valuing greenness: Green spaces, house prices and Londoners' priorities', June.

⁵ Li, M, and Brown, H, (1980), 'Micro-neighborhood externalities and hedonic housing prices', Land Economics Vol. 56, No. 2, pages 125-141, University of Wisconsin Press.

⁶ Sharp, B and Krausse, M, (2006), 'Measuring environmental effects on property values: Analysis of spatially variable relationships'.

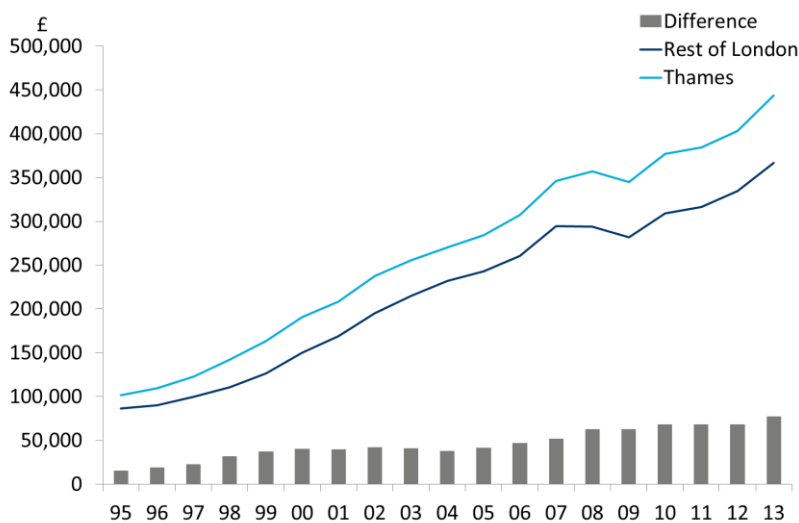
⁷ Leggett, C, and Bockstael, N, (2000), 'Evidence of the effects of water quality on residential land prices', Journal of Environmental Economics and Management Vol. 39, Issue 2, pages 121-144.

proximity to the Thames effect on house prices. This would show how much people value living next to the Thames. We then compare our findings with previous literature on the topic. Gibbons, Mourato and Resende (2011)⁸, for instance, studied the amenity value of English nature, using a hedonic price approach, and find that 1 km increase in distance to rivers lowers the property price by 0.9%. In a similar fashion, GLA Economics (2010)⁹ sought to understand the value of local amenities in London and found that a 600 metre distance from the Thames is associated with a 9% rise in house prices.

4.1 Simple comparisons of house prices

Greater London Authority data show that average house prices are higher in wards with direct access to the river (Chart 4.1). Moreover, the gap between these areas and the rest of London seems to be widening. Indeed, there has been a boom in riverside prices, from east to west, with the last four years witnessing particularly strong increases in house prices on the Thames. During this period, riverside postcodes have experienced some of the highest growth rates in the capital, both in the sale and the rental market.

Chart 4.1: Average house prices by wards' proximity to the Thames



Source: Greater London Authority, Oxford Economics

Median house price data suggest that there is a premium for waterfront living in London¹⁰, although this isn't the case in the Eastern riverfront (Chart 4.2). Central and South West London waterfront property prices are 76% and 18%

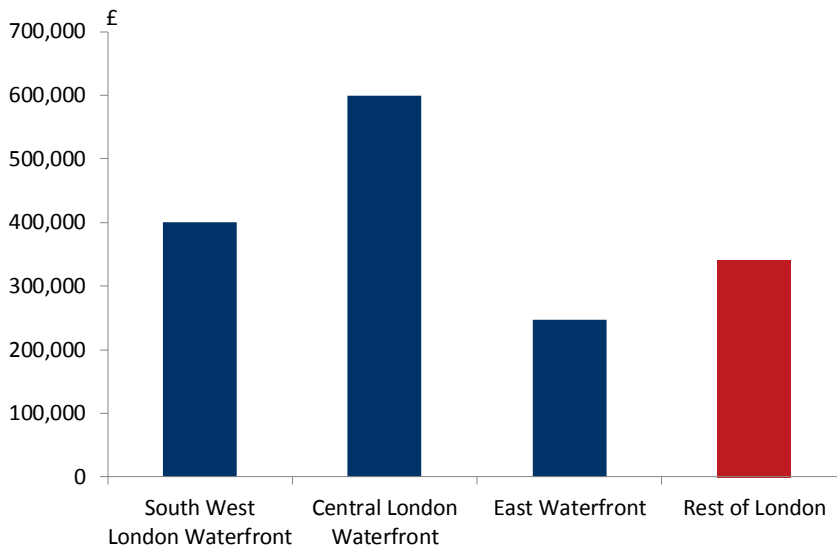
⁸ Gibbons, S, Mourato, S, and Resende, G, (2011), 'The amenity value of English nature: A hedonic price approach', SERC Discussion Paper 74, March.

⁹ GLA Economics, (2010), 'Valuing house and green spaces: Understanding local amenities, the built environment and house prices in London', Working Paper 42.

¹⁰ Greater London Authority, London Datastore, Average house prices.

higher than properties in the rest of London, respectively. In contrast, the Eastern waterfront is 27% cheaper than the rest of London. In money terms, the median price of properties in Central London in 2013 was just below £600,000, while the median price was just over £400,000 in the South West riverfront. Moving eastbound lowered the median price to nearly £250,000, while inland properties throughout the capital had a median value of £340,000.

Chart 4.2: Median house prices by area in 2013



Source: Greater London Authority, Oxford Economics

The estate agent Savills (2013)¹¹ compared the prices of property sold in 2012 within a hundred metres of the Thames and up to one kilometre away between Teddington Lock in South West London and the Royal Docks in East London. They found a price premium for river proximity of an average 13.1% across London, although substantial variation occurs between different areas.

4.2 Using regression analysis to control for properties other characteristics

The simple comparison of property prices in close proximity to the river compared to further away does not provide the differential due to living by the river because it does not control for each property's other characteristics. This may be the quality of house or flat itself. It may also be proximity to or the quality of the amenities in the local area (for example, good schools or availability of good public transport links, etc). This study uses regression analysis to try to isolate the amount of the difference in house prices in council wards which is due to proximity to the River Thames. It seeks to isolate river proximity by excluding the other characteristics of the properties being compared

¹¹ Savills, (2013) 'Spotlight Waterfront London – London's residential riverside property market Q4 2013'.

using the control variables used in GLA Economics (2003)¹² study on the attractiveness different parts of London. The control variables used are listed in Table 4.3. Most of these explanatory variables are available at council ward level and allow for a detailed geographical analysis.

Table 4.3: Indicators used in this study to explain variation in house prices

| What trying to measure | Indicator type | Definition of the variable |
|------------------------|---------------------|--|
| Thames proximity | Thames proximity | In this study, the Thames dummy variable identifies the wards on the river Thames |
| Housing quality | Overcrowding | Percentage of households living in overcrowded accommodation (one or more bedrooms less than needed) <i>Source: 2011 Census</i> |
| | Dwelling density | Total dwellings for each ward divided by the ward area (dwellings per square km) <i>Source: Greater London Authority, ONS</i> |
| Deprivation | Income support | Income support claimants as a percentage of population over the age of 18 for each ward <i>Source: Department for Work and Pensions, 2012</i> |
| Crime | Domestic burglaries | Domestic burglaries as a percentage of population over 18 for each ward. This is part of a rich dataset of offences recorded by Met Police <i>Source: ONS, Met Police</i> |
| Travel accessibility | Distance to work | Percentage of people living less than 5 km away from work <i>Source: 2011 Census</i> |

Source: GLA Economics (2003), Oxford Economics

The regression equation tries to explain average house prices (HP) in ward *i* in the Greater London Authority area as follows:

$$\ln \text{House Price}_i = \alpha_0 + \sum \beta_i X_i + e_i$$

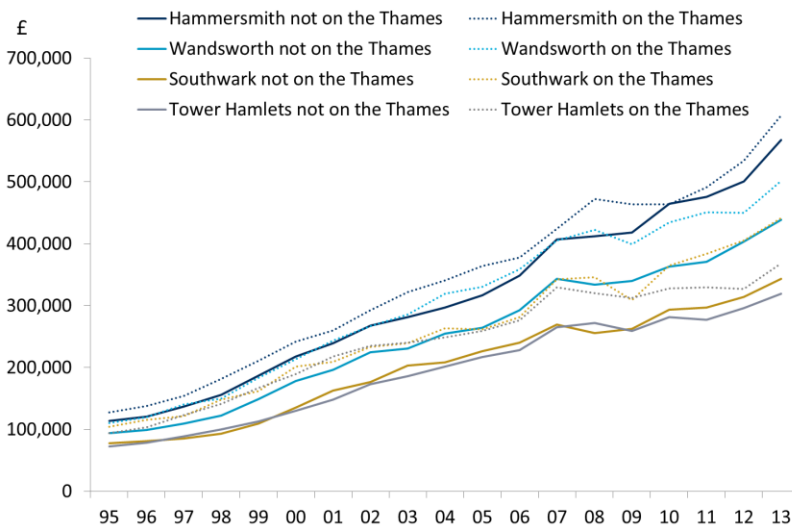
Where the *X* variables include all the indicators presented in Table 4.3 for each ward and *e* is the error term. The regression details and results are presented in the Appendix.

The regression was estimated using data for 624 wards in London in 2013. The results suggest that, on average, river proximity of a ward can be associated with a 12.6 per cent increase in the average house price in that ward. Considering an average property price in ‘inland’ wards, it is possible to calculate that in 2013 London residents were prepared to pay between £22,600 and £126,100 more (£74,300 on average) to live in wards bordering the River Thames.

¹² GLA Economics, (2003), ‘Valuing greenness: Green spaces, house prices and Londoners’ priorities’, June.

The price premium for living on the riverfront is apparent in most areas of London. Chart 4.4 shows this pattern in two pairs of local authorities in Greater London which lie on opposite sides of the river bank (Hammersmith and Fulham versus Wandsworth and Southwark versus Tower Hamlets). These local authorities are next to each other, so to some extent have the same geographical characteristics (such as proximity to the centre of London, etc). The dotted line – representing house prices in wards with direct access to the Thames - is above the corresponding solid line – showing property prices in inland wards within the same borough - and in some cases, Southwark being the most evident instance, the gap between the wards on the river and their inland counterparts has widened over time.

Chart 4.4: Average house prices in Hammersmith and Fulham, Wandsworth, Southwark and Tower Hamlets, by wards' river proximity



Source: Greater London Authority, Oxford Economics

5 Tourism

Key points

- Some 4.7 million people visit Thames or maritime-related attractions in its vicinity which publish visitor statistics a year. In addition, between 1½ and 2 million people travel on tour or charter boats up the Thames each year, with tourists also taking a share of the 3 million river bus journeys.
- Annually, at least 23.3 million people visit the attractions located by the side of the Thames which publish visitor statistics.
- Some 99,000 people are employed in the tourism industry in wards adjacent to the River Thames. They are estimated to produce a £2.4 billion gross value added contribution to GDP.

5.1 How to assess how much tourism is due to the River Thames?

According to the ONS, 16.8 million overseas visitors came to London in 2013 and are estimated to have spent £11.3 billion during their visit.¹³ London, the East of England and the South East also benefit from domestic tourism as people from the rest of the UK's nations and regions visit and undertake 'additional' expenditure in the local economy that stimulates economic activity. In 2013, there were 11.5 million domestic tourism trips to London from people living outside the capital.¹⁴ They are estimated to have spent £2.7 billion during their stay. Some 12.1 million and 6.8 million domestic tourist visits were made to the South East and East of England, with an estimated expenditure of £2.0 billion and £1.2 billion, respectively.

How many of those visits and the value of the 'additional' expenditure are attributable to the River Thames is difficult to measure. This is because the river bank is home to many historic monuments, famous art galleries and museums and other attractions like bars and restaurants and bird reserves in its quieter parts. It is therefore difficult, if not in practice impossible, to attribute visits to the either Thames, the nearby attraction or range of attractions on the river bank.¹⁵

The analysis approaches the problem below by quantifying the numbers who undertake activities that are based on the River or exist because of the River (Section 5.2). This is defined to include those taking boat trips, visiting maritime attractions or attending sporting, cultural or other events on the Thames.

¹³ ONS, (2014), 'Travel trends 2013', 8 May 2014.

¹⁴ VisitEngland, VisitScotland, and Visit Wales, (2014), 'The GB tourist: Statistics 2013.'

¹⁵ One possibility is a survey which asks overseas and domestic tourists what percentage of their visit to London is due to a desire to see the Thames, or enjoy a boat ride, go fishing or other activity on which is dependent on its existence. But the respondent may find it difficult to accurately disentangle the importance to them of seeing the Thames versus the Globe or Tate Modern on its banks.

An alternative approach is to look at the attractions on the banks of the Thames. These could be claimed as an upper bound of what is attributable to the river (Section 5.3).

The last option investigated is look at the ONS' Business Register and Employment Survey's estimate of employment in the tourist industry in councils ward adjacent to the River Thames (Section 5.4). This is likely to serve as an upper bound.

Three approaches are presented as there no ideal way to measure the amount of tourism that is attributable to the River Thames. All three approaches have flaws, most notably, their inability to distinguish between whether the visitors or spectators are from overseas or outside the region increasing expenditure in the area or locals displacing other expenditure.

5.2 The number of people undertaking activities based on the River or that exist because of the River

The major activities undertaken by overseas and domestic tourists on the River or because of its maritime connections are boat trips, visiting maritime attractions or attending one-off events like the Boat Race.

In 2014, 9.8 million passenger journeys were made on the River Thames. This was up from 8 million in the year before.¹⁶ The latest data¹⁷ available suggest 1½ to 2 million of these are tours and charters which are likely to be undertaken by tourists. An unknown proportion of the around 3 million river bus journeys are also likely to be undertaken by tourists relative to people living in London. Most of the Woolwich Ferry 2½ million passengers¹⁸ are likely to have been London residents.

Tourists are drawn to the Thames or maritime-related attractions. Estimating how many people visit is difficult as not all attractions collect visitor numbers and the data only tend to be published for the major ones. At a minimum at least 4.7 million visitors came to Thames or maritime-related attractions on or around the Thames (Table 5.1). The most popular attractions which publish visitor statistics were Old Royal Naval College (1.8 million visitors) and the National Maritime Museum (1.4 million).

¹⁶ Transport for London, (2015), 'River Action Plan delivers record Thames ridership', 25 February.

¹⁷ Data are rarely published on passenger numbers on the Thames. This analysis reports the latest information available, which are not all taken from the same time period. As a result, it does not add to the total of 9.8 million for 2014.

¹⁸ Transport for London (2013), 'Woolwich Ferries celebrate 50 years of service', 16 April.

Table 5.1: Major River Thames or maritime-related attractions

| Attraction | Visitor numbers in 2013 |
|------------------------------|-------------------------|
| Crossness pumping station | 3,463 |
| Cutty Sark Clipper Ship | 321,607 |
| HMS Belfast | 332,342 |
| Museum of London Docklands | 136,215 |
| National Maritime Museum | 1,437,725 |
| Old Royal Naval College | 1,788,712 |
| Thames River Police Museum | 1,800 |
| The Wellington on the Thames | 20,000 |
| Tower Bridge Exhibition | 595,080 |
| Greater Thames Marsh Project | 30,000 |
| Total | 4,666,944 |

Source: The River Thames Guide, Association of Leading Visitor Attractions, the institutions' annual reports

Every year the River Thames hosts a number of annual events and in some year's special one-off events (for example, the Diamond Jubilee Pageant in 2012).¹⁹ The annual events include the Boat Race, the New Year's Eve fireworks display, the Head of the River Race and the Great River Race.

The University Boat Race between Oxford and Cambridge universities is estimated to attract over 250,000 spectators.²⁰ If each person spent the average amount of expenditure undertaken by day-trippers in the UK watching live sporting events excluding purchasing a sport ticket (£25.16 in the day in 2013 prices), this would suggest some £6.3 million was spent on transport and in the pubs and restaurants along the course.²¹ The impact of this on the London economy would depend on whether the spectators live in London so would be spending the money there anyway, or live outside the capital in which it is additional expenditure in the economy.

The New Year's Eve fireworks are another event held on the Thames which attracts large numbers of spectators. This year for the first time, the display was limited to a viewing area of 100,000 ticketed spectators. This was a major reduction on previous years where access had been free and attendances estimated at 500,000 spectators. In 2014, tickets were worth £10 each, generating total revenues for the organisers amounting to £1 million. Based on day-trippers average daily expenditure when attending special public events, it is likely they spent £26 each travelling to the event and on hospitality. This sums to a total of £2.6 million.

¹⁹ The Pageant was estimated to have attracted in excess of one million spectators.

²⁰ The Evening Standard, (2010), 'Record crowd for Easter Boat Race', 1 April.

²¹ VisitEngland, VisitScotland and Visit Wales (2014), 'The GB day visitor: Statistics 2013', April.

5.3 Visitor numbers to attractions on the Thames

An alternative approach is to look at the visitor attractions that are on the immediate banks of the Thames. From the ones that publish their visitor numbers, a total of 23.3 million people visited attractions besides the river in 2013 (Table 5.3). These ranged in size from 1,800 visitors to 4.9 million visitors. They include some of the iconic attractions of London including Tate Modern (4.9 million), the London Eye (3.8 million) and the Tower of London (2.9 million).

It is not known what proportion of these visitors are overseas tourists, domestic tourists or domestic day-trippers.

Picture 5.2: Major London attractions seen from the River Thames



Table 5.3: Visitor numbers to attractions located by the Thames in 2013

| Attraction | Visitor numbers in 2013 |
|---|-------------------------|
| Bankside Gallery | 56,957 |
| Crossness Pumping Station | 3,490 |
| Cutty Sark | 321,607 |
| Fulham Palace Museum | 14,649 |
| Hampton Court Palace | 563,407 |
| HMS Belfast | 332,342 |
| Houses of Parliament | 1,041,000 |
| Lambeth Palace | 2,500 |
| London Eye | 3,750,000 |
| Museum of London Docklands | 136,215 |
| Musical Museum Brentford | 3,838 |
| National Army Museum | 253,291 |
| National Maritime Museum | 1,437,725 |
| Old Royal Naval College | 1,788,712 |
| Rainham Marshes Wildlife and Bird Reserve | 36,652 |
| Royal Botanic Gardens Kew | 1,324,499 |
| Somerset House | 2,398,066 |
| Tate Britain | 1,378,272 |
| Tate Modern | 4,884,939 |
| Thames River Police Museum | 1,800 |
| The Garden Museum | 2,556 |
| The Wellington on the Thames | 20,000 |
| Tilbury Fort | 12,101 |
| Tower Bridge Exhibition | 595,080 |
| Tower of London | 2,894,698 |
| Total | 23,254,396 |

Source: The River Thames Guide, Association of Leading Visitor Attractions, the institutions' annual reports

Box 5.1: Visitors to Richmond

Richmond upon Thames council commissioned a study to understand the profile of visitors attracted by the area and found that tourists mostly enjoy the river, open spaces and historical significance. The main attractions for overseas visitors are Hampton Court and Richmond parks, but 5% of visitors also take a walk along the river and 3% take a river boat ride. The study showed that visitor spend in the Borough in 2009 totaled at least £111.3 million, with accommodation accounting for 32% of all visitor expenditure. The retail sector accounted for 28% of visitor expenditure, with restaurants and bars receiving 24% of the spend. Considering that the Thames is one of the most enjoyable assets that Richmond has to offer, it is reasonable to apportion a significant share of the £111 million to the river's existence.²²

Table 5.4: What visitors enjoyed in Richmond upon Thames, by origin

| | London % | UK % | Overseas % |
|-------------------------------|-------------|---------|---------------|
| The River | 50 | 50 | 49 |
| Historic significance | 30 | 41 | 46 |
| Open/Green spaces | 62 | 46 | 45 |
| Tranquil/peaceful | 48 | 23 | 37 |
| The attractions | 23 | 26 | 34 |
| Escaping the centre of London | 20 | 7 | 16 |
| Range of shops/cafés | 8 | 15 | 11 |
| Lively atmosphere of the area | 13 | 12 | 10 |
| Range of free activities | 8 | 1 | 2 |
| Nothing | 4 | 4 | 1 |
| Other | 13 | 18 | 10 |

Source: Acorn Consulting Partnership (2009)

Box 5.2: Economic valuation of the non-tidal stretch of the Thames

In 2002, a study by Ecotec Research²³ carried out an economic valuation of the non-tidal stretch of the River Thames, estimating that 14 million leisure day visits and 28 million casual local visits to this section of the river generate £119 million expenditure annually.

²² Acorn Consulting Partnership, (2009), 'Study of the visitor market: London Borough of Richmond upon Thames', December.

²³ Ecotec Research and Consulting Ltd, (2002), 'Extended economic valuation of the River Thames: A report to the Environment Agency', January.

5.4 People employed in tourist industries in council wards adjacent to the Thames

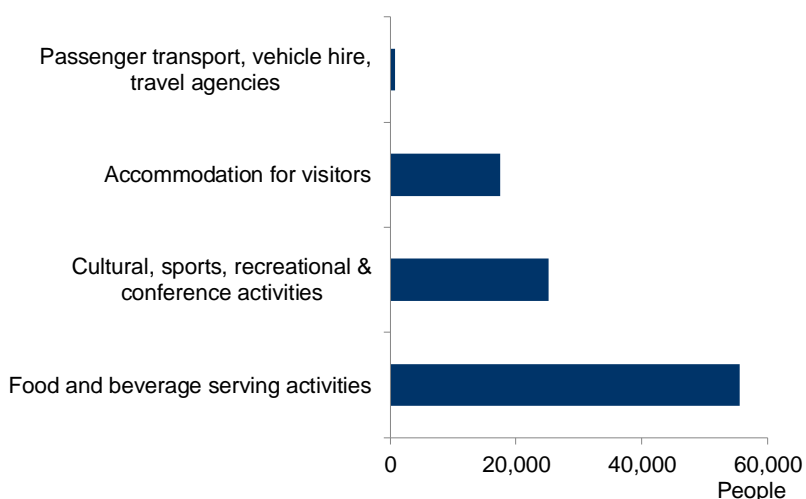
To form an upper bound of how much employment and economic activity are generated in Thames-side wards it is possible to obtain employment data for the relevant parts of the river for SIC codes that reflect the type of activities in the tourism sector.²⁴ The analysis draws on the most disaggregated employment data available, to strip out employment in industries unrelated to the Thames, for example, car as opposed to boat hire, and travel agencies etc.

The United Nations²⁵ has published a definition of the industries which are included in the tourism sector (which is followed by the ONS²⁶ in the UK). The four industries included are:

- accommodation for visitors;
- food and beverage serving activities;
- passenger transport, vehicle hire, travel agencies;
- cultural, sports, recreational & conference activities.

There are 99,000 people employed in the sectors above in the wards next to the river. This is equivalent to 20% of the employment in these sectors in London, or in other words, one in five people employed in tourism in London works near the Thames. This also represents 4% of the employment in tourism in Great Britain. The breakdown by sector is presented in Chart 5.5. Over half of the 100,000 jobs are in food and beverage serving activities, while one in four is employed in cultural or sport related activities.

Chart 5.5: Employment in tourism-related sectors in wards next to the Thames in 2013



Source: ONS (2014), Oxford Economics

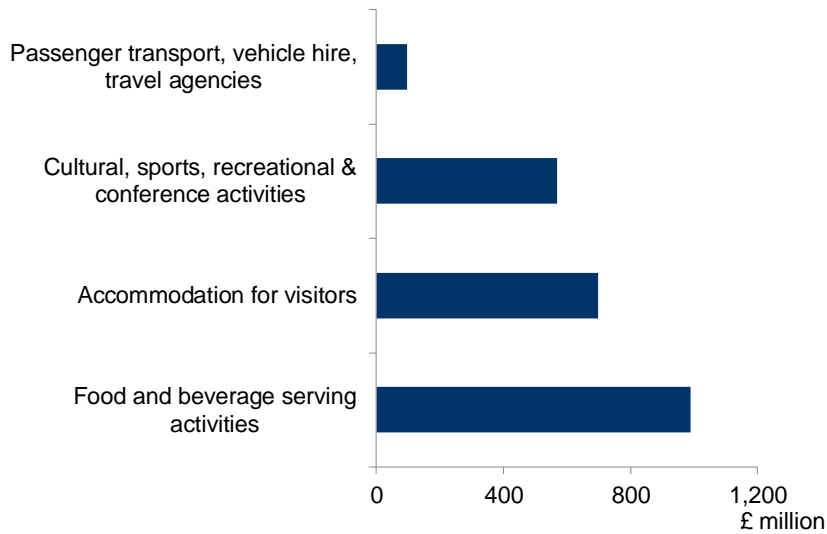
²⁴ ONS' Business Register and Employment survey (BRES).

²⁵ United Nations, (2010), 'International recommendations for tourism statistics 2008', Department of Economic and Social Affairs Statistics Division, Studies in Methods Series M No. 83/Rev.1.

²⁶ ONS, (2014), 'Employment in tourism industries 2009-2013', 26 September.

To calculate the gross value added contribution associated with this employment, the number of people working in each industrial sector is multiplied by the average labour productivity in that sector from the ONS' Annual Business Survey.²⁷ It is estimated that the tourism related sector located in riverside wards generates a £2.4 billion gross value added contribution to UK GDP, of which nearly £1 billion was in the food and beverage serving sector.

Chart 5.6: Gross value added generated by tourism-related activities in Thames-side in 2013



Source: ONS (2014), Oxford Economics

²⁷ The ONS' Annual Business Survey contains various pieces of information on the economic performance of most of the economy by industry.

6 Sports and health implications

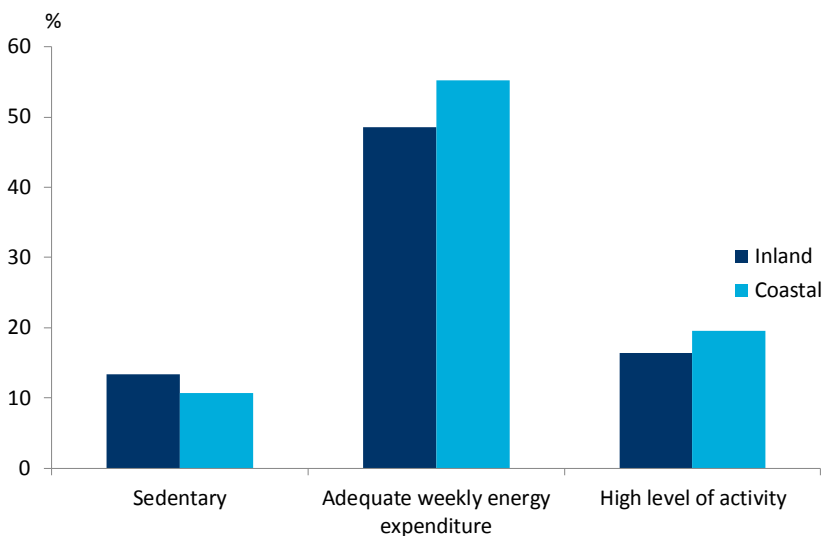
Key points

- Academic studies suggest people who live close to green or blue spaces tend to participate more in physical exercise.
- It is estimated that people go walking or cycling on the Thames towpath on at least 9,960,000 occasions each year.
- A conservative estimate suggests participants value the benefits that participating in sport on the Thames or its towpath at £132 million.
- Participating in sport on the towpath and on the Thames also brings benefits to the economy in terms of foregone treatment costs, reduced absenteeism and greater productivity at work.

6.1 Living by the river is associated with great participation in sport

There is evidence supporting a link between living close to blue and green spaces and being more physically active. Bauman, Smith, Stoker, Bellow and Booth (1999)²⁸, for instance, find that survey respondents who lived in a coastal postcode, i.e. close to the sea, were 23% less likely to be classified as sedentary, 27% more likely to report adequate levels of activity, and 38% more likely to report high levels of physical activity than those who lived inland (Chart 6.1).

Chart 6.1: Blue spaces and participation in physical activity

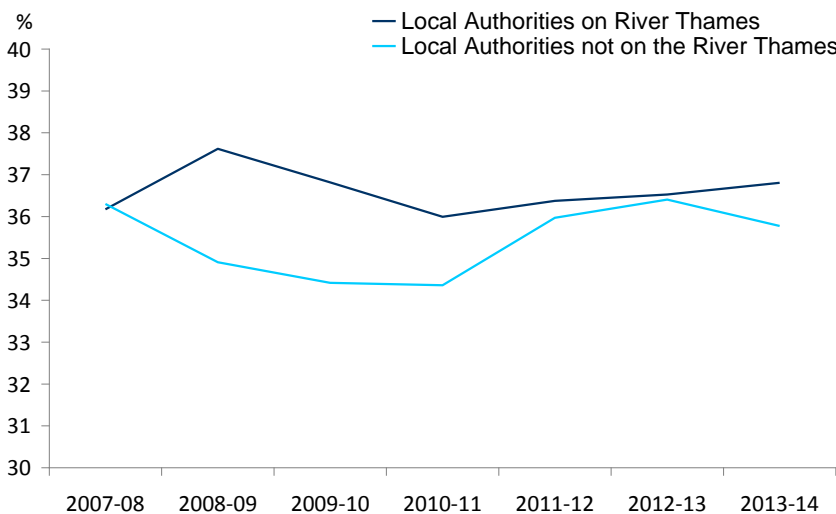


Source: Bauman, Smith, Stoker, Bellow and Booth (1999)

²⁸ Bauman, A, Smith, B, Stoker, L, Bellow, B, and Booth, M, (1999), 'Geographical influences upon physical participation: evidence of a 'coastal effect'', Australian New Zealand Journal of Public Health Vol. 23(3), pages 322-4.

Sport England²⁹ publishes survey data on the proportion of people who participate in various sports on a weekly basis. The sport participation indicator measures the share of people aged 16 and over participating in at least 30 minutes of sport at moderate intensity at least once a week. On average, people living in local authorities in Essex, Kent and London next to the River Thames tend to be more physically active than their counterparts living further away (Chart 6.2).

Chart 6.2: Physical activity participation rate by LA's distance to the River Thames



Source: Sport England, Oxford Economics

Every year the Department for Transport publishes statistics on the proportion of residents who participate in walking³⁰ or cycling³¹ at least once per month in each local authority in England.³² The 2012-13 publication suggests that 87% of adults walked or cycled at least once a month during the past year. Richmond upon Thames and Hammersmith and Fulham rank in top five local authorities for cycling participation with the third (21%) and fourth (19%) highest percentage of residents who cycled at least once a week, respectively.

In order to estimate the number of people walking or cycling on the Thames towpath, the analysis identified the local authorities on the Thames and looked at the prevalence of these activities among their residents. To control for the fact that not all residents in the borough live at reasonable distance from the river, the results are scaled down for the proportion of the population living in wards with direct access to the Thames. This yields an estimate that people go walking or cycling on the Thames towpath on at least 9,960,000 occasions each year.

In order to value the benefits of this activity to participants, the report relies on a study by Sustrans (2006), which applied the Transport for London/Department for Transport model to calculate the annual benefit of an individual taking

²⁹ Sport England, (2014), 'Active people survey 8; Q2 April 2013 – April 2014'.

³⁰ 'Walking' refers to any continuous walk of at least 10 minutes, irrespective of purpose.

³¹ Cycling refers to any cycling, irrespective of length or purpose.

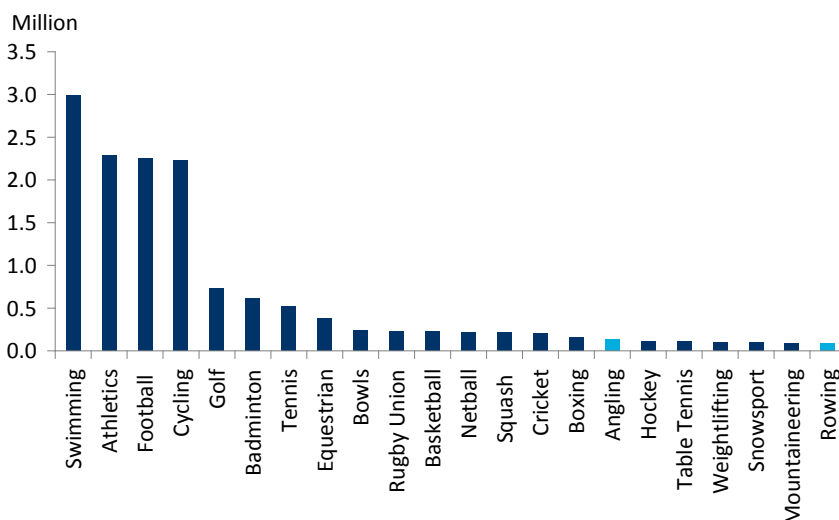
³² Department for Transport, (2014), 'Local area walking and cycling statistics: England 2012/13', 29 April.

moderate physical activity. This was estimated at 0.0001 times the statistical value of a life, which yielded a value for each additional walker/cyclist of £122.93 (2007 prices). Inflating this figure and multiplying it by the number of walkers/cyclist on the Thames towpath yields an estimated annual value of £124 million deriving from residents practicing these activities.

Amongst the favourite sports in England are angling and rowing, both activities that can be undertaken on the Thames. The 2010 ‘Public Attitudes to Angling’ survey indicates that 9% of the population within England and Wales (4.2 million) have been freshwater fishing in the previous two years and 12% of the population, 5.6 million people, were interested in going fishing in the future, even though they had not been freshwater fishing in the previous two years. Sport England estimates that 140,000 people took part in game, coarse or sea fishing on a regular basis in England between April 2013 and April 2014, although the tidal stretch of the Thames is not as popular as the non-tidal part of it. According to Sport England data, 1.4% of the angling clubs in England practice this sport in the tidal side of the Thames. This suggests that nearly 2,000 people undertake angling in this area every year. This is likely to be a conservative estimate, as not all the anglers belong to clubs.

The 2013-14 Active People Survey shows that 83,500 people participated to rowing (either water based or indoor on rowing machines) at least once a week between April 2013 and April 2014, equivalent to 0.19% of the population. There are currently 116 rowing clubs in England, of which we estimated nearly 7% are based in the tidal side of the river. This suggests that 5,800 people row on the tidal stretch of the Thames every year.

Chart 6.3: Number of participants by sport in England in 2013/14



Source: Sport England

6.2 The value people participating in sport by or on the Thames attach to it

Having formed an estimate of how many people use the Thames for sporting activities, we can then combine it with a financial value the average individual places on being able to undertake the activity to monetise the value of the river.

The Department for Culture, Media and Sport (DCMS) commissioned researchers from the London School of Economics (LSE) to undertake analysis of Understanding Society data to develop the evidence base on the wellbeing impacts of cultural engagement and sport participation.³³ The researchers find that, compared to never practicing it, doing sports at least once per week had a positive association with life satisfaction. By calculating how much an exogenous increase in income enhances life satisfaction, it was possible to determine the monetary value of doing sports. This is valued at £1,127 per person per year for team sports and at £828 per year for individual sports. By multiplying these estimates by the number of people benefitting from the Thames to practice either rowing (team sport) or angling (individual sport), it is possible to obtain a measure of wellbeing improvement generated by the river. We identify an impact of the River Thames on individuals' wellbeing worth £8 million. If this is added to the benefits from undertaking walking or cycling on the towpath, this amounts to £132 million in recreational benefits.

Figure 6.4: Rowing and walking on the Thames



6.3 Value of foregone treatment costs due to greater exercise

A recent study by the European Centre for Environment & Human Health³⁴ indicates that good self-reported health is more prevalent the closer one lives on the coast and there was some evidence that other aquatic environments helped too. The researchers hypothesise that these effects may be due to opportunities for stress reduction and increased physical activity. Indeed, another study commissioned by DCMS³⁵ finds that sports participants were 14.1% more likely

³³ Fujiwara, D, Kudrna, L and Dolan, P, (2014), 'Quantifying and valuing the wellbeing impacts of sport and culture', DCMS, April.

³⁴ Wheeler, B, White, M, Stahl-Timmins, W, Depledge, M, (2012), 'Does living by the coast improve health and wellbeing?' Health & Place Vol. 18, Issue 5, pages 1198–1201.

³⁵ Fujiwara, D, Kudrna, L and Dolan, P, (2014), 'Quantifying the social impacts of culture and sport', April.

to report good health than non-participants. This report estimated the indicative annual NHS cost saving associated with improvements in self-reported health due to engagement in sport. Team sports were found to increase the probability of reporting good health by 7.6%, while individual sports increase it by 12.9%. It was calculated that people who participate in team sports incur about £52.67 less in NHS costs per year, while their counterparts doing individual sports save £89.40 every year. Therefore, we estimate that the indicative annual NHS cost savings associated with the River Thames amounts to nearly £500,000.

This analysis is likely to be an understatement as it does not consider the longer term health benefits of participating in sport.

6.4 Other benefits

Better health deriving from the benefits of undertaking exercise on the Thames may increase economic output due to higher productivity and the reduction in absenteeism from work.³⁶ In England, the costs of lost productivity have been estimated at £5.5 billion per year from sickness absence and £1 billion per year from the premature death of people of working age.³⁷ There is already a literature on the potential value green spaces and footpaths provide.³⁸ The consultation document 'Choosing Health, Choosing Activity'³⁹, published by the Department of Health and the Department for Culture Media and Sport outlines the views of different stakeholders on improving health. One area for consultation was 'Improving the environment in which we live to encourage safe and active lifestyles'. There is an understanding in the consultation that countryside, coast, canals, rivers, and informal green areas in and around towns and cities provide a natural resource for people to be active at little cost. The potential benefits of physical activity for employers were found to include increased productivity and reduced absenteeism in the workforce. However, due to the difficulty in attaching a value to these outcomes, the analysis does not provide an estimate for this channel of impact.

³⁶ Heuvel, S, van den, Boshuizen, H, Hildebrandt, V, Blatter, B, Ariëns, G, and Bongers, P, (2005), 'Effect of sporting activity on absenteeism in a working population', *British Journal of Sports Medicine* Vol. 39(3).

³⁷ Ossa, D, and Hutton, J, (2002), 'The economic burden of physical inactivity in England', London: MEDTAP International.

³⁸ Bird, W, (2004), 'Natural fit: can green space and biodiversity increase levels of physical activity?', RSPB, Sandy, Bedfordshire.

³⁹ Department of Health and DCMS, (2004), 'Choosing health? Choosing activity – A consultation on how to increase physical activity', Spring.

7 Conclusion

The River Thames is vitally important to London. Just over 1 million people work in wards adjacent to the river. Housing close to the Thames has a 12.6% price premium attached to it. Some 4.7 million people visit Thames or maritime-related attractions in its vicinity a year. In addition, between 1½ and 2 million people travel on tour or charter boats up the Thames, with another 3 million river bus journeys also being taken a year. Annually, at least 23.3 million people visit the attractions located by the side of the Thames. It is estimated that people walk or cycle along the towpath on at least 9,960,000 occasions a year. Sport undertaken on the Thames or its towpath gives the participants an estimated £132 million in wellbeing benefits a year.

Appendix

House price regression

We ran the regression on average house prices in 624 wards in 2013 and found an R squared of 0.64, indicating that nearly two-thirds of the variation in home sale prices is explained by the model. The regression is carried out trimming the top 1% observations. The significance value of the F statistic indicates that the null hypothesis that house prices are not linearly related to all the explanatory variables can be rejected.

Table A-1: Regression results

| Model | B coefficients | 95%confidence interval for B (lower and upper bound) | |
|---------------------|----------------|---|---------|
| Constant | 10.950*** | 10.729 | 11.171 |
| Thames proximity | 0.126*** | 0.048 | 0.204 |
| Overcrowding | -3.843*** | -4.302 | -3.384 |
| Dwelling density | 0.108*** | 0.032 | 0.184 |
| Income support | -15.235*** | -18.357 | -12.113 |
| Domestic burglaries | 33.961*** | 20.384 | 47.538 |
| Distance to work | 3.637*** | 3.353 | 3.921 |

Source: Oxford Economics

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