

Travel to Work Areas

**Research undertaken with and for the Office
for National Statistics**

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**Mike Coombes and Office for National
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Preface and research overview

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This report covers research by CURDS for and with the UK's Office for National Statistics (ONS). This preface summarises the academic context of the research, and it is followed by three sections, each of which is taken from a document linked at the ONS Travel to Work Area (TTWA) website <https://www.ons.gov.uk/methodology/geography/ukgeographies/othergeographies#travel-to-work-areas>. These three following sections are as follows:

- **Overview of 2011 Travel to Work Areas**
- **Methodology note on 2011 Travel to Work Areas**
- **Changes in Travel to Work Areas from 2001 to 2011.**

The need for appropriately-defined areas for policy development and implementation

Many policy decisions rely on comparing statistics on areas, and so using appropriately-defined areas makes for better policy decisions. There are situations where an area can miss out on large sums of public funds if its boundary is not drawn appropriately. The vast majority of local official statistics in the UK are reported for administrative areas but their idiosyncratic boundaries distorts the comparison of areas (this sensitivity of statistical analyses is the Modifiable Areal Unit Problem).

CURDS research activity

CURDS has been developing improved methods for defining functional areas such as TTWAs throughout its existence. Since being commissioned by ONS's predecessor body to help define TTWAs in the early 1980s it has refined the method in response to the challenges posed by each Census in subsequent decades. CURDS has also worked with Eurostat so the method can provide a basis for harmonised definitions of labour market areas across Europe. CURDS research has thus

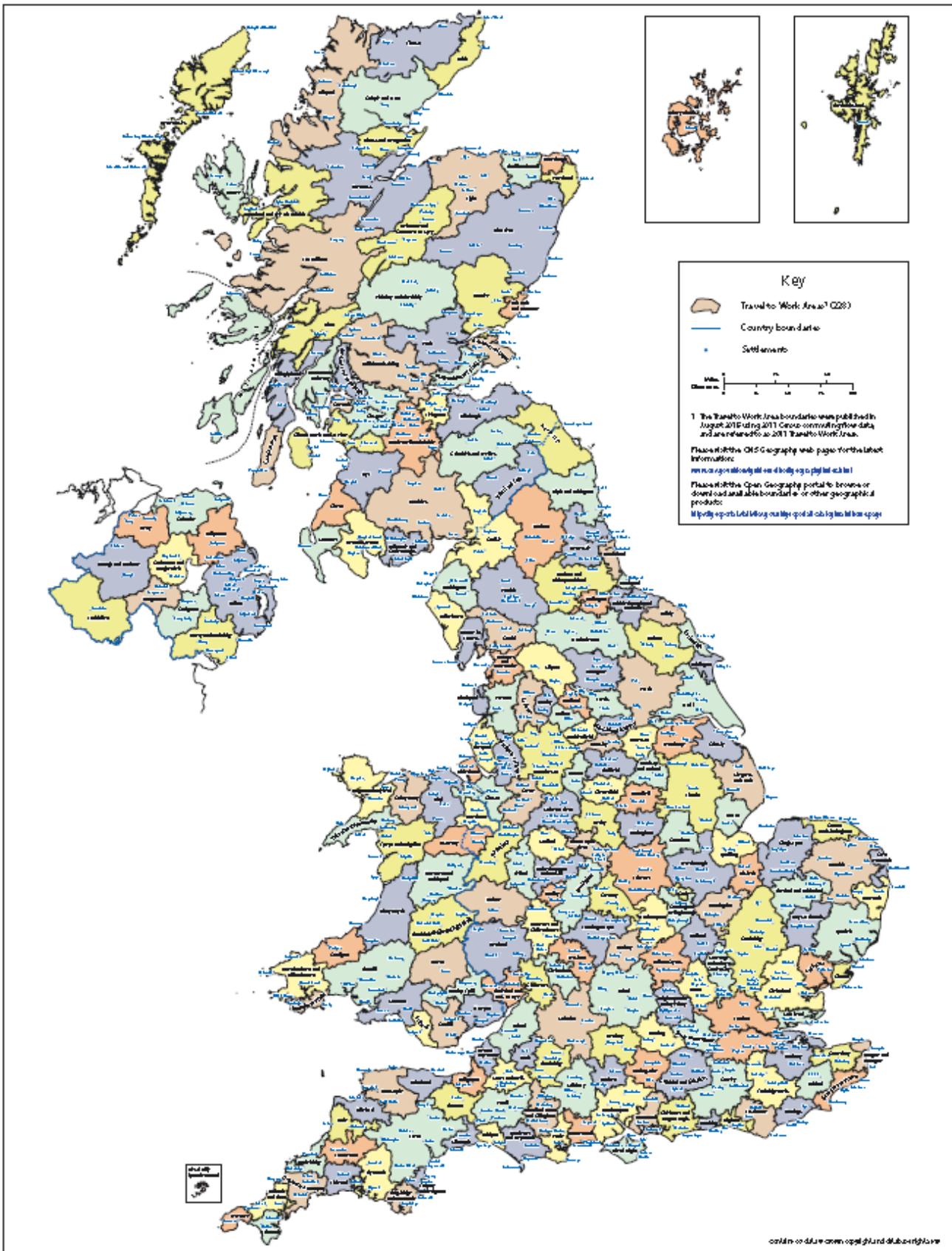
- re-interpreted the local labour market area concept – often presumed to be urban-centred – as modern commuting behaviour became very varied due to jobs moving to different areas; a flexible concept of commuting flow clusters allows polycentric TTWAs to be recognised
- created computer algorithms to implement this concept in analysing data on flow patterns, with hugely increased computing power utilising the greatly increased detail in available data (eg. commuting matrices potentially having 1.7billion cells)
- being sensitive to constraints on innovation in official statistics by adopting a co-production of knowledge approach with policy colleagues.

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United Kingdom: 2011 Travel to Work Areas



Introduction

This note provides a brief overview of the 2011 Travel to Work Areas (TTWA), published in 2015, covering the concept of TTWAs, stakeholder engagement, and an overview of change between these and the 2001 TTWAs, published in 2007.

Background

In concept, a self-contained labour market area is one in which all commuting occurs within the boundary of that area. In practice, it is not possible to divide the UK into entirely separate labour market areas as commuting patterns are too diffuse. TTWAs have been developed as approximations to self-contained labour markets reflecting areas where most people both live and work. As such they are based on a statistical analysis rather than administrative boundaries, though consistency with existing local authority boundaries is one of a number of different considerations when defining the TTWAs.

The 2011 TTWAs have been produced by Newcastle University analysing commuting flows from the 2011 Census. The earliest TTWAs were defined in terms of Employment Office (Jobcentre) areas. For the 1981 and 1991 TTWAs, based on the 1981 and 1991 Censuses, the TTWA definitions were aggregations of wards. For the 2001 and 2011 TTWAs, statistical geographies have been used to define the TTWAs: lower layer super output areas (LSOA) for England and Wales, data zones (DZ) for Scotland, and super output areas (SOA) for Northern Ireland.

The current criteria for defining TTWAs are that at least 75% of the area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area. The area must also have an economically active population of at least 3,500. However, for areas with a working population in excess of 25,000, self-containment rates as low as 66.7% are accepted as part of a limited 'trade-off' between workforce size and level of self-containment. TTWA boundaries must be non-overlapping and internally contiguous, covering the entire UK between them. TTWAs are permitted to cross national boundaries, although no account is taken of commuting between Northern Ireland and the Republic of Ireland. The criteria used for creating the 2011 TTWAs are the same as previously used for the 2001 TTWAs, and the methodology is unchanged.

Over time there has been a consistent pattern of a reduction in the number of TTWAs: more people tend to commute longer distances to work, leading to an increase in the average size of TTWAs in terms of geographical area and population, and a consequent decrease in the number of TTWAs. With the 1991 TTWAs there were 308 TTWAs covering the UK, with the 2001 TTWAs there were 243 TTWAs, and a reduction further to 228 with the 2011 TTWAs.

Uses of TTWAs

Previous ONS consultation amongst stakeholders and users of TTWAs identified some of the following uses of TTWAs:

- informing inward investment
- helping build an understanding of the labour market

- framing local labour market analysis, particularly regarding the spatial mismatch between labour supply and demand
- providing the smallest area for which workforce-based employment and unemployment rates can be compared
- offering a statistically consistent geography for the whole country

It is recognised that for some users the TTWAs have some limitations, for example they don't highlight different commuting patterns for different segments of the working population, such as subgroups defined by occupation or by qualification. ONS is going to undertake some additional analysis to explore some of the facets of these different labour market subgroups.

Labour market statistics, covering Jobseeker's Allowance counts will be published for the 2011 TTWAs in due course on the Nomis website.

Stakeholder engagement with the 2011 TTWAs

Following the creation of draft TTWAs there was a stakeholder engagement exercise aimed at government departments and the devolved administrations (Wales, Scotland and Northern Ireland). The purpose of this exercise was to invite stakeholders to identify any implausible boundaries in the draft TTWAs, or to identify potential improvements in order to ensure that the final TTWAs were fit for purpose. To help ensure UK national consistency with the creation of the TTWAs, stakeholder engagement was limited and so there was no wider formal consultation.

Whilst the creation of the TTWAs has been consistently done across the UK in order to produce comparable local labour markets, it is not appropriate to place great emphasis on the allocation of any individual LSOA, DZ or SOA to a particular TTWA when potentially different TTWA allocations could have been met whilst still keeping the integrity of the criteria of an area for a TTWA.

Summary of change between the 2001 and 2011 TTWAs

Across the UK there are now a total of 228 TTWAs, 15 fewer than with the 2001 TTWAs (a 6.2% decrease). Of these 228 TTWAs, 23 are unchanged in area and name when compared with the 2001 TTWAs (Annex A), and 8 which are unchanged in area but changed in name (Annex B). There are also 105 TTWAs which have retained the same TTWA name but are changed in area (see Annex C), and 12 TTWAs which are coterminous with local authority boundaries (see Annex D). The 2011 TTWAs listed in Annexes A to C are mutually exclusive, whilst Annex D TTWAs can also be in the other Annexes.

Overall, the picture of change over the past decade is one of evolution with main centres of employment retaining or extending their position. We therefore find relatively small changes in TTWAs surrounding the core cities, and more extensive change as we move to more rural areas and for towns and cities which are extending their influence as centres of employment.

Typically what may be observed in some areas is the merging of 2 or more TTWAs to form a smaller number of 2011 TTWAs. The overall effect of the TTWA changes is that some 2011 TTWAs have increased in area (and population) which reflects the increasing dominance of some employment centres and/or a greater willingness to commute longer distances by the workforce.

This overview provides a very broad picture of changes in the number of TTWAs at UK level. Further analysis will provide further commentary on the extent of changes across the UK, examining some of these by region and country, and will be reported on at a later stage, together with an analysis of notional TTWAs for some labour market subgroups, such as part-time and full-time workers, and workers by age, sex and qualifications.

Naming convention for the 2011 TTWAs

After the definitions were complete, major settlements in terms of population size were identified from published sources, and for each TTWA the largest settlement identified. Checks were also made to see if there were any other settlements which had a population size of more than half that for the largest settlement. Where this did occur, the TTWA name generally reflects the largest and second largest settlements, for example Folkestone and Dover TTWA. Where there is a single 'dominant' settlement in the TTWA, the name will generally reflect this settlement name alone, for example Lincoln TTWA. Where the TTWA covers a discrete island such as the Isle of Wight, the name will typically reflect the island name rather than the main settlement(s).

Annex A 2001 and 2011 TTWAs where 2011 TTWAs are unchanged in area and name

2001 TTWA Code	2001 TTWA Name	2011 TTWA Code	2011 TTWA Name
E30000004	Barnsley	E30000004	Barnsley
E30000018	Bradford	E30000018	Bradford
E30000046	Dorchester and Weymouth	E30000046	Dorchester and Weymouth
E30000054	Grantham	E30000054	Grantham
E30000061	Hastings	E30000061	Hastings
E30000070	Isle of Wight	E30000070	Isle of Wight
E30000076	Lancaster and Morecambe	E30000076	Lancaster and Morecambe
E30000093	Middlesbrough and Stockton	E30000093	Middlesbrough and Stockton
E30000095	Minehead	E30000095	Minehead
E30000108	Peterborough	E30000108	Peterborough
E30000110	Poole	E30000110	Poole
E30000135	Thetford and Mildenhall	E30000135	Thetford and Mildenhall
E30000147	Whitby	E30000147	Whitby
W22000003	Bridgend	W22000003	Bridgend
W22000011	Llandrindod Wells and Builth Wells	W22000011	Llandrindod Wells and Builth Wells
W22000015	Newtown and Welshpool	W22000015	Newtown and Welshpool
W22000016	Pembroke and Tenby	W22000016	Pembroke and Tenby
S22000005	Campbeltown	S22000005	Campbeltown
S22000013	Eilean Siar	S22000013	Eilean Siar
S22000032	Mull and Islay	S22000032	Mull and Islay
S22000035	Orkney Islands	S22000035	Orkney Islands
S22000039	Shetland Islands	S22000039	Shetland Islands
81	Enniskillen	N12000008	Enniskillen

Annex B 2001 and 2011 TTWAs where 2011 TTWAs are unchanged in area but changed in name

2001 TTWA Code	2001 TTWA Name	2011 TTWA Code	2011 TTWA Name
E30000051	Falmouth and Helston	E30000051	Falmouth
E30000029	Calderdale	E30000029	Halifax
E30000064	Hexham and Haltwhistle	E30000064	Hexham
E30000106	Penrith and Appleby	E30000106	Penrith
E30000039	Craven	E30000039	Skipton
E30000124	South Holland	E30000124	Spalding
K01000005	Monmouth and Cinderford	K01000005	Cinderford and Ross-on-Wye
W22000009	Haverfordwest and Fishguard	W22000009	Haverfordwest and Milford Haven

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Introduction

New 2011 Travel to Work Areas (TTWA) have been defined using 2011 Census origin-destination data, covering lower layer super output areas (LSOA) in England and Wales, data zones (DZ) in Scotland and super output areas (SOA) in Northern Ireland – for brevity referred to as LSOAs in the methodology section. The 2011 TTWAs have been created without being constrained to national boundaries, and form a UK wide set of 228 TTWAs. These definitions have been produced with support from Newcastle University. This note provides a short description of the data and methodology used to create the TTWAs.

Data

The 2011 Census commuting flow data used to create the TTWAs was a matrix of origin by destination commuting flows for workers aged 16 and over - including students who were working, based on residence postcode and address of the place of work in main job.

In addition to workers with differently recorded home and work addresses, workers were also included if they stated that they mainly worked at or from home, worked at an offshore installation, or stated no fixed workplace. In each of these cases their home residence address was used as their destination workplace. Sensitivity testing was done to examine the impact of including or excluding each of these sets of workers in turn for creating the TTWA, the outcome was that it was considered that the best TTWA results were obtained by including all of these workers.

The data used differs slightly to the input data used for the 2001 TTWAs as workers at an offshore installation were excluded. As with the 2001 TTWAs, workers who stated that their workplace was outside the UK were excluded.

Data were provided at: (1) output area (OA) for England and Wales and (2) Scotland, and aggregated to LSOA level and DZ level respectively, and (3) SOAs in Northern Ireland (no aggregation required). For Scotland, the data supplied were aggregated to 2001 DZs as 2011 DZs had not been defined at the time.

The final TTWAs are based on aggregations of LSOAs (34,753), DZs (6,976) and SOAs (890). For Scotland the initial TTWAs were based on aggregations of 2001 DZs (6,505), and these TTWAs were then redefined using a best fit of 2011 DZs. Checks were also undertaken that the reworked TTWAs based on 2011 DZs still met all the criteria for a TTWA (as outlined in the methodology section).

Methodology

The algorithm to be applied to the data uses the number of work journeys between LSOAs. It groups the LSOAs into areas in such a way that most workers living in an area also work in the same area and most people who work in an area also live there. There is no single theoretically correct algorithm for grouping LSOAs to meet this objective. The algorithm was therefore developed by testing various alternatives and selecting the best that has been developed over the time of the research. The current algorithm is the one developed by Newcastle University and with slight adaptation is as-used for previous TTWA definitions and now also used in other countries.

In assessing the relative merits of various alternatives, the factors taken into account include:

1. Maximising the number of self-contained areas resulting from a given algorithm.
2. Restraining the size of the largest TTWAs and in particular the one centred on London (to curtail its tendency to swallow up the South East, whilst ensuring that the TTWAs which surround London are each sensible labour market areas).
3. Minimising change to the 2001 definitions, to support as far as possible meaningful inferences of change over time.

In measuring the strength of the commuting link between two areas a formula is required which takes account of journeys in both directions. A decision as to whether to attach an LSOA to a particular area should depend not only on the number of people who commute from the LSOA to the area concerned but also on the number who commute in the opposite direction.

The formula needs also to take account of the size of the areas concerned; if a choice is being made to attach a LSOA to one of two areas, a simple comparison of the numbers of journeys involved would tend to favour the choice of the larger area. This consideration is particularly important in arriving at an algorithm which produces a substantial number of TTWAs without needlessly combining distinct areas. In particular, it aids the identification of separate TTWAs in the surroundings of large cities.

In calculating the formula, the flow from area A to area B is measured as a proportion of the residents in area A and also as a proportion of the jobs in area B and these two proportions are multiplied together to give a measure of the "importance" of that flow for the areas concerned. The full formula is the sum of the "importances", measured in this way, of the flows in each direction between the two areas.

Algebraically the formula is:

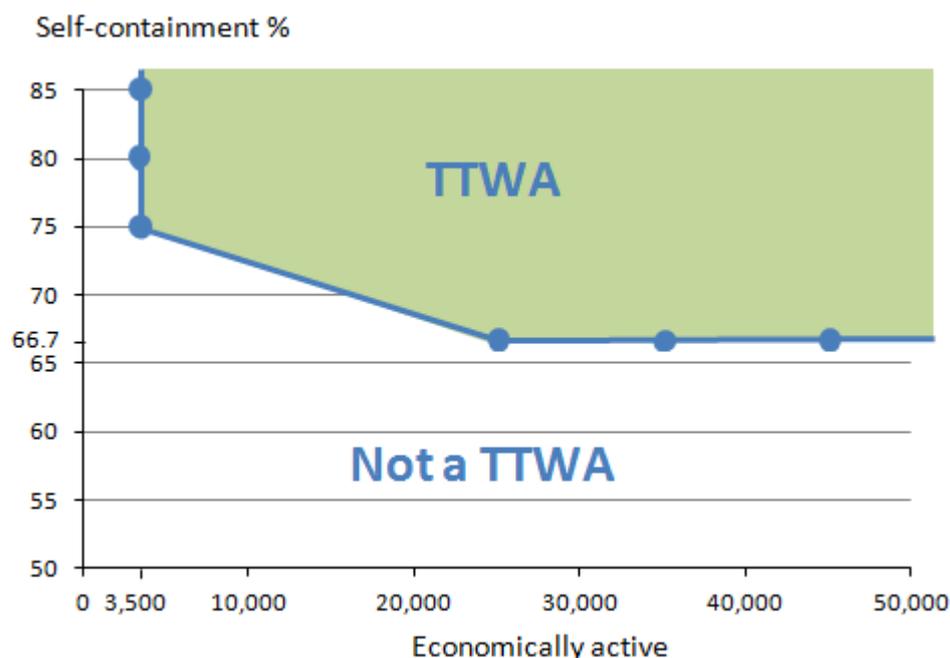
$$\frac{F_{a,b} * F_{a,b}}{R_a * W_b} + \frac{F_{b,a} * F_{b,a}}{R_b * W_a}$$

Where $F_{a,b}$ is the number of journeys to work from area A to area B; R_a is the number of workers who live in area A; and W_a is the number of people who work in area A.

An index is also needed which assesses whether a grouping of LSOAs comprises a viable TTWA. This index is a statistical function which evaluates potential TTWAs on the following principles:

- (i) An area with self-containment - on both residence based and workplace based measures - exceeding 75% and at least 3,500 workers living in the area should be accepted.
- (ii) An area with self-containment - on both measures - exceeding 66.7% and at least 25,000 workers living in the area should be accepted.
- (iii) An area in which fewer than 3,500 workers live should be rejected.
- (iv) An area with self-containment - on either measure - of less than 66.7% should be rejected.
- (v) For areas where between 3,500 and 25,000 workers live, the minimum self-containment required - on both measures - for acceptance as a TTWA should progressively decrease from 75% for the smallest areas to 66.7% for the largest.

The chart below shows schematically how the viability of each TTWA is considered based on the area's economically active population and its self-containment. Self-containment here refers to the lower of the residence based or workplace based self-containment values.



The algorithm creates TTWAs through an iterative process of splitting up the area that has the lowest value on the index (note this may be a single LSOA initially, or a group of LSOAs later), reassigning the individual LSOAs to other LSOAs/groups of LSOAs using the formula above. Within this process, all possible reassignments are considered (not just those involving neighbouring areas). The process stops when all groups are viable TTWAs, and a set of draft TTWAs have been produced.

There then followed a period of stakeholder engagement to identify any peculiarities with the draft TTWAs, or to identify potential improvements in order to ensure that the final TTWAs were fit for purpose. A set of criteria were applied in accepting or rejecting changes to the draft TTWAs. Non-contiguities were also resolved whereby small areas allocated to a particular TTWA were geographically separated from the main part of a TTWA.

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Introduction

TTWAs became the official British definition of local labour market areas in the 1960s, although their predecessors go further back in time. Following each national census from the 1971 Census, TTWAs have been defined using commuting flow data for workers based on their area of residence and workplace.

Concept of travel to work areas

TTWAs are defined to approximate self-contained local labour market areas, where the majority of an area's resident workforce work, and where the majority of the workforce live. TTWAs help to make local labour market data more meaningful. In their absence, comparing data for different parts of the country risks distortion if there are mismatches between where the workforce work and where the workforce live, so that very different types of areas would then be compared. To avoid this problem, TTWAs have been defined so that relatively few commuters cross a TTWA boundary on their way to work, which makes them de facto local labour market areas.

TTWAs are non-overlapping contiguous areas covering the whole of the UK. TTWAs can cross national boundaries, although no account is taken of commuting between Northern Ireland and the Republic of Ireland.

Definition of 2011 travel to work areas

The latest Travel to Work areas produced by Newcastle University have been created using an algorithm to identify commuting patterns from a 2011 Census matrix of commuting flow data by origin and destination for workers aged 16 and over, based on residence postcode and address of the place of work in main job.

The criteria used for defining TTWAs are that generally at least 75% of an area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area. The area must also have a working population of at least 3,500. However, for areas with a working population in excess of 25,000, self-containment rates as low as 66.7% are accepted.

The resulting pattern is that although the definitive minimum working population in a TTWA is 3,500 many areas are much larger – indeed, much of London and its surrounding area forms one TTWA.

Changes in the number of TTWAs over time

As the TTWAs have been defined in a consistent manner, it is possible to make meaningful comparisons between the number of TTWAs over time, and geographically across the UK. What has been observed is a persistent reduction in the number of TTWAs over time. With the 1991 TTWAs, there were 308 TTWAs covering the UK, with the 2001 TTWAs there were 243 TTWAs, and there has been a further reduction to 228 with the latest 2011 TTWAs.

This reduction over time in the number of TTWAs reflects an increasing proportion of workers commuting longer distances to travel to work. More people commuting further means that most areas tend to become less self-contained, leading to a decrease in the number of TTWAs and hence an increase in the average land area and population size of TTWAs. The growth of longer distance commuting may be attributable to 1 or more of a number of different factors, including:

- sustained increase in car use, which allows access to more workplaces
- fewer jobs in traditional employment sectors, such as manufacturing and mining, where local working was common
- diffused job opportunities (such as employers de-centralising to city edges)
- more jobs at professional/managerial levels with higher pay levels allowing more costly travel
- more households with 2 earners who often cannot live near both workplaces
- more complex working patterns (such as people working part of the week at home).

An illustration of the increase in commuting distance by workers between 2001 and 2011 as recorded by the census is shown in Figure 1, where the proportion of commuters travelling 10km or over has increased from 32.3% to 35.8%.

Figure 1: Commuting distances travelled, UK, 2001 and 2011

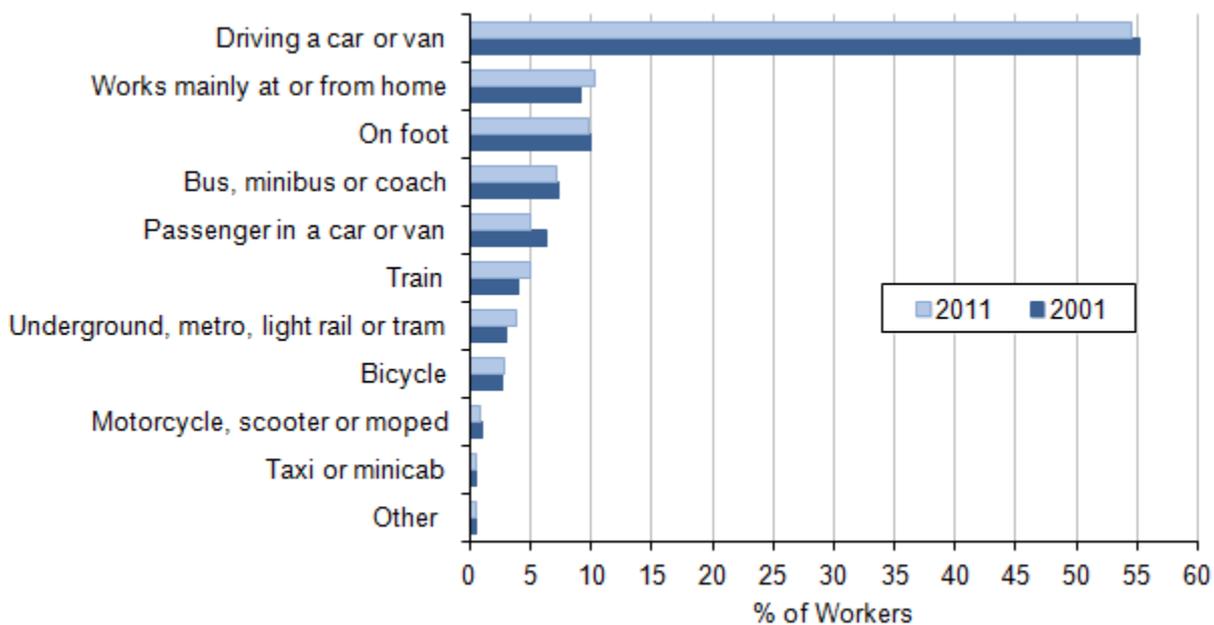


Source: Census - Office for National Statistics

Notes: Includes commuters aged 16 to 74.

The distance travelled to work is linked to the main mode of transport to work. We can compare the main method of travel to work from the 2011 Census with comparable figures from the 2001 Census (Figure 2). For those in employment (aged 16 to 74), the proportion driving a car or van fell slightly (by 0.8 percentage points), although the overall growth in numbers working meant there was an increase of 1.4m people driving to work. Driving a car or van remains by far the most widely used mode of transport to work.

Figure 2: Mode of Travel to Work, UK, 2001 and 2011



Source: Census - Office for National Statistics

The proportion of workers who stated they worked mainly at or from home increased by 1.1 percentage points to 10.3%; they are included in the definitions of TTWAs alongside those who work very locally. Among those most likely to commute longer distances are those travelling by train, and the proportion of all workers using this mode has increased by 0.9 percentage points to reach 5.0% in 2011.

The fact that the modes of travel to work which grew most were associated with commuting either longer distances (rail) or no distance at all (home-working) means these changes partially cancelled each other out in their impact on average commuting distance. The effect of this modest change has been a slower decline from 2001 to 2011 in the number of TTWAs than was seen in earlier decades.

Changes in the largest TTWAs, 2001 and 2011

In 2001 the average size of TTWAs in terms of the workplace population¹ was 109,000 and by 2011 this had risen to over 131,000, an increase of over 20%. A common feature of the TTWAs continues to be their enormous range in size, with the economically active populations of 2011 TTWAs ranging from around 3,600 for the Broadford and Kyle of Lochalsh TTWA in northwest Scotland to over 4.3m in the London TTWA.

Of the 243 TTWAs created following the 2001 Census, only 31 (13%) have remained unchanged in area with the 2011 TTWAs (though some have changed in name). The 10 largest 2001 TTWAs in terms of their workplace population had, with one exception – Bristol TTWA – all increased in size by 2011 TTWAs (Table 1).

Table 1: Largest TTWAs by workplace population, UK, 2001 TTWAs and 2011 TTWAs

2001 TTWAs

Rank	Name	No. of jobs	% of total Workplace Population
1	London	4,227,600	16.0
2	Manchester	845,300	3.2
3	Birmingham	687,300	2.6
4	Glasgow	517,200	2.0
5	Newcastle and Durham	459,100	1.7
6	Leeds	438,000	1.7
7	Bristol	437,800	1.7
8	Liverpool	386,000	1.5
9	Belfast	373,900	1.4
10	Leicester	360,800	1.4

2011 TTWAs

Rank	Name	No. of jobs	% of total Workplace Population
1	London	4,408,400	14.7
2	Manchester	1,238,700	4.1
3	Slough and Heathrow	773,800	2.6
4	Birmingham	757,000	2.5
5	Glasgow	615,600	2.1
6	Newcastle	474,300	1.6
7	Liverpool	438,100	1.5
8	Leicester	434,700	1.5
9	Bristol	428,300	1.4
10	Belfast	420,900	1.4

Table source: Office for National Statistics

With the 2001 TTWAs, the top 10 TTWAs by workplace population between them included around one-third of the total UK workplace population, with around one-sixth of the total UK workplace population in the largest TTWA, London. By the same workplace population measure, the top 10 2011 TTWAs covered a similar proportion of the total UK workplace population, whilst the top 25 TTWAs together accounted for just over 50% of the total UK workplace population.

It is not simple to interpret change to individual TTWAs over time. For example, there has been widespread growth in job numbers across the London region but the percentage of the 2011 UK workplace population covered by the 2011 London TTWA is lower than the share of the 2001 UK workplace population in the 2001 London TTWA. The reason is that the 2011 TTWA boundary covers a smaller area, due to the emergence in 2011 of a separate Slough and Heathrow TTWA (although this 'new' TTWA is very similar to one of the 1991 TTWAs).

Comparing the 2001 and 2011 TTWAs, Manchester TTWA saw the largest increase in workplace population at 393,400 (Table 2), reflecting a large boundary enlargement with the 2011 TTWA.

Table 2: Change in workplace population of the largest TTWAs 2001 and 2011, UK

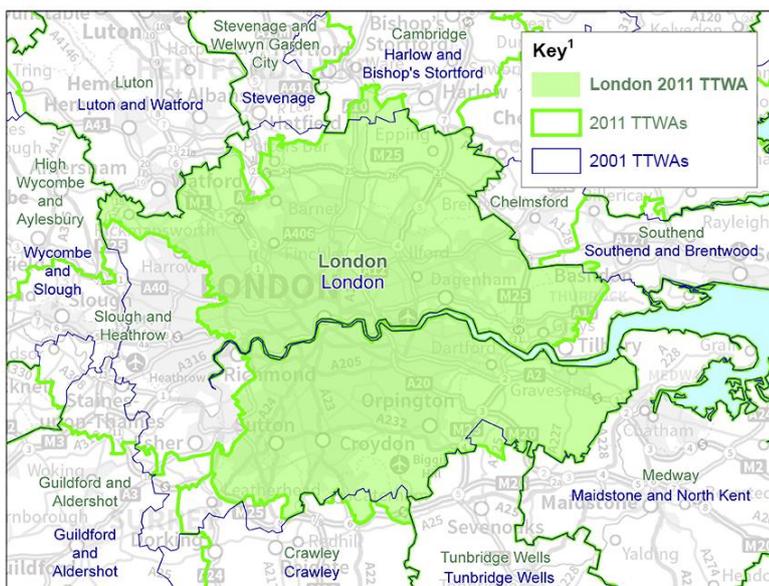
TTWA	Change in Workplace Population	% change in Workplace Population	% change in land area
Manchester	393,400	46.5	30.1
London	180,700	4.3	-20.3
Glasgow	98,400	19.0	20.5
Leicester	73,900	20.5	8.9
Birmingham	69,700	10.1	3.0
Liverpool	52,100	13.5	0.3
Belfast	47,000	12.6	-11.9
Newcastle*	15,200	3.3	1.1
Bristol	-9,600	-2.2	-22.3

Table source: Office for National Statistics

Table notes: * 2001 TTWA was named Newcastle and Durham

Changes to the TTWA boundaries result from the interplay of many different shifts in the complex patterns of commuter flows; it is rarely a simple case that there has been a growth or decline in jobs in one area. This is especially so in the London conurbation, where to the west there is now the separate Slough and Heathrow TTWA, and there has been contraction in a few other areas such as South Mimms in Hertfordshire and Tilbury in Essex (Map 1). Conversely the London TTWA has gained other areas including Hoddesdon in Hertfordshire. Even as a smaller TTWA than its predecessor, the 2011 London TTWA extends outside Greater London into parts of Berkshire, Essex, Hertfordshire, Kent and Surrey.

Map 1: London TTWA, 2001 and 2011

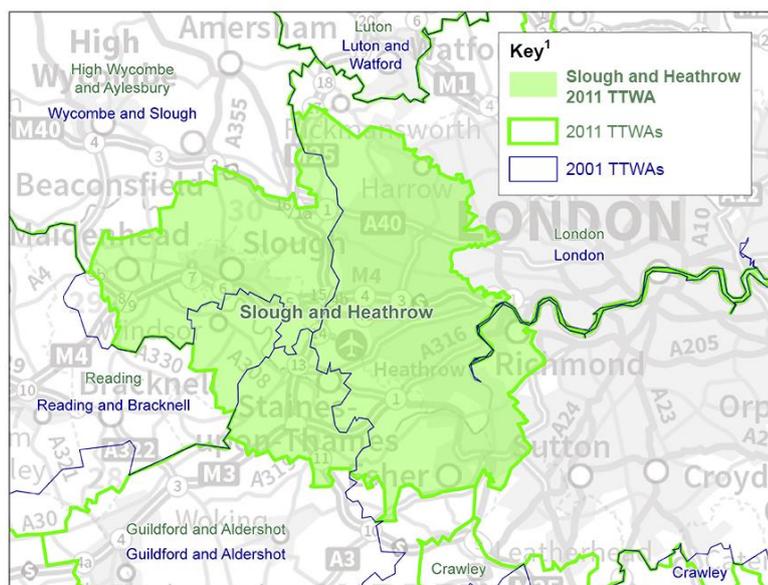


1 Travel to Work Area (TTWA).
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Source: Census - Office for National Statistics

The creation of a new Slough and Heathrow TTWA to the west of London (Map 2), has changed the pattern of TTWAs in this part of the country. The Slough and Heathrow TTWA covers the area of part of 4 former TTWAs – Guildford and Aldershot, Reading and Bracknell, Wycombe and Slough, and London. The Slough and Heathrow TTWA includes the western part of the London region which includes Heathrow Airport, a major source of employment for residents within the TTWA, with other centres of employment including Maidenhead, Slough, Windsor (all Berkshire) and Staines (Surrey).

Map 2: Slough and Heathrow TTWA 2011, and 2001 TTWAs

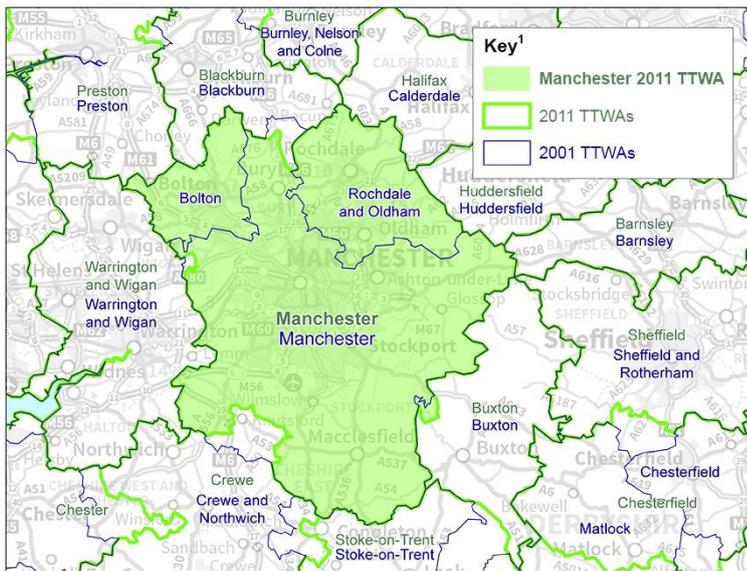


1 Travel to Work Area (TTWA).
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Source: Census - Office for National Statistics

For the Manchester TTWA (Map 3), there has been contraction in some areas – for example Knutsford in Cheshire to the south west of Manchester – but also a noticeable enlargement in areas to the north of Manchester. In fact both the former Bolton TTWA and Rochdale and Oldham TTWA are now wholly within the Manchester TTWA. It is the inclusion of these two former TTWAs which has resulted in a substantial increase in size, in terms of both the land area (30%) and the workplace population within the Manchester TTWA (47%).

Map 3: Manchester TTWA, 2001 and 2011

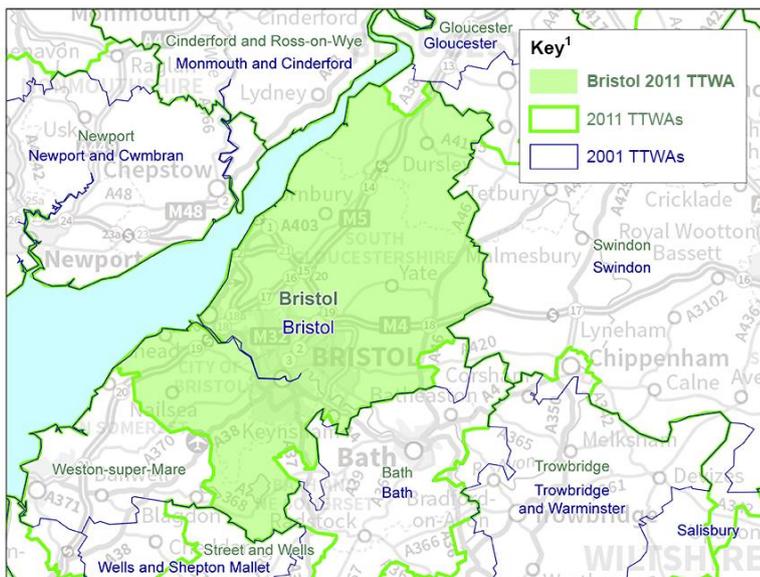


1 Travel to Work Area (TTWA).
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Source: Census - Office for National Statistics

The land area of the 2011 Bristol TTWA is smaller by around 22% in comparison to the 2001 Bristol TTWA (Map 4). This reduction is largely attributable to the area in and around Weston-super-Mare becoming a new TTWA in its own right. The consequent reduction in the workplace population of the Bristol TTWA is much less dramatic at under 10,000 (2.2%), with the reduction of area covered largely cancelled out by strong growth in the main urban area.

Map 4: Bristol TTWA, 2001 and 2011

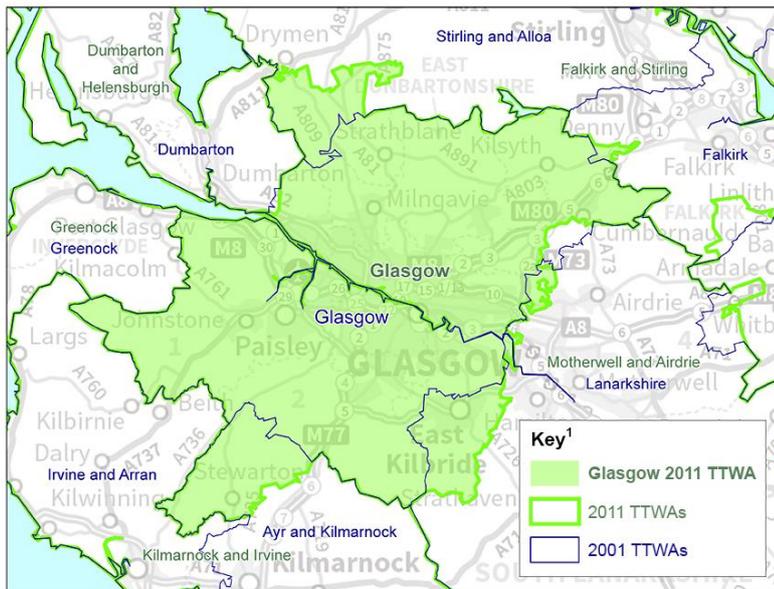


1 Travel to Work Area (TTWA).
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Source: Census - Office for National Statistics

Another example of a TTWA with a large workplace population increase is Glasgow (Map 5), where the workplace population has increased by 19% (98,400). Although the TTWA land area has increased by 21%, much of this additional land is thinly populated (apart from East Kilbride to the south of Glasgow, previously in Lanarkshire TTWA). The workplace population growth has mostly taken place in the main urban areas, with the wider boundaries accounting for much less of this growth.

Map 5: Glasgow TTWA, 2001 and 2011



1 Travel to Work Area (TTWA).
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Source: Census - Office for National Statistics

Of the 6 other TTWAs in the top 10 in terms of workplace population (Table 2), all have had an increase in their workplace population between their 2001 TTWA boundary and their current boundary, ranging from 15,200 in the Newcastle TTWA to 73,900 in the Leicester TTWA. Only 1 of these TTWAs, Belfast, had a reduction in the area of the TTWA.

Summary

With the 2011 TTWAs definitions the established trend for increased average size of TTWAs has continued, with the further reduction in their number. Almost all the largest TTWAs, covering cities including London, Manchester and Glasgow, saw growth in terms of their workplace populations, though not necessarily in their land area. In particular London TTWA saw an increase in its workplace population despite the notable decrease in land area which resulted from the creation of a new Slough and Heathrow TTWA.

More generally, it has been stressed that the interpretation of change in TTWAs boundaries is made more difficult by the variety of factors in play, with one example being the economic growth in Bristol not being reflected in the TTWA workplace population size due to the 2001 Bristol TTWA becoming split with the creation of a Weston-super-Mare TTWA.

It is hoped that the publication of the 2011 TTWAs will help policy makers in discussions around the identification of functional economic areas, and allow more meaningful area comparisons and analysis to be made.

Users wishing to access labour market statistics for the 2011 TTWAs can do so through the [Nomis](#) website.

Notes

1. The workplace population of an area is an estimate of the number of people working in the area, both residents (including both home workers and resident workers with no fixed place of work) and non-resident commuters into the area.

Background notes

1. The 2001 TTWAs were published by ONS in September 2007, the 2011 TTWAs were published by ONS in August 2015.
2. Details of the policy governing the release of new data are available by visiting www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html or from the Media Relations Office email: media.relations@ons.gsi.gov.uk

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