sustainability west midlands

Combined Authority Sustainability Benchmarking

Technical Report – analysis of metrics

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WEST MIDLANDS COMBINED AUTHORITY

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About Sustainability West Midlands
We are the sustainability adviser for the leaders of the West Midlands. We are also the regional sustainability champion body for the West Midlands, as designated by government. We are a not-for-profit company that works with our members in the business, public and voluntary sectors. Our Board is private sector led and has cross-sector representation; they are supported by our team of staff and associates.

Our vision is that by 2020 businesses and communities are thriving in a West Midlands that is environmentally sustainable and socially just.

Our role is to act as a catalyst for change through our advice to leaders, to develop practical solutions with our members and share success through our communications.

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Sustainability West Midlands (SWM) is the sustainability delivery partner for the West Midlands Combined Authority (WMCA). This report is part of an ongoing support programme to help the WMCA integrate sustainability within its strategy and operations, drawing on good local and national practice.

This report provides an overview and analysis of the data used to underpin sustainability performance and monitoring in the WMCA area and how these compare to the eight other CAs areas in England.

The key sustainability metrics we used are taken from the West Midlands 2020 sustainability roadmap – economic productivity, carbon reduction, health inequality, with the additional metrics of air quality, and performance of LEPs on climate change, then applied to the CA area. The area used was the one that correlated most closely to the CA strategic economic plan or equivalent.

Summary of Results

Environment Progress

- The WMCA has made better than average progress at reducing its overall and per capita emissions in the years 2010 to 2014 but remains the CA region that emits more carbon than any other.
- The West Midlands breached air quality standards on more days than in any other CA region in 2016 and air quality is not significantly improving.
- LEPs that make up the WMCA are performing slightly lower than average on tackling climate change when compared to the other CA areas.

Social Progress

- Health inequality is slightly lower in the WMCA than in other CA areas, but remains high overall. The gap between male and female health inequality is lower in the WMCA than in any other CA area.

Economic Progress

- The West Midlands is performing well in economic productivity compared to other CA areas; but has a lower than average performance per head.

The below table provides a summary of the metrics including how they correlate to the relevant targets that the WMCA has in place and the ranking with other CAs.

Metric	Latest figure in specified year	Ranking out of 9 CAs	Rate of Change since 2010	Ranking out of 9 CAs	WMCA target	Scale of challenge
Environment						
Total carbon emissions	22,708 $ktCO_2$ (2014)	9	-14.5%	6	40% reduction from 2010 to 2030	By 2030, emissions should be ≤15,930 $ktCO_2$
Per capita carbon emissions	5.6 $ktCO_2$ (2014))	4	-16.0%	7	-	
Air quality	40 days breached (2016)	9	+2 days breached	9=	Reduction to 1 day breached by 2030	39 less days breached per year
Social						
Health inequality (males)	8.2 years (2014)	5	-1 years	3=	Reduction in average health inequality gap by 5.9 years by 2030	Further reduction of 2.3 years
Health inequality (females)	7.2 years (2014)	4	+0.5 years	8	Reduction in average health inequality gap by 3.9 years by 2030	Further reduction of 3.3 years
Economic						
Total economic productivity	£74,461m (2015)	1	+21.0%	2	-	Currently much better than average
Per capita economic productivity	£18,780 (2015)	7	+1.0%	9	£33,604 by 2030	78.9% increase required by 2030

Recommendations for the WMCA

These are discussed in more detail in the main report, and include: gaps in indicators, consistency of data and presentation, clear accountability and integrated working, clear annual reporting, resource to drive objectives and reporting of metrics into the WMCA and partners project systems, and more action required on air quality and health inequality.

1 Introduction

Sustainability West Midlands (SWM) is the sustainability delivery partner for the West Midlands Combined Authority (WMCA). This report is part of an ongoing support programme to help the WMCA integrate sustainability within its strategy and operations, drawing on good local and national practice.

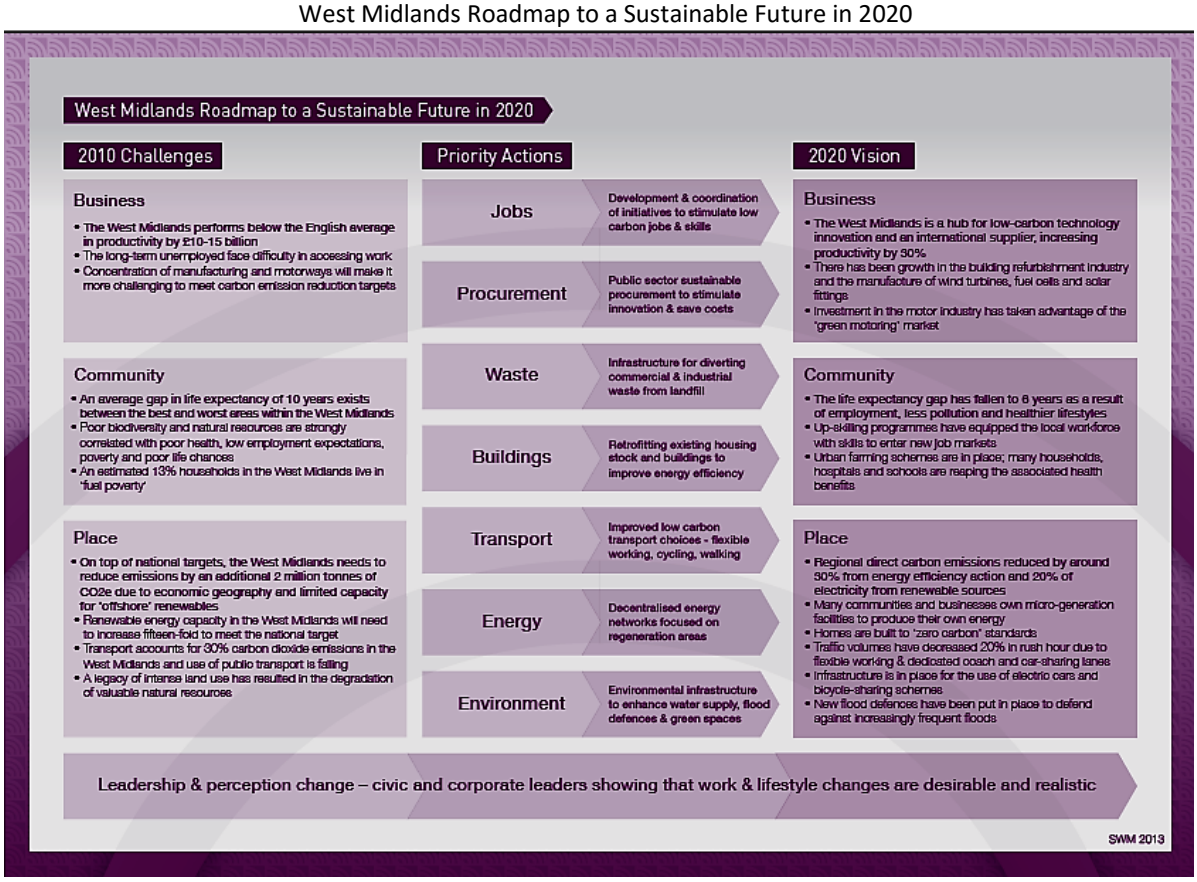
This report provides an overview and analysis of the data used to underpin sustainability performance and monitoring in the WMCA area and how these compare to the eight other CAs areas in England.

Our other benchmarking report looks at how the WMCA is performing against the other combined authorities (CAs) in England in terms of reported sustainability activity in leadership, strategy and delivery.

1.1 Background to developing sustainability metrics for the WMCA

To deliver our mission, we have developed a set of sustainability priority actions for the West Midlands based on collaborative research worth around £1 million and the support of over 200 local leaders and stakeholders in 2010.

West Midlands Roadmap to a Sustainable Future in 2020



Our 'West Midlands Roadmap to a Sustainable Future in 2020[1] identifies the current challenges facing the West Midlands, as well as the priority actions needed to make change happen. Through cross-sector working across local authority boundaries, we look to create a region with more low carbon jobs, reduced levels of carbon and improved life expectancy.

Since 2010 we have been the only region in the UK to have a clear vision, plan, action and annual monitoring[2] to help achieve a more sustainable future. This has been possible due to our independent nature, our evidence based approach and the support of a range of partners.

The roadmap and monitoring is important to help provide certainty and focus for local joint action and demonstrates commitment and credibility for inward investors. We are often requested to provide an independent voice and view on sustainability progress and opportunities within the West Midlands to national and international audiences.

This roadmap was used as the basis for ensuring sustainability was integrated into the WMCA Single Economic Plan (SEP) in June 2016. For example:

- All three of the roadmap objectives of economic productivity, carbon reduction, and healthy life expectancy formed part of the nine SEP objectives
- There was a carbon reduction target of 40% by 2030 against a 2010 baseline
- Environmental Technologies formed one of the four priority business sectors
- The Performance Management Framework (PMF) contained the roadmap 2020 outcome indicators of economic productivity, carbon reduction, and healthy life expectancy, and in addition indicators on air quality and waste.

In July 2016 SWM was officially recognised as the sustainability delivery partner for the WMCA. This involves continuing to provide strategic advice, evidence, research, and events to support the integration of sustainability within the WMCA and the continued alignment of our members, networks and partners good practice to accelerate the delivery of the SEP to create a better future.[3]

In early 2017, as part of our support programme, we used our annual roadmap monitoring and research to help update the WMCA PMF monitoring and reporting. An example is below.

[1] Summary of roadmap http://www.sustainabilitywestmidlands.org.uk/priorities/
[2] Latest annual 2016 monitoring report of the Roadmap 2020 priorities and actions http://www.sustainabilitywestmidlands.org.uk/resourcess /swm-2020-roadmap-monitoring-report-2016/
[3]

Example of WMCA PMF, WMCA AGM July 2017

WEST MIDLANDS COMBINED AUTHORITY
DRAFT PERFORMANCE MANAGEMENT FRAMEWORK

Black Country Consortium — Economic Intelligence Unit

WEST MIDLANDS COMBINED AUTHORITY

Outcomes	Measures of Success	Where we are now	Change over the last year		Direction of Travel Relative to UK average since 2013		Scale of the Challenge
ECONOMIC GROWTH - Improved GVA for the region in line with the UK average	D1. GVA per Head	£21,527	+£442	↑	-7.0% WMCA -5.6% UK	↑	-£4,661 GVA per head
	D1. GVA per employee	£49,708	+£28	↑	-£2,781 -6.0% WMCA -2.4% UK	↑	-£19,832 GVA per employee
	D2. GVA in transformational sectors	£[illegible]	+£2.4bn	↑	£68.2bn +9.0% WMCA +7.4% UK	↑	-£[illegible] GVA
BUSINESS - Improved the productivity of our businesses focussing on our growth sectors	D3. No. of Business Births	22,410 business births 80 per 10,000 population	+2,485 business births +15.5% WMCA +8.5% UK	↑	+3,625 business births +19.3% WMCA +10.6% UK	↑	We anticipate population growth 1,400 births per annum
FISCAL - Secure better for less from our public services	D4. Jobs in Transformational Sectors	1,277	+66,000 jobs +4.6%	↑	+82,000 jobs +6.5% WMCA +4.9% UK	↑	-154,400 jobs
	D5. Total Jobs	[illegible]	+54,200 jobs	↑	+101,800 jobs +5.0% WMCA +4.9% UK	↑	-408,000 jobs
	D6. Employment Rate	65.8%	+0.4pp	↑	-1.36pp WMCA -2.7pp UK	↑	-[illegible] -[illegible]pp No literal gap -[illegible]bn
	F1. Income & Exp. Balance	-£[illegible]	-£[illegible]	↓	-£[illegible] -[illegible]%	↓	-£[illegible]bn
	P1 – Reduce % of people in top 10% most deprived areas	[illegible]%	[illegible]pp	↓	-[illegible]pp WMCA -[illegible] pp Eng.	↓	[illegible] people
PEOPLE - Improved Life Chances for all	P2. – Better employment, health and wider outcomes for people with complex needs	To be developed					
	P3. (i) Average earnings	£[illegible]	+[illegible]%	↑	-[illegible]% WMCA -[illegible]% UK	↑	-£[illegible]
	(ii) % of employees earning above UK living wage	To be developed					
SKILLS - Improved skill levels at all ages so that people have the skills and qualifications to access jobs, Ignite /Inform /Accelerate	P4. % Working Age Population (WAP) with No Qualifications	[illegible]% [illegible],400 people	-1.5 pp -[illegible],200 people	↑	-[illegible],867 people -1.8 pp WMCA -1.3pp UK	↑	-4.7 pp - [illegible],867 people
	P5. % Working Age Population with NVQ3	[illegible]% [illegible],900 people	+0.1 pp + [illegible],700 people	↑	-[illegible],200 people -0.5 pp WMCA -0.9pp UK	↑	-[illegible] pp -24,900 people
	P6. % Working Age Population with NVQ2	[illegible]% [illegible],[illegible] people	+ 0.2 pp + [illegible],200 people	↑	-7,400 people -0.5 pp WMCA -0.9pp UK	↓	-[illegible] pp -21,000 people
	P7. % Working Age Population with NVQ4	[illegible]% [illegible] people	-[illegible]pp -[illegible],900 people	↓	-25,600 people -1.2 pp WMCA -6.1pp UK	↓	-9.6 pp -[illegible] people
	P8. % Working Age Population with NVQ4+	[illegible]% [illegible],[illegible] people	-[illegible]pp -[illegible],700 people	↓	-[illegible],590 people -2.8 pp WMCA -3.1 pp UK	↑	-[illegible] pp -[illegible] people
	P9. No. of Apprenticeships starts	42,840	-1,160 -2.6%	↓	-6,880 -16.7% WMCA -15.9% England	↑	-42,115 per annum
	P10. Schools above national average GCSE pass rate A*-C including Maths and English	45%	-[illegible]% -2.3pp WM Met -1.3pp England	↓	-2.6% -6.6pp WMCA -4.1pp England	↓	-7.5% schools
	P11. NEETs aged 16-18	[illegible] [illegible]%	-1,058 -14.7%	↑	-1,996 -10.5% WM Met -15.9% England	↑	-4,[illegible] -[illegible] NEETS
HEALTH - Better quality of life for all: Improved health (inc. Mental health) and well being	P12. Healthy Life Expectancy (HLE) at Birth – Males & Females	Male (M) [illegible] years Female (F) 63.5 years	-0.03 years +0.4 years	↓ ↑	-0.6 WM Met WM Met -0.2 years England -0.01 years WM Met -0.2 years England	↓ ↓	-[illegible] years -66.1 years
	P13. Reduced inequality in HLE- for Males & Females	To be developed					
	P14. Health inequality gap by years between most and least deprived areas	M -[illegible] years F -[illegible] years (WM Met)	M -[illegible] F -[illegible]		M -[illegible] F -[illegible]		No gap -[illegible] years by [illegible] years for males and [illegible] years for females
	P15. Employment rate gap for those with in contact with secondary mental health services	15.3 %	-0.6pp	↑	-3.3pp WMCA -4.0 pp England	↓	-[illegible] -[illegible]
	P16 – Rates of suicide	[illegible]	+[illegible]	↓	-[illegible] WMCA +0.2 England	↓	-[illegible] -[illegible] suicides
	P17 – % Physically Inactive Adults	[illegible]% WM (19)					-[illegible]% -[illegible],[illegible] overall deaths
CRIME - Reduced offending and re-offending	P18 – No of Offenders	[illegible],[illegible] [illegible] per 1,000 population	-[illegible],[illegible] -[illegible]%		-[illegible],[illegible] -[illegible]%		-[illegible] below the national average
	P19 – Re-offending rates (per 100,000)	37.8% (2014)	-[illegible]pp	↓	-0.1pp WMCA -0.3pp Eng.	↑	-[illegible] pp -[illegible] pp
	P20 – Number of first time entrants to Youth Justice System	464	-[illegible]%	↓	-[illegible]% WM Met -7.6% Eng.	↑	-[illegible] [illegible] [illegible]
	P21. Youth Claimants aged 16-24	[illegible]	+[illegible],[illegible] +[illegible]%	↓	-[illegible],340 -[illegible]% WMCA -[illegible]% UK	↑	-[illegible] youth claimants -[illegible]%
	P22. Claimant Count (16-64)	[illegible]%	+[illegible],[illegible] +[illegible]%	↓	-[illegible],[illegible] -[illegible]% WMCA -[illegible]% UK	↑	-[illegible] claimants -[illegible]%
PLACE ACCESSIBILITY - Improved the connectivity of people to businesses to jobs and markets	P23. Broadband Connectivity	[illegible]% [illegible] connections	+[illegible]pp	↑	-[illegible]pp 2 WM -[illegible]pp UK	↑	-[illegible] -[illegible] premises
	P24. % residents able to access 3 or more strategic centres including Birmingham City Centre, accessible by public transport within 45 mins travel time in the am peak	[illegible]% (WM Met)	[illegible]pp		[illegible]pp		[illegible]% -[illegible]
	P25. Journey time reliability	To be developed					
INFRASTRUCTURE - Improved the quantity of high quality readily available development sites	P26. Mode Share of all Journeys: i). Mode Share of all journeys by car, public transport, cycling & walking ii). Percentage of car journeys non-single occupancy	Car [64%] Public Transport [13%] Walk [16%] Cycle [3%] Taxi [2%] [illegible] 2015	[illegible] Car -[illegible]% Public Transport [illegible]% Walk [illegible]% Cycle No change Taxi +[illegible]% [illegible] No change				-[illegible]% car reduction [illegible] ([illegible])
	P27. No./ha available for housing development sites	To be developed	[illegible]				
	P28. No./ha available for employment development sites	To be developed	[illegible]				
SUSTAINABILITY - Resource efficient economy to stimulate new technology and business	P27. Land Uplift value	To be developed	[illegible]				
	E1. CO_2 emitted within SEP area by transport, businesses and homes	[illegible].[illegible] ktCO_2 [illegible]	-[illegible] ktCO_2 -[illegible]%	↓	-[illegible]% WMCA -[illegible]% UK	↑	-[illegible],[illegible] ktCO_2
	E2. No. of days poor air quality per year (rated 4 or higher on the Daily Air Quality Index)	[illegible] days	[illegible] days	↓	[illegible] days WMCA [illegible] days UK	↓	-[illegible] days

1.2 Background to benchmarking sustainability metrics for the WMCA

As part of our contribution to updating the annual monitoring for the WMCA, we also looked at benchmarking where possible against suitable metrics. These were often UK averages. As a result, we commissioned additional work to look at how the WMCA area was performing compared to the other eight CA areas in England.

SWM has also analysed each of the same combined authorities' strategies to determine what progress is being made on sustainability, in a similar way to our previous work that benchmarked Local Authorities, and Local Enterprise Partnerships (LEPs). This research provides an indication of progress that each combined authority is making on leadership (e.g. commitments of the CA mayor), strategy (e.g. clear future aspirations that reflect how the CA will address sustainability issues) and delivery (e.g. programmes that are being / have already been commissioned that address sustainability issues).

The results of this exercise are provided in an accompanying report, along with an overarching summary that outlines how each of the CA's strategy address the metrics outlined in this report. It shows whether those CA's that have particular challenges (e.g. high carbon emissions or large health inequality gaps) are addressing these in their strategies.

1.3 Structure of this report

The WMCA measures four key aspects of sustainability as part of its operations and programmes: carbon emissions, health inequality, air quality and economic productivity across the whole geography. This report analyses data that conveys each of these metrics and provides an indication of the scale of the challenge that the WMCA faces in terms of meeting its targets and what it may need to consider when commissioning and implementing projects and programmes. It complements the WMCA's Performance Management Framework which exists to monitor all the targets the WMCA is measuring.

This report also compares the WMCA to eight other CAs in terms of their progress on the sustainability metrics to provide a picture of progress and to further emphasise the extent of the challenge it faces to meet its sustainability related targets.

The report also uses our previous research on Local Enterprise Partnerships (LEPs) work on the low carbon economy and climate to assess the local strength and likely support of LEPs for each CA in terms of this agenda.

The rest of this report sets out the methodology, the results, and recommendations for the WMCA.

2 Methodology: measuring key sustainability metrics

The WMCA measures its sustainability progress against four key metrics: carbon emissions, health inequality (difference in life expectancy between the richest and poorest areas), air quality and economic productivity. In order to ascertain how it is performing against these metrics, it is useful to compare trends with the eight other combined authority areas in formation. It may then be possible to ascertain reasons why the WMCA region is performing well or poorly in comparison to other CA areas and whether its targets and projects to address these metrics need to be more ambitious.

Much of the data that reflects the below metrics are broken down into local authority area. It was therefore necessary to ascertain which local authorities each combined authority area encompasses, as determined by searching the relevant combined authority website. They are as follows:

Combined authority	**Local authority area**
Cambridge & Peterborough	Cambridge
	East Cambridgeshire
	Fenland
	Huntingdonshire
	Peterborough
	South Cambridgeshire
Greater Manchester	Bolton
	Bury
	Manchester
	Oldham
	Rochdale
	Salford
	Stockport
	Tameside
	Trafford
	Wigan
Liverpool City Region	Halton
	Knowsley
	Liverpool
	Sefton
	St Helens
	Wirral
North East	County Durham
	Gateshead
	Newcastle
	North Tyneside
	Northumberland

	South Tyneside
	Sunderland
Sheffield City Region	Barnsley
	Bassetlaw
	Bolsover
	Chesterfield
	Derbyshire Dales
	Doncaster
	North East Derbyshire
	Rotherham
	Sheffield
Tees Valley	Darlington
	Hartlepool
	Middlesbrough
	Redcar & Cleveland
	Stockton
West of England	Bath & North East Somerset
	Bristol
	South Gloucestershire
West Yorkshire	Bradford
	Calderdale
	Craven
	Harrogate
	Kirklees
	Leeds
	Selby
	Wakefield
	York
West Midlands	Birmingham
	Bromsgrove
	Cannock Chase
	Coventry
	Dudley
	East Staffordshire
	Lichfield
	Redditch
	Sandwell
	Solihull
	Tamworth
	Walsall
	Warwickshire
	Wolverhampton

	Wyre Forest

2.1 Carbon emissions

WMCA target: Reduce carbon emissions region-wide by 40% by 2030 from a 2010 baseline.

The central government Department for Business, Energy and Industrial Strategy (BEIS) publishes nationwide carbon emissions for each local authority area every year, two and a half years in arrears.[4] Data is given in kilotons of CO_2. Given that the WMCA uses a 2010 baseline when setting its target, the emissions data from 2010 to 2014 (the latest available data at the time of analysis) was interrogated to determine levels of carbon emissions in all nine combined authority areas dating back to the same year.

Carbon emissions data are given by local authority, therefore data for each of the 70 local authority areas that make up the nine combined authorities was analysed between 2010 and 2014 inclusive to determine the actual change in emissions and to draw comparisons between combined authority. To gain insight into annual changes, the change between 2013 and 2014 (latest available) was calculated for all 70 local authority areas. This was represented as a percentage change using the formula =((2014-2010)/2010)*100 (substitute 2010 with 2013 for annual change).

Per capita emissions, also provided by BEIS, measure emissions per person in a given local authority, to factor in population density. One would expect that the higher the population the higher the emissions, which is why comparing absolute emissions between one densely populated area and one sparsely populated area would not be too helpful. It was deemed relevant, therefore, to also analyse per capita emissions to determine which areas are emitting more or less emissions per person than would be expected. This figure is a more credible one to use when comparing combined authority emissions as it factors out this population issue.

2.2 Health inequality

WMCA target: Reduction in average health inequality gap by 5.9 years for men and 3.9 years for women by 2030.

Health inequality is also given by local authority area as presented in the data collated by Public Health England (PHE).[5] Their health profile reports each provide a health inequality figure, the gap in life expectancy between the poorest and richest areas in a local authority area, for both males and females. The larger the gap, the greater the inequality.

[4] http://bit.ly/2pMxoLR
[5] https://fingertips.phe.org.uk/profile/health-profiles

For consistency with the WMCA and SWM targets for both health related and other metrics, a 2010 baseline was used, however, given the way the PHE health profiles are presented meant that a few assumptions needed to be worked out initially.

- Each report's health inequality data is given in bandings. For example, the latest publications from 2016 show health inequality data for 2012-2014. This means that an average figure across these three years has been calculated.
- The 2015 reports show data for 2011-2013 and the 2014 reports show data for 2010-2012.
- In each of these cases, we have taken the average of the banding as representative of our year of analysis for the upper year of the banding, in other words, 2012-2014 = 2014, 2011-2013 = 2013 and 2010-2012 = 2012. This is mainly for consistency, as other metrics' data also end in 2014.
- The banding length, however, changes in the 2013 reports and earlier. The banding average health inequality figures given in the 2013 reports are 2006-10, i.e. five years not three. As such, the banding average given in the 2012 reports is also 2006-10 and therefore the health inequality figures are the same for both 2011 and 2010.
- We have taken the latter as the baseline (and labelled it '2010/11' to reflect that the figures are the same in both years) and then used the subsequent three years' worth of reports to project forward to 2014.

All figures are given for both males and females and as with carbon emissions an actual and percentage change has been calculated between both 2010/11 and 2014 and 2013 and 2014 for each combined authority area. The actual difference between male and female inequality for each area was also calculated to determine any useful patterns.

2.3 Air quality

WMCA target: Reduce the number of days of high air pollution to only one day per year by 2030.

To determine levels of air quality in a given area, the Daily Air Quality Index (DAQI) produced by Defra was analysed.[6] This measures the severity of air pollution each day in the UK on a 1-10 scale, whereby 1 is very low and 10 is very high. The scale includes five different types of pollutant, rather than just one type.[7] When levels reach four (moderate) or higher, this is deemed as breaching various air quality related standards. It is also the point where Defra suggests that people may start being affected by the effects of air pollution, e.g. people with lung conditions start experiencing symptoms.[8] As such, we have analysed the number of times each area has registered a four or higher on the DAQI scale.

The main challenge, in terms of obtaining useful information, is the way that the DAQI data is measured geographically when compared to the combined authority boundaries. Defra measures DAQ by region and also in some 'agglomeration zones.' These are usually heavily

[6] https://uk-air.defra.gov.uk/data/DAQI-regional-data
[7] https://uk-air.defra.gov.uk/air-pollution/daqi?view=more-info
[8] https://uk-air.defra.gov.uk/air-pollution/daqi

urbanised zones where air quality is likely to be / has been higher. In the West Midlands, for example, data are available for the West Midlands region as a whole, but also for the West Midlands Urban Area which includes specific local authorities deemed to be at greater risk of high air pollution levels, such as Birmingham City, City of Wolverhampton and Walsall Borough Councils. There is a similar agglomeration zone in The Potteries (Stoke-on-Trent and surrounds) and Coventry and Bedworth.

The data are measured such the West Midlands region-wide data will include breaches from **any part** of the West Midlands. In other words, if one small area of Birmingham registered a six for air pollution on a given day, whereas nowhere else exceeded a three, the overall West Midlands figure would read 'six' for that day. The West Midlands Urban Area agglomeration zone would also read a 'six,' as Birmingham falls within it, but The Potteries and Coventry and Bedworth zones would read a 'three.' This means that the regional data will always be higher, or as high, as the agglomeration zones that they encompass. This is an important point when looking at how the geographical areas have been determined, as shown below.

Another important point is that DAQI data is not available for all agglomeration zones. For example, one cannot view data for the Coventry and Bedworth or The Potteries zones, but can for the West Midlands Urban Area zone. This reduces further the flexibility of use of the data for this analysis.

In light of this, the DAQI geographical boundaries used to determine air quality levels in combined authority areas are as follows (AZ = Agglomeration Zone):

Combined authority	**DAQI area used**	**Justification**
Cambridge & Peterborough	East of England region	There is no smaller AZ in the Cambridge or Peterborough area
Greater Manchester	Greater Manchester Urban Area AZ	The AZ covers all districts in the CA area
Liverpool City Region	Liverpool Urban Area AZ	The AZ covers all but one district in the CA area; using the North West region data would be too large and would also include Greater Manchester
North East	North East region – joined with Tees Valley CA	Tyneside AZ does not cover all districts in CA
Sheffield City Region	Takes an average score across the Sheffield Urban Area AZ and the East Midlands region	Parts of Derbyshire and Nottinghamshire are included in the Sheffield City Region CA and should be considered in the data, and the CA boundaries cross over two regions
Tees Valley	North East region – joined with North East CA	Teeside AZ does not cover all districts in CA
West of England	Bristol Urban Area AZ	The AZ covers all districts in the CA area
West Yorkshire	Yorkshire & Humberside region	West Yorkshire Urban Area AZ does not cover all districts in CA

West Midlands	West Midlands region	West Midlands Urban Area AZ does not cover all districts in CA

The consequence of these groupings is that some regions are unlikely to portray the reality of air pollution levels in the CA areas. The Cambridge & Peterborough combined authority conveys the most significant example of this, as by the requirement of using the data for the whole of the East of England means that few of the specified days where air pollution was recorded on the DAQI scale as four or higher are likely to have been recorded within the much smaller CA area. However, the data still provides a good indication of air pollution levels, especially in the more urbanised combined authority areas.

These air quality data are updated daily, therefore we analysed data from 1 January 2010 and up to the end of December 2016 to a) commence from the consistent 2010 baseline and b) to obtain the latest full years' worth of data as possible.

2.4 Economic productivity

WMCA target: Increase GVA per head to £33,604 by 2030.

Economic productivity is measured by looking at Gross Value Added data, which reflects the measure of the value of goods and services produced in an area. This data is compiled by the Office for National Statistics[9] and is broken down geographically into the third level of nomenclature of territorial units for statistics (NUTS3) territories.[10] Initially, one was required to determine which local authorities fit into which NUTS3 territory[11] to work out whether to include its associated GVA data in the overall combined authority economic productivity data. The breakdown is included in the table below.

Combined authority	NUTS3 area	Local authorities covered	Justification
Cambridge & Peterborough	Cambridge CC	Cambridge East Cambridgeshire Fenland Huntingdonshire South Cambridgeshire	Covers all districts in the CA area
	Peterborough	Peterborough	
Greater Manchester	Greater Manchester South West	Salford Trafford	Covers all districts in the CA area
	Greater Manchester South East	Stockport Tameside	
	Greater Manchester North West	Bolton Wigan	
	Greater Manchester North East	Bury Oldham	

[9] http://bit.ly/2oj8aVn
[10] http://bit.ly/2s45643
[11] http://ons.maps.arcgis.com/home/item.html?id=8f4bc9ea646544b2af1103450eb4d99d

Combined authority	NUTS3 area	Local authorities covered	Justification
		Rochdale	
Liverpool City Region	East Merseyside	Knowsley St. Helens Halton	Covers all districts in the CA area
	Liverpool	Liverpool	
	Sefton	Sefton	
	Wirral	Wirral	
North East	Durham	Durham	Covers all districts in the CA area
	Northumberland	Northumberland	
	Tyneside	Gateshead Newcastle upon Tyne North Tyneside South Tyneside	
	Sunderland	Sunderland	
Sheffield City Region	Barnsley, Doncaster and Rotherham	Barnsley Doncaster Rotherham	CA data used does not include Bassetlaw (which makes up just one district out of five in North Nottinghamshire NUTS3 territory) or Derbyshire Dales (which makes up just one district out of five in SW Derbyshire NUTS3 territory)
	Sheffield	Sheffield	
	East Derbyshire	Bolsover Chesterfield North East Derbyshire	
Tees Valley	Hartlepool and Stockton-on-Tees	Hartlepool Stockton-on-Tees	Covers all districts in the CA area
	South Teesside	Middlesbrough Redcar and Cleveland	
	Darlington	Darlington	
West of England	Bristol, City of	Bristol, City of	Covers all districts in the CA area along with North Somerset; omitting this NUTS3 area from the CA data analysis would paint an incomplete picture for the sake of not including one extra local authority
	Bath & NE Somerset, N Somerset & S Gloucestershire	Bath and North East Somerset North Somerset South Gloucestershire	
West Yorkshire	York	York	CA data used does not include Craven, Harrogate and Selby (which make up just three out of seven districts in North Yorkshire CC NUTS3 territory)
	Bradford	Bradford	
	Leeds	Leeds	
	Calderdale and Kirklees	Calderdale Kirklees	
	Wakefield	Wakefield	
West Midlands	Birmingham	Birmingham	CA data used does not include Cannock Chase, East Staffordshire, Lichfield or Tamworth (which make up
	Solihull	Solihull	
	Coventry	Coventry	
	Dudley	Dudley	

Combined authority	NUTS3 area	Local authorities covered	Justification
	Sandwell	Sandwell	just half of Staffordshire CC NUTS3 territory) or Bromsgrove, Redditch and Wyre Forest (which make up just half of Worcestershire CC NUTS3 territory)
	Walsall	Walsall	
	Wolverhampton	Wolverhampton	
	Warwickshire	North Warwickshire Nuneaton and Bedworth Rugby Stratford-on-Avon Warwick	

As with all other metrics, we have used 2010 as a baseline and used the latest available annual figures which are from 2015. Also, as with other datasets, we analysed the difference between the 2010 and 2015 figures and 2014 and 2015 figures to gauge trends.

As with carbon emissions, GVA is also measured per head of population (in £), which we have again analysed along with actual GVA figures (in £ million) to give a more comparable picture of where GVA is peaking regardless of demographic circumstances or population density. GVA per head is also the metric the WMCA uses to benchmark its progress on economic productivity as given in its Strategic Economic Plan.

2.5 LEPs progress in tackling climate change

SWM has produced two reports, one in 2016[12] and one in 2017 (yet to be published) that reflect Local Enterprise Partnership (LEP) progress in the energy, low carbon economy, emission reduction and climate adaptation agendas. Each LEP was scored on their progress based on various sources of evidence and these scores are included in this report as evidence of progress within combined authority areas. In most cases, LEP boundaries match the combined authority boundaries exactly, so give a good indication of how climate change, energy and low carbon issues are being factored into economic development practices locally. LEP and CA boundaries do not exactly match in:

- Cambridge and Peterborough CA (the Greater Cambridge Greater Peterborough LEP also includes Rutland, King's Lynn and West Norfolk*, Forest Heath*, North Hertfordshire*, St Edmundsbury* and Uttlesford*) * = shared with other neighbouring LEP(s).
- West of England CA (the West of England LEP also includes North Somerset).
- West Yorkshire CA (the Leeds City Region LEP also covers Barnsley, which is part of the Sheffield City Region CA).

The West Midlands CA is the only combined authority which matches the boundaries of more than one LEP, namely Black Country, Greater Birmingham and Solihull and Coventry and Warwickshire.

[12] http://bit.ly/1Kp0c0A

Despite these slight discrepancies, the LEP boundaries are close enough to the CA areas that including their scores as per the description above is another useful indicator of progress on sustainability. For each, the average score from all four metrics used in SWM's previous studies (low carbon economy, climate change mitigation, adaptation and energy) were calculated to give an overall progress indicator.

3 Results

This section outlines how each of the nine combined authority areas are performing against the series of key metrics related to sustainability. The WMCA, as advised by SWM, monitors progress against:

- Carbon emissions
- Air pollution
- Health inequality
- Economic productivity

To determine the scale of the challenge that the WMCA must meet to achieve its associated targets and to determine progress to date, SWM has analysed the WMCA's progress against these four metrics versus the other eight combined authority areas.

SWM has also assessed the progress that LEPs situated within each combined authority area are making on tackling climate change. The following sections summarise the key findings.

3.1 Carbon emissions

Summary: The WMCA has made better than average progress at reducing its overall and per capita emissions in the years 2010 to 2014 but remains the CA region that emits more carbon than any other.

- By 2014, which is the latest available data, areas making up the WMCA geography have reduced their carbon emissions by 14.5% since 2010. This is positively compared to the average reduction in emissions across the nine combined authorities, which stands at 11.9% (figure 1).
- WMCA emissions stood at 22,708 $ktCO_2$ in 2014, almost double the nine combined authorities' average of 11,514 $ktCO_2$ (figure 2). However, it is recognised that the WMCA is one of the largest and most urbanised combined authority area.
- Per capita emissions measure emissions per person which means that factors such as the extent of urbanisation and population density are accounted for; it is therefore a metric that is more comparable region by region than absolute total emissions. Per capita emissions in the West Midlands CA stood at 5.6 $ktCO_2$ in 2014, significantly lower compared to the nine combined authority area average which was 7.4 $ktCO_2$ (figure 3). This reflects that the West Midlands CA is performing positively and emits proportionally a lower quantity of emissions when considering its dense population and other factors (such as presence of high-use roads) when compared to other CA areas that may emit similar amounts of CO_2 but with quantifiable reasoning.
- Between 2010 and 2014, per capita emissions in the West Midlands CA have decreased by 1.1 $ktCO_2$, compared to the average 0.6 $ktCO_2$ decrease (figure 4).

Figure 1: % change in carbon emissions in Combined Authority areas

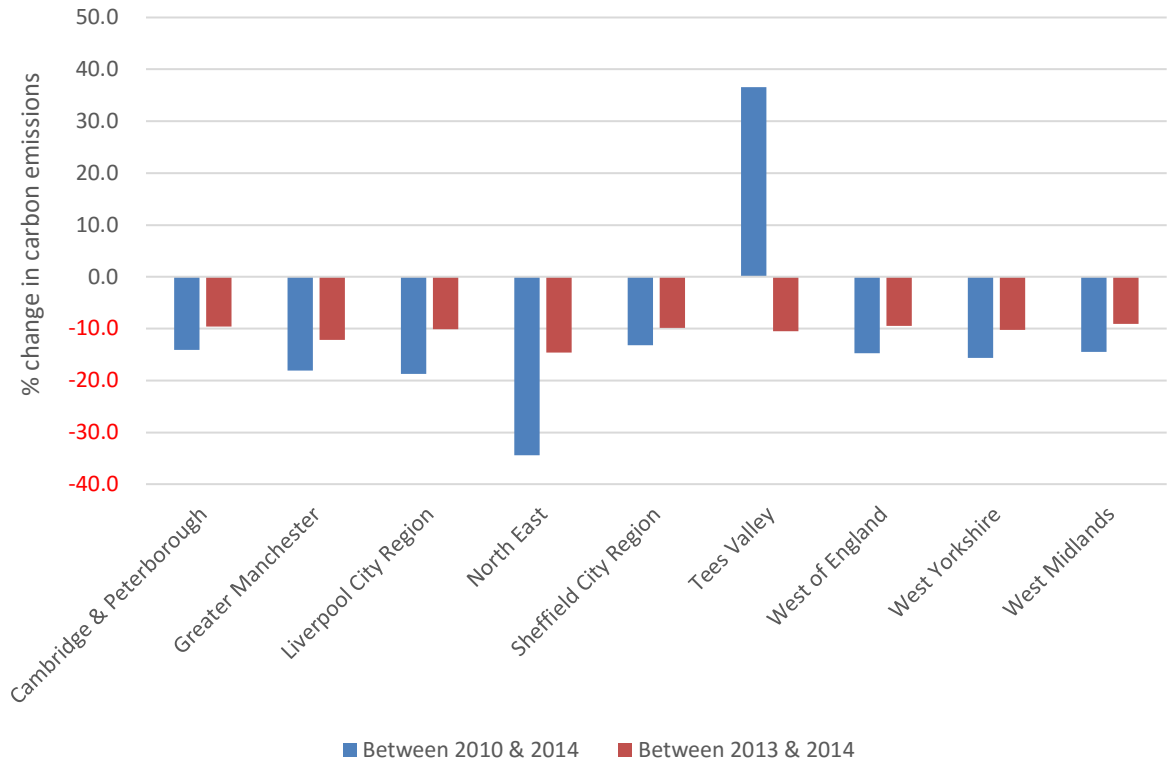


Figure 2: Total carbon emissions in West Midlands CA compared to the average for all nine combined authorities

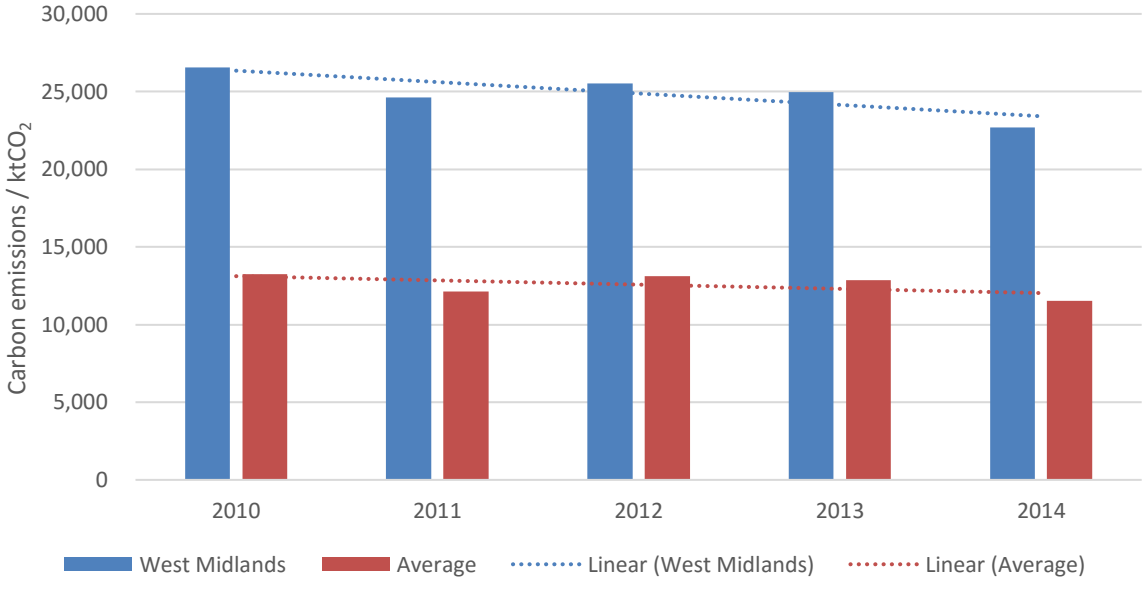


Figure 3: Per capita carbon emissions in West Midlands CA compared to the average for all nine combined authorities

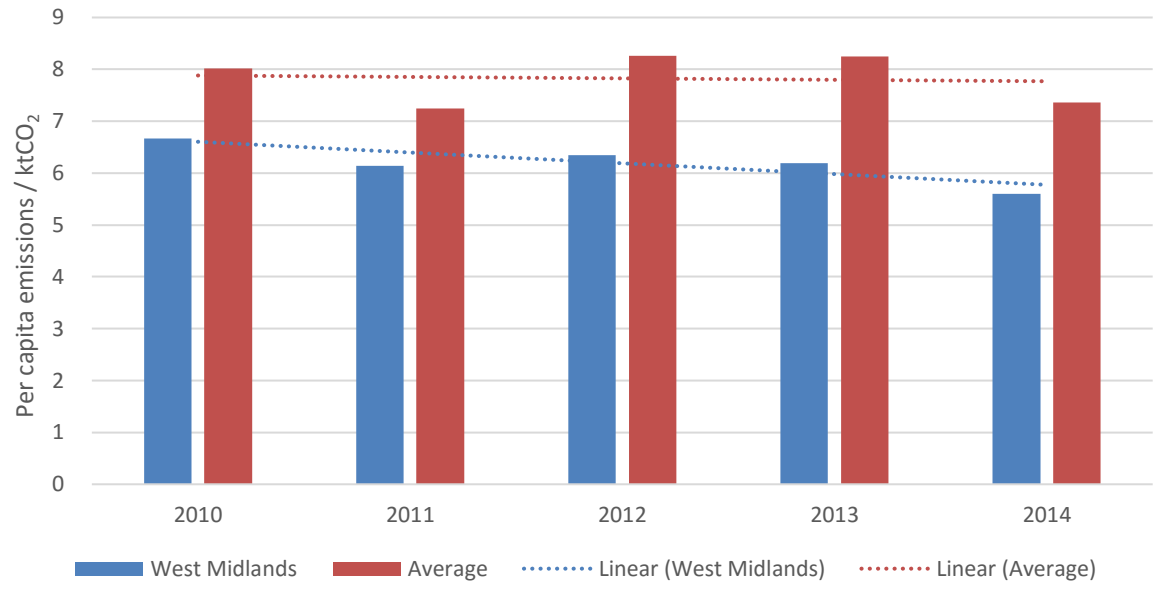
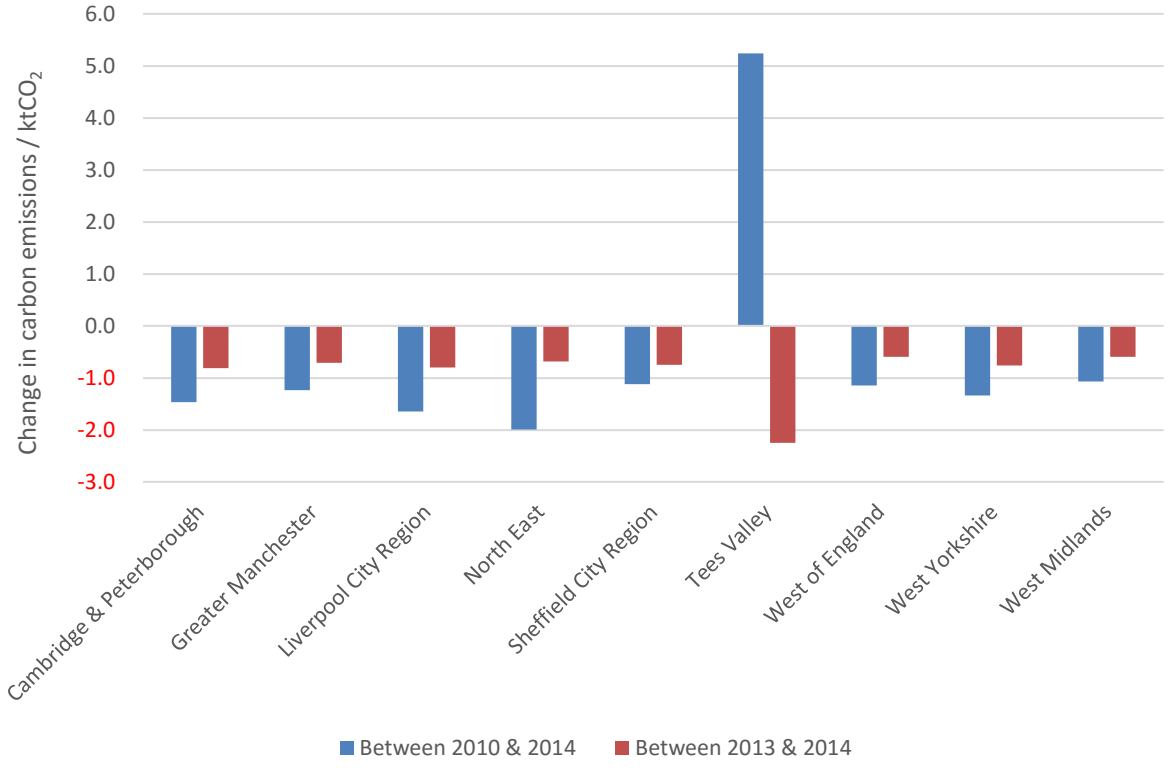


Figure 4: Change in per capita carbon emissions in Combined Authority areas



3.2 Health inequality

Summary: Health inequality is slightly lower in the WMCA than in other CA areas, but remains high overall. The gap between male and female health inequality is lower in the WMCA than in any other CA area.

- The health inequality gap, life expectancy in the wealthiest compared to the poorest areas of a given locality, is lower in the West Midlands CA when compared to the average across all combined authorities. In 2014, the gap was 8.2 years for males and 7.2 for females, compared to the combined authority area average of 9.0 years for males and 7.3 for females (figures 5 and 6).
- Since 2010, male health inequality in the WMCA region has decreased by 1.0 years, slightly better than the average of a 0.9 year decrease. However, female health inequality in the WMCA has increased by 0.5 years, compared to the average of no change (figure 7).
- In all combined authority areas, male health inequality is greater than female health inequality. On average, the difference in health inequality between men and women is 1.7 years in 2014, although this gap has been narrowing since 2010, where it stood at 2.5 years. The gap in the West Midlands CA area is smaller between male and female health inequality than in any other CA area, standing at one year in 2014. It was even narrower in 2013, at 0.7 years, and has been the area with the narrowest gap since 2012 (figure 8).

Figure 5: Health inequality by combined authority area between 2010/11 and 2014

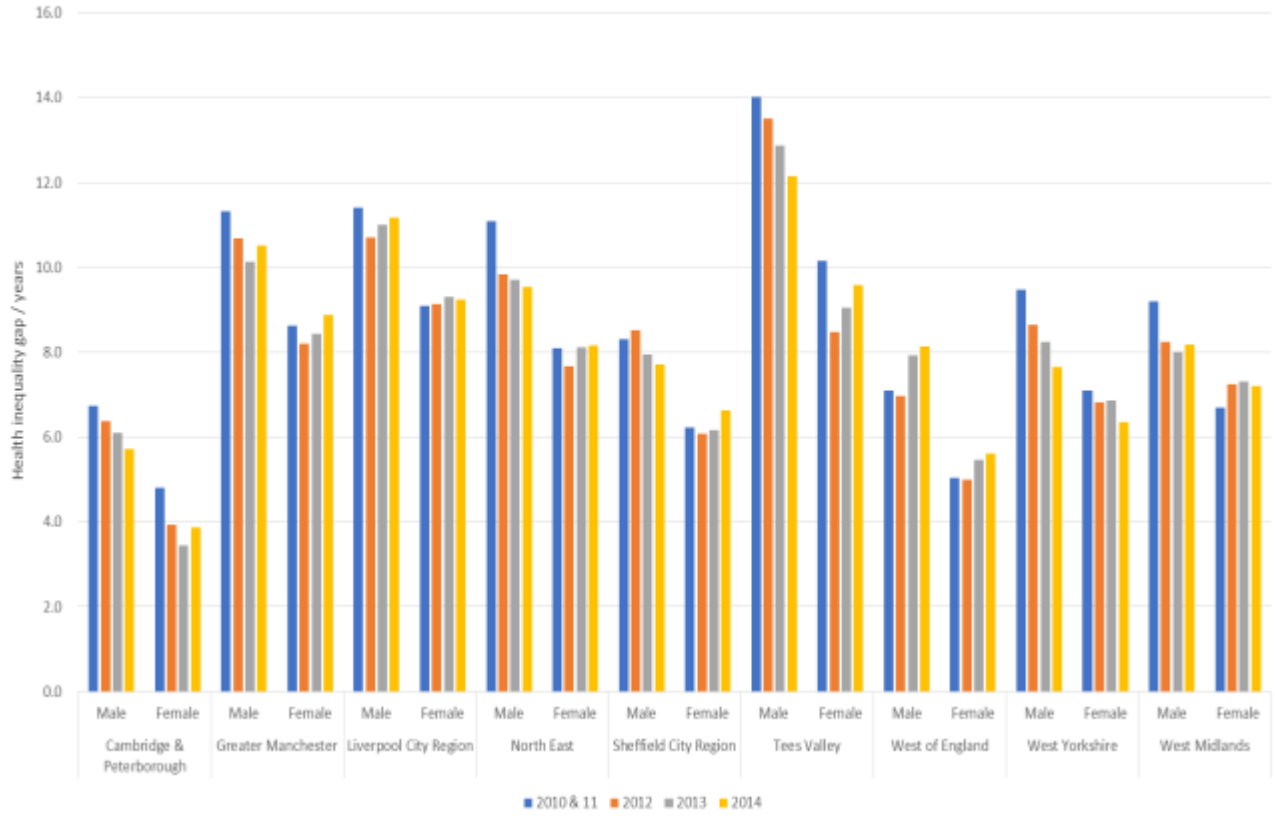
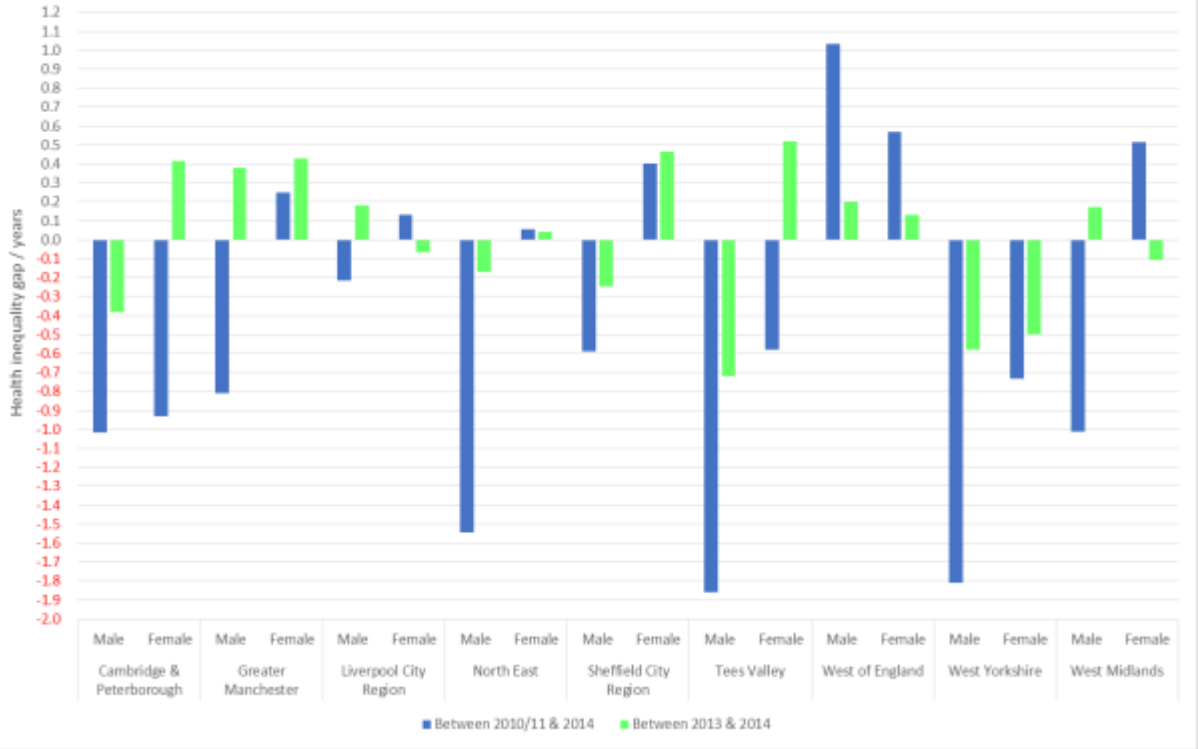
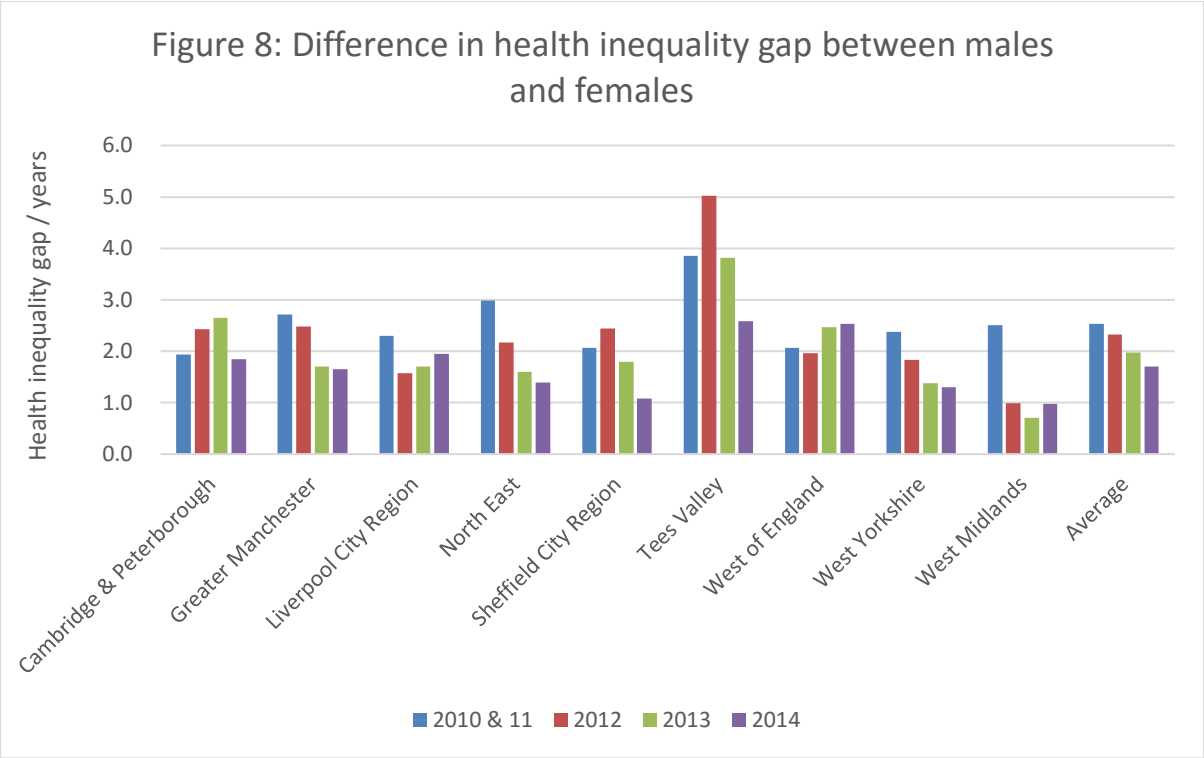


Figure 6: Change and level of health inequality in the West Midlands Combined Authority compared to the average of all nine combined authorities

Figure 7: Change in extent of health inequality in combined authority areas between two different timeframes





3.3 Air quality

Summary: The West Midlands breached air quality standards on more days than in any other CA region in 2016 and air quality is not significantly improving.

- When analysing how many days each combined authority area has breached good air quality standards (measuring a '4' or higher on the Defra Air Quality Index), the West Midlands area breached standards 18 days more than the average across all nine combined authority areas in 2016; 40 as opposed to the average of 22.
- The West Midlands area has breached standards on a number of days above the average in every year since 2010, ranging from five days more (2010 and 2014) to 23 days more (2013) (figure 9).
- There is little noticeable change in the number of breached days between 2010 and 2016; the trend suggests a general decline in breached days, but overall more breached days occurred in 2016 in the West Midlands than in any other combined authority area (figure 10).
- However, it must be noted that the geography in which the Defra data are presented does not make a comparison between different CA areas particularly useful (see section 2.2).

Figure 9: No. of days air quality levels have breached EU standards in West Midlands versus average of all nine combined authorities

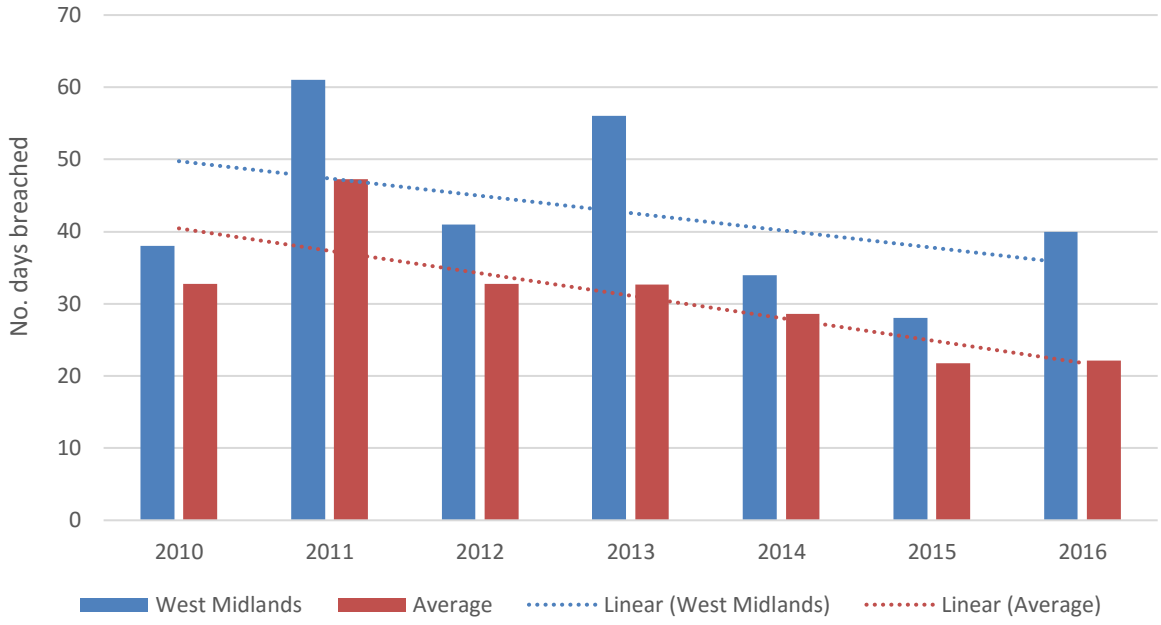
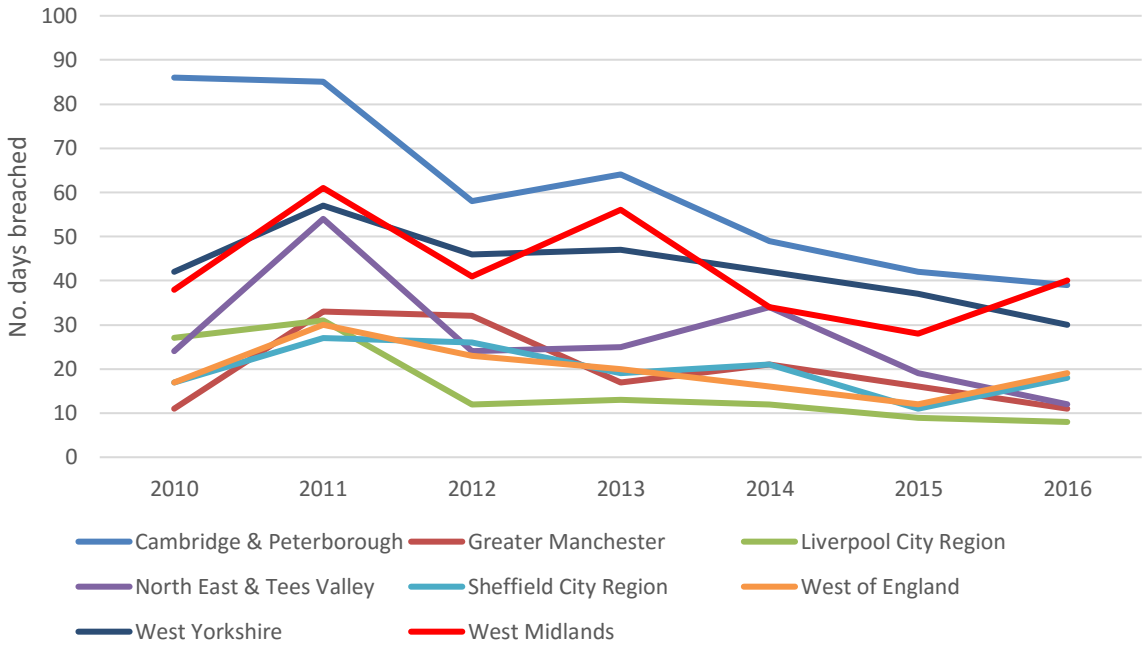


Figure 10: Change in the number of times CA areas have exceeded a '4' of the Defra Air Quality Index



3.4 Economic productivity

Summary: The West Midlands is performing well in economic productivity compared to other CA areas; but has a lower than average performance per head.

- Economic productivity is measured in Gross Value Added (GVA) and GVA per head for each NUTS region in the UK (see section 2.2). This allowed for a fairly accurate portrayal of economic productivity across each CA region.
- Overall the West Midlands region performs well relative to the nine combined authority average when analysing its overall GVA. In 2015, GVA was significantly higher in the West Midlands than any other CA area and when compared to the average (figure 11). Its GVA was £74,461 million compared to an average of £39,189 million showing a difference of £35,272 million.
- However, the West Midlands is seventh out of nine when factoring in population (per head) productivity and is lower than the average (figure 12).
- The overall GVA in the West Midlands has increased by 21% between 2010 and 2015; only Cambridge and Peterborough has increased by a greater amount (25%) (figure 13). However, it has only increased by 1% per head since 2010, the lowest on average (figure 14).
- The change in both actual and per head GVA in the West Midlands between 2014 and 2015 was slightly below average.

Figure 11: economic productivity in the West Midlands compared to the average for all nine combined authorities

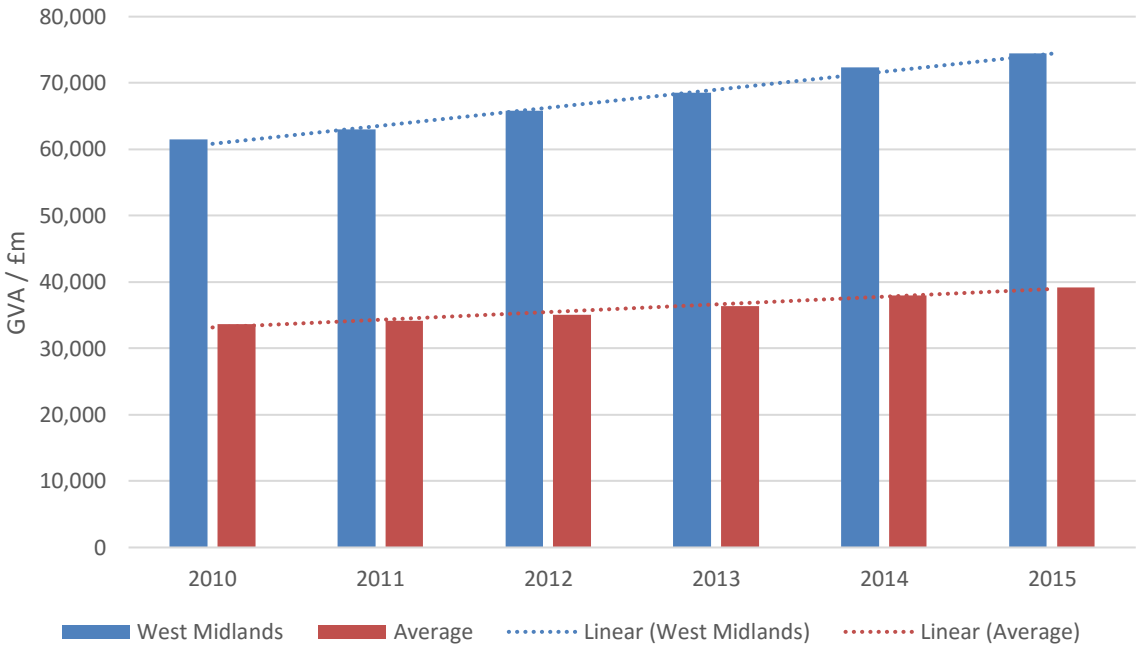


Figure 12: Economic productivity per head in the West Midlands compared to the average for all nine combined authorities

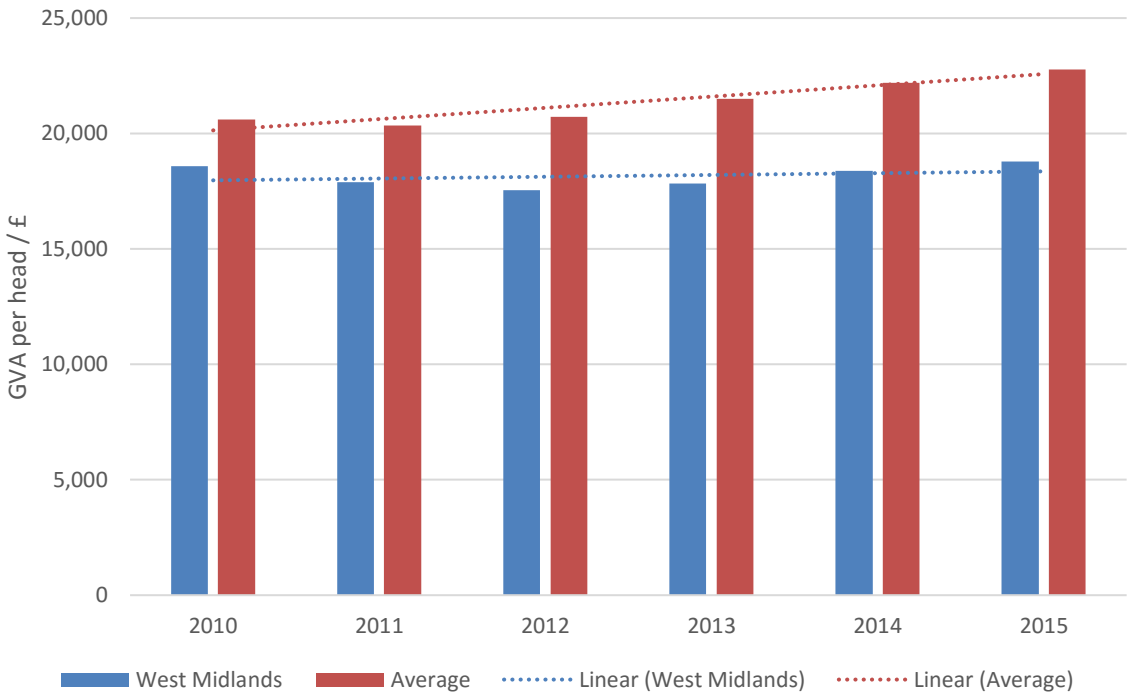
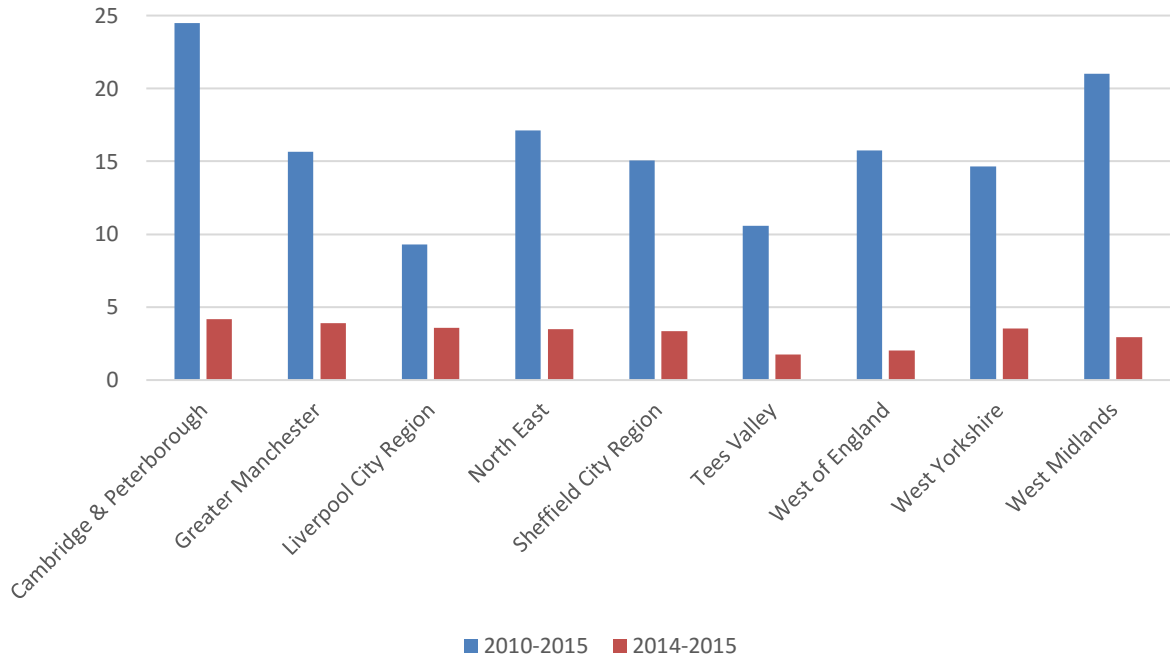
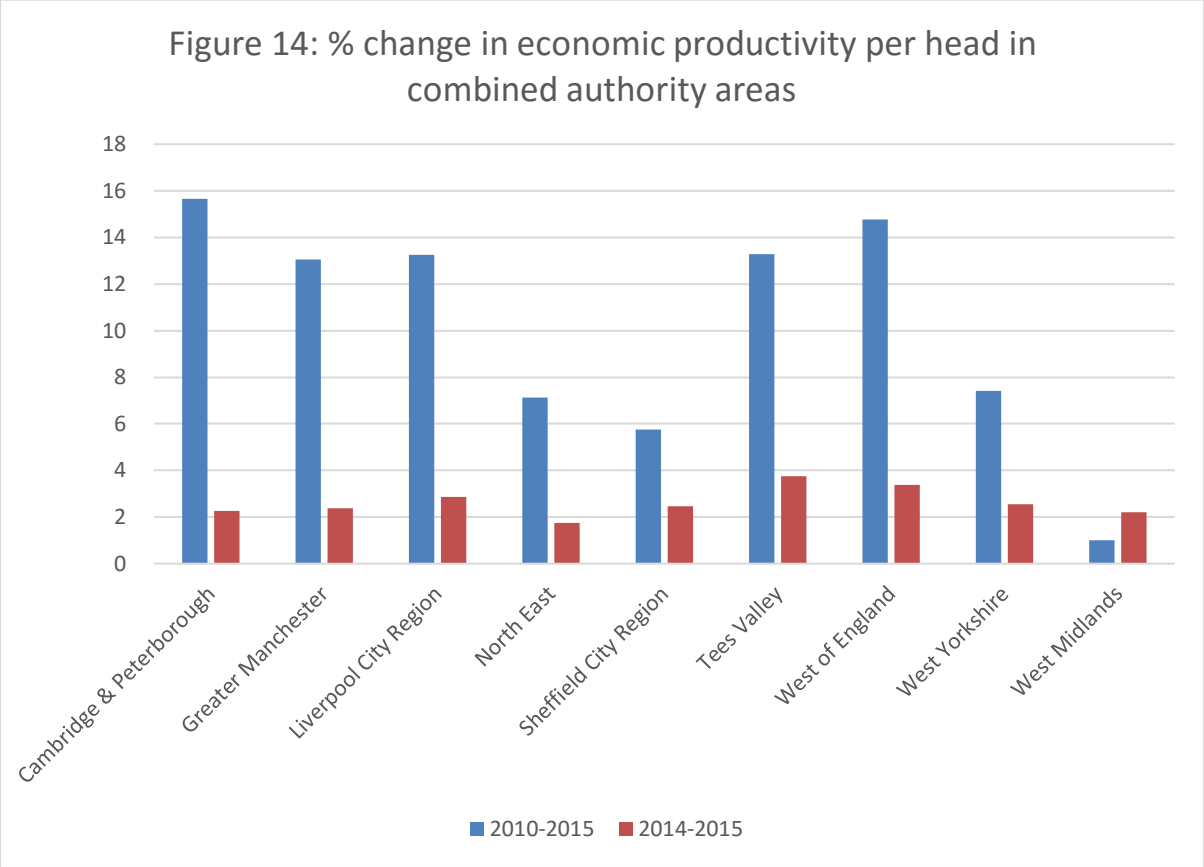


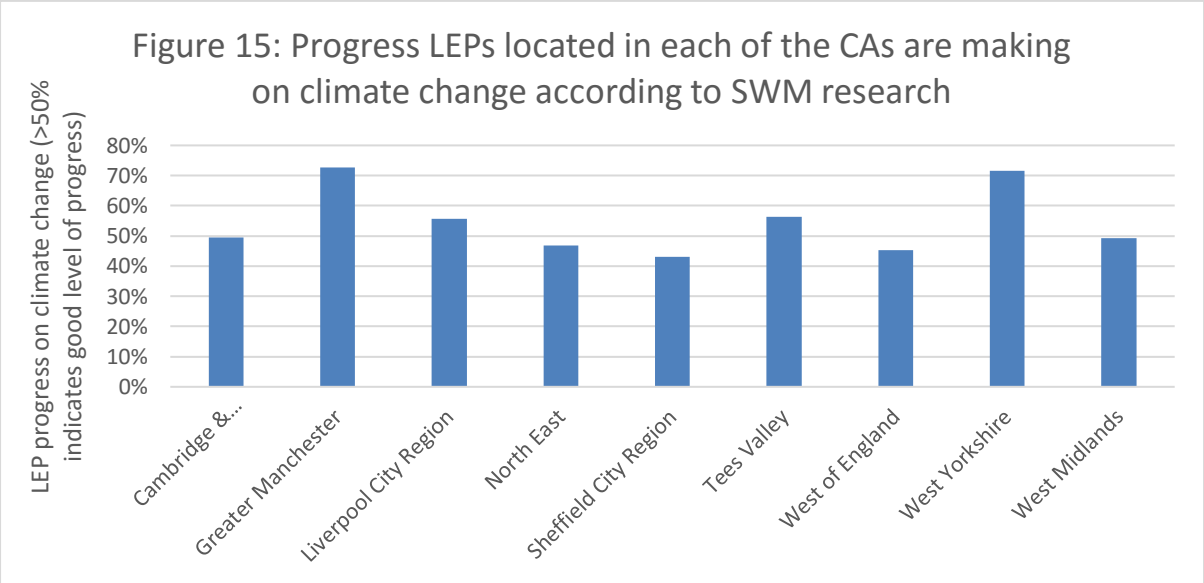
Figure 13: % change in economic productivity in combined authority areas





3.5 LEPs progress in tackling climate change

Summary: LEPs that make up the WMCA are performing slightly lower than average on tackling climate change when compared to the other CA areas.



3.6 Summary of key findings

The below table provides a summary of the metrics including how they correlate to the relevant targets that the WMCA has in place.

Metric	Latest figure in specified year	Ranking out of 9 CAs	Rate of Change since 2010	Ranking out of 9 CAs	WMCA target	Scale of challenge
Environment						
Total carbon emissions	22,708 $ktCO_2$ (2014)	9	-14.5%	6	40% reduction from 2010 to 2030	By 2030, emissions should be ≤15,930 $ktCO_2$
Per capita carbon emissions	5.6 $ktCO_2$ (2014))	4	-16.0%	7	-	
Air quality	40 days breached (2016)	9	+2 days breached	9=	Reduction to 1 day breached by 2030	39 less days breached per year
Social						
Health inequality (males)	8.2 years (2014)	5	-1 years	3=	Reduction in average health inequality gap by 5.9 years by 2030	Further reduction of 2.3 years
Health inequality (females)	7.2 years (2014)	4	+0.5 years	8	Reduction in average health inequality gap by 3.9 years by 2030	Further reduction of 3.3 years
Economic						
Total economic productivity	£74,461m (2015)	1	+21.0%	2	-	Currently much better than average
Per capita economic productivity	£18,780 (2015)	7	+1.0%	9	£33,604 by 2030	78.9% increase required by 2030

4 Recommendations for the West Midlands Combined Authority

4.1 Gaps in sustainability indicators – Waste and Natural Capital

Overall there is a good range of economic, social and environmental indicators within the PMF monitoring. However, the SEP included an indicator on waste/reuse which doesn't appear to have made it into the latest PMF. Also, since the SEP was published there has been substantial work by a broad coalition of partners on promoting the improvement of natural assets within the WMCA area. There should be a commitment to develop an appropriate indicator and use this within the PMF key indicator set.

4.2 Consistency of data and presentation

Some of the data used to form targets in the WMCA SEP and Performance Management Framework (PMF) and the recent WMCA AGM update of the PMF are not consistent, due to updates in data, baselines, and boundary changes over the last three years. Our research for this report is based on the most recent available data. Therefore, clarity should be sought to help improve the consistency of data used and presented in the PMF and proposed annual and quarterly updates for the WMCA board and partners.

4.3 Clear accountability and integrated working

The Mayor and WMCA Board, although collectively responsible for the performance of the WMCA should be clearly responsible for specific PMF objectives and indicators that closely align to their delegated areas of responsibility. Portfolio holders should have ownership of the targets and liaise with each other to check that projects that are being commissioned under their portfolio theme address some or all the metrics/targets.

4.4 Clear annual reporting

At the time of writing the WMCA 2017/18 annual review and forward plan had been published, but only contained selective PMF indicators. In the future to help accountability and transparency, a consistent full set of PMF indicators should be published annually with commentary and links to the relevant WMCA portfolio holder.

4.5 Resource to drive reporting of metrics into the WMCA and partners project systems

Once the consistency and accountability issues around the PMF are resolved, then there should be a member of staff embedded into the WMCA or a body working alongside the WMCA that is commissioned to monitor these targets and to ensure all the headline metrics included in this report are being considered by all WMCA-commissioned projects.

The WMCA should work with its key partners and stakeholders to ensure that they are aware of the key sustainability metrics and targets and to outline ways that they can help to achieve these targets.

4.6 More action required on air quality and health inequality

Projects are already underway that deal with specific aspects of air quality and health inequality (such as the WMCA's Mental Health Commission[13][14] and the Low Emissions Bus Strategy[15] respectively). However, given that the health inequality gap is still quite large and that the West Midlands breached air quality standards on more days than in any other combined authority region in 2016, further activity needs to be undertaken.

[13] http://www.bbcwildlife.org.uk/sites/default/files/files/WMCA%20Spatial%20Vision%20Document.pdf
[14] https://www.wmca.org.uk/what-we-do/mental-health-commission/
[15] http://bit.ly/2tuKfVo