

Generating local estimates of job accessibility measures: challenges and opportunities

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Outline

- Introduction to Nesta and the Open Jobs Data team.
- Job accessibility measures.
 - The background.
 - The approach we took.
- Open transport data: a researcher perspective.
 - Challenges.
 - Opportunities.
- Conclusions.

About Nesta

Nesta is a global innovation foundation based in the UK. We were established in 1998 and now have over 200 staff. We have the status of an Independent Research Organisation.

We back and develop new ideas to tackle the big challenges of our time, from the pressures of an ageing population to stretched public services and a fast changing jobs market.

Nesta has been working for several years on new approaches to jobs and labour markets. We want to ensure that everyone has better ways of navigating their way from where they are to where they want to be in jobs and careers.



Open Jobs is a unit within Nesta that aims to help individuals, organisations and governments to take more informed labour market decisions.

The unit carries out data-driven research, facilitates place-based pilots and advocates for smarter labour market policies.



Job accessibility measures

- Project on regional skill mismatches funded by PIN in collaboration with West Midlands Combined Authority.
- Skill mismatches are costly and can significantly hamper growth.
- Skill mismatches can be impacted by transport infrastructures and barriers to accessing jobs.



West Midlands
Combined Authority



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The approach we took: data sources and collection.

Job accessibility measures

- Combination of official labour market statistics, web data and open-source tools.
 - Census.
 - Open Street Maps, Open Trip Planner and propeR.
- Collection of data on travel times.
 - Compute travel times between each LSOA in a TTWA and 20 LSOAs with the highest number of jobs.
 - A feasible journey is a journey that can be completed by car in 27 minutes.

The approach we took: data aggregation.

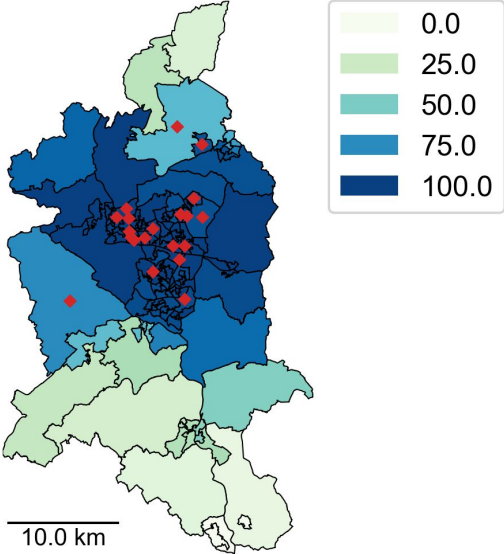
Job accessibility measures

- **Job Accessibility map.**
 - The proportion of jobs reachable from each LSOA within the region.
- **Job Accessibility curve.**
 - The percentage of jobs that can be accessed by a given percentage of the population.
- **Job Accessibility index.**
 - The average proportion of the population that can feasibly reach a job location.

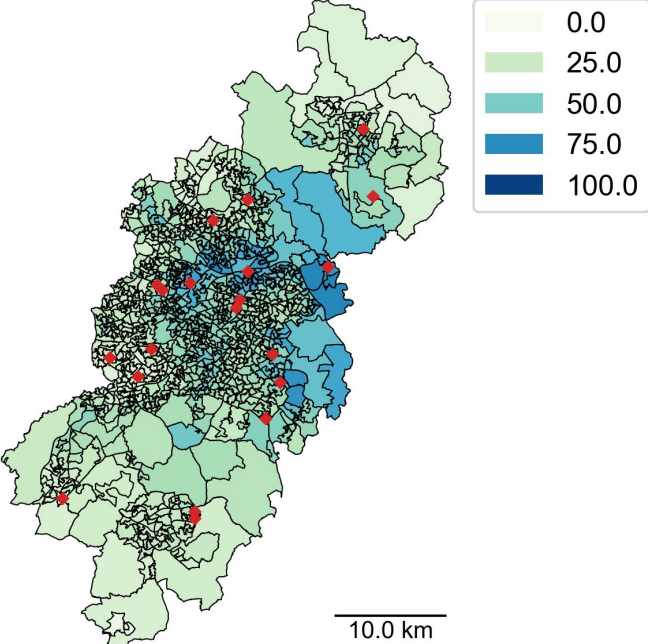
Limitation: the **Job Accessibility** measures depend on the way job locations are selected.

Job Accessibility maps (car journeys) for Telford and Birmingham

Percentage of reachable jobs for LSOAs in Telford



Percentage of reachable jobs for LSOAs in Birmingham



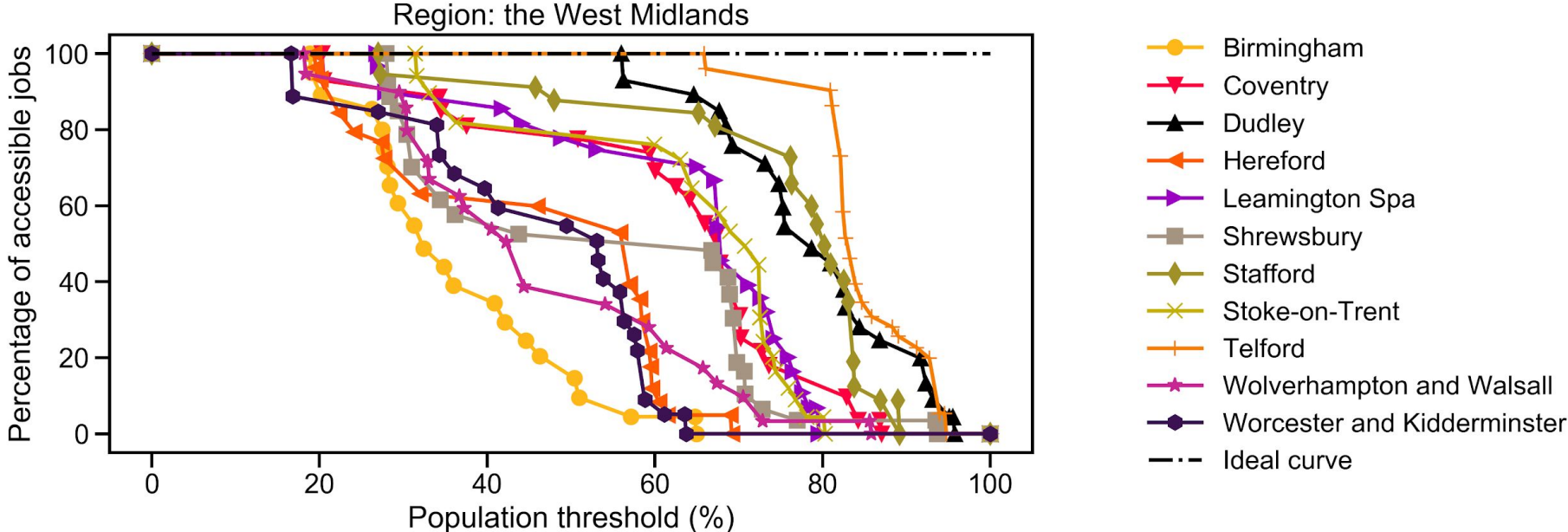
Distribution of the percentage of reachable jobs across LSOAs in TTWAs in the West Midlands

TTWA	Minimum	Median	Maximum	Standard deviation
Birmingham	0.00	36.43	78.18	13.20
Coventry	11.81	70.97	95.67	22.25
Dudley	24.22	83.83	100.00	17.99
Hereford	3.30	53.13	82.51	23.00
Leamington Spa	0.00	69.47	96.66	26.28
Shrewsbury	0.00	52.49	100.00	13.47
Stafford	3.34	86.41	100.00	24.99
Stoke-on-Trent	0.00	79.36	100.00	31.50
Telford	0.00	100.00	100.00	26.17
Wolverhampton and Walsall	13.83	47.68	84.56	13.94
Worcester and Kidderminster	0.00	45.46	79.08	17.24

In Leamington Spa the decision on where to live can have a much greater impact on job accessibility than it does in Wolverhampton and Walsall.

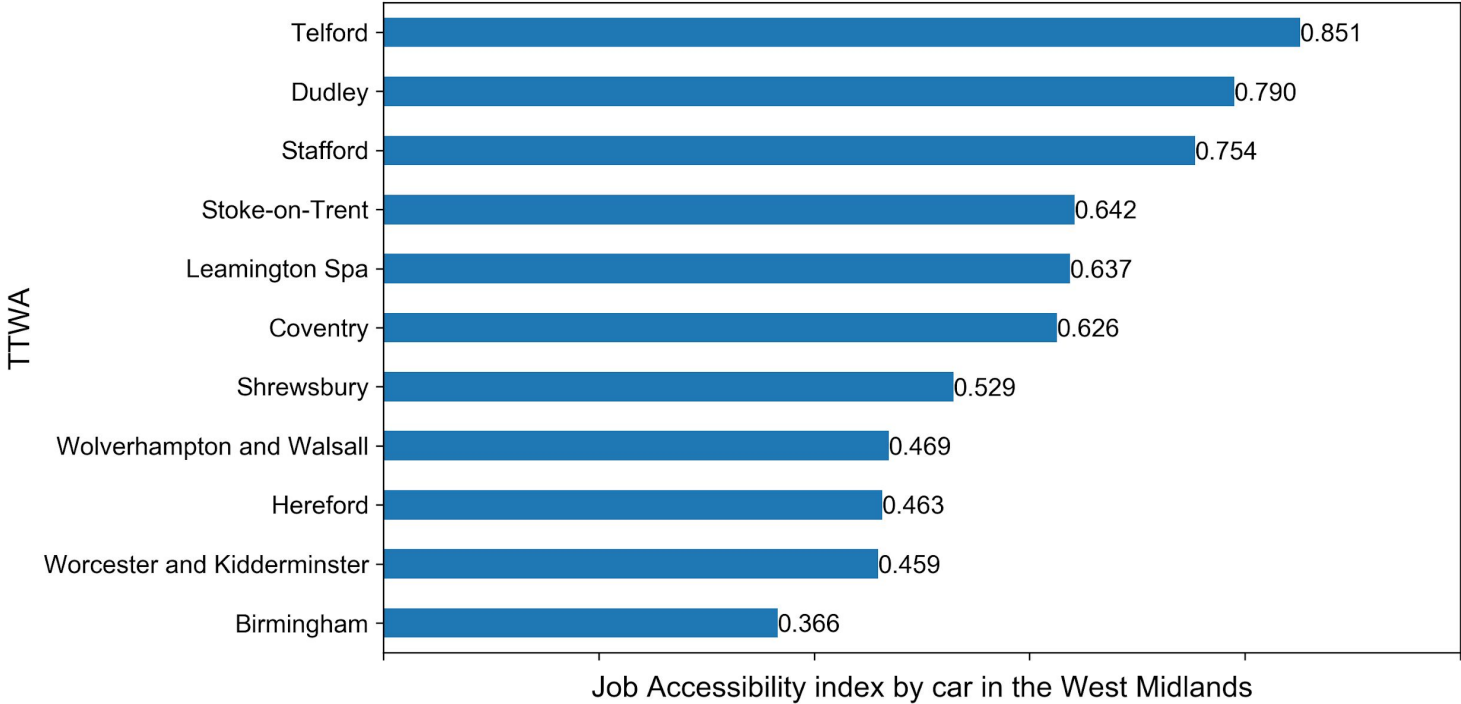
Job Accessibility curves (car journeys) for TTWAs in the West Midlands

Ideal curve should be always equal to 100, meaning that 100% jobs are reachable by the entire population.

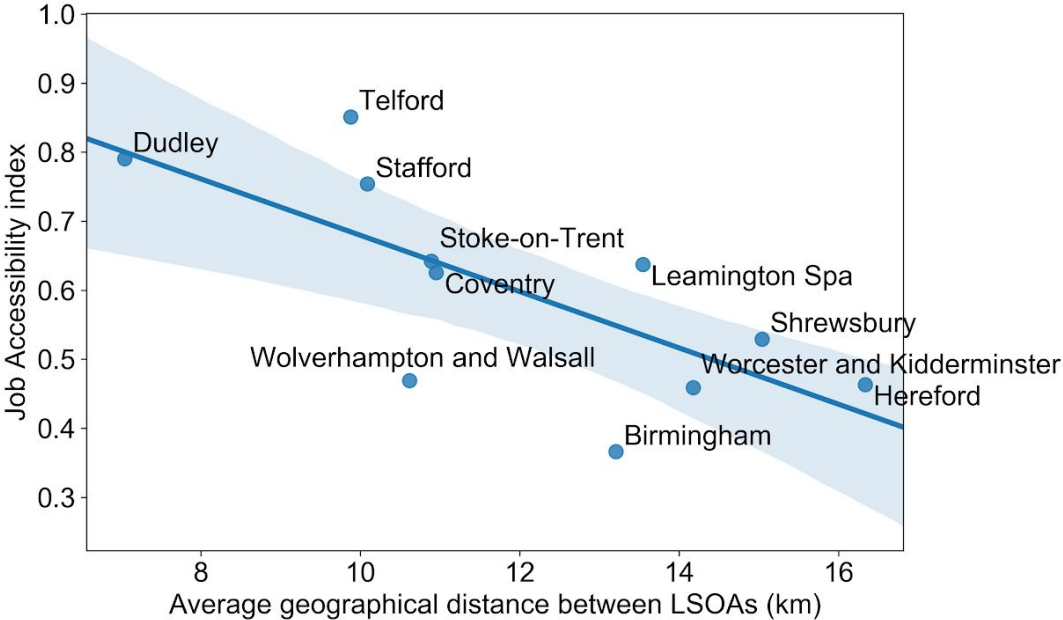


Job Accessibility index values (car journeys) for TTWAs in the West Midlands

A Job Accessibility index of 1 indicates perfect accessibility within a region.



Not all variability in jobs accessibility is explained by geographical distance



Current challenges*

- Travel time information is often either behind a paywall or not immediately accessible.
- The scale of the problem grows quickly.
- Data on fares could be even harder to integrate.

Desirable attributes*

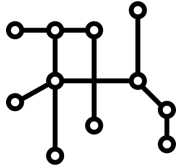
- Easy to use tools.
- Comprehensive data integration.
- Open access.
- Community-driven.

*Likely a subset of them.





Measuring impact on local economies.



Exploring “what if” scenarios:

- Simulating links.
- Simulating services.




We want to expand our estimates of job accessibility measures.



Building open transport data can benefit from a community effort.



A number of opportunities could be unlocked.



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