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## A new measure of quality of life explains why people like living in bigger cities

*People like to live in certain places, even when higher wages are on offer elsewhere. Gabriel Ahlfeldt, Fabian Bald, Duncan Roth and Tobias Seidel show that once you take into account people's preferences, large cities offer a higher quality of life than previously thought.*

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More than 50 per cent of the world's population **lives in cities**. In developed countries, the share is significantly higher, while in developing countries, it is rapidly rising. Productivity advantages and correspondingly higher wages have been identified as potential drivers of urbanisation since at least **Alfred Marshall's seminal work in 1890**. There is abundant evidence confirming that productivity in cities is higher, making them attractive places to work.

Cities may also be appealing as places to live due to their urban amenities, such as ethnically diverse restaurants, music venues or art galleries. In contrast, rural areas may be attractive due to high environmental quality (clean air) or natural amenities (forests and lakes).

Economists refer to the joint effect of all such amenities on the perceived attractiveness of a location as quality of life. While there is a rich economics literature on measuring quality of life, we know very little about whether it tends to be higher in cities than rural areas. In a **recent study**, we argue that the lack of evidence for higher quality of life in cities may be due to measurement error.

## Measuring people's choices

Empirically, it is challenging to measure quality of life, as many contributing amenities – such as the aesthetic quality of the built environment or the buzz in cutting-edge neighbourhoods – are unobservable or difficult to quantify. Therefore, economists use spatial equilibrium models to infer unobserved quality of life from observed wages and living costs.

The canonical framework assumes that all goods (except housing) can be easily traded and all workers have the same tastes and can move freely. Under these assumptions, workers will move to different places – inducing changes in wages and house prices until eventually any difference in quality of life will be balanced out by differences in wages and housing costs.

The main limitation of the canonical approach is that it fails to account for different spatial frictions, the constraints on movements of goods or people. For example, if there are trade frictions, then non-housing prices will differ between locations for reasons unrelated to quality of life. Alternatively, if there are mobility frictions, such as people's personal preferences for specific locations or local ties due to family or friends, small differences in wages generally do not suffice to influence many workers' location decisions.

We argue that by accounting for these spatial frictions, quantitative spatial models reduce measurement error. Our theoretical analysis indeed confirms that the difference in quality of life between locations tends to be underestimated in the canonical model. The extent of measurement error tends to be most pronounced in large cities.

Our analysis also provides insights into the relative importance of different spatial frictions for the measurement error. It turns out that mobility frictions are a more important source of measurement error than trade frictions. We find these results are highly robust, making it a general finding that likely holds in many countries around the world.

## A quality of life ranking for Germany

To produce the first theory-based quality of life ranking accounting for spatial frictions, we apply the model to rich data from Germany (Immoscout24, the Federal Employment Agency and the Federal Statistical Office). This application illustrates how our approach leads to greater variation in quality of life across regions and significant changes in rankings compared to measurement within the standard framework.

For example, comparing our approach with the canonical approach for the year 2015, Hamburg is ahead of Munich as the city with the highest quality of life. Frankfurt climbs one place to fourth, Düsseldorf rises seven places from 12<sup>th</sup> to 5<sup>th</sup> and Chemnitz climbs 62 places to 39<sup>th</sup>, while fallers include Lörrach and Waldshut, which drop 50 places to 86<sup>th</sup> and 107<sup>th</sup> respectively. Only Berlin (3<sup>rd</sup>) Würzburg (25<sup>th</sup>) and Celle (122<sup>nd</sup>) remain unchanged.

On average, the absolute rank change is 17. During recent years, Munich and Hamburg have been battling for #1 in our ranking, switching positions from 2007 (#1 Munich) to 2011 (#1 Hamburg) and then again from 2015 (#1 Hamburg) to 2019 (#1 Munich). At the same time, Berlin has been catching up. It went from #4 in 2011 to #3 in 2015 and is getting closer and closer to Munich and

Hamburg. We provide an interactive webtool, where users can explore quality of life rankings over time for any pair of German cities.

### Figure 1: Comparison of quality of life measures in Germany

*Note: The new quality of life measure (QSM) shown in the left panel indicates city regions have the highest quality of life. The standard measure (RR) shown in the right panel underestimates quality of life in these regions.*

Our quality of life measure also reveals people like living in bigger cities. On average, doubling the population of a region is associated with a 20 per cent increase in quality of life. For comparison, the same increase in the size of the region is associated with no more than a 5 per cent increase in wages. The left panel of Figure 1 maps our new quality of life measure (QSM) by German regions, revealing the highest quality of life in large city regions such as Berlin, Hamburg and Munich. The right panel illustrates how, compared to our new measure, the standard measure (RR) underestimates quality of life in these regions.

## Making cities attractive

Our findings suggest that quality of life is a much more significant determinant of local economic development than previously thought, showing that people's decisions on where to live are affected by more than just wages and housing costs. This has profound implications for policymakers.

Efforts to make struggling regions more productive are important, but equally critical is ensuring a high quality of life to attract talent. Strategies could include investing in cultural and recreational amenities, reducing pollution and crime or improving the urban built environment.

As a tangible contribution to the applied literature, we provide an accessible [GitHub toolkit](#) with parsimonious data requirements that solves for our new quality of life measure. Since our fully theory-consistent measure of quality of life is somewhat data-intensive, we also provide a crude-data version based on population statistics which still significantly reduces measurement error relative to the canonical measure. This tool should help policymakers to identify areas with objectively low quality of life, allowing for a better understanding of the factors that are beneficial or detrimental to quality of life and, ultimately, economic prosperity.

*For more information, see the authors' accompanying [CEP discussion paper](#).*

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*Note: This article gives the views of the authors, not the position of EUROPP – European Politics and Policy or the London School of Economics. Featured image credit: [kavalenkau](#) / [Shutterstock.com](#)*

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