



Impacts of parking and accessibility on retail-oriented city centres

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Abstract

Growing e-commerce, the aftermath of the COVID-19 pandemic, the need for greater sustainability, and increasing competition between different uses for scarce space pose increasing challenges to city centres. Most city centres in high-income countries are strongly characterized by retail. To create space for other mobility modes, outdoor dining, or greening, reducing on-street parking is a controversially discussed measure that is feared especially by retailers. However, the impact of parking infrastructure and accessibility on the performance of retail in city centres is not yet clearly explored in the literature. This paper contributes to closing this research gap by analysing the impact of on- and off-street parking capacity and accessibility on the rents for retail properties in city centres. The applied database consists of nearly 400 retail rental offers in the city centre of Aachen, Germany, published between 2015 and 2022. As the data cover the period of the COVID-19 pandemic, we also consider the impact of the pandemic on retail rents.

Results of a spatial regression indicate that public transport stops, pedestrian zones, and public parking garages nearby increase the attractiveness of retail locations. On the contrary, much on-street parking capacity in the immediate vicinity reduces retail rents. However, sufficient parking capacity should be accessible within a comfortable walking distance. This finding supports the approach of reducing on-street parking in city centres while concentrating stationary car traffic in multi-storey car parks.

Introduction

City centres worldwide face major challenges through growing e-commerce and substantial changes in work and leisure routines (Delage et al., 2020; Fernandes and Chamusca, 2014). These trends were recently accelerated by the COVID-19 pandemic (Mouratidis and Papagiannakis, 2021; Nanda et al., 2021; Popławska, 2021). The effects are evident in many cities in the form of vacancies and declining numbers of customers

(Enoch et al., 2022; Hill and Cheshire, 2022). These phenomena suggest that a central city centre location may become less important for retailers over time.

Apart from these mainly retail-related challenges, urban areas face further sustainability-related challenges, especially regarding the need for climate change mitigation and adaptation. The transport system plays a major role in this transformation. A widespread measure to promote sustainable transport is the removal of on-street parking in favour of cycle paths, walkways, or greening (Volker and Handy, 2021). Such changes in the transport system impact city centres through altered accessibilities and redistribution of street space.

In this context, a long-standing key question of urban planning arises anew: How important are accessibility and parking for successful city centre retail? When investigating this question with recent data, obviously the substantial impact of the COVID-19 pandemic cannot be ignored. We therefore extend our research question: Do urban retailers with favourable transport conditions, such as high accessibility or parking availability, fare better or worse than others after controlling for the effects of the pandemic? What does this mean for retail location decisions and the relevance of transport factors for urban centres in the next decades? This paper investigates these questions using retail property prices as a proxy indicator for the value and attractiveness of city centre retail locations. We build a spatial regression model that allows us to assess the impact of parking supply and accessibility on retail rents in the city centre of Aachen while controlling for the impact of the COVID-19 pandemic.

The following paper is structured as follows: Chapter 2 discusses the relevant literature on the interplay between city centres, retail, and the transport system. In chapter 3 the study area and data are presented followed by a description of the applied methodology and an overview of spatial regression models as its theoretical basis. The results of a descriptive analysis and the spatial regression are presented in chapter 4, followed by a discussion of the results in chapter 5. The paper concludes with a summary of possible inferences and an outlook to further research in chapter 6.

Section snippets

Importance and history of retail for city centres

Performance and perception of city centres are tightly connected to retail and other commercial activities (Barata-Salgueiro and Guimarães, 2020). The retail sector plays an important role in a city's economic performance, enables social inclusion, and influences the city's sustainability and resilience (Dolega and Lord, 2020; Fernandes and Chamusca, 2014). Apart from retail, city centres are often characterized by additional commercial uses, which lead to a high density of employees that in...

Area of study

The city of Aachen is the centre of a regiopolitan urban region on the western border of Germany (BMDV, 2021). It is home to approximately 260,000 inhabitants and can be characterized as a university city with almost 60,000 students (City of Aachen, 2020, City of Aachen, 2022). During work days the population of Aachen grows to over 300,000 people, as the city also attracts many commuters and visitors from nearby Belgium and the Netherlands (IT NRW, 2022).

Aachen is a historic city which has...

Temporal trend of retail property rents

As we analysed data on retail rents from several years before and during the COVID-19 pandemic, temporal trends in rental values could affect our results and should therefore be considered. To get an idea of the rent development over time and, in particular, the impact of the COVID-19 pandemic, we conducted some descriptive data analyses.

Initially, a pre-processing of the raw data was necessary, as it showed many outliers and no steady course due to the relatively small sample. Therefore, a...

Discussion

In retail-oriented streets, removing on-street parking spaces is often dreaded by shopkeepers, as they are afraid of deteriorated accessibility, declining pedestrian frequencies, and lower revenue. However, streets with a lot of motorized traffic and parked cars often do not offer enough space for greening, outdoor dining, benches, or other equipment that invites people to spend more time in a street. Our model indicates that removing on-street parking does not impact retail performance...

Conclusions

The literature review and data analysis underlined that urban centres face substantial challenges. In particular, retail in city centres has suffered in recent years, reinforced by the COVID-19 pandemic. We were able to show that the attractiveness of central locations for retail has decreased sharply during the pandemic, while decentral locations in contrast gained attractiveness. This finding is in line with the literature on the impact of COVID-19, which emphasises a trend to shop in local...

Author statement

The authors confirm contribution to the paper as follows: Laura Merten: Conceptualization, Formal analysis, Investigation, Methodology, Writing - Original Draft, Visualization. Tobias Kuhnimhof: Conceptualization, Funding acquisition, Project administration, Supervision, Writing - Review & Editing...

Declaration of Competing Interest

None....

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References (92)

F. Bandarin *et al.*

[After Covid-19: a survey on the prospects for cities](#)

City Cult. Soc. (2021)

T. Barata-Salgueiro *et al.*

[Retail planning and urban resilience – an introduction to the special issue](#)

Cities (2014)

J. Beckers *et al.*

[COVID-19 and retail: the catalyst for e-commerce in Belgium?](#)

J. Retail. Consum. Serv. (2021)

M. Delage *et al.*

[Retail decline in France's small and medium-sized cities over four decades. Evidences from a multi-level analysis](#)

Cities (2020)

L. Dolega *et al.*

[Exploring the geography of retail success and decline: a case study of the Liverpool City region](#)

Cities (2020)

J.R. Fernandes *et al.*

[Urban policies, planning and retail resilience](#)

Cities (2014)

L. Grimmer

[Drivers and barriers for city shopping: perspectives from retailers and consumers in regional Australia](#)

J. Retail. Consum. Serv. (2021)

M. Hunter

[Resilience, fragility, and robustness: cities and COVID-19](#)

Urban Gov. (2021)

C.-D. Kang

[Spatial access to pedestrians and retail sales in Seoul, Korea](#)

Habitat Int. (2016)

T. Kawasaki *et al.*

[The use of e-commerce and the COVID-19 outbreak: a panel data analysis in Japan](#)

Transp. Policy (2022)



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