

Gentrification and the 15–Minute City: Tensions between Proximity, Sustainability and Spatial Justice in Contemporary Urban Transformation.

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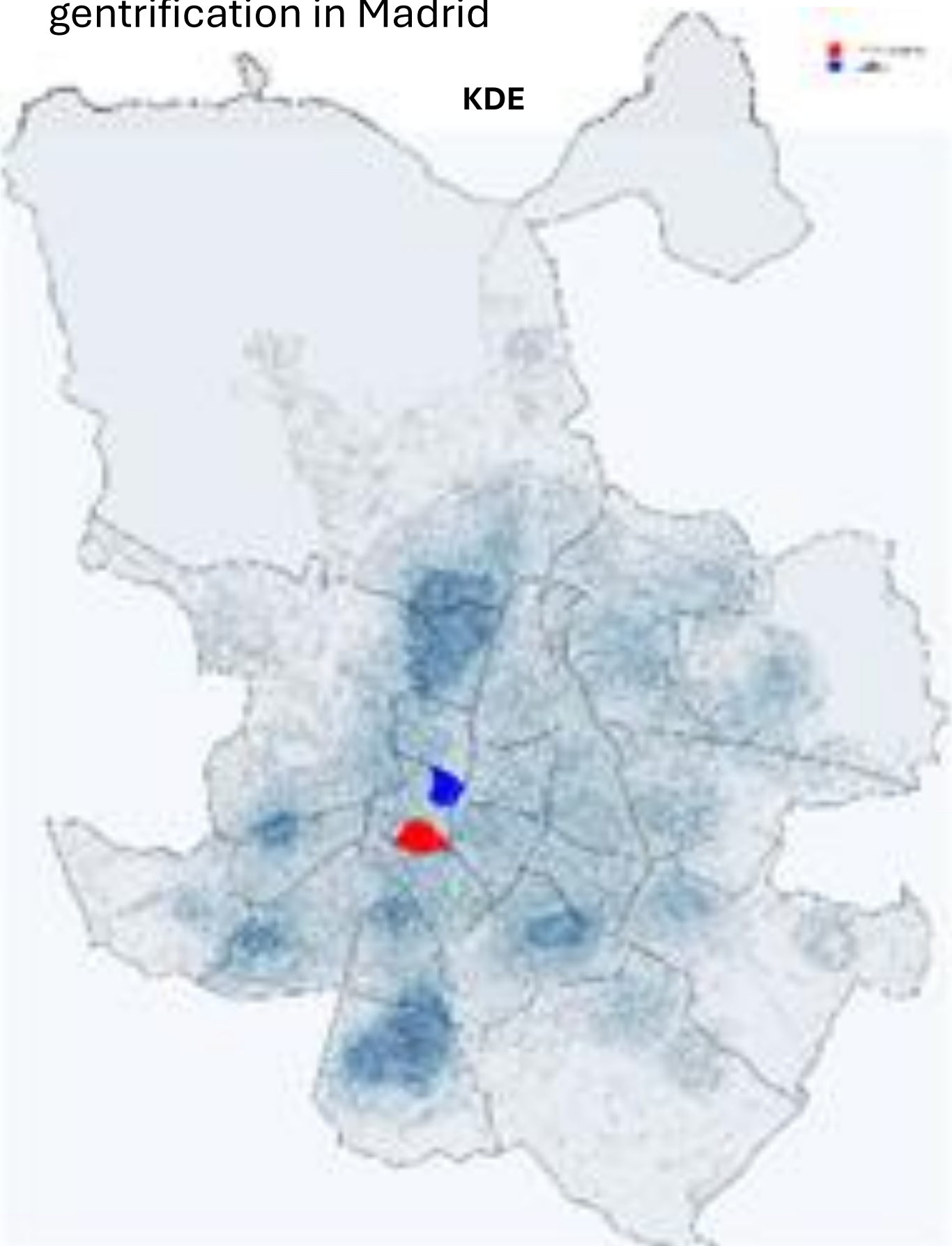
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ABSTRACT

This study examines how the **15-Minute City (FMC)** proximity model relates to **gentrification dynamics** in **Madrid (Spain)**. Using **composite indicators** and **GIS-based análisis**, results reveal a strong **centre-periphery accessibility gradient** that partially overlaps with áreas under **gentrification pressure**. Findings suggests that proximity policies may improve sustainability, but without safeguards they can reinforce exclusionary trends

INTRODUCTION

- Urban proximity is increasingly used to reduce **motorised mobility** and improve Access to daily services
- The **FMC** promotes neighbourhoods where essential needs can be reached **on foot or by byclce**
- However, improved accessibility and urban quality may trigger **land revaluation** and **social displacement**
- Goal:** anylse how proximity can coexist with gentrification in Madrid



STUDY AREA

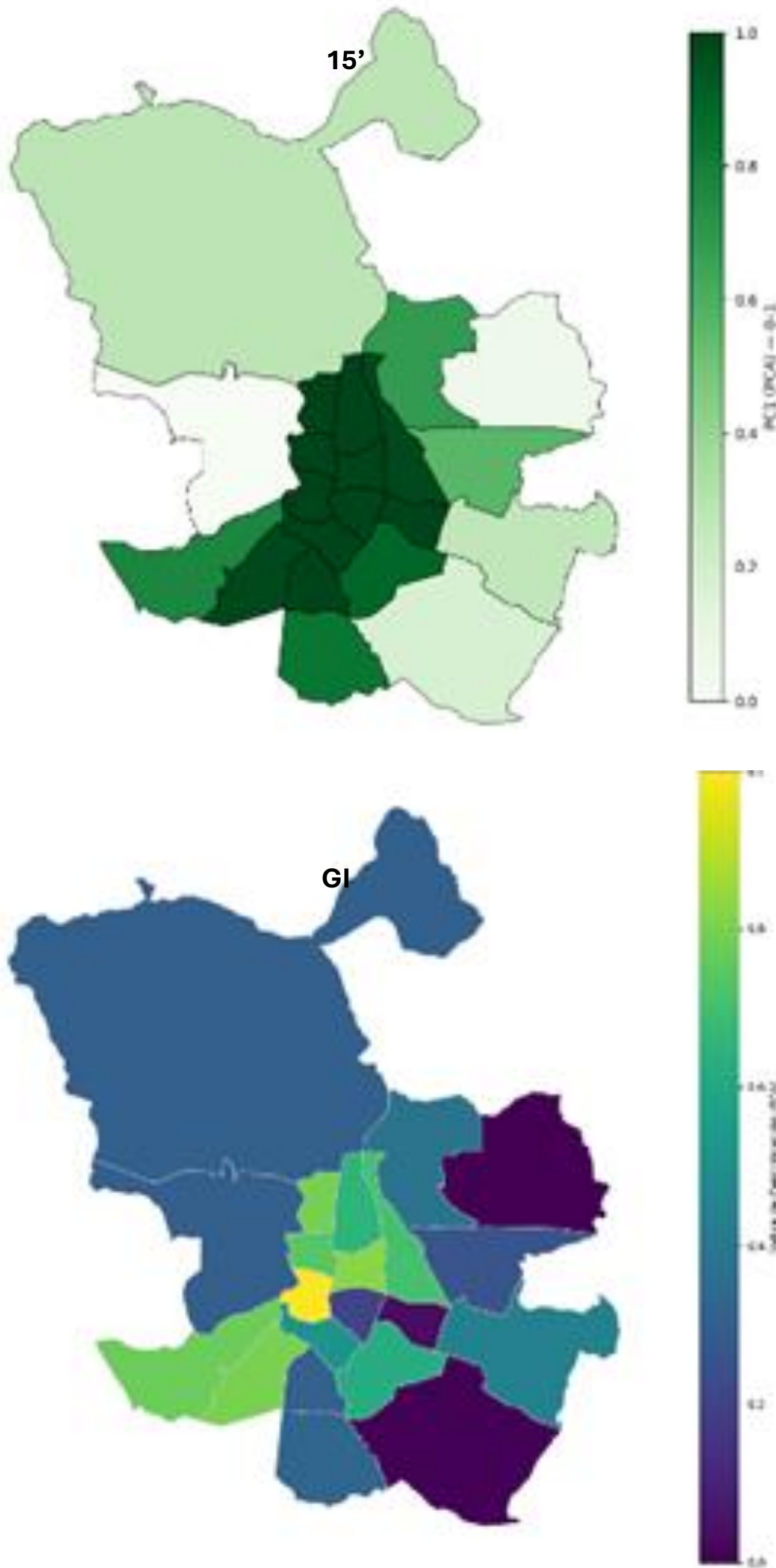
- Gentrification combines reinvestment, socio-demographic replacement and comercial change
- The **FMC** promotes accessibility and decentralisation of services, but outcomes depends on **institutions and real state markets**
- Madrid is a clear centr-periphery case, with documented pressures in **Embajadores (Lavapiés)** and **Justicia (Chueca)**

METHODOLOGY

- 15-Minute City**
 - Walkable network from **OpenStreetMap**.
 - Dijkstra +1,200 m** isochrones (≈15 min-walk)
 - PCA** synthesis -> **index 0-1**
- Gentrification Index (district level)**
 - Variables_sociodemographic + economic+ housing market & tourism pressure
 - Processing: **z-score -> tanh smoothing -> PCA -> index 0-1**
- Gis Analysis**
 - Univariate mapping (both índices)
 - Bivariate choropleth 3x3**
 - KDE** network density + two representative neighbourhoods

RESULTS

- Accessibility shows a clear **centre-periphery gradient**: central districts concéntrate higher pedestrian coverage
- Gentrification follows a different pattern but **partly overlaps** with accessibility
- Embajadores** and **Justicia** stand out due to demographic replacement and real-state pressure
- The bivariate map identifies four key types:
 - High accessibility / High gentrification
 - High accessibility / Low gentrification
 - Low accessibility / High gentrification
 - Low accessibility / Low gentrification



DISCUSSION

- Urban proximity does not automatically imply spatial justice**
- In central districts, high accessibility can coexist with **rent capture** and **displacement**
- Real-estate pressure may even anticipate service improvements
- FMC should be treated as a **social and political project**, not only a mobility strategy

POLICY IMPLICATIONS

To avoid proximity-driven displacement, FMC implementation should include:

- Afofordable housing linked to development gains
- Tourist rental regulation
- Inclusive zoning
- Commercial stabilitation measures

CONCLUSIONS

- FMC can support healthier and more sustainable cities
- In unequal contexts, it may also reinforce **gentrification and exclusion**
- Equity oriented governance is essential to ensure proximity policies deliver **spatial justice**

FUTURE WORK

- Extend the model to other cities.
- Add longitudinal data to anticípate displacement
- Apply clustering / non-linear methods to detect hybrid typologies

The 15-Minute City can improve sustainability and accessibility, but without equity safeguards it may intensify gentrification and displacement

