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Rich do not rise early: spatio-temporal patterns in the mobility networks of different socio-economic classes

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We analyse the urban mobility in the cities of Medellín and Manizales (Colombia). Each city is represented by six mobility networks, each one encoding the origin-destination trips performed by a subset of the population corresponding to a particular socio-economic status. The nodes of each network are the different urban locations whereas links account for the existence of a trip between two different areas of the city. We study the main structural properties of these mobility networks by focusing on their spatio-temporal patterns. Our goal is to relate these patterns with the partition into six socio-economic compartments of these two societies. Our results show that spatial and temporal patterns vary across these socio-economic groups. In particular, the two datasets show that as wealth increases the early-morning activity is delayed, the midday peak becomes smoother and the spatial distribution of trips becomes more localized.

1. Introduction

Understanding and modelling urban mobility is crucial for urban planning and decision-making and has been a topic of great interest for sociologists, urban planners, engineers, physicists,

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