How industrial agglomeration and urban fabrics affect travel mode choice over time

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19 **Highlights**

20 ● We used a panel dataset to understand the effects of industrial agglomeration and travel behavior

21 ● Changes in the built environment and industrial agglomeration has shifted travel mode choice

22 ● Knowledge economy jobs cluster in dense urban cores and increase transit use.

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24 **Abstract**

25 Past studies on the relationship between the built environment and travel mode choice were conducted
26 with cross-sectional design in the Western context and lack the consideration of industry agglomeration.
27 This study draws upon longitudinal panel data covering 78 districts in the Seoul metropolitan area over
28 four time periods (2002, 2006, 2010, and 2016) to examine the effect of the built environment and
29 industrial agglomeration on travel mode choices using longitudinal multilevel linear regression models.
30 Findings from the present study reveal that changes in travel mode choice can be attributed to changes
31 in the built environment, such as density, urban design, and destination accessibility. Additionally, the
32 heterogeneity of knowledge and manufacturing employment influences travel choices, with intensive
33 clustering of finance, education, real estate, and hospitality jobs moderating car travel demand and
34 facilitating a shift towards transit modes. This study provides evidence for the efforts to rein in car use
35 and promote transit and active travel through pedestrian-oriented and transit-oriented developments in
36 synergy with the metropolitan economic structure in an era of knowledge-based innovation and services
37 in post-industrial cities.

38 ***Keywords***: *travel behavior, mode choice, built environment, land use, urban economics*

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