Walking, cycling and the urban form: A Heckman selection model of active travel mode and distance by young adolescents - DTU Orbit (09/11/2017)

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Physical inactivity of children and adolescents is a major public health challenge of the modern era but, when adequately promoted and nurtured, active travel offers immediate health benefits and forms future sustainable and healthy travel habits. This study explores jointly the choice and the extent of active travel of young adolescents while considering walking and cycling as distinct travel forms, controlling for objective urban form measures, and taking both a "street-buffer" looking at the immediate home surroundings and a "transport-zone" looking at wider neighborhoods. A Heckman selection model represents the distance covered while cycling (walking) given the mode choice being bicycle (walk) for a representative sample of 10-15 year-olds from the Capital Region of Denmark extracted from the Danish national travel survey. Results illustrate the necessity of different urban environments for walking and cycling, as the former relates to "street-buffer" urban form measures and the latter also to "transport-zone " ones. Results also show that lessening the amount and the density of car traffic, diminishing the movement of heavy vehicles in local streets, reducing the conflict points with the density of intersections, and intervening on crash frequency and severity, would increase the probability and the amount of active travel by young adolescents. Last, results indicate that zones in rural areas and at a higher percentage of immigrants are likely to have lower probability and amount of active travel by young adolescents.

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