

## SOE 11: Urban Scaling

Time: Wednesday 9:30–10:00

Location: MA 001

**Invited Talk**

SOE 11.1 Wed 9:30 MA 001

**Urban scaling laws arise from within-city inequalities** —•MARC KEUSCHNIGG — Institute of Sociology, Leipzig University —  
Institute for Analytical Sociology, Linköping University

Theories of urban scaling have demonstrated remarkable predictive accuracy at aggregate levels. However, they have overlooked the stark inequalities that exist within cities. Human networking and productivity exhibit heavy-tailed distributions, with some individuals contributing disproportionately to city totals.

Here we use micro-level data from Europe and the United States on interconnectivity, productivity and innovation in cities. We find that the tails of within-city distributions and their growth by city size

account for 36-80% of previously reported scaling effects, and 56-87% of the variance in scaling between indicators of varying economic complexity. Providing explanatory depth to these findings, we identify a city size-dependent cumulative advantage mechanism that constitutes an important channel through which differences in the size of tails emerge.

Our findings demonstrate that urban scaling is in large part a story about inequality in cities, implying that the causal processes underlying the heavier tails in larger cities must be considered in explanations of urban scaling. This result also shows that agglomeration effects benefit urban elites the most, with the majority of city dwellers partially excluded from the socio-economic benefits of growing cities.