



Keble College / University of Oxford



SEMINAR SERIES / Michaelmas 2013

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‘The hidden structure in urban economic complexity’

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Tuesday 29th October, 12.30 -14.00

Roy Griffiths Room (ARCO), Keble College

ABSTRACT:

Cities are increasingly fundamental socio-economic units in contemporary societies. However, the detailed fabric of urban economic activities has only now become accessible to comprehensive analyses with the recent availability of large and consistent datasets. Here, we study the abundances of business categories for metropolitan statistical areas in the U.S. to investigate how the diversity of economic activities changes with city size. Our statistical analysis reveals a universal structure in rank-size distribution of business types across all cities, showing that cities are self-similar not only in terms of aggregated metrics (GDP, patents, crime), but also in their internal economic structure. We present a statistical growth model, based on a decreasing rate of introduction of new business types, to explain the observed empirical distribution. Together with scaling analyses for individual business types, this invariant distribution predicts how given business types systematically change their rank with city size, thereby providing a quantitative means for estimating their expected abundances. Our results shed light on processes of economic differentiation with scale and suggest a general structure for the growth of national economies as integrated urban systems.

