Title:

Cities in the face of green technologies, job skills and consumptions transitions: a multilevel urban economy complex approach

Abstract:

The green transition, understood as a major and rapid transformation of consumer choices and production technologies, is essential to achieve the goals of the main sustainability agendas. Cities have an important role to play in this transition, as they are the places where the most fundamental aspects of capitalism are reproduced and therefore the most relevant sources of different types of pollution, market failures and systemic contradictions.

Motivated to better understand the consequences of these challenges, driven by climate change, from a complex approach, an agent-based model has been developed, characterized by a high degree of decentralization. As it is composed of a multitude of heterogeneous consumers, firms and cities, integrating several levels of organization (micro, meso and macro).

The model simulates several scenarios in which the green transition of the largest cities of the world is generated by changes in consumer micro-behaviors, demand for labor skills and production technologies, as well as from cities' interactions and economic policies. The model uses empirical data from: (i) the GHS Urban Centres Database and (ii) the Orbis, Bvd and UNIL Multinational Firms Database, for the 1,800 main functional urban areas of the world.

The results of the model will allow: (i) to show how the emergence of new technologies and skill demands could reshape the economic vocation of cities and their exchange, under different scenarios of changes in household consumption preferences; and (ii) to analyze the emergence of social justice issues in the distribution of income within and between cities.

Key words: technologies, skills, consumption preferences, green transition, agent-based modelling.

Topic:

Urbanization, (smart) cities and urban-rural complex systems.

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