Chapter 6

Scaling in Urban Complex Systems: Mexico City Metabolism

Aida Huerta-Barrientos

Additional information is available at the end of the chapter

http://dx.doi.org/10.5772/intechopen.71660

Abstract

Large cities are usually wealthier, denser in terms of population, more expensive, more congested but also more productive culturally and technologically. Mexico City is one of the most dynamic cities of the global economy but also presents the highest crime and congestion levels on the road network. The socio-metabolic approach interprets cities as a socio-metabolic system that interacts with systems in the natural environment. Although considerable progress has been made in studying cities as complex adaptive systems using such approach, many important issues such as social and innovation dimensions remain unexplored, mainly in Mexico City context. The principal purpose of this study is to analyze the metabolic scaling of socio-cultural and technological aspects in the context of Mexico City in order to predict the energy necessary to maintain the city socially connected and to estimate the impact of such social connections on the socio-economic-environmental indicators. We take into account the total population, the cultural infrastructure, the social cohesion, the traffic congestion level, the cost of fuel car, the minimum income, and the number of patents in the analysis as the agglomeration effects in Mexico City. We consider this study can support the design of public policies using the metabolic approach.

Keywords: urban complex systems, urban economy, urban population, scale

1. Introduction

Large cities are usually wealthier, denser in terms of population, more expensive, more congested but also more productive culturally and technologically. Mexico City is one of the most dynamic cities of the global economy. It is Latin America's financial center and Mexico's