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Editorial: Urban hierarchies in an economic transition to sustainable cities

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Editorial on the Research Topic

Urban hierarchies in an economic transition to sustainable cities

World-wide COVID-19 diffusion conduits as well as ongoing pressing needs to maintain sustainable cities into the future motivated this Research Topic, which primarily sought to assemble new and revised national, continental, and world scale urban hierarchy articulation studies. These efforts and their inevitable forthcoming updates are necessary to help especially policymakers better comprehend and then propose awaiting solutions to impromptu difficulties associated with living in an urban world, solutions helping to preserve and further cultivate sustainable cities. The call for papers aimed to solicit urban hierarchy articles spanning each of the six continents supporting permanent human inhabitation, expecting that some of these creations would constitute modernizations of earlier constructions. The final geographic collection comprises India, Japan, South Korea, and United States (US). Seeking to place its findings into a broader context, this editorial also briefly comments about four additional places for which manuscripts failed to come to fruition in a timely fashion.

One paper presents an advanced quantitative analysis of India's urban hierarchy (Shaban et al.) in particular, and urban hierarchies in general, within that Asian country's national economic growth setting. It employs a bootstrap panel Granger causality analysis of space-time data spanning half a century, rendering intriguing evidence-based statistical findings about urban hierarchies: most of India displays no more than a unilateral economic-growth-to-urbanization Granger causality effect. This finding implies not only that urban centers possess lower propulsive power than conventional wisdom claims, but also that unbalanced social overhead capital development occurs between urban centers and their rural hinterlands, inducing human rural-to-urban migration to cities to secure increased income in order to take advantage of available desired urban facilities. This scenario has profound implications for establishing and safeguarding sustainable cities.

In his historic urban hierarchy contributions, Christaller tacitly ties national economic growth to three specific structuration principles, including transportation, recognizing that such spatial organization can flourish when parallel forms of it coexist, a dominant Japanese urban hierarchy article (Murakami and Seya) theme. Harboring a perspective reminiscent of Griffith and Li (2021), this study develops a spatial regression method that considers not only geographic, but also network, dependence, but here within a hierarchical transportation network. Insights particularly relevant to sustainability concern the presence of primate cities in urban hierarchies, certainly a continuing problem for the Japanese urban network: excessive population and industry concentration in a single

place, such as the Tokyo metropolitan area (TMA), compromises coveted reformations and maintenance into the future. More specifically, spillover effects enjoyed by the TMA and generated by other MAs are weakening through time.

The South Korean space economy, another encountering primate city dominance, has undergone a dramatic 75-year transformation, one unambiguously impacting upon its urban system, its mesh of cities undergoing an evolution tracking a metamorphosis from agricultural to manufacturing and service industry centric. This article's (Chun and Kim) expressed purpose is to examine accompanying urban network changes. Findings include a Seoul dominating primacy tendency until the 1990's, with this supremacy weakening thereafter. Geographic flow patterns reveal that although many other highly interconnected cities have become large metropolitan areas, their Seoul counterpart experiences a preponderance of these new developments. Unlike Tokyo in Japan, Seoul metropolitan dominance appears to be strengthening over time, replacing a Seoul city dominance decline.

In a geographic landscape urban spatial organization contrast, acknowledging a solitary but nearly-obsolete tool imposed upon Griffith and Li (2021), the US urban hierarchy (Griffith) article completes a radical revision of its late-1970's formulated predecessor. Perhaps its elements' most notable temporal shifts are in its highest levels: for example, Detroit and Pittsburgh are in descent, Atlanta and Dallas are in ascent, Chicago struggles to conserve its status quo, some cities like Albany have disappeared from, and others like San Jose have climbed into, its ranks. One substantial scholarly contribution here is a newly articulated contemporary US urban hierarchy capable of assisting researchers for several decades to come.

Interestingly, this Research Topic content dovetails with other contemporary undertakings, most notably treatments of Africa, Peru, Poland, and Republic of China (PRC) urban hierarchies. Millones (University of Mary Washington) and his colleagues pursue relevant Peruvian urban hierarchy contextualization regarding a spatially explicit government census data (INEI, 2017) based multivariate settlement invention. They name their proposed normative typology an empirical hierarchy model, arguing that it improves upon previous efforts describing Peru's urban system's spatial organization by including variables beyond population size as well as an explicit geographic component. Their construct extends the Peruvian urban hierarchy to not just intermediate, but also smaller, cities (220 in all, constituting 20 tiers), in contradistinction to its preceding four articulations, improving understanding of settlement variability and about inter-urban spatial organization and relationships within Peru's national urban network.

Within the European continent context, and also focusing on the smallest cities in its urban hierarchy (Cudo, 2019), existence of the Polish urban system encompasses many centuries, furnishing valuable insights into sustainability and urban hierarchies (e.g., Jażdżewska, 2020), including the reverse urban-to-rural migration phenomenon. It shows ranking risings and fallings for many urban places, with city births, deaths, and a few rebirths over time.

It exemplifies the polycentric conurbation composition emerging elsewhere in the world, a tendency potentially characterizing the sustainability future of urbanization (Bartosiewicz and Marcinczak, 2022). Such sizeable urban network space-time series help illuminate city sustainability features.

Acknowledging the frequently neglected African continent promotes awareness about its extensive geographic cluster of communities (see Yatta, 2018; Henderson et al., 2022). Its past colonization legacy implanting numerous latent path dependencies, and assemblage of disparate nations comprising a mixture of developing countries and emerging economies generated its present-day complex territorial trends. One outcome is differentiated social, economic, and political systems overlying heterogeneous settlements. Highlighting modern technology, satellite data enables 1970's+ built area evolution tracing across Sub-Saharan Africa, circumventing data scarcities and ground truthing limitations affiliated with this far more arduous geographic landscape.

Meanwhile, Li pursues an improved mainland PRC urban system configuration, refining his collaborative work appearing in Griffith and Li (2021) while retaining its Moran eigenvector spatial filtering nature. It uses prefecture-level per capital gross regional product measures, reminiscent of the preceding India case.

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