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Suburbia in evolution: Exploring polycentricity and suburban typologies in the Seoul metropolitan area, South Korea

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ABSTRACT

The transformation of the Seoul Metropolitan Area (SMA), South Korea, is relatively unknown despite the rapid suburbanization that has occurred since the late twentieth century. This study examines the area and its evolution between 1985 and 2015. It finds increasing levels of polycentricity in the SMA measured with five indices. With a refined set of metrics, it identifies nine Edge Cities and eight Boomburbs in the SMA that operate as new suburban centers of growth in the area, as well as several types within them. The evolution of the SMA is largely due to the active role of the state in implementing regional planning, as well as the autonomous actions of private companies and citizens. These result in a unique suburban landscape that differs from those of Europe and the US. This study suggests the need for further research on the SMA in search of new models and concepts that theorize new transformations that metropolitan areas experience.

1. Introduction

Metropolitan areas in Asia are generally recognized as highly populous and dense parts of the world that undergo rapid growth and expansion. Demographia (2017) places eight of them among the top ten most populous ones in the world and nine among the top ten densest. A Brookings essay by Trujillo and Parilla (2015) identifies six from Asia among the world's ten fastest-growing metropolitan areas. However, not much is known about these Asian metropolitan areas, other than their outside appearances that are illustrated by indicators and arguments on social and environmental challenges they may experience (Douglass, 2000; McGee and Robinson, 2000; Singh, 2015; Sorensen and Okata, 2011).

Urban scholars may be more familiar with the decades of debates on metropolitan structures and suburbs that are mainly based on the European and American experiences (Fishman, 1987; Hayden, 2004). European and American cities have gone through suburbanization since around a century ago, and there are a series of concepts and ideas that have fructified, which can be largely grouped into two approaches.

One is polycentricity, which is defined as the existence of multiple centers, as opposed to a monocentric urban area that has a sharp divide between city and suburban hinterland (Kloosterman and Musterd, 2001). In recent decades, Hall's (1984) description of Randstad as a polycentric metropolitan area sparked further studies on polycentricity and its diverse aspects in many European urban regions (Davoudi, 2003; Hall and Pain, 2006). They include the usefulness of polycentricity as a planning concept (Bailey and Turok, 2001; Houtum et al., 2001), building regional capacity (Meijers and Romein, 2003), synergy and networks (Burger et al., 2014; Kloosterman and Lambregts, 2001; Meijers, 2005), increasing commuting distances (Aguilera, 2005), inter-city relations in industry (Hanssens et al., 2014; Taylor et al., 2009), and measurement issues (Meijers, 2008; Veneri and Burgalassi, 2012).

A second approach comes from the American suburbanization experience which has established new typologies for suburbs or metropolitan areas (Duany et al., 2000; Hayden, 2004; Jackson, 1985). Some of the recent examples include Edgeless City (Lang, 2003), Metroburbia (Knox, 2008), the New Metropolitan Reality (Hanlon et al., 2010), and Megapolitan Areas (Nelson and Lang, 2011). Two typologies that enjoy substantial popularity may be Edge City by Garreau (1991), which paid attention to concentrations of office and retail, but less so to residential areas, outside traditional urban centers, and Boomburb suggested by Lang and LeFurgy (2007) as a sizable suburban city, but not the core city of the region, that has shown rapid growth.

The two approaches are not at all exclusive to their birthplaces and have been exchanged. The polycentricity concept is applied in studying American metropolitan areas (Cervero and Wu, 1997; Giuliano and Small, 1991; Gordon and Richardson, 1997, 1996; Hajrasouliha and

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Hamidi, 2016; Meijers and Burger, 2010; Redfearn, 2007; Yang et al., 2012), and the American typologies are adopted in Europe (Anacker, 2008; Bontje and Burdack, 2005; Phelps, 1998; Phelps et al., 2002, 2006, 2010; Phelps and Parsons, 2003).

The question may be whether these approaches can be exported to different contexts like East Asia. Some studies take a specific interest in Chinese metropolitan areas (Wu and Phelps, 2011), possibly because China is the world's most populous country and rapidly growing economy, by investigating the changing levels of polycentricity (Huang et al., 2015; Lin et al., 2015; Liu and Wang, 2016; Qin and Han, 2013; Schneider et al., 2015; Yue et al., 2010). However, there is more to be revealed about these metropolitan areas.

An initial observation was the existence of a strong developmental state in the late-developing transient countries of East Asia that guides overall economic development (Johnson, 1982, 1995; Laquian, 2005; Oi, 1995; Woo-Cumings, 1999). Development on the edges of major Asian metropolitan areas took place largely under the centralized governance system through national-level planning and public funding in the form of large-scale new towns (Amsden, 1992; Bae and Sellers, 2007; Hill and Kim, 2000; Zheng et al., 2015). This contrasts with many European countries that also establish statist systems of national and local governments but with less intervention (Alterman, 2001, 1997; Harding, 1994) and more clearly with the US where the public sector's role has been rather indirect (Bruegmann, 2005; Hayden, 2004; Southworth and Parthasarathy, 1996).

More recent studies perceive transitions in East Asian metropolitan areas. Some pay attention to marketization and globalization of urban development promoted by the deregulated political economy that may replace state-driven planning and operate as an urban growth engine (Kim and Kim, 2016; Lee and Shin, 2011; Zhu, 2004). Others look at new urban regimes that build upon collaboration and at the same time competition between the democratized entrepreneurial local governments, the empowered private sector, and the participatory voluntary sector, and that are found to resemble or differ from the European and American practices (Bae and Sellers, 2007; Lee and Shin, 2012; Shin et al., 2015). Despite great significance being found in these studies, their findings tend to be confined to decision-making processes and key agents of specific suburban development cases. There is a clear lack of knowledge of what the bigger picture of the resulting suburban landscapes is like and how they differ from those in Europe and the US. We do not know in which direction they are transforming. We do not have much information about the structure that supports the metropolitan areas and what goes on in their suburban parts. We are also ignorant of what kinds of suburban typologies exist out there.

This paper looks into the Seoul Metropolitan Area (SMA), South Korea, a less well-known region that has been experiencing rapid transformation and suburbanization in the past decades (Kim and Kim, 2016). More specifically, we adopt the polycentricity concept from the European approach and Edge City and Boomburb from the American approach in investigating the evolution of the SMA. We look at a 30-year period from 1985 to 2015 and use data from South Korea's quinquennial Population and Housing Census and Economic Census. Findings of this study may benefit urban and regional planning practice in metropolitan areas that currently expect to undergo substantial changes in their internal and external structures. They may also present a new source of insight and set forth challengeable questions to be shared internationally for further research.

2. Case context: Seoul metropolitan area

The SMA has long been the center of South Korea's politics, economy, and culture. As shown in Fig. 1, it is located in northwestern South Korea, bordering North Korea to its north. Accommodating 25.6 million residents on 11,704 square kilometers of land, it is world's fifth largest metropolitan area by population after the Tokyo, Jakarta, Delhi, and Manila metropolitan areas (Demographia, 2017). At the provincial

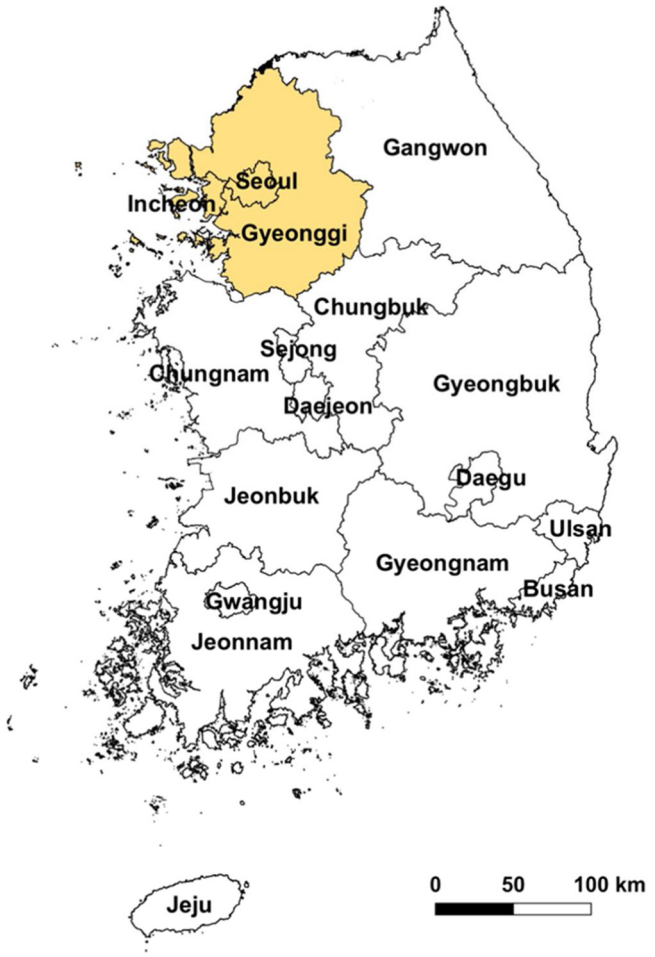

Fig. 1. Provincial-level administrative divisions of South Korea and location of the SMA (colored in orange). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article).

level, the SMA is composed of Seoul Special City, the country's capital with a stable population of 10 million; Incheon Metropolitan City, a port city that sits on the west coast; and Gyeonggi Province, which is subdivided into 31 municipalities: 28 cities and 3 counties. We note that a city and a county are independent subdivisions of a province under the South Korean administrative system, where a city is more urban than the other. We use the term "municipality" henceforth in this study to embrace the two.

A few researchers recognize the SMA as simultaneously centered on Seoul and Incheon and use the term Seoul-Incheon Metropolitan Area (Hyun et al., 2009; Lee, 2014) since Incheon's population nears three million. However, a more universal understanding is that Seoul is the sole central city of the SMA for several reasons. One is the exceptional size of its population, more than three times that of Incheon, the second largest city of the SMA. Another is that Seoul has served as the center of the region for hundreds of years, and this notion is deeply embedded in the minds of locals. In this sense, all municipalities other than Seoul and including Incheon are henceforth referred to in this study as the suburbs of the SMA.

Trends in population and employment of the SMA from 1985 and 2015 present interesting observations. As Fig. 2 shows, the total population of the SMA steadily increased from just over 15 million to 25 million in the 30-year period. In this process, the growth was significantly led by the suburbs while Seoul's population remained relatively constant between 9.6 and 10.6 million. In 1985, much less than half of the SMA's population was found in the suburbs, but by 2015, the share well exceeds half. Likewise, as Fig. 3 suggests, the total