

## **The Korean model of urban development: an exploratory approach**

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As developing countries have undergone rapid urbanization in Asia, Africa, and Latin America, more than half of the world's population live in urban area today. However, onethird of the global urban population resides in slums and squatter-type settlements. As such, many developing countries suffer from a shortage of urban housing and infrastructure and the ensuing poor residential environment; Access to safe drinking water and adequate sanitation is limited while mass transit is rarely available in most cities. Korea also faced the same problem of housing and infrastructure shortage as it experienced an unprecedented rural-to-urban migration. However, it has largely overcome the problem: Today, the housing stock exceeds the number of households. Almost all population is served by water supply and sewerage systems. Mass transit, such as subway and bus, absorbs a large portion of traffic every day.

From an international comparative point of view, this paper explores unique characteristics of Korean urban development which have successfully contributed to coping with rapid urbanization over the last half century. The Korean way of urban development, or 'Korean model', is different from the Western model, of which many developing countries follow the example. Notably, in its physical form and appearance, Korean cities are characterized by high density and high-rise multi-family housing development as they are often cynically called 'republic of apartment (multi-family housing of more than five stories)'.

The paper first theorizes why high-density housing development has become a dominant form of urban development in Korea by extending the theory of 'developmental state' in terms of institutional framework. Developmental state, which is characterized by strong government initiatives combined with mobilization of large

corporations, public and private, is the concept originally designed to give an explanation of economic development in East Asian countries including Japan, Korea, and Taiwan. The paper applies the concept to the case of urban development in Korea, ranging from urban land development and housing supply to infrastructure provision including water supply, sewerage, and transportation.

As the most representative and visible case, it specifically illustrates how developmental state has worked for the mass production of housing. The government has not only set a target amount of housing construction through a series of national housing supply plans, but has also achieved it largely by taking advantage of private capital. In particular, the government's direct involvement in urban land development as well as its regulations on housing market through price control has functioned as the carrot and stick for conglomerate construction companies equipped with financial and technical capacities to take the leading role in housing development with large land area and high floor area ratio (FAR).

Empirical evidences are also provided to back up the theoretical reasoning. It is shown that traditional small-scale home builders have little market share in Korean housing construction industry. Furthermore, international comparison among selected developing and Western countries reveals that the average density of housing estate is higher in Korea than in developing and Western countries, while developing countries are characterized by smallscale and low-density housing developments.

Obviously, Korea's massive housing supply in the form of high-density multi-family housing has greatly contributed not only to overcoming the housing shortage in quantitative terms, but also to squatter and slum clearance as well as upgrading of housing conditions in qualitative terms. Going forward, this paper focuses more on its impact on infrastructure provision, posing that high-density housing development has also contributed to solving the problem of water supply and sewerage as well as providing mass transportation such as subway.

Historical data first confirm that, despite rapid urbanization, the percentage of population connected to water supply and sewerage systems has dramatically increased in Korea. Then, it is theoretically demonstrated that housing density matters in determining costs and benefits of providing 'line infrastructure' such as water supply

and sewerage: High-density multifamily housing is more efficient and cost effective than low-density single-family detached housing because the former necessitates a shorter length of pipeline per household than the latter.

Ultimately, the argument is empirically tested. Since it is difficult to collect statistics on water supply and sewerage which are consistent across different countries, empirical analyses are based on cross-sectional data across different cities in Korea. Separate regression models are developed with two dependent variables, the level of water supply and sewerage, calculated as the percentage of population in each city served by water supply and sewage treatment systems, respectively. The proportion of high-density multi-family housing (apartment) in housing stock is the key explanatory variable, while other urban, economic, and environmental characteristics are included as control variables. The multiple regression results reveal that the proportion of apartment has statistically significant and the greatest effect on the level of both water supply and sewerage, *ceteris paribus*.

A similar argument is further applied to the case of mass transportation. Theoretically, it is inferred that mass transit, characterized by fixed routes, requires a concentration of residents through high-density housing development around the stations along the route in order to secure enough number of passengers to guarantee economic feasibility. Otherwise, automobiles would be more feasible especially in a dispersed and sprawled development pattern. Empirical analyses focus on Seoul, which is famous for its extensive network of mass transit including subway. The multiple regression results demonstrate that the proportion of apartment has statistically significant effect on subway ridership in each station area, *ceteris paribus*.

Finally, based on theoretical and empirical findings regarding the causes and impacts of highdensity housing development in Korea, it is suggested that Korean model of urban development serve as an alternative to Western model, diversifying the menu that developing countries can choose in coping with the shortage of urban housing and infrastructure. In particular, Korean model urges that developing countries pursue more compact development in order to solve both housing and infrastructure problems at the same time.