

Flexible Zoning and Mixed Use in Seoul, Korea

Planning Implications of Seoul's Zoning Model

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Abstract Zoning has long been criticized for its negative effects and has been taken for granted that zoning works as a hurdle to urban diversity. Responses in the US have emphasized more fine-grained zoning approaches that plan mixed use. This paper introduces and evaluates Seoul's zoning system as a possible alternative. While US zoning regulations have relied on distinguishing ever larger numbers of land use zoning categories, Seoul has opted to integrate new land uses into existing classifications, allowing for greater flexibility of use in each zone. Using municipal building records to evaluate land use in three mid-density residential districts, this paper demonstrates that Seoul's flexible zoning is capable of producing diverse mixed use neighborhoods. It then highlights the potential downside of this approach, showing that flexibility allows for the commercialization and sectoral gentrification of residential districts. It concludes by suggesting that a combination of flexible zones and more fine-grained plans would capture the advantages of both US and Korean planning.

Keywords: zoning, land use, mixed use, diversity, gentrification

1. INTRODUCTION

Zoning has served as one of the most fundamental systems for urban management since the early 1900s and has been a locus of significant attention in planning scholarship and education. The fact that traditional Euclidean zoning is based on the separation of residential and non-residential uses has long been criticized for its negative effects, leading to widespread allegations that zoning frequently works as a hurdle to urban diversity (Talen, 2012). Instead of promoting diverse urban environments, zoning has been blamed for separating uses, building forms,

and people. In response, more recent theories and schemes for managing land use, such as form-based codes, modular zoning, and smart codes, have striven to overcome zoning's shortcomings by focusing on how to make urban space more diverse (Talen, pp.331). These approaches have elevated mixed use to the pantheon of planning principles (Hirt, 2016; Grant, 2002).

The American emphasis on strict separation of use, however, does not apply in Seoul. The city's zoning regulations have not separated non-residential uses from residential districts since they were adopted in 1934 and, indeed, have expanded permissible commercial and business uses in the districts. As a result, the flexibility of Seoul's zoning categories can potentially foster greater diversity of land use, particularly compared to US zoning. Such an approach reflects one of Korea's most popular dishes, bi-bim bap, in which a wide range of ingredients are mixed together in a single bowl. This paper explores this potential of "bi-bim zoning" for generating diverse, mixed use urban space. Additionally, the paper asks that even if it is true that Seoul's flexible zoning can stimulate diversity by allowing mixed use, is there a possibility that one use may overtake another, leading to imbalanced outcomes? Of particular concern is whether such zoning accelerates the commercialization of residential zoning districts, leading to sectoral gentrification (Lim et al. 2013).

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Although many studies have examined zoning's failures and offered schemes for improvement, most have focused on US and European cities. Little is known about zoning in Asian cities, including Seoul, which have different urban contexts from Western cities. Korea, especially, has developed a unique pattern of zoning and physical outcomes that contrast with the US zoning. This paper therefore contributes insight into zoning options hitherto overlooked in the West. This paper further seeks to contribute to the literature on zoning by questioning the validity of two generally accepted arguments: 1) zoning's role is to separate and distinguish urban spaces and uses; and 2) stimulating mixed use in residential districts is a right answer for diversity. Additionally, it adds new empirical results to the body of knowledge on zoning systems by examining actual land use patterns in residential zoning districts generated by Seoul's flexible zoning produces and their implications for planning.

The next section briefly sketches the literature relevant to this paper. The following section introduces Seoul's zoning system. The paper then analyzes actual land use patterns of the residential zoning districts in Seoul and examines three cases in detail. Finally, it discusses the findings in light of the literature review and offers planning implications.

2. LITERATURE REVIEW

At its core, zoning is about dividing a city into districts that predetermine the use or bulk of buildings. Early zoning can be found even in ancient Greece. In 5 BC Hippodamus planned Miletus based on a grid system by dividing the city into a commercial area, civil area, and religious area (Benevolo, 1967). As is well known, however, the modern form of zoning appeared after the Industrial Revolution. According to Talen, the modern theory of zoning was present in an 1810 decree by Napoleon I (Talen, 2016, p 28; Reynard, 2002), and German cities had already adopted use and bulk regulations in the 1880s (Talen, 2016, p 28; Hirt, 2016, p.135). Building on the German zoning system, New York City enacted the first US zoning law in 1916 to govern land use and bulk. This quickly became the basic model for zoning throughout the United States (NYC, pp.1).

Since this introduction of a system for separating land uses, zoning has been accused of posing a major obstacle to realizing urban diversity. Superficially, zoning's initial primary purpose was to alleviate the negative effects of the industrial city and maintain residential property values by separating industrial and commercial uses from residential uses (Talen, 2012; Talen et al, 28). The impact, however, was to segregate not just uses but also people. Dividing people has been criticized for leading to disastrous effects, especially racial segregation in US (Pendall, 2000; Fischler, 1998; Silver, 1991; Jackson, 1985). Hall (2002) has reinforced this view by pointing out that the roots of US zoning can be traced back to control Chinese laundries in California in the 1880s and that even New York City's adoption of the German model was intended to protect the real estate value of powerful commercial interests by discriminating against certain groups of people, including immigrant garment workers and Jews (Hall, pp. 60). Such studies suggest that US zoning's roots lie in separating certain groups of people or uses.

However, other studies have argued that the original concept

of US zoning (as well as German zoning) did not pursue strict separation of uses (Talen 2012; Hirt 2016). In European cities, for example, commercial or business uses on the lower stories traditionally were mixed with residential uses above (Williams, 1914: 5. recited from Hirt: 137). German zoning reflected this European traditional urban context in that it neither prohibited all industry nor excluded commercial activities in residential areas (Hirt, 2016, p. 137). Though New York City's 1916 zoning pursued stricter land use separation than the German model (Hirt, 2016, p.137), Talen (2012) argued that it allowed land use diversity through more fine-grained planning by interspersing commercial and business uses in small zones amidst residential zoning districts: "zones were small and spatially arranged to allow local businesses to be adjacent to residential ones". She deplored the fact that although zoning originally pursued diversity rather than separation, it lost its ability to do so as "zoning became more chaotic, more spatially detached, and more complicated" (Talen 2012:343). Hirt (2016) also provides a similar argument in her examination of zoning's original rationales. She suggests that though it was true that the early experts in the US pursued the separation of uses, they did not intend to eliminate the possibility of mixed use (Hirt, 2016). She concluded that the eradication of mixed use from cities through zoning was partially based on a misunderstanding of the original proposals (Hirt, 2016).

Since Jane Jacobs (1961: 290) railed against zoning turning "city rebuilding into the sterile, regimented, empty thing it is" and argued that the "intricate minglings of different uses in cities are not a form of chaos. On the contrary, they represent a complex and highly developed form of order", increasing diversity by mixing people, uses, and activities has become a core value of the planning profession (Fainstein, 2010). More recent theories and schemes, such as New Urbanism, have emphasized the importance of mixed use, and alternative urban management tools such as form-based codes and smart codes are being experimented with to overcome zoning's inability to deal with land use mix and diversity (Talen, 331). Seoul's zoning scheme introduces another strategy that could be incorporated in the mixed use zoning toolkit.

3. SEOUL'S ZONING SYSTEM

After New York City implemented the first US zoning regulations in 1916, Japan adopted zoning in 1919 and subsequently imposed the system on the Korean peninsula through the Chosun Urban District Planning Decree of 1934. Under the decree, Seoul began implementing a zoning system with three categories of zoning district: Residential, Commercial, and Manufacturing. The number of districts have expanded into a mere sixteen (Table 1), which should be compared with well over a one hundred in pre-form-based code Denver and New York City. Residential districts are divided into three different categories: Residential Only, General Residential, and Semi-Residential. General Residential Districts (GRD) are further divided into three districts of different density. GRD1 refers to low density residential areas, GRD2 to middle density, and GRD3 to high density. GRD3 mostly consists of apartment housing complexes.

Table 1. Zoning classifications in Seoul

Green	Residential	Manufacturing	Commercial
Natural Green Preservation Green Agricultural Green	Residential Only 1 Residential Only 2 General Residential 1 General Residential 2 General Residential 3 Semi-Residential	Semi-Manufacturing General Manufacturing Manufacturing Exclusive	Neighborhood Commercial Distribution Commercial General Commercial Central Commercial

The National Land Planning and Utilization Act (NLPUA), the primary land use and planning law in Korea, regulates the national zoning system, and local governments are strictly bound by the act. For example, local governments can neither create new zoning districts nor alleviate density regulations specified in the act. The zoning mechanism is similar to that of New York City and other cities that operate land use zoning systems in combining use and bulk regulations. Each zoning classification lists allowed and prohibited uses. Additional regulations set out maximum density regulations, which mainly consist of floor area ratio (FAR) and building coverage ratio (BCR). Green districts have the lowest permitted density, whereas commercial districts have the highest. Most importantly, the zoning classifications reflect the density regulations. As zoning classifications proceed from green to residential, manufacturing, and commercial, density regulations increase. Thus, the highest density can be achieved in Central Commercial Districts.

Under the law, the purpose of Residential Only Districts is to protect residential areas, while that of General Residential Districts is to create convenient residential areas by allowing a greater variety of commercial and business uses. This is a clear difference from US zoning, which strictly limits any commercial or business uses in residential zoning districts. To manage commercial uses in residential districts, Korean law has adopted the concept of Neighborhood Commercial Uses (NCU).

The Building Act categorizes building's uses into 29 categories, including residential, culture/theater, large retail, and religious.

Neighborhood Commercial Uses 1 (NCU 1) includes small retail, cafés, beauty salons, and laundries, which would be welcomed by most people when located in a residential area. Compared to NCU 1, NCU 2 further incorporates somewhat harder uses, such as restaurants selling liquor, small offices, karaoke, small religious uses, and even small, non-polluting manufacturing. NLPUA dictates that the relevant municipalities allow most NCU 2 uses in general residential districts.

As size increases, most neighborhood commercial uses are transformed into other categories, such as commercial, business, culture, religious, and educational institutes. For example, a retail shop that is over 1,000 square meter is categorized to Large Retail, which are usually allowed only in commercial districts. This means that most kinds of commercial uses can be classified as an NCU as long as they do not exceed a size prescribed under the law. Among commercial related uses, only two uses are strictly prohibited in residential districts: retail accommodation (hotels and motels) and adult entertainment, such as adult bars and clubs. In addition, even small, non-polluting manufacturing, such as garment manufacturing or printing, are permitted in general residential districts. Figure 1 summarizes Seoul's zoning concept.

In sum, General Residential Districts in Seoul allow most neighborhood commercial uses, including commercial and manufacturing uses. This flexibility has generated significantly different physical outcomes in Seoul as compared to US and European cities.

Table 2. Allowed uses in GRD 2

District	Neighborhood Commercial 1	Neighborhood Commercial 2	Other commercial related uses	Industrial related uses	ETC
GRD 2	Retail(smaller than 1,000sq.m.) Café(smaller than 300sq.m.) Barber shop Beauty parlor Laundry Clinic Indoor sports(smaller than 500sq.m.) Public offices(Police, Fire station, etc.) Library Small offices (smaller than 30sq.m.)	Auditorium(smaller than 500sq.m.) Religion(smaller than 500sq.m.) Book store Photos PC room(smaller than 500sq.m.) Café (larger than 300sq.m.) Restaurant Veterinary clinic Education Fitness, Billiard, Tennis, Driving range(smaller than 500sq.m.) Small offices (30~500sq.m.) Car sales(smaller than 1,000sq.m.) Massage Karaoke Manufacturing(smaller than 500sq.m.)	Retail market (smaller than 2,000sq.m.) Office (300~3,000sq.m.)	Car wash Parking Gas station Warehouse (smaller than 1,000sq.m.) Renewable power plant	Theater Auditorium Exhibition Medical Educational Sports(smaller than 2,000sq.m.)

4. SCOPE AND METHODOLOGY

This study explores how Seoul's zoning system has created such distinct physical outcomes and characteristics through a detailed examination of the diversity of uses in its residential zoning districts. To do so, it has selected three study areas and examines the actual land use patterns in these districts by collecting the public building records that the Seoul Metropolitan Government (SMG) requires of all property owners, which identify each buildings' characteristics, including uses. Additionally, the authors use relevant statistical data produced by the SMG and GIS data generated by the Statistical Geographic Information Service.

(1) Scope: Study Areas

In 2016, 53.8 percent of Seoul was zoned residential, 38.7 percent was zoned green, 4.2 percent commercial, and 3.3 percent manufacturing (SMG, 2014). Because commercial zoning districts naturally allow the most diverse uses while manufacturing and green districts are designated for specific purposes, this study focuses on residential districts to measure the resulting diversity of uses. The typical physical character of all residential districts in Seoul can be seen in Figure 1. Residential Only Districts are comprised mostly of single-detached houses, but represent less than 1 percent of Seoul's area. General Residential Zoning Districts are usually for multi-family housing. GRD2 superblocs account for 126 of the 395 residential superblocs in Seoul. The ratio of non-residential uses in GRD2 superblocs ranges from a minimum of 23.29% to a maximum of 98.31% (Table. 3). For a more fine-grained examination of the land use patterns and diversity of land use relative to commercialization, three superblocs were singled out as study areas: 1) a typical GRD 2 superbloc (Songpa-dong / #46), 2) a superbloc being commercialized (Munjeong -dong / #87), and 3) a highly commercialized superbloc (Seogyo-dong / #123).



Figure 1. Typical examples of residential zoning districts

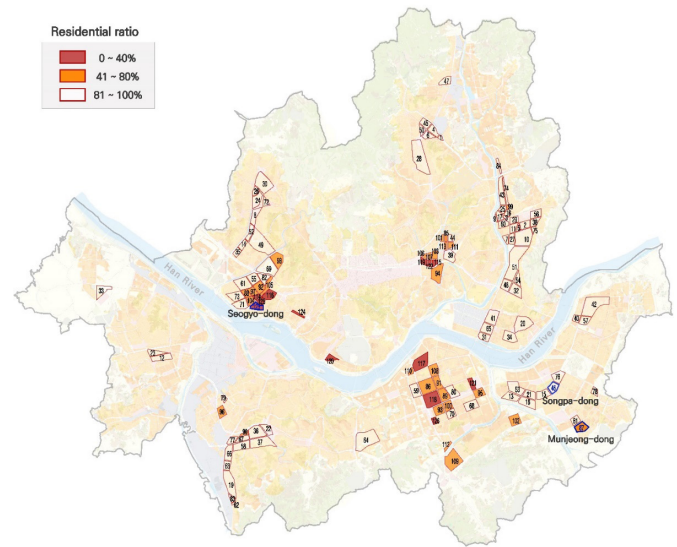


Figure 2. Superblocks that contain GRD2 and study areas (in blue)

(2) Methodology: measuring the diversity of land uses

Though the term “diversity” is a broad one with many facets, such as land use, physical, economic, racial, demographic, or family structure diversity. This study focuses on land use because land use is considered to be the core element for diversity and urban vitality, as Jane Jacob pointed out (Steil & Delago 2018:2), and because of the paper's concern with enriching the international zoning toolkit.

To determine the level of diverse land uses, all current land uses in the SMG's public records on buildings information for all GRD 2 superblocs were catalogued. The land uses identified were mapped using GIS data from the Statistical Geographic Information Service after recoding them into seven categories : 1) pure residential use, 2) commercial only use, 3) office only use, 4) residential and commercial uses, 5) residential and office uses, 6) commercial and office uses, and 7) residential with commercial and office uses. Additionally, commercial uses were broken down into more specific uses to identify how commercial uses differ with respect to the level of commercialization.

5. LAND USE PATTERNS IN GRD 2 AND THE STUDY AREAS

The average proportion of non-residential uses in the 126 GRD 2 superblocs is 22 percent. This average proportion is in line with the amount of non-residential uses in all residential districts in Seoul, which bolsters the case for focusing on GRD 2 superblocs as representative. According to the 2030 Seoul Plan, all of the city's residential districts demonstrate mixed use outcomes, and 28.9 percent of land use has been occupied by non-residential uses, including neighborhood commercial, education, or office uses (2030 Seoul Plan, 24-32).

The three study areas offer more detail on the degree of mixed use in GRD 2 superblocs. Songpa-dong (Figure 3) represents a typical GRD 2 superbloc in Seoul. While 71.6 percent of all

Table 3. Characteristics of GRD 2 superblocks in Seoul

Block no.	Total area	GRD2 area	ratio	total	Residential	ratio	Block no.	Total area	GRD2 area	ratio	total	Residential	ratio
1	48,711	11,495	23.6%	59	58	98.31%	64	1,037,290	718,566	69.3%	1980	1691	85.40%
2	259,303	159,202	61.4%	713	684	95.93%	65	347,646	237,604	68.3%	1547	1311	84.74%
3	16,386	16,386	100.0%	92	87	94.57%	66	345,720	241,644	69.9%	761	644	84.63%
4	292,970	178,834	61.0%	644	608	94.41%	67	222,150	167,201	75.3%	522	440	84.29%
5	66,040	22,963	34.8%	125	117	93.60%	68	343,436	196,535	57.2%	475	400	84.21%
6	215,678	49,506	23.0%	262	245	93.51%	69	703,090	142,952	20.3%	746	626	83.91%
7	120,514	54,063	44.9%	223	208	93.27%	70	225,337	131,428	58.3%	275	230	83.64%
8	273,537	40,297	14.7%	145	135	93.10%	71	346,633	277,491	80.1%	830	694	83.61%
9	32,809	32,809	100.0%	186	172	92.47%	72	115,764	35,007	30.2%	108	90	83.33%
10	765,918	554,363	72.4%	2716	2505	92.23%	73	378,394	351,556	92.9%	1374	1142	83.11%
11	211,400	112,681	53.3%	467	429	91.86%	74	177,731	96,207	54.1%	392	325	82.91%
12	422,545	278,033	65.8%	840	769	91.55%	75	59,376	46,928	79.0%	189	156	82.54%
13	364,883	171,716	47.1%	479	438	91.44%	76	331,486	136,441	41.2%	319	263	82.45%
14	169,615	139,591	82.3%	607	555	91.43%	77	219,861	107,368	48.8%	266	219	82.33%
15	310,635	189,482	61.0%	570	521	91.40%	78	123,867	72,867	58.8%	184	151	82.07%
16	87,894	65,149	74.1%	337	308	91.39%	79	99,671	76,203	76.5%	259	212	81.85%
17	109,176	107,690	98.6%	590	539	91.36%	80	345,924	116,833	33.8%	262	214	81.68%
18	409,987	343,899	83.9%	941	859	91.29%	81	202,289	144,831	71.6%	182	148	81.32%
19	671,616	590,669	87.9%	2385	2175	91.19%	82	270,587	233,743	86.4%	617	500	81.04%
20	645,644	439,453	68.1%	2578	2351	91.19%	83	166,949	116,060	69.5%	274	222	81.02%
21	285,384	202,545	71.0%	631	575	91.13%	84	180,967	68,860	38.1%	126	102	80.95%
22	275,882	96,805	35.1%	381	347	91.08%	85	52,913	36,152	68.3%	140	112	80.00%
23	261,410	188,177	72.0%	537	489	91.06%	86	640,521	367,341	57.4%	970	760	78.35%
24	343,347	181,340	52.8%	590	537	91.02%	87	294,104	229,331	78.0%	508	396	77.95%
25	145,533	144,379	99.2%	674	613	90.95%	88	146,181	127,539	87.2%	448	349	77.90%
26	152,755	77,092	50.5%	286	260	90.91%	89	353,715	111,095	31.4%	215	165	76.74%
27	196,787	75,493	38.4%	338	307	90.83%	90	75,312	38,763	51.5%	101	77	76.24%
28	1,089,333	740,607	68.0%	3434	3116	90.74%	91	253,337	100,721	39.8%	248	189	76.21%
29	187,939	96,991	51.6%	463	420	90.71%	92	175,381	155,917	88.9%	673	503	74.74%
30	748,253	524,713	70.1%	1860	1687	90.70%	93	294,347	102,578	34.8%	242	180	74.38%
31	254,150	145,465	57.2%	1328	1203	90.59%	94	490,398	307,260	62.7%	1506	1117	74.17%
32	378,929	323,047	85.3%	1984	1793	90.37%	95	232,172	89,730	38.6%	100	74	74.00%
33	372,206	80,570	21.6%	256	231	90.23%	96	237,601	142,639	60.0%	380	276	72.63%
34	388,426	300,099	77.3%	2065	1862	90.17%	97	123,609	103,863	84.0%	441	318	72.11%
35	156,252	130,118	83.3%	477	430	90.15%	98	428,865	152,979	35.7%	394	282	71.57%
36	535,120	431,032	80.5%	1625	1463	90.03%	99	26,751	8,333	31.2%	42	30	71.43%
37	572,783	213,892	37.3%	954	855	89.62%	100	258,587	75,864	29.3%	154	109	70.78%
38	213,734	150,533	70.4%	491	440	89.61%	101	59,224	41,890	70.7%	180	119	66.11%
39	346,276	153,230	44.3%	336	301	89.58%	102	324,327	189,076	58.3%	294	194	65.99%
40	149,320	110,459	74.0%	326	292	89.57%	103	129,425	109,271	84.4%	385	253	65.71%
41	465,120	230,227	49.5%	1759	1573	89.43%	104	173,998	108,091	62.1%	316	205	64.87%
42	1,064,027	790,901	74.3%	2510	2244	89.40%	105	193,843	114,260	58.9%	523	324	61.95%
43	391,829	364,869	93.1%	1435	1281	89.27%	106	62,568	27,168	43.4%	90	54	60.00%
44	102,769	59,192	57.6%	386	344	89.12%	107	70,240	57,331	81.6%	157	94	59.87%
45	293,399	193,229	65.9%	695	615	88.49%	108	308,161	79,970	26.0%	160	95	59.38%
46	251,473	183,544	73.0%	538	474	88.10%	109	750,738	615,360	82.0%	1394	817	58.61%
47	240,044	180,435	75.2%	686	604	88.05%	110	75,993	33,713	44.4%	91	52	57.14%
48	301,187	264,850	87.9%	1659	1459	87.94%	111	129,086	29,286	22.7%	140	77	55.00%
49	1,030,544	765,334	74.3%	2751	2419	87.93%	112	92,659	54,179	58.5%	162	86	53.09%
50	146,023	25,755	17.6%	140	123	87.86%	113	80,516	45,578	56.6%	205	106	51.71%
51	1,227,796	1,006,016	81.9%	5546	4828	87.05%	114	70,858	23,976	33.8%	70	35	50.00%
52	207,662	127,663	61.5%	494	429	86.84%	115	117,107	27,826	23.8%	106	52	49.06%
53	481,700	277,279	57.6%	837	725	86.62%	116	311,268	223,398	71.8%	680	318	46.76%
54	199,155	199,155	100.0%	1031	892	86.52%	117	572,118	430,720	75.3%	949	424	44.68%
55	303,265	270,109	89.1%	846	731	86.41%	118	614,424	109,053	17.7%	259	108	41.70%
56	266,582	134,916	50.6%	557	481	86.36%	119	120,227	33,092	27.5%	35	14	40.00%
57	250,889	136,012	54.2%	576	497	86.28%	120	185,742	72,579	39.1%	121	47	38.84%
58	389,048	256,456	65.9%	726	625	86.09%	121	156,736	43,740	27.9%	118	43	36.44%
59	359,202	229,394	63.9%	686	590	86.01%	122	73,237	26,693	36.4%	34	10	29.41%
60	217,078	82,678	38.1%	342	294	85.96%	123	245,418	176,174	71.8%	539	156	28.94%
61	469,980	291,939	62.1%	724	622	85.91%	124	128,265	31,609	24.6%	39	10	25.64%
62	34,742	27,685	79.7%	119	102	85.71%	125	137,645	80,856	58.7%	249	58	23.29%
63	177,494	124,380	70.1%	443	379	85.55%	126	113,064	12,818	11.3%	2	0	0.00%

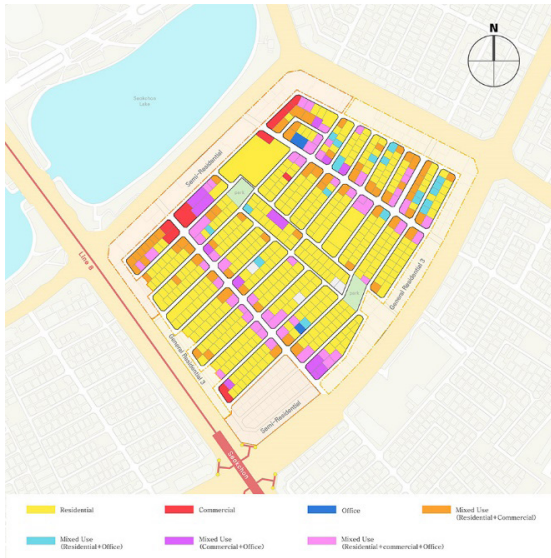


Figure 3. Land use, Songpa-dong

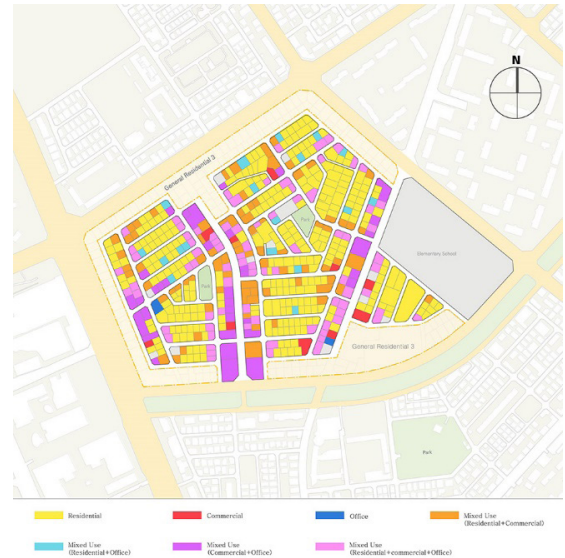


Figure 4. Land use, Munjeong-dong

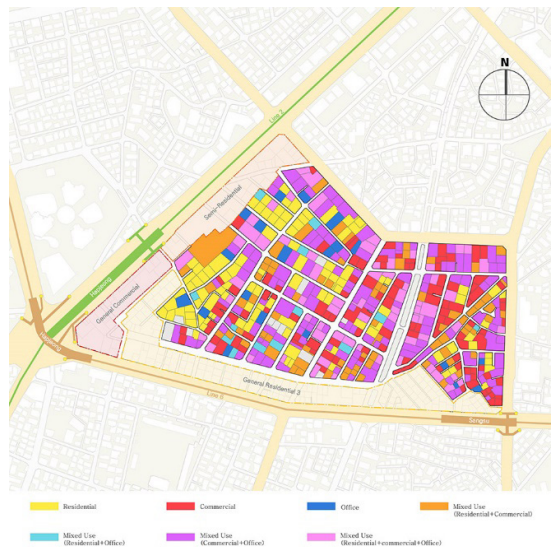


Figure 5. Land use, Seokyo-dong

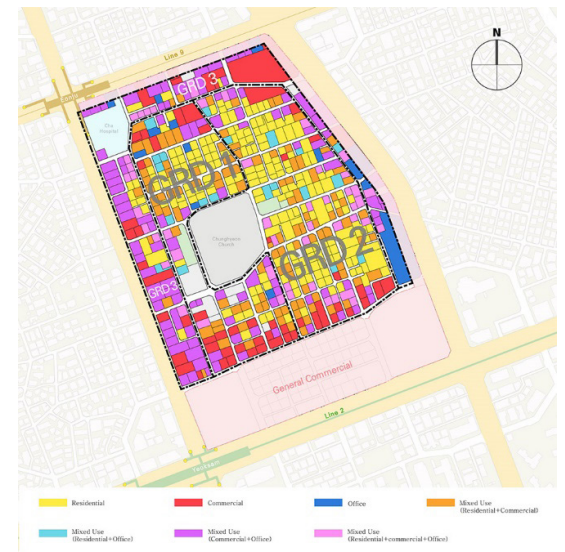


Figure 6. Land use, Yeoksam-dong

buildings are being used for residential purposes, 1.6 percent and 0.4 percent are exclusively for commercial and office uses, respectively. However, 23.9 percent are mixed use buildings, consisting of residential and commercial or office uses. Only 4.1 percent are buildings without any residential use. Most non-residential buildings or mixed use buildings are located along streets, but some can even be spotted inside residential blocks. Munjeong-dong (Figure 4) shows a more commercialized block. 57.1 percent of buildings are being used solely for residential purposes. Buildings without residential uses more than double that of Songpa-dong, reaching 9.2 percent, and mixed-use buildings or commercial buildings have encroached upon most residential blocks. Figure 5 depicts Seogyo-dong, a neighborhood adjacent to Hong-ik University, which was considered one of the most vibrant places in Seoul in 2016. Only 19.2 percent of buildings remained purely for residential

purposes, while more than half of all buildings (50.9 percent) are without any residential use. Though originally a residential area, this neighborhood has rapidly transformed in recent years and has already lost its character as a residential district.

6. DISCUSSION

Most of the literature that blamed zoning for a lack of diversity have pointed out that zoning separates urban space by separating land uses and have deplored the strict requirements that residential zoning districts should be kept exclusively residential (Talen, 343). However, this concern is not applicable in Seoul. Unlike US zoning, in which each use is put in its own bowl, Seoul's zoning mixes multiple uses in a single bowl. The city's zoning system legally allows a variety of commercial and business uses in residential districts and our case study shows

Table 4. Land use study areas

		Residential	Commercial	Office	Residential and Commercial Mixed use	Residential and Office Mixed use	Commercial and Office Mixed use	Residential, Commercial and Office Mixed use	Total
Songpa-dong	N	400	9	2	66	19	12	51	559
	Percent	71.6	1.6	0.4	11.8	3.4	2.1	9.1	100
Munjeong-dong	N	304	10	3	79	19	36	81	532
	Percent	57.1	1.9	0.6	14.9	3.56	6.8	15.2	100
Seokyo-dong	N	100	113	21	73	13	131	69	520
	Percent	19.2	21.7	4.0	14.0	2.5	25.2	13.3	100

that the zoning boosts mixed use in residentially zoned districts. As a result, urban space is not separated; rather, it is a clear example that zoning is not a fundamental problem to hinder urban diversity.

In addition, if diversity means a diversity of uses that create a thriving public street life, as Jane Jacobs (1961) claims, the three cases examined here demonstrate that Seoul’s flexible zoning can create such an environment. The cases here illustrate the extent to which land uses can be successfully mixed in residential districts. The possibilities include not only small retail, beauty parlors, laundries, cafés, and restaurants that meet daily needs but also small offices for work. It is not a coincidence that most hot places of Seoul in recent years have emerged in residential districts rather than commercial districts. Because of the comparatively more affordable rent vis-à-vis commercial districts (****), among other things, residential districts provide an optimal environment for opening small businesses, including cafés and sole proprietor retail stores. As a result, upscale stores, cafés, restaurants, and boutiques cluster easily, drawing even more customers. Consumers are also attracted by these neighborhood’s unique physical characteristics, which are distinct from the monotonous urban fabric of the city’s commercial districts and apartment complexes and create a sense of place (Jacobs 1961).

Despite these advantages, this study of Seoul’s zoning

comes with a caveat. The flexibility of land use makes residential districts vulnerable to commercialization and even gentrification. To defend her claim that one reason commercial uses were strictly controlled in the US was fear that commercial interests would become too dominant, Talen (2012:334) quotes Lawrence Veiller, founder of the National Housing Association, “One store of this kind leads to another, and within a short time the residences are driven out.” Veiller’s premonition has proved relevant in Seoul’s context. While the city’s zoning allows for various land uses within residential districts, it has no regulation in place to cap commercial uses. Once the process of (re) vitalization or regeneration crosses a threshold in a residential district, commercial uses easily dominate the district, thereby driving residents out.

First of all, Seoul’s zoning is unable to guarantee the residential character of residential districts. Housing in Seoul is dominated by apartment housing (Korean Statistical Information Service, 2018), which is typically more expensive and less adaptable to alternative uses, driving small start ups into the mid-density, detached multi-family housing of GRD 2 districts. But it is precisely this affordability that allows these districts to work as providers of cheap, affordable housing for the city’s middle and low income households. At one time Seokyo-dong, which is located near Hong-ik University, functioned as a cheap housing provider for college students, artists, and young people. These

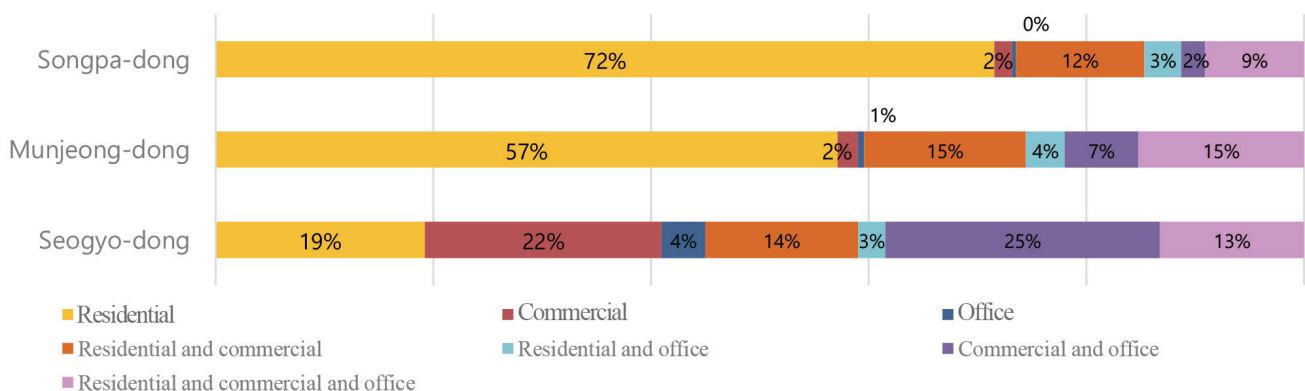


Figure 7. Ratio of Residential in Study Areas

former residents now have to seek more distant alternatives since the neighborhood has lost most of its housing units, as is shown in Figure 7. While Songpa-dong still sustains 71.6 percent of its units for exclusively residential use, which is in line with the average ratio of Seoul's residential districts, Seogyo-dong only maintains 19.2 percent for exclusively residential use.

Second, Seoul's zoning cannot control excessive the commercialization of residential districts, resulting in gentrification, which is defined here following Potter and Labbé (2020:5) as "the displacement of less affluent users by more affluent users that is experienced as socially unjust." As some scholars have argued, gentrification is typically the flip side of urban regeneration (Lim et al., 2013; Slater, 2006). It has also been demonstrated that easy commercialization leads to sectoral gentrification (Lim et al., 2013). Table 4, which breaks down the commercial uses in the study areas and orders them according to affluence, illustrates the correlation between commercialization and affluent users, implying gentrification. In Songpa-dong, a typical GRD 2, most commercial uses consist of neighborhood commerce for daily needs, such as laundries, supermarkets and grocery stores, hardware stores, and beauty salons. However, as residential uses are displaced by commercial uses in Munjeong-dong and Seogyo-dong, the commercial uses shifted to higher uses for more affluent users, such as bars and pubs, restaurants, fashion and cosmetics shops, cafés, karaoke, and beauty salons. It is striking that 76 percent of commercial uses in Seogyo-dong, the most commercialized district, are comprised of cafés, restaurants, and bars. Only a few neighborhood commercial and service uses remain. Thus, the three cases offer another example

of the gentrification process displacing pre-existing small businesses that cater to diurnal demands with more capitalized businesses for more affluent users, which is accompanied by rent hikes.

These findings have meaningful policy implication for planning. Since US and Japanese cities like New York City and Tokyo adopted zoning, they have refined the system to cope with diverse urban spaces and issues. The inadequacy of employing only three or four zoning districts to manage the growing variety of urban spaces and uses quickly became evident. New York City's response, which was typical, was to continually to subdivide land use classifications and districts, leading to a total of almost 150 different categories in 2017. Similarly, although Tokyo has only 12 official land use categories, the city effectively administers a much larger number. For example, general commercial zoning districts has 12 different density regulations. Whenever a new category of zoning district is necessary, it has been added rather than integrated. This is the main reason that inflexible zoning systems look fragmented. As Talen pointed out, "as zoning became more chaotic, more spatially detached, and more complicated, it lost that ability" to accommodate land use diversity (Talen 2012: 343).

The Seoul model of zoning, however, demonstrates that going in the opposite direction can lead to the same destination; zoning has lost its ability to foster land use diversity because it is too simple. Compared to US cities, Seoul has the simplest system. Beginning with four districts in 1934, Seoul still has sixteen zoning districts. It should also be pointed out that the legal purpose of General Residential Districts under the NLPUA

Table 5. Commercial types of study areas

		Songpa-dong	Munjeong-dong	Seogyo -dong
Neighborhood Uses ↑	Laundry	7	7	-
	Supermarket & Grocery Store	7	18	4
	Bathhouse(Sauna)	0	1	
	Barbershop	1	2	1
	Hardware Store	2	6	-
	Interior Design Shop	2	1	
	Stationery Store	1	2	-
	Private Educational Institute	2	6	2
	Convenience Store	4	6	14
	Book Store	-	1	-
	Real Estate Agency	12	14	13
	Computer Game Room	4	4	-
	Flower Shop	-	6	1
	Fine Art academy	5	6	5
	Cellphone Sales Agent	-	5	-
	Beauty Shop	21	35	60
	Karaoke	4	6	12
	Café	16	16	66
	Cosmetic Shop	1	5	3
	Fashion Shop	1	44	20
Restaurant	102	59	257	
Bar & Pub	16	8	103	
	Total	208	258	561
	Exclusively residential land use (percent)	71.6	57.1	19.2

is to create convenient residential areas, which is in contrast to US intention of separating uses. The GRD designation intrinsically pursues the mixture of uses in residential districts. However, instead of accumulating new categories of district for each new use, Seoul has chosen to integrate new land uses into existing categories. Thus, while the city's zoning map looks simple, actual permitted land use has become complex. As a result, the fundamental purpose of zoning, which is to create distinct urban spaces, has been undermined, as the land uses allowed in each district have overlapped and lost their distinction. For example, Figure 6 depicts a superblock in Yeoksam-dong with a combination of GRD 1 and GRD 2 zones that are indistinguishable in terms of land use.

The clear differences between zoning districts that do emerge are fundamentally due to density. For example, most commercial uses that are allowed in general commercial districts can be located in GRD 2, as long as the square footage does not exceed that prescribed by law. Only accommodations and adult entertainment are strictly prohibited. Thus, most of the city's rezoning efforts have been implemented not to alter or refine land use but to increase density. The density-based distinction is reinforced by the fact that density regulations are tied to land use zoning: there are neither low-density commercial districts nor high-density residential districts in Seoul. As a result, the ability of Seoul's zoning system to manage various urban contexts is limited.

In sum, the flexibility of Seoul's simple zoning system is better at encouraging urban diversity than more inflexible systems like those in the US, but it cannot completely avoid the problems that more complex zoning codes have been developed to solve: dominance of a single use and sectoral gentrification.

7. CONCLUSION

Scholars have widely recognized that separating home from work and commerce through exclusive zoning districts undermines urban diversity. However, the robust mixed use outcomes of Seoul's zoning model shows that zoning per se does not inhibit diversity. Zoning as it is frequently practiced inhibits diversity through the narrow and inflexible restriction of uses across large areas. But zoning as a practice is innocent of the accusation that it separates urban spaces.

Despite the potential benefits of bi-bim zoning's flexibility, this study also clearly showed that allowing mixed use and flexibility can easily lead to excessive commercialization and gentrification. The more commercialized a district becomes, the more affluent uses dominate that district, driving out both commercial uses for daily life and residential uses. Zoning begins to work as a catalyst not for diversity but for gentrification.

The primary advantage of mixed use neighborhoods is the proximity of land uses, including residential, neighborhood commercial, and even work places, which boosts pedestrian accessibility. However, since the case study demonstrates that flexibility allows commercial uses to easily dominate

residential uses if the market demands, there is a need not only for residential zoning districts that allow for a mix of some neighborhood commercial uses but also for residential zoning districts that more aggressively restrict or even exclude commercial uses. This modest increase in land use districts would require more elaborate planning efforts to spatially lay out diverse uses in proximity. Thus, as the early approach to zoning pursued mixed use based on the German model, the answer may be to return to the earlier practice of more fine-grained zoning (Talen, 2012). However, it should be noted that zoning is not a planning itself; it is simply a regulatory tool for implementing a plan. That is, zoning alone does not efficiently manage urban space. There must also be a plan. That is why the US Standard Zoning Enabling Act in the 1920s to adopt zoning as a legal planning tool required a comprehensive plan before adopting zoning regulations.

Seoul already employs various planning tools including a comprehensive plan. The District Unit Plan can handle specific districts as well as so-called fine-grained planning. Thus, Seoul's problem is not that there is no planning tool. Rather, Seoul needs to develop zoning that can reflect the fine-grained plans. To do so effectively, Seoul's zoning system requires a modest expansion in zoning classifications that separates density regulations from land use regulations and the implementation of more fine-grained plans.

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