

The Well-Being of Cities: Estimating Migration Attractiveness from Internal Migration across Korean Cities

Hyoung Chul Kim, Seung Hoon Lee, Ji Sub Park*

February 26, 2023

Abstract

We estimate the migration attractiveness of Korean cities by adopting the methodology proposed by Lee et al. (2021) for internal migration setup. Using bilateral migration data across cities, we measure the overall attractiveness of all Korean cities at the ‘si-gun-gu’ level. Our approach has two advantages over traditional methods of measuring a city’s attractiveness. First, it is cost-effective as it uses existing administrative data, unlike subjective surveys that require significant resources. Second, our approach provides a more better assessment of a city’s viability than its population growth rate by considering the costs associated with moving between cities and the origin and destination of each migration. Our results confirm the ongoing regional imbalance, commonly known as “Seoul centralization,” and indicate that the migration attractiveness of rural areas such as Jeollanam-do and Gyeongsangbuk-do is even worse than what is revealed by population growth rates.

Keywords: internal migration, welfare estimates, regional imbalance, Korea

JEL Codes: R23, J61, D63, I31, F22

*Kim: School of Economics, Yonsei University, hchul.kim@yonsei.ac.kr, Lee: School of Economics, Yonsei University, seunghoonlee@yonsei.ac.kr, Park: Bank of Korea, Gwangju & Jeonnam Branch, pjs1934@bok.or.kr. We are grateful to the seminar participants at the Bank of Korea, Gwangju & Jeonnam Branch. This research was financially supported by the Bank of Korea, Gwangju & Jeonnam Branch. Seung Hoon Lee acknowledges the financial support from Yongwoon Scholarship Foundation (Yonsei-Yongwoon Research Grant No. 2021-11-0410). The views expressed in this paper are those of the authors and do not necessarily reflect the views of the Bank of Korea.

1 Introduction

Cities can be more or less attractive than others for a variety of reasons, such as job opportunities, education, climate, and more. It is important to accurately measure how attractive a city is. Lee et al. (2021) propose a methodology to estimate a country’s welfare using international migration data. They develop a discrete choice model in which individuals move from a low-welfare country to a high-welfare one and estimate the welfare of each country. In this paper, we apply their approach to the internal migration context and use bilateral migration data across Korean cities to measure the attractiveness of these cities.

Subjective surveys, such as the World Happiness Report’s survey, have been traditionally used to estimate the attractiveness of a city based on respondents’ life satisfaction using a 10-point scale (Helliwell et al., 2018). However, our approach offers a significant advantage over subjective surveys in terms of cost and comprehensiveness. Large-scale surveys require a considerable amount of resources, which may limit the number of cities that can be included. To the best of our knowledge, only two national residence satisfaction surveys have been conducted in South Korea due to this limitation, which covered only 73 cities with approximately 4,000 respondents (“National Quality of Life Assessment” surveys conducted by JoongAng Ilbo in 1995 and 1997) (JoongAng Ilbo Special Coverage Team, 1997). In contrast, our approach is incomparably less expensive, as it utilizes existing administrative data on bilateral migration flows across all Korean cities for all Korean people, enabling us to estimate the attractiveness of all Korean cities at the si-gun-gu level. Furthermore, our measure is more comprehensive than subjective surveys since surveys may not capture all the factors that contribute to the well-being of each city, such as housing prices.¹ Our approach overcomes this issue since it reflects the overall attractiveness people consider when they migrate.

The growth rate of a population is a widely used metric for policymakers to evaluate the sustainability of a city. For example, the Korean government has been monitoring a list of at-

¹See Lee et al. (2021) for details.

risk cities since 2021, determined by their population growth rates, and has allocated special funding to support their development (Ministry of Interior and Safety, 2021). However, we argue that our approach provides a better estimate of a city’s viability. Unlike population growth rate, which focuses solely on the net inflow of people, our approach takes into account both the origin and destination cities that people are moving to and from, as well as the costs associated with migration. For instance, suppose City A has a higher population growth rate than City B, but the individuals moving to City A are from a neighboring city with low attractiveness while the migrants to City B are from distant cities with high attractiveness. In that case, our approach would determine that City B is more attractive than City A, despite City A having a higher population growth rate.

In this paper, we conduct estimations of the attractiveness of all Korean cities at the si-gun-gu level in 2015 and 2020, and also examined the attractiveness for different age groups. Our results confirm the trend of centralization around the Seoul metropolitan area. Furthermore, we found that this urban-rural imbalance is even more pronounced for younger age groups. Notably, our analysis reveals that the attractiveness of rural areas, including Gyeongsanbuk-do and Jeollanam-do, is even worse than suggested by population growth rates.

Our results also suggest the potential role for governments to support rural areas that are at risk of regional collapse. We find that the Innovative Cities² developed by government policies, such as Sejong and Naju, ranked high on our measure of attractiveness, potentially indicating that they successfully attracted migrants from distant cities with high attractiveness.

Our paper adds on to the large literature of estimating quality of life in regional economics (Roback, 1982; Kahn, 1995; Diamond, 2016). Similar to Lee et al. (2021), the difference of our method is that we utilize location choice of all people to capture overall utility levels.

²Innovative City is a type of planned city by Korean government to create new growth drivers for the city. By relocating public institutions and cooperating with local universities, research institutes and business, the city is meant to serve as a foundation for creating new growth in rural cities. Naju-si is one of these Innovative Cities.

By revising the method into internal migration setup, we estimate the attractiveness of each city within one country.

Rest of the paper is organized as follows: Section 2 constructs a mathematical model used in estimation process. Section 3 explains the data we used in the paper. Section 4 analyzes the estimation results and provides the city attractiveness. Section 5 concludes.

2 Model

We modify the methodology proposed by Lee et al. (2021) for location choice within a country. Our model is similar to that of Lee et al. except for few factors: instead of considering location choice of countries, we consider location choice of inner cities within one country.³ Thus, there are J cities of varying populations, with initial populations N_j . Each city j offers multiple opportunities to a person, with the number of opportunities K_j increasing with N_j . Following Lee et al., we interpret “opportunities” as roughly corresponding to the number of houses, jobs, neighborhoods, or other situations within destination city j that potential migrants might consider in their location choice.

Each person i living in an origin city $o \in J$ maximizes utility U by choosing an opportunity $k \in K (\equiv \sum_j K_j)$ from the set of all opportunities in the country.

Each individual currently living in their origin city $o \in J$ maximizes her utility U by choosing an opportunity $k \in K (\equiv \sum_j K_j)$ that maximizes the following equation:

$$\max_{k \in K} U_{odk}^i \equiv u_d - c_{od} + \varepsilon_{odk}^i. \quad (1)$$

By maximizing equation (1), individual i migrates to the city $d \in J$ which gives him or her the highest level of city attractiveness u_d . The variable u_d , defined as “city attractiveness,” is

³In our model, we do not consider the international migration choice of individuals. We only consider internal migration between cities in one country. As our concern is comparing city attractiveness within the country, this simplification is justified.

the primary variable that the paper is trying to estimate. It quantifies the overall well-being provided by each city. Following Lee et al., we let c_{od} as the moving cost individuals bear when migrating from one city to another. If the individual does not move, this moving cost is denoted as zero. ε_{odk}^i is individual-level idiosyncratic shock and we assume that it follows Gumbel (type-I extreme value) distribution.

Under these assumptions, the probability of individual in city o moving to city d is as follows:

$$\pi_{od} = \frac{N_d^\gamma \exp(u_d - c_{od})}{\sum_j N_j^\gamma \exp(u_j - c_{oj})}. \quad (2)$$

N_d^γ is the total number of opportunities offered by each city d . γ is a parameter that sets the relation between city size and number of opportunities.

In order to estimate u_d with real data, we add some parametric assumptions to the theoretical model in (2). We assume that moving cost is proportional to the distance between two cities ($c_{od} = \log(d_{od})\beta$) and that u_d can be represented as a linear combination of the city characteristics $Z_d'\alpha$. In this assumption, we can write (2) as follows:

$$\pi_{od} = \frac{\exp(\delta_d - \log(d_{od})\beta)}{\sum_j \exp(\delta_j - \log(d_{oj})\beta)} \quad (3)$$

where

$$\delta_d \equiv Z_d'\alpha + \gamma \ln N_d. \quad (4)$$

As mentioned above, we can estimate $\hat{\delta}_d$ and $\hat{\beta}$ using the conditional logit model. But we need to separate the effect of population of the city from $\hat{\delta}_d$. This is because $\hat{\delta}_d$ is made up of u_d (city attractiveness) and $\gamma \ln N_d$ (effect from the size of city's population). Using Lee et al.'s methodology, we perform regression analysis based on the equation (4):

$$\hat{\delta}_d = Z_d'\alpha + \gamma \ln N_d + \omega_d. \quad (5)$$

ω_d is measurement error and we assume it is white noise. We constructed Z_d with Gross Regional Domestic Product (GRDP) and population size as we assume they are correlated with the factors determining the city’s attractiveness. Using the estimated $\hat{\gamma}$, we estimate $\hat{u}_d$ (estimator of u_d) as follows:

$$\hat{u}_d = \hat{\delta}_d - \hat{\gamma} \ln N_d. \quad (6)$$

We estimate $\hat{u}_d$ in two steps as demonstrated in (5) and (6) to avoid potential correlations between $\ln N_d$ and ω_d . The main difference to Lee et al.’s approach is that they use the projected value of $Z'_d \hat{\alpha}$ even though $\hat{u}_d$ is a more direct estimate. Our approach differs from that of Lee et al. in that we utilize the more direct estimate of $\hat{u}_d$, rather than the projected value of $Z'_d \hat{\alpha}$. The reason for their approach is that country characteristics Z'_d could be correlated with unobserved moving costs ω_d , such as a high-GDP country having stricter immigration policies. However, we focus on domestic migration, where such policy-related moving costs are not present. Thus throughout this paper, we apply the revised methodology to estimate the city attractiveness $\hat{u}_d$ using the administrative data in South Korea.

3 Data

The administrative divisions of South Korea include 8 metropolitan cities, with Seoul being the largest, and 9 provinces. These metropolitan areas and large cities within the provinces have subdivisions known as ‘si-gun-gu.’ Throughout out the paper, our units of interest are these si-gun-gu which we will call “cities.” In total, we use 228 cities in years 2015 and 2020.⁴

In order to apply the estimation with the model explained in previous sections, we used Internal Migration data provided by Ministry of Statistics (Ministry of Statistics, 2022). Internal Migration Data is an administrative data set that records the bilateral migration of individuals using the move-in notification of the household. Thus, this data set can capture internal migration decisions of the whole population as it is based on the mandatory regis-

⁴The total number of cities can differ annually due to changes in administrative divisions. We minimize this difference by keeping most of the cities that were both present in 2015 and 2020.

tration process that must be completed by residents when they move. It includes information on the prior residence and new address of internal migrants. The data set also contains basic demographics of the migrants such as age and gender. For our analysis, we aggregate this data by city to estimate the attractiveness of each cities.

In the model, we also allow people to stay in the current city. We calculate the number of people who stayed in their current city by using population data provided by Ministry of Interior and Safety. (Ministry of Interior and Safety, 2022). The data provides an annual population of each city by various demographics (eg. age and gender). We calculated the total number of stayers by merging population data and internal migration data. For instance, for 2015 we used population data from December 2014 to calculate the people who did not migrate in 2015. By merging the population data with the 2015 death record and internal migration data in 2015, we were able to obtain the number of people who stayed in the city. By calculating people who stayed in their current cities, we were able to solve the “zero-share” problem which is noted in Lee et al. (2021). Finally, we used data from the Ministry of Statistics to secure GRDP for each city (Ministry of Statistics, 2015).

4 Results

4.1 Estimation Results

We estimate equation (3) for all population and by age groups (20-30, 40-50, 60 and over) in 2015 and 2020. Table 1 shows the value of $\hat{\beta}$ for year 2015. Firstly, the coefficient $\hat{\beta}$ for all population’s location choice in 2015 was -0.695 and was statistically significant. Also, the absolute value of $\hat{\beta}$ tended to increase as the age of the individuals increased. This may suggest that migration costs may rise as individuals age.

As mentioned in Section 3, the reason number of observations N in the data is large because we expanded the aggregated data into individual-level to apply conditional logit model on the migration data. Thus, the data observation number $1.10e + 10$ in year 2015

	All	20-30	40-50	60+
$\hat{\beta}$	-0.695*** (0.000)	-0.681*** (0.000)	-0.733*** (0.000)	-0.784*** (0.000)
N	1.10e+10	3.11e+09	3.66e+09	1.94e+09

Table 1: Estimation Results for Conditional Logit Model (Year 2015)

*— $p < 0.10$; **— $p < 0.05$; ***— $p < 0.01$. Standard errors are in the parentheses.

is the value obtained by multiplying population data (about 51 million in December 2014) to total number of cities (about 220). As the total number of observations is huge, standard errors in the estimation are also exceedingly small.⁵

We also calculated $\hat{\delta}_d$ using conditional logit model and performed linear regression in (5) using this estimate. Table 2 shows the result of this linear regression. By using $\hat{\gamma}$ in Table 2 and $\hat{\delta}_d$ estimated from conditional logit, we measure city attractiveness $\hat{u}_d$.

Table 2

	All	20-30	40-50	over 60
City Population ($\hat{\gamma}$)	0.46*** (0.02)	0.50*** (0.03)	0.41*** (0.02)	0.31*** (0.03)
Metropolitan Population	-0.03*** (0.01)	0.06*** (0.02)	-0.08*** (0.01)	-0.09*** (0.02)
GRDP	0.06*** (0.01)	0.13*** (0.02)	0.06*** (0.02)	-0.04* (0.02)
N. obs	228	228	228	228
R ²	0.94	0.89	0.87	0.59

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

*— $p < 0.10$; **— $p < 0.05$; ***— $p < 0.01$. Standard errors are in the parentheses. All independent variables are in log values.

Based on the estimation results, we are able to present a comprehensive distribution of city attractiveness. In the Appendix, Table A.1 and A.5 lists the cities ranked by their estimated level of attractiveness. We also present full list of ranking by different age groups in the Appendix. In the following sections, we discuss our estimation results in more detail.

⁵Estimation results for 2020 also show similar results and patterns.

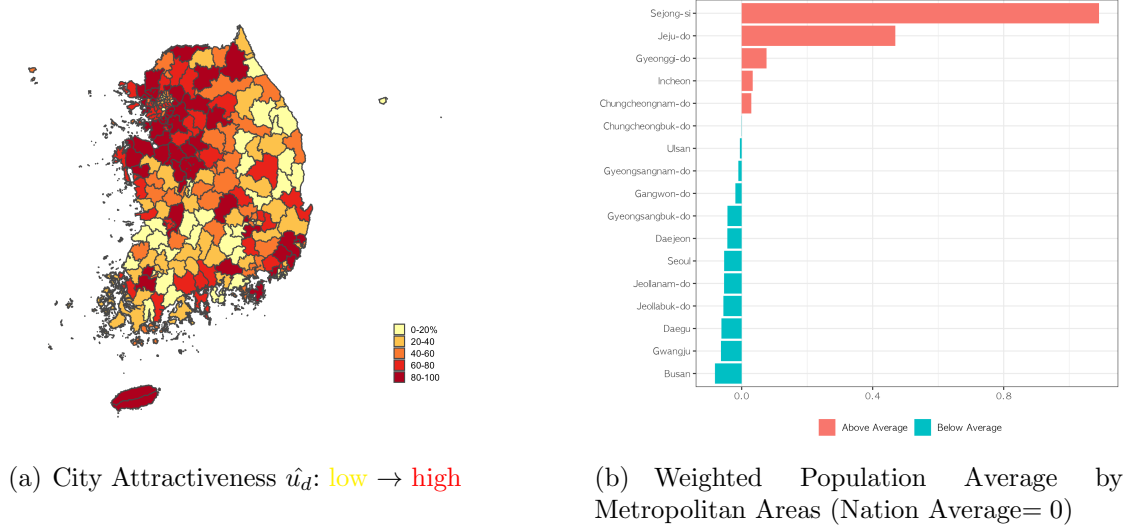


Figure 1: City Attractiveness in 2015

4.2 Regional Imbalance (“Seoul Centralization”)

In Korea, regional imbalance is a significant issue, with over half (52%) of the total population residing in the Seoul metropolitan area, which includes Seoul, Gyeonggi-do, and Incheon. This area’s land size is only about 13% of that of South Korea. Hence, the Korean government has been putting a lot of effort into relieving the issue of “Seoul Centralization.”

Figure 1–(a) illustrates the 2015 estimates of attractiveness for each city, while Figure 1–(b) shows the population-weighted average of $\hat{u}_d$ by metropolitan areas and provinces. These figures confirm the issue of regional imbalance, “Seoul Centralization.” Cities with high levels of attractiveness are primarily concentrated near the Seoul metropolitan area, while many rural areas in underdeveloped provinces, such as Jeollanamdo, Gyeongsangbuk-do, and Gangwon-do, exhibit low levels of attractiveness.

We also estimated the attractiveness of each city using the 2020 data. Figure A.1 in the Appendix illustrates the 2020 estimates. As the outcomes for 2015 and 2020 demonstrate similar patterns, we can confirm the continued presence of the regional imbalance in 2020. Furthermore, it appears that the issue of regional imbalance has become even more severe. Figure 2 presents changes in the weighted average ranking of aggregated districts from 2015



Figure 2: Changes in Weighted Average Ranking of Attractiveness by Population

to 2020. In Figure 2, we observe that Gyeonggi-do rose from 3rd to 2nd place out of 17 metropolitan cities and Seoul climbed significantly from 12th to 4th place. During the same period, the rankings of Jeollanam-do, Gyeongsangnam-do, and Ulsan dropped significantly.

We observe the same pattern even at the si-gun-gu (city) level. We calculated the change in the rankings of cities from 2015 to 2020. This result can be found in Figure 3. In this figure, we can see that the overall attractiveness of Seoul significantly increased. Out of 25 districts in Seoul, the migration attractiveness of 24 districts increased. The attractiveness of 23 districts in Gyeonggi-do also increased. However, the city attractiveness of 14 out of 22 districts in Jeollanam-do decreased.

Our methodology allows us to separate city attractiveness for different demographic groups (eg. age, gender, etc). Using this advantage, we calculate and rank city attractiveness by age groups to investigate the potential driver for regional imbalance.

Table A.2 in the Appendix summarizes rankings of city attractiveness for age 20-30. Cities that were most attractive to individuals aged 20-30 were Sejong-si, Gyeonggi-do Hwaseong-si, Seoul Gwanak-gu in order. The most attractive cities in Gwangju and Jeollanam-do provinces were Jeollanam-do Naju-si, Gwangju Gwangsan-gu, Gwangju Dong-gu in order.

Metropolitan Area	Rise	Stay	Down	Ascent Rate(%)
Seoul	24	0	1	96
Daejeon	4	0	1	80
Gyeonggi-do	23	0	8	74
Busan	11	0	5	69
Gangwon-do	12	1	5	67
Gwangju	3	0	2	60
Daegu	4	0	4	50
Jeollabuk-do	7	1	6	50
Incheon	4	0	5	44
Jeollanam-do	8	0	14	36
Chungcheongnam-do	5	0	10	33
Gyeongsangnam-do	6	0	12	33
Gyeongsangbuk-do	7	1	15	30
Chungcheongbuk-do	2	1	8	18
Jeju-do	0	0	2	0
Sejong-si	0	0	1	0
Ulsan	0	0	5	0

Figure 3: Rank Change in City Attractiveness by Metropolitan Area (2015 → 2020)

Among the top 20 cities (in city attractiveness), 12 of them belonged in Seoul and Gyeonggi-do. From this, we can infer that young people in their 20s and 30s have high preferences for the metropolitan areas. On the other hand, in the case of Jeollanam-do, it can also be seen that most cities remain in the bottom 160 (city attractiveness ranking). Table A.3 presents the ranking of city attractiveness for individuals aged 40-50. We observed different location preferences for this age group compared to those in their 20s and 30s. Interestingly, many cities in Seoul that ranked high for younger age groups were less attractive to the older cohort. Instead, Sejong-si, Seogwipo-si, and Jeju-si emerged as the preferred cities for individuals aged 40-50. The attractiveness of cities for individuals aged 60 and over is displayed in Table A.4. Interestingly, many rural areas are ranked highly in this analysis, revealing distinct location preferences among various age groups. The underlying factors driving these differences - such as job opportunities and housing prices - warrant further investigation as future research questions. However, it is evident that younger age groups tend to prefer larger cities that may provide more job opportunities and urban amenities.

To further explore the varying preferences for cities across different age groups, we conducted an analysis of the population-weighted average attractiveness of each province and metropolitan area. The results are presented in Figure 4. The results show that when attractiveness is calculated with total population data, Jeollanam-do ranks 13th out of 17 metropolitan areas. However, the preference of young people is generally low, with 17th place in their 20s and 30s, 6th place in their 40s and 50s, and 3rd place in their 60s and older. Therefore, the low ranking of Jeollanam-do could be attributed to the city's low attractiveness for residents in their 20s and 30s. Similarly, Gyeongsangnam-do, Gyeongsangbuk-do, Jeollabuk-do, and Gangwon-do, which are generally considered underdeveloped, also show a similar pattern in their 20s and 30s.

On the other hand, the preference of young people was relatively high for Seoul. Although Seoul ranked lowest for individuals in their 40s, 50s and 60s, it ranked third for individuals in their 20s and 30s. Except for Sejong-si and Jeju-do, the ranking of Seoul was highest. This

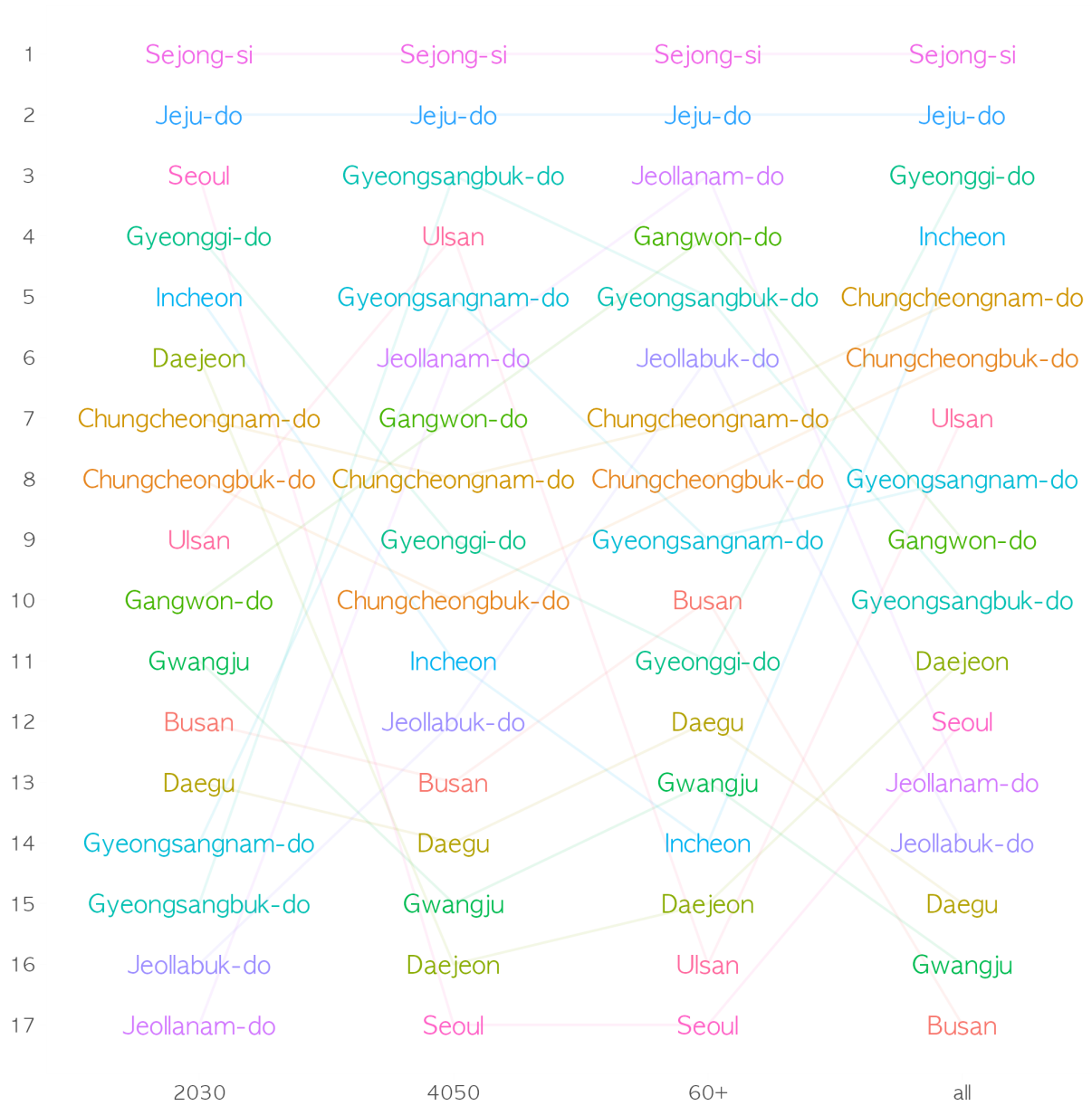


Figure 4: Average Ranking of City Attractiveness by Age (Metropolitan Areas and Provinces)

again suggests that young people’s strong preferences for Seoul could be the main driver for the regional imbalance.

In order to address this problem of regional imbalance, Korean government has implemented several policies such as Innovative Cities project which aimed to promote balanced development across the country. We examine whether these government policies have had a positive impact on regional development, at least in the short-term. This is possible as our methodology allows us to evaluate the immediate impact of government policy. The effect can be verified in Table A.1 in the Appendix. For instance, in 2015, Sejong-si turned out to be the most attractive city and Naju-si showed the highest attractiveness in the southwest of Korea encompassing Jeollanam-do and Gwangju. It’s worth noting that both cities are part of the Innovative Cities project initiated by the Korean government. (Other Innovative Cities also rank high in attractiveness.) Given that many cities in other rural areas, including Jeollanam-do, Gyeongsangbuk-do, and Gangwon-do, ranked low in attractiveness, our results suggest that these large-scale civil engineering projects can have a positive impact on local economies.

4.3 Comparison to Population Growth Rate

Policymakers have traditionally relied on population growth rates to assess the sustainability of cities. However, our migration attractiveness measure may offer a more reasonable assessment, as it takes into account both the origin and destination of migrations, as well as the associated costs of moving between cities. In particular, our measure gives greater weight to migrations from faraway cities, as these tend to signal higher levels of attractiveness. This approach allows us to better estimate the attractiveness of each city, and to distinguish it from the aggregate population growth that may be driven by in-migration from nearby areas. Thus, policymakers can use our measure to better understand the drivers of population movements, and to make more informed decisions about how to promote sustainable development across different cities.

To illustrate the disparity between two measures, we compare the rankings of population growth rate and estimated city attractiveness in Figure 5 and Figure 6. In both figures, the x-axis represents a city’s ranking by population growth rate, while the y-axis represents its ranking by our measure of attractiveness. Each point in the figures corresponds to a city. We have color-coded the cities by their location in one of eight metropolitan areas or nine provinces.

In order to compare areas with generally low attractiveness to areas with generally high attractiveness, we have labeled some selected cities on the figures. In Figure 5, we have marked cities within the Dae-gu metropolitan area with yellow and cities within the Gyeongsangbuk-do province with green, as they belong to areas with generally low attractiveness. On the other hand, in Figure 6, we have marked cities within the Gyeonggi-do province with green, as they belong to areas with generally high attractiveness.

Cities that fall below the 45-degree red line in both figures have lower estimated attractiveness rankings compared to their population growth rate rankings. This implies that the city’s true attractiveness is even worse than what is indicated by its population growth rate. This is especially prominent in Figure 5. For example, 14 out of 23 cities in Gyeongsangbuk-do fall into this category, including Seongju-gun, Cheongdo-gun, and Gunwi-gun. Despite its population growth rate ranking of around 106 out of all cities, Gunwi-gun’s attractiveness ranking is only 214th, highlighting the relatively poor attractiveness of rural cities in Gyeongsangbuk-do compared to their population growth rates.

Figure 6 reveals a sharp contrast to the situation depicted in Figure 5. In contrast to Gyeongsangbuk-do, the majority of cities in Gyeonggi-do appear to fare well in terms of estimated attractiveness relative to their population growth rates. This is evident in the figure, as most cities are positioned above the 45-degree line, indicating that their attractiveness is even greater than what is suggested by their population growth rates.

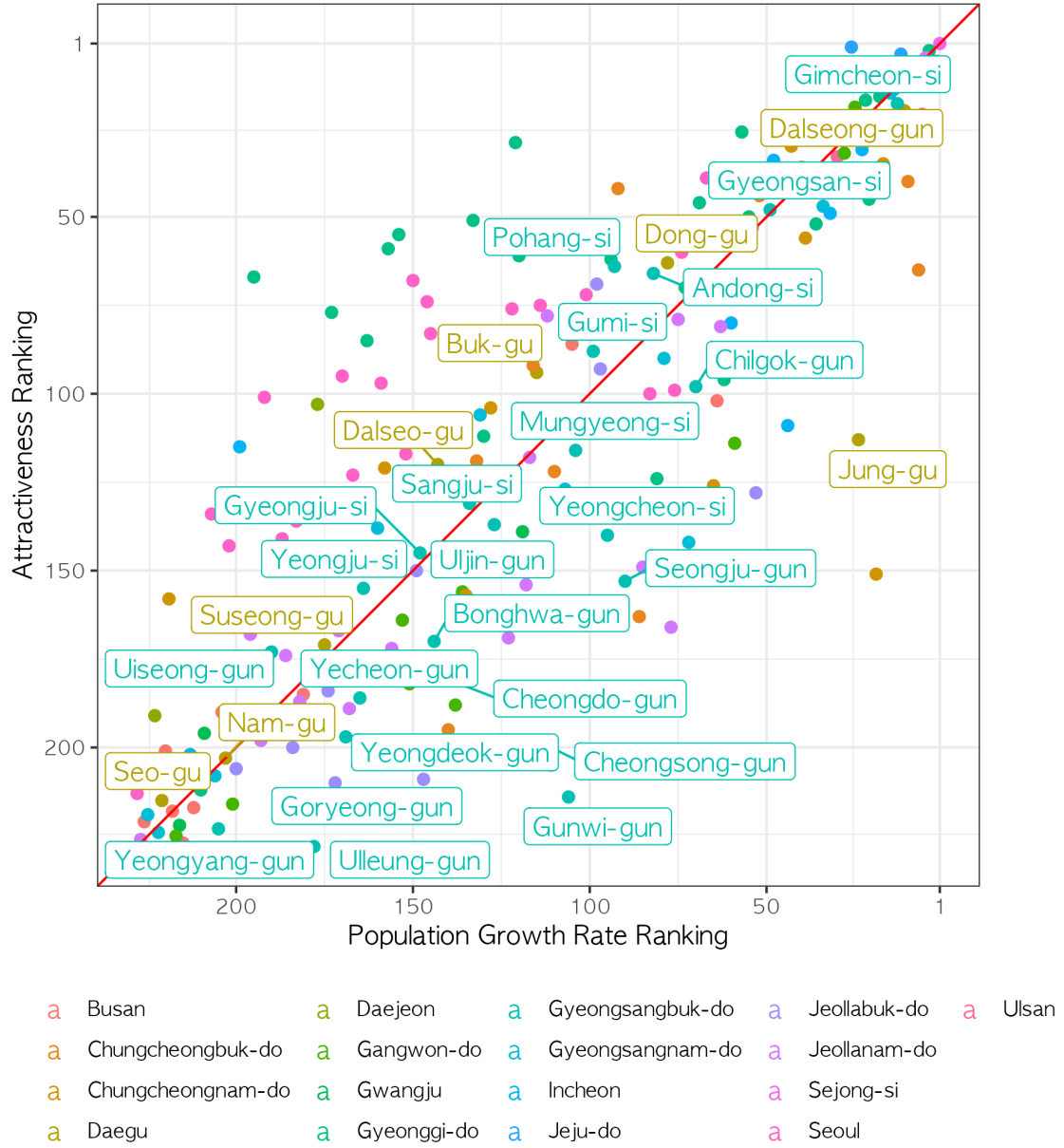


Figure 5: Population Growth Rate Ranking vs. $\hat{u}_d$ Ranking (Gyeongsangbuk-do)

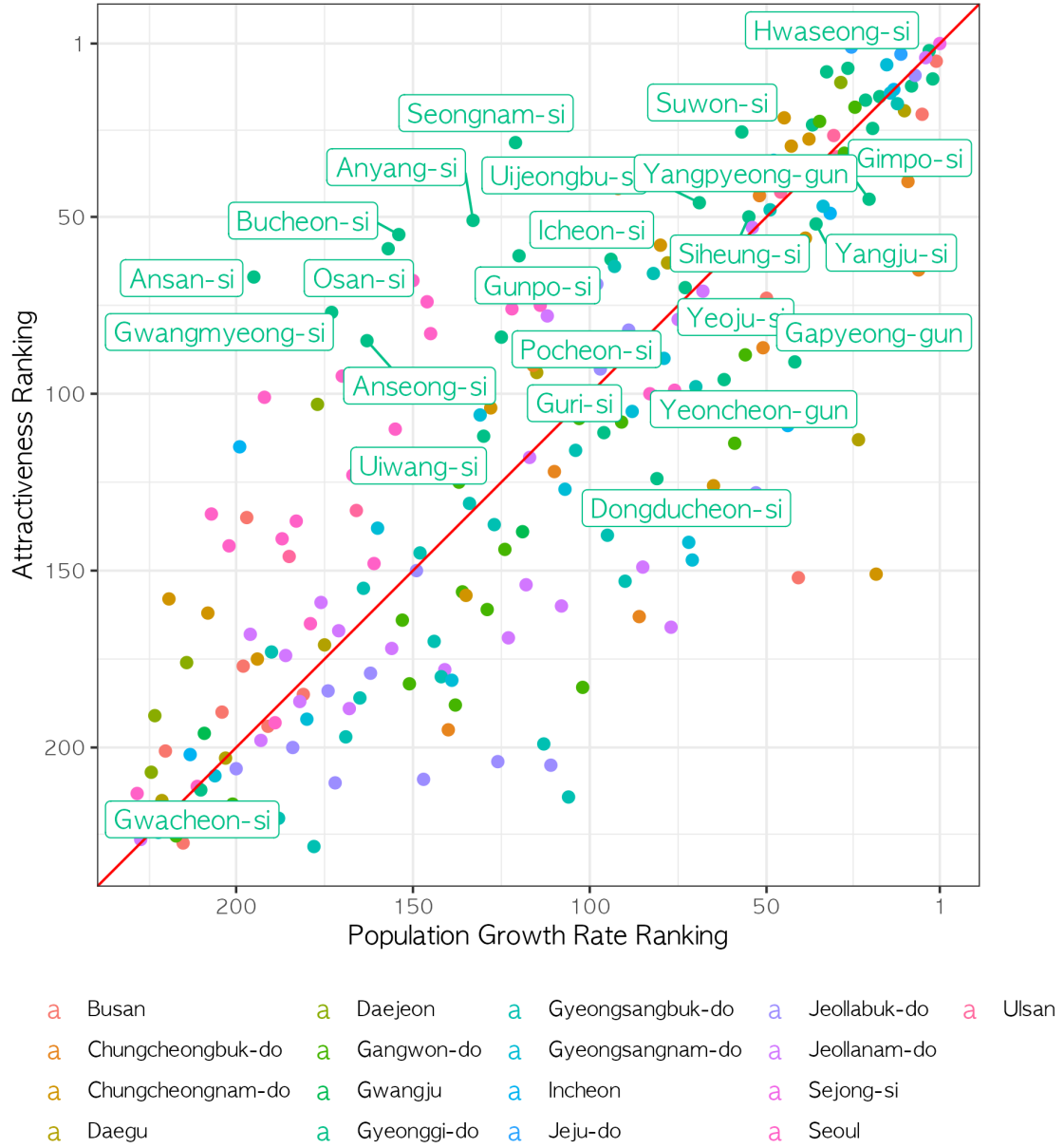


Figure 6: Population Growth Rate Ranking vs. $\hat{u}_d$ Ranking (Gyeonggi-do)

5 Conclusion

This paper presents an estimation of migration attractiveness for Korean cities, based on an adaptation of the methodology proposed by Lee et al. (2021) to an internal migration framework. Using bilateral migration data, we computed the full ranking of city attractiveness for detailed geographical units in Korea (si-gun-gu). Our results confirm the presence of regional imbalance, with the majority of highly attractive cities concentrated in the Seoul metropolitan area. We also verify that the imbalance has worsened by comparing the years 2015 and 2020.

Compared to traditional methods like subjective surveys and population growth rates, our approach to measuring city attractiveness has two advantages. Firstly, it is more cost-effective than subjective surveys since we use existing administrative data to estimate attractiveness rankings. Secondly, our method provides a more comprehensive assessment of a city's viability than population growth rates by taking into account the origin and destination of migrations, as well as the expenses involved in moving between cities.

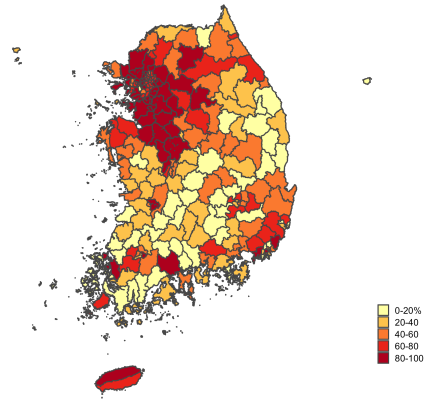
The issue of regional imbalance is a significant concern in South Korea, and our new methodology confirms its existence. Our results also reveal that the imbalance is getting worse over time. However, we found that the Korean government's efforts to address this issue (i.e. the Innovative Cities) are having a positive impact.

References

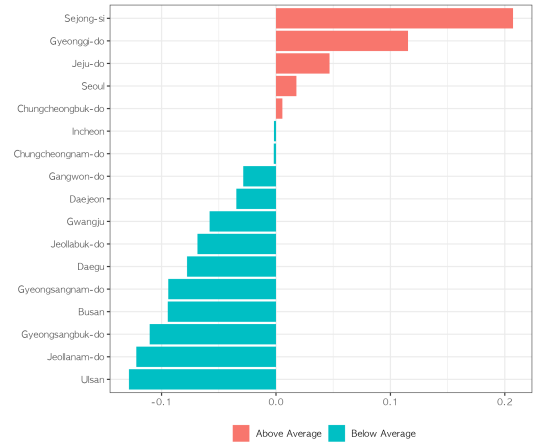
- Diamond, Rebecca. “The determinants and welfare implications of US workers’ diverging location choices by skill: 1980-2000”. *American Economic Review* 106, no. 3 (2016): 479–524. ISSN: 0002-8282.
- Helliwell, John, Haifang Huang, Shun Wang, and Hugh Shiplett. “International Migration and World Happiness”. In *World Happiness Report 2018*, ed. by Jeffrey Sachs, Richard Layard, and John Helliwell. Sustainable Development Solutions Network. 2018. <https://worldhappiness.report/ed/2018/>.
- JoongAng Ilbo Special Coverage Team. “Analysis of the ranking of 73 cities in National Quality of Life Assessment”. *JoongAng Ilbo* (1997). <https://www.joongang.co.kr/article/3475315#home>.
- Kahn, Matthew E. “A revealed preference approach to ranking city quality of life”. *Journal of Urban Economics* 38, no. 2 (1995): 221–235. ISSN: 0094-1190.
- Lee, Sanghoon, Seung Hoon Lee, and Jeffrey Lin. “The Well-Being of Nations: Estimating Welfare from International Migration”. *International Economic Review* 62 (2021): 1111–1130.
- Ministry of Interior and Safety. “Administrative Data on Population and Households”. *Ministry of Interior and Safety* (2022).
- . “Special Act on Balanced National Development”. *Ministry of Interior and Safety* (2021).
- Ministry of Statistics. “Administrative Data on GRDP”. *KOSIS* (2015).
- . “Internal Migration Data”. *MDIS* (2022).
- Roback, Jennifer. “Wages, rents, and the quality of life”. *Journal of Political Economy* 90, no. 6 (1982): 1257–1278. ISSN: 0022-3808.

A Appendix

A.1 City Attractiveness in 2020



(a) City Attractiveness $\hat{u}_d$: low $\rightarrow$ high



(b) Weighted Population Average by Metropolitan Areas (Nation Average= 0)

Figure A.1

A.2 Ranking of City Attractiveness (2015)

Rank	City
1	Sejong-si
2	Jeju-do Jesu-si
3	Gyeonggi-do Hwaseong-si
4	Jeju-do Seogwipo-si
5	Jeollanam-do Naju-si
6	Busan Gangseo-gu
7	Gyeongsangnam-do Geoje-si
8	Gyeonggi-do Pyeongtaek-si
9	Gyeonggi-do Goyang-si
10	Jeollabuk-do Wanju-gun
11	Gyeonggi-do Hanam-si
12	Daejeon Yuseong-gu
13	Gyeonggi-do Gwangju-si
14	Incheon Namdong-gu
15	Gyeongsangnam-do Yangsan-si
16	Gyeonggi-do Paju-si
17	Gyeonggi-do Namyangju-si
18	Gyeongsangbuk-do Gimcheon-si
19	Gangwon-do Cheorwon-gun
20	Daegu Dalseong-gun
21	Busan Gijang-gun
22	Chungcheongnam-do Cheonan-si
23	Gangwon-do Wonju-si
24	Gyeonggi-do Yongin-si
25	Gyeonggi-do Gimpo-si
26	Gyeonggi-do Suwon-si
27	Ulsan Ulju-gun
28	Chungcheongnam-do Seosan-si
29	Gyeonggi-do Seongnam-si
30	Chungcheongnam-do Asan-si
31	Incheon Yeonsu-gu
32	Gangwon-do Inje-gun
33	Ulsan Jung-gu
34	Incheon Seo-gu
35	Chungcheongnam-do Hongseong-gun
36	Chungcheongnam-do Dangjin-gun
37	Gwangju Gwangsan-gu
38	Gyeongsangnam-do Jinju-si
39	Seoul Gangseo-gu
40	Chungcheongbuk-do Jincheon-gun
41	Gangwon-do Chuncheon-si

42	Chungcheongbuk-do Cheongju-si
43	Ulsan Buk-gu
44	Chungcheongbuk-do Eumseong-gun
45	Gyeonggi-do Yangpyeong-gun
46	Gyeonggi-do Uijeongbu-si
47	Gyeongsangnam-do Hadong-gun
48	Gyeongsangbuk-do Gyeongsan-si
49	Incheon Jung-gu
50	Gyeonggi-do Siheung-si
51	Gyeonggi-do Anyang-si
52	Gyeonggi-do Yangju-si
53	Jeollanam-do Gwangyang-si
54	Incheon Bupyeong-gu
55	Gyeonggi-do Bucheon-si
56	Chungcheongnam-do Taean-gun
57	Gyeongsangnam-do Gimhae-si
58	Chungcheongnam-do Boryeong-si
59	Gyeonggi-do Osan-si
60	Seoul Mapo-gu
61	Gyeonggi-do Gunpo-si
62	Gyeonggi-do Icheon-si
63	Daegu Dong-gu
64	Gyeongsangbuk-do Pohang-si
65	Chungcheongbuk-do Jeungpyeong-gun
66	Gyeongsangbuk-do Andong-si
67	Gyeonggi-do Ansan-si
68	Seoul Gwanak-gu
69	Jeollabuk-do Jeonju-si
70	Gyeonggi-do Yeosu-si
71	Jeollanam-do Mu-an-gun
72	Seoul Eunpyeong-gu
73	Busan Buk-gu
74	Seoul Songpa-gu
75	Seoul Gangnam-gu
76	Seoul Yangcheon-gu
77	Gyeonggi-do Gwangmyeong-si
78	Jeollanam-do Yeosu-si
79	Jeollanam-do Suncheon-si
80	Incheon Ganghwa-gun
81	Jeollanam-do Jangheung-gun
82	Jeollabuk-do Gunsan-si
83	Seoul Seocho-gu
84	Gyeonggi-do Pocheon-si
85	Gyeonggi-do Anseong-si
86	Busan Haeundae-gu

87	Chungcheongbuk-do Goesan-gun
88	Gyeongsangbuk-do Gumi-si
89	Gangwon-do Hoengseong-gun
90	Gyeongsangnam-do Changnyeong-gun
91	Gyeonggi-do Gapyeong-gun
92	Chungcheongbuk-do Chungju-si
93	Jeollabuk-do Gochang-gun
94	Daegu Buk-gu
95	Seoul Yeongdeungpo-gu
96	Gyeonggi-do Yeoncheon-gun
97	Seoul Guro-gu
98	Gyeongsangbuk-do Chilgok-gun
99	Seoul Seodaemun-gu
100	Seoul Seongdong-gu
101	Seoul Nowon-gu
102	Busan Suyeong-gu
103	Daejeon Seo-gu
104	Chungcheongnam-do Nonsan-si
105	Gyeongsangnam-do Miryang-si
106	Gyeongsangnam-do Changwon-si
107	Gangwon-do Hongcheon-gun
108	Gangwon-do Yeongwol-gun
109	Incheon Ongjin-gun
110	Seoul Gwangjin-gu
111	Gyeonggi-do Guri-si
112	Gyeonggi-do Uiwang-si
113	Daegu Jung-gu
114	Gangwon-do Yanggu-gun
115	Incheon Gyeyang-gu
116	Gyeongsangbuk-do Mungyeong-si
117	Seoul Dobong-gu
118	Jeollanam-do Wando-gun
119	Chungcheongbuk-do Jecheon-si
120	Daegu Dalseo-gu
121	Chungcheongnam-do Buyeo-gun
122	Chungcheongbuk-do Yeongdong-gun
123	Seoul Dongdaemun-gu
124	Gyeonggi-do Dongducheon-si
125	Gangwon-do Gangneung-si
126	Chungcheongnam-do Cheongyang-gun
127	Gyeongsangnam-do Tongyeong-si
128	Jeollabuk-do Imsil-gun
129	Gwangju Nam-gu
130	Gyeongsangnam-do Geochang-gun
131	Gyeongsangbuk-do Sangju-si

132	Chungcheongbuk-do Okcheon-gun
133	Ulsan Dong-gu
134	Seoul Dongjak-gu
135	Busan Busanjin-gu
136	Seoul Jungnang-gu
137	Gyeongsangbuk-do Uljin-gun
138	Gyeongsangnam-do Sacheon-si
139	Gwangju Buk-gu
140	Gyeongsangbuk-do Yeongcheon-si
141	Seoul Gangbuk-gu
142	Gyeongsangnam-do Haman-gun
143	Seoul Seongbuk-gu
144	Gangwon-do Pyeongchang-gun
145	Gyeongsangbuk-do Gyeongju-si
146	Ulsan Nam-gu
147	Gyeongsangnam-do Sancheong-gun
148	Seoul Geumcheon-gu
149	Jeollanam-do Jangseong-gun
150	Jeollabuk-do Iksan-si
151	Chungcheongnam-do Gyeryong-si
152	Busan Yeonje-gu
153	Gyeongsangbuk-do Seongju-gun
154	Jeollanam-do Mokpo-si
155	Gyeongsangbuk-do Yeongju-si
156	Gangwon-do Sokcho-si
157	Chungcheongnam-do Geumsan-gun
158	Chungcheongnam-do Gongju-si
159	Jeollanam-do Sinan-gun
160	Jeollanam-do Gokseong-gun
161	Gangwon-do Hwacheon-gun
162	Chungcheongnam-do Yesan-gun
163	Chungcheongbuk-do Boeun-gun
164	Gangwon-do Donghae-si
165	Seoul Yongsan-gu
166	Jeollanam-do Gurye-gun
167	Jeollanam-do Haenam-gun
168	Jeollanam-do Goheung-gun
169	Jeollanam-do Damyang-gun
170	Gyeongsangbuk-do Bonghwa-gun
171	Daegu Suseong-gu
172	Jeollanam-do Jindo-gun
173	Gyeongsangbuk-do Uiseong-gun
174	Jeollanam-do Yeongam-gun
175	Chungcheongnam-do Seochon-gun
176	Daejeon Jung-gu

177	Busan Geumjeong-gu
178	Jeollanam-do Hampyeong-gun
179	Jeollabuk-do Namwon-si
180	Gyeongsangbuk-do Cheongdo-gun
181	Gyeongsangnam-do Hamyang-gun
182	Gangwon-do Goseong-gun
183	Gangwon-do Yangyang-gun
184	Jeollabuk-do Jeongeup-si
185	Busan Dongnae-gu
186	Gyeongsangbuk-do Yecheon-gun
187	Jeollanam-do Boseong-gun
188	Gangwon-do Jeongseon-gun
189	Jeollanam-do Yeonggwang-gun
190	Busan Saha-gu
191	Daejeon Daedeok-gu
192	Gyeongsangnam-do Goseong-gun
193	Seoul Jongno-gu
194	Busan Nam-gu
195	Chungcheongbuk-do Danyang-gun
196	Gwangju Seo-gu
197	Gyeongsangbuk-do Yeongdeok-gun
198	Jeollanam-do Hwasun-gun
199	Gyeongsangbuk-do Cheongsong-gun
200	Jeollabuk-do Buan-gun
201	Busan Sasang-gu
202	Incheon Dong-gu
203	Daegu Nam-gu
204	Jeollabuk-do Sunchang-gun
205	Jeollabuk-do Jangsu-gun
206	Jeollabuk-do Gimje-si
207	Daejeon Dong-gu
208	Gyeongsangnam-do Namhae-gun
209	Jeollabuk-do Muju-gun
210	Jeollabuk-do Jinan-gun
211	Seoul Jung-gu
212	Gyeonggi-do Gwacheon-si
213	Seoul Gangdong-gu
214	Gyeongsangbuk-do Gunwi-gun
215	Daegu Seo-gu
216	Gangwon-do Taebaek-si
217	Busan Seo-gu
218	Busan Yeongdo-gu
219	Gyeongsangnam-do Hapcheon-gun
220	Gyeongsangbuk-do Goryeong-gun
221	Busan Dong-gu

222	Gwangju Dong-gu
223	Gyeongsangbuk-do Yeongyang-gun
224	Gyeongsangnam-do Uiryeong-gun
225	Gangwon-do Samcheok-si
226	Jeollanam-do Gangjin-gun
227	Busan Jung-gu
228	Gyeongsangbuk-do Ulleung-gun

Table A.1: Rank of City Attractiveness for Total Population for year 2015

Rank	City
1	Sejong-si
2	Gyeonggi-do Hwaseong-si
3	Seoul Gwanak-gu
4	Busan Gangseo-gu
5	Gangwon-do Cheorwon-gun
6	Gyeongsangnam-do Geoje-si
7	Seoul Mapo-gu
8	Daejeon Yuseong-gu
9	Gangwon-do Inje-gun
10	Seoul Gangnam-gu
11	Seoul Gangseo-gu
12	Gyeonggi-do Suwon-si
13	Chungcheongnam-do Cheonan-si
14	Seoul Yeongdeungpo-gu
15	Seoul Gwangjin-gu
16	Seoul Dongjak-gu
17	Jeju-do Jesu-si
18	Gyeonggi-do Pyeongtaek-si
19	Gyeonggi-do Seongnam-si
20	Gyeonggi-do Goyang-si
21	Incheon Namdong-gu
22	Seoul Seodaemun-gu
23	Seoul Seocho-gu
24	Incheon Jung-gu
25	Gyeonggi-do Hanam-si
26	Seoul Dongdaemun-gu
27	Gyeonggi-do Paju-si
28	Gyeonggi-do Gwangju-si
29	Seoul Seongdong-gu
30	Seoul Songpa-gu
31	Jeollanam-do Naju-si
32	Seoul Yongsan-gu
33	Gangwon-do Hwacheon-gun
34	Gyeonggi-do Osan-si
35	Seoul Guro-gu
36	Incheon Seo-gu
37	Seoul Seongbuk-gu
38	Seoul Eunpyeong-gu
39	Incheon Yeonsu-gu
40	Gyeonggi-do Yongin-si
41	Seoul Geumcheon-gu
42	Gyeonggi-do Siheung-si
43	Seoul Jongno-gu
44	Gyeonggi-do Gimpo-si

45	Jeju-do Seogwipo-si
46	Gyeonggi-do Namyangju-si
47	Gyeonggi-do Anyang-si
48	Chungcheongnam-do Asan-si
49	Gyeonggi-do Bucheon-si
50	Incheon Bupyeong-gu
51	Gangwon-do Yanggu-gun
52	Chungcheongbuk-do Cheongju-si
53	Seoul Jung-gu
54	Gyeonggi-do Ansan-si
55	Seoul Yangcheon-gu
56	Seoul Jungnang-gu
57	Busan Gijang-gun
58	Gyeonggi-do Gunpo-si
59	Gangwon-do Wonju-si
60	Chungcheongnam-do Dangjin-gun
61	Gyeongsangbuk-do Gumi-si
62	Gyeonggi-do Uijeongbu-si
63	Seoul Gangbuk-gu
64	Incheon Ongjin-gun
65	Daegu Jung-gu
66	Seoul Nowon-gu
67	Gangwon-do Chuncheon-si
68	Gyeonggi-do Gwangmyeong-si
69	Daejeon Seo-gu
70	Seoul Gangdong-gu
71	Daegu Dalseong-gun
72	Gyeongsangbuk-do Gimcheon-si
73	Seoul Dobong-gu
74	Busan Busanjin-gu
75	Gwangju Gwangsan-gu
76	Ulsan Dong-gu
77	Busan Suyeong-gu
78	Gyeongsangnam-do Yangsan-si
79	Gyeonggi-do Yeoncheon-gun
80	Gyeonggi-do Guri-si
81	Gyeongsangbuk-do Gyeongsan-si
82	Gyeonggi-do Uiwang-si
83	Incheon Gyeyang-gu
84	Chungcheongnam-do Seosan-si
85	Jeollabuk-do Wanju-gun
86	Ulsan Buk-gu
87	Gyeongsangbuk-do Chilgok-gun
88	Gyeonggi-do Icheon-si
89	Gyeonggi-do Yangju-si

90	Chungcheongbuk-do Eumseong-gun
91	Gangwon-do Goseong-gun
92	Ulsan Jung-gu
93	Chungcheongbuk-do Jincheon-gun
94	Chungcheongbuk-do Jeungpyeong-gun
95	Gyeongsangnam-do Jinju-si
96	Ulsan Ulju-gun
97	Gyeonggi-do Gwacheon-si
98	Gyeonggi-do Anseong-si
99	Gyeonggi-do Pocheon-si
100	Gyeonggi-do Dongducheon-si
101	Jeollabuk-do Jeonju-si
102	Daegu Buk-gu
103	Daegu Dong-gu
104	Gyeongsangnam-do Gimhae-si
105	Incheon Dong-gu
106	Busan Yeonje-gu
107	Busan Geumjeong-gu
108	Ulsan Nam-gu
109	Gwangju Dong-gu
110	Busan Haeundae-gu
111	Daegu Nam-gu
112	Daejeon Dong-gu
113	Daejeon Jung-gu
114	Chungcheongnam-do Hongseong-gun
115	Busan Nam-gu
116	Gyeonggi-do Yeoju-si
117	Busan Buk-gu
118	Gwangju Seo-gu
119	Gangwon-do Samcheok-si
120	Daegu Dalseo-gu
121	Jeollanam-do Gwangyang-si
122	Gwangju Buk-gu
123	Jeollabuk-do Gunsan-si
124	Chungcheongnam-do Gyeryong-si
125	Daejeon Daedeok-gu
126	Jeollanam-do Muan-gun
127	Busan Sasang-gu
128	Busan Seo-gu
129	Gyeongsangbuk-do Andong-si
130	Gwangju Nam-gu
131	Chungcheongbuk-do Chungju-si
132	Gyeonggi-do Yangpyeong-gun
133	Jeollanam-do Mokpo-si
134	Busan Jung-gu

135	Gyeongsangbuk-do Ulleung-gun
136	Busan Dongnae-gu
137	Busan Saha-gu
138	Chungcheongbuk-do Jecheon-si
139	Gyeongsangnam-do Changwon-si
140	Busan Dong-gu
141	Gangwon-do Gangneung-si
142	Gyeonggi-do Gapyeong-gun
143	Jeollanam-do Suncheon-si
144	Daegu Seo-gu
145	Chungcheongnam-do Boryeong-si
146	Gyeongsangbuk-do Pohang-si
147	Chungcheongnam-do Taean-gun
148	Jeollabuk-do Iksan-si
149	Gangwon-do Sokcho-si
150	Chungcheongnam-do Nonsan-si
151	Gyeongsangnam-do Haman-gun
152	Chungcheongbuk-do Yeongdong-gun
153	Gyeongsangnam-do Sacheon-si
154	Gangwon-do Donghae-si
155	Gyeongsangbuk-do Uljin-gun
156	Gyeongsangnam-do Tongyeong-si
157	Daegu Suseong-gu
158	Chungcheongnam-do Gongju-si
159	Gangwon-do Hongcheon-gun
160	Gangwon-do Taebaek-si
161	Busan Yeongdo-gu
162	Gyeongsangbuk-do Gyeongju-si
163	Jeollanam-do Yeosu-si
164	Incheon Ganghwa-gun
165	Gangwon-do Yangyang-gun
166	Gangwon-do Yeongwol-gun
167	Gangwon-do Jeongseon-gun
168	Gangwon-do Pyeongchang-gun
169	Chungcheongnam-do Yesan-gun
170	Jeollanam-do Jangseong-gun
171	Gyeongsangbuk-do Yeongcheon-si
172	Jeollanam-do Yeongam-gun
173	Gyeongsangbuk-do Mungyeong-si
174	Jeollanam-do Jangheung-gun
175	Gangwon-do Hoengseong-gun
176	Jeollanam-do Wando-gun
177	Chungcheongbuk-do Okcheon-gun
178	Chungcheongbuk-do Goesan-gun
179	Chungcheongnam-do Geumsan-gun

180	Gyeongsangbuk-do Yeongju-si
181	Jeollanam-do Yeonggwang-gun
182	Jeollanam-do Damyang-gun
183	Gyeongsangnam-do Geochang-gun
184	Chungcheongnam-do Cheongyang-gun
185	Gyeongsangbuk-do Seongju-gun
186	Gyeongsangnam-do Changnyeong-gun
187	Jeollanam-do Hwasun-gun
188	Gyeongsangnam-do Goseong-gun
189	Jeollabuk-do Gimje-si
190	Jeollabuk-do Imsil-gun
191	Jeollabuk-do Jeongeup-si
192	Chungcheongnam-do Buyeo-gun
193	Chungcheongbuk-do Danyang-gun
194	Gyeongsangnam-do Miryang-si
195	Jeollanam-do Sinan-gun
196	Jeollabuk-do Gochang-gun
197	Jeollabuk-do Buan-gun
198	Gyeongsangbuk-do Sangju-si
199	Jeollanam-do Gokseong-gun
200	Gyeongsangbuk-do Goryeong-gun
201	Jeollabuk-do Namwon-si
202	Jeollabuk-do Sunchang-gun
203	Chungcheongbuk-do Boeun-gun
204	Gyeongsangbuk-do Yecheon-gun
205	Jeollabuk-do Muju-gun
206	Jeollanam-do Haenam-gun
207	Gyeongsangnam-do Hadong-gun
208	Jeollanam-do Hampyeong-gun
209	Jeollabuk-do Jangsu-gun
210	Chungcheongnam-do Seochon-gun
211	Jeollanam-do Gurye-gun
212	Jeollanam-do Jindo-gun
213	Jeollanam-do Gangjin-gun
214	Gyeongsangbuk-do Cheongsong-gun
215	Jeollabuk-do Jinan-gun
216	Gyeongsangnam-do Hamyang-gun
217	Gyeongsangbuk-do Bonghwa-gun
218	Jeollanam-do Boseong-gun
219	Gyeongsangbuk-do Yeongdeok-gun
220	Gyeongsangbuk-do Cheongdo-gun
221	Gyeongsangnam-do Uiryeong-gun
222	Gyeongsangnam-do Hapcheon-gun
223	Gyeongsangbuk-do Yeongyang-gun
224	Gyeongsangnam-do Sancheong-gun

225	Gyeongsangbuk-do Gunwi-gun
226	Gyeongsangnam-do Namhae-gun
227	Gyeongsangbuk-do Uiseong-gun
228	Jeollanam-do Goheung-gun

Table A.2: Rank of City Attractiveness for Population Aged 20-30 for year 2015

Rank	City
1	Sejong-si
2	Jeju-do Seogwipo-si
3	Jeju-do Jesu-si
4	Jeollanam-do Naju-si
5	Gyeonggi-do Hwaseong-si
6	Busan Gangseo-gu
7	Gyeongsangbuk-do Gimcheon-si
8	Gyeonggi-do Hanam-si
9	Jeollabuk-do Wanju-gun
10	Ulsan Ulju-gun
11	Gyeonggi-do Gwangju-si
12	Daegu Dalseong-gun
13	Gyeongsangnam-do Yangsan-si
14	Gyeonggi-do Pyeongtaek-si
15	Gyeongsangnam-do Geoje-si
16	Ulsan Jung-gu
17	Gyeongsangnam-do Hadong-gun
18	Busan Gijang-gun
19	Gangwon-do Wonju-si
20	Gyeongsangbuk-do Gyeongju-si
21	Gyeonggi-do Yangpyeong-gun
22	Chungcheongnam-do Hongseong-gun
23	Gyeonggi-do Paju-si
24	Gangwon-do Yeongwol-gun
25	Gyeongsangbuk-do Ulleung-gun
26	Gyeonggi-do Namyangju-si
27	Chungcheongbuk-do Jincheon-gun
28	Incheon Namdong-gu
29	Gyeongsangnam-do Jinju-si
30	Gyeonggi-do Goyang-si
31	Chungcheongbuk-do Goesan-gun
32	Gyeongsangbuk-do Gyeongsan-si
33	Gyeongsangnam-do Miryang-si
34	Gyeongsangbuk-do Seongju-gun
35	Jeollanam-do Sinan-gun
36	Gyeongsangbuk-do Yeongcheon-si
37	Gangwon-do Pyeongchang-gun
38	Chungcheongnam-do Boryeong-si
39	Gangwon-do Hoengseong-gun
40	Incheon Yeonsu-gu
41	Jeollanam-do Gwangyang-si
42	Gyeongsangnam-do Tongyeong-si
43	Incheon Ongjin-gun
44	Jeollanam-do Jangheung-gun

45	Chungcheongbuk-do Eumseong-gun
46	Gyeongsangbuk-do Andong-si
47	Gangwon-do Jeongseon-gun
48	Chungcheongnam-do Taean-gun
49	Gyeongsangbuk-do Pohang-si
50	Jeollanam-do Wando-gun
51	Chungcheongnam-do Seosan-si
52	Gyeongsangnam-do Changnyeong-gun
53	Busan Buk-gu
54	Gyeonggi-do Gimpo-si
55	Gyeongsangbuk-do Uljin-gun
56	Chungcheongbuk-do Chungju-si
57	Gyeonggi-do Yeoju-si
58	Gyeonggi-do Gapyeong-gun
59	Chungcheongnam-do Dangjin-gun
60	Gyeongsangnam-do Haman-gun
61	Jeollanam-do Suncheon-si
62	Gyeongsangnam-do Sancheong-gun
63	Gangwon-do Hongcheon-gun
64	Gyeonggi-do Pocheon-si
65	Jeollanam-do Yeongam-gun
66	Daegu Dong-gu
67	Jeollanam-do Yeosu-si
68	Chungcheongnam-do Cheonan-si
69	Gyeongsangnam-do Gimhae-si
70	Gangwon-do Gangneung-si
71	Jeollanam-do Haenam-gun
72	Gyeongsangbuk-do Sangju-si
73	Incheon Ganghwa-gun
74	Gangwon-do Sokcho-si
75	Chungcheongbuk-do Jecheon-si
76	Chungcheongbuk-do Jeungpyeong-gun
77	Chungcheongbuk-do Danyang-gun
78	Chungcheongnam-do Nonsan-si
79	Chungcheongnam-do Asan-si
80	Jeollabuk-do Gochang-gun
81	Jeollabuk-do Gunsan-si
82	Gangwon-do Chuncheon-si
83	Incheon Jung-gu
84	Daejeon Yuseong-gu
85	Jeollanam-do Gurye-gun
86	Gyeongsangbuk-do Cheongdo-gun
87	Gyeongsangbuk-do Bonghwa-gun
88	Jeollanam-do Damyang-gun
89	Jeollanam-do Hampyeong-gun

90	Jeollanam-do Jindo-gun
91	Gyeongsangnam-do Goseong-gun
92	Busan Yeonje-gu
93	Gyeongsangbuk-do Yeongju-si
94	Gyeongsangbuk-do Yeongdeok-gun
95	Chungcheongnam-do Geumsan-gun
96	Gyeonggi-do Siheung-si
97	Jeollabuk-do Jeongeup-si
98	Incheon Seo-gu
99	Daegu Jung-gu
100	Jeollanam-do Muan-gun
101	Chungcheongnam-do Buyeo-gun
102	Busan Suyeong-gu
103	Gyeongsangnam-do Geochang-gun
104	Jeollanam-do Goheung-gun
105	Chungcheongbuk-do Yeongdong-gun
106	Gyeonggi-do Yangju-si
107	Gangwon-do Samcheok-si
108	Jeollanam-do Boseong-gun
109	Gangwon-do Goseong-gun
110	Gyeongsangbuk-do Cheongsong-gun
111	Gwangju Nam-gu
112	Gangwon-do Yangyang-gun
113	Chungcheongbuk-do Cheongju-si
114	Gyeongsangbuk-do Mungyeong-si
115	Gyeongsangbuk-do Chilgok-gun
116	Gyeonggi-do Uijeongbu-si
117	Chungcheongnam-do Yesan-gun
118	Gangwon-do Donghae-si
119	Gyeonggi-do Icheon-si
120	Jeollanam-do Jangseong-gun
121	Gyeongsangbuk-do Gunwi-gun
122	Chungcheongbuk-do Okcheon-gun
123	Jeollabuk-do Buan-gun
124	Jeollabuk-do Namwon-si
125	Chungcheongnam-do Gyeryong-si
126	Chungcheongnam-do Cheongyang-gun
127	Gyeongsangbuk-do Goryeong-gun
128	Gyeongsangnam-do Namhae-gun
129	Gyeongsangnam-do Hamyang-gun
130	Gyeongsangnam-do Sacheon-si
131	Daegu Seo-gu
132	Gyeongsangnam-do Changwon-si
133	Jeollanam-do Gokseong-gun
134	Ulsan Buk-gu

135	Gyeonggi-do Yongin-si
136	Busan Haeundae-gu
137	Gyeongsangbuk-do Uiseong-gun
138	Jeollanam-do Mokpo-si
139	Jeollabuk-do Gimje-si
140	Jeollabuk-do Jinan-gun
141	Jeollabuk-do Iksan-si
142	Busan Busanjin-gu
143	Daegu Buk-gu
144	Jeollanam-do Hwasun-gun
145	Chungcheongnam-do Gongju-si
146	Gyeonggi-do Anseong-si
147	Jeollabuk-do Jeonju-si
148	Chungcheongnam-do Seochon-gun
149	Daegu Nam-gu
150	Busan Dongnae-gu
151	Jeollabuk-do Imsil-gun
152	Chungcheongbuk-do Boeun-gun
153	Ulsan Dong-gu
154	Ulsan Nam-gu
155	Seoul Eunpyeong-gu
156	Gyeongsangnam-do Hapcheon-gun
157	Gwangju Gwangsan-gu
158	Seoul Gangseo-gu
159	Daegu Dalseo-gu
160	Jeollanam-do Yeongwang-gun
161	Gyeonggi-do Anyang-si
162	Gangwon-do Inje-gun
163	Jeollabuk-do Sunchang-gun
164	Gangwon-do Taebaek-si
165	Gwangju Buk-gu
166	Busan Sasang-gu
167	Gyeonggi-do Bucheon-si
168	Gyeonggi-do Seongnam-si
169	Seoul Seodaemun-gu
170	Busan Geumjeong-gu
171	Gyeongsangbuk-do Gumi-si
172	Gangwon-do Cheorwon-gun
173	Gyeonggi-do Dongducheon-si
174	Jeollabuk-do Muju-gun
175	Seoul Jungnang-gu
176	Jeollanam-do Gangjin-gun
177	Daejeon Daedeok-gu
178	Incheon Bupyeong-gu
179	Jeollabuk-do Jangsu-gun

180	Gyeonggi-do Suwon-si
181	Seoul Yangcheon-gu
182	Seoul Dobong-gu
183	Busan Saha-gu
184	Busan Seo-gu
185	Busan Yeongdo-gu
186	Daejeon Jung-gu
187	Seoul Gangbuk-gu
188	Gwangju Dong-gu
189	Gyeongsangbuk-do Yecheon-gun
190	Gyeonggi-do Gunpo-si
191	Busan Jung-gu
192	Seoul Seongdong-gu
193	Gyeonggi-do Guri-si
194	Busan Dong-gu
195	Incheon Gyeyang-gu
196	Gyeonggi-do Uiwang-si
197	Gyeonggi-do Ansan-si
198	Gyeongsangbuk-do Yeongyang-gun
199	Seoul Geumcheon-gu
200	Gyeongsangnam-do Uiryeong-gun
201	Gyeonggi-do Yeoncheon-gun
202	Busan Nam-gu
203	Seoul Gangnam-gu
204	Seoul Mapo-gu
205	Seoul Songpa-gu
206	Gyeonggi-do Gwangmyeong-si
207	Daegu Suseong-gu
208	Gangwon-do Hwacheon-gun
209	Seoul Nowon-gu
210	Seoul Seocho-gu
211	Seoul Guro-gu
212	Seoul Gwangjin-gu
213	Seoul Dongdaemun-gu
214	Seoul Jongno-gu
215	Daejeon Seo-gu
216	Gangwon-do Yanggu-gun
217	Seoul Yeongdeungpo-gu
218	Daejeon Dong-gu
219	Seoul Yongsan-gu
220	Seoul Jung-gu
221	Seoul Seongbuk-gu
222	Seoul Gwanak-gu
223	Incheon Dong-gu
224	Gwangju Seo-gu

225	Gyeonggi-do Gwacheon-si
226	Seoul Dongjak-gu
227	Gyeonggi-do Osan-si
228	Seoul Gangdong-gu

Table A.3: Rank of City Attractiveness for Population Aged 40-50 for year 2015

Rank	City
1	Jeju-do Seogwipo-si
2	Sejong-si
3	Jeollanam-do Goheung-gun
4	Jeollanam-do Naju-si
5	Gyeongsangbuk-do Uiseong-gun
6	Gyeongsangnam-do Hapcheon-gun
7	Gyeongsangnam-do Sancheong-gun
8	Jeollanam-do Boseong-gun
9	Gyeonggi-do Yangpyeong-gun
10	Jeju-do Jesu-si
11	Chungcheongbuk-do Goesan-gun
12	Gyeongsangbuk-do Gunwi-gun
13	Gyeongsangnam-do Namhae-gun
14	Jeollanam-do Haenam-gun
15	Gyeongsangnam-do Hadong-gun
16	Jeollabuk-do Wanju-gun
17	Gyeongsangbuk-do Cheongdo-gun
18	Incheon Ganghwa-gun
19	Jeollanam-do Hampyeong-gun
20	Gyeongsangnam-do Changnyeong-gun
21	Chungcheongnam-do Cheongyang-gun
22	Gyeongsangnam-do Miryang-si
23	Gyeongsangbuk-do Yeongdeok-gun
24	Jeollabuk-do Imsil-gun
25	Gyeongsangbuk-do Bonghwa-gun
26	Gyeongsangbuk-do Seongju-gun
27	Jeollanam-do Gokseong-gun
28	Jeollanam-do Jindo-gun
29	Gyeongsangbuk-do Yecheon-gun
30	Gyeongsangnam-do Hamyang-gun
31	Jeollabuk-do Buan-gun
32	Jeollabuk-do Gochang-gun
33	Jeollabuk-do Gimje-si
34	Jeollanam-do Wando-gun
35	Chungcheongbuk-do Yeongdong-gun
36	Gyeongsangnam-do Uiryeong-gun
37	Jeollanam-do Sinan-gun
38	Gyeongsangbuk-do Sangju-si
39	Gyeongsangbuk-do Gimcheon-si
40	Chungcheongnam-do Buyeo-gun
41	Chungcheongnam-do Taean-gun
42	Jeollanam-do Jangheung-gun
43	Chungcheongbuk-do Boeun-gun
44	Chungcheongnam-do Seochon-gun

45	Gyeongsangbuk-do Yeongcheon-si
46	Gangwon-do Hoengseong-gun
47	Jeollanam-do Gangjin-gun
48	Chungcheongnam-do Geumsan-gun
49	Gyeongsangbuk-do Cheongsong-gun
50	Jeollanam-do Gurye-gun
51	Jeollanam-do Damyang-gun
52	Jeollanam-do Jangseong-gun
53	Gangwon-do Yeongwol-gun
54	Jeollabuk-do Namwon-si
55	Gangwon-do Hongcheon-gun
56	Chungcheongnam-do Hongseong-gun
57	Jeollabuk-do Jinan-gun
58	Jeollabuk-do Jeongeup-si
59	Jeollabuk-do Jangsu-gun
60	Jeollabuk-do Sunchang-gun
61	Gangwon-do Yangyang-gun
62	Gyeonggi-do Gapyeong-gun
63	Jeollanam-do Yeonggwang-gun
64	Gyeongsangnam-do Geochang-gun
65	Gyeongsangnam-do Goseong-gun
66	Gyeongsangbuk-do Mungyeong-si
67	Chungcheongnam-do Yesan-gun
68	Chungcheongnam-do Boryeong-si
69	Jeollabuk-do Muju-gun
70	Gyeongsangbuk-do Yeongyang-gun
71	Chungcheongbuk-do Okcheon-gun
72	Gyeongsangbuk-do Andong-si
73	Chungcheongbuk-do Danyang-gun
74	Gangwon-do Pyeongchang-gun
75	Jeollanam-do Hwasun-gun
76	Gyeongsangbuk-do Uljin-gun
77	Chungcheongnam-do Nonsan-si
78	Gangwon-do Goseong-gun
79	Gangwon-do Jeongseon-gun
80	Gyeongsangbuk-do Yeongju-si
81	Chungcheongnam-do Gongju-si
82	Jeollanam-do Yeongam-gun
83	Gyeongsangbuk-do Goryeong-gun
84	Daegu Dalseong-gun
85	Gyeongsangnam-do Haman-gun
86	Gyeongsangbuk-do Gyeongju-si
87	Busan Gangseo-gu
88	Chungcheongbuk-do Eumseong-gun
89	Gyeonggi-do Hanam-si

90	Gyeongsangnam-do Yangsan-si
91	Busan Gijang-gun
92	Gyeonggi-do Yeosu-si
93	Incheon Ongjin-gun
94	Gyeonggi-do Namyangju-si
95	Jeollanam-do Muan-gun
96	Gyeongsangnam-do Sacheon-si
97	Gyeonggi-do Hwaseong-si
98	Gangwon-do Gangneung-si
99	Chungcheongbuk-do Chungju-si
100	Gyeonggi-do Yeoncheon-gun
101	Chungcheongbuk-do Jecheon-si
102	Ulsan Ulju-gun
103	Gangwon-do Wonju-si
104	Chungcheongbuk-do Jincheon-gun
105	Chungcheongnam-do Dangjin-gun
106	Chungcheongnam-do Seosan-si
107	Gangwon-do Chuncheon-si
108	Gyeongsangnam-do Jinju-si
109	Jeollabuk-do Iksan-si
110	Gangwon-do Samcheok-si
111	Gyeonggi-do Dongducheon-si
112	Gyeonggi-do Paju-si
113	Jeollanam-do Yeosu-si
114	Gyeongsangbuk-do Gyeongsan-si
115	Gangwon-do Donghae-si
116	Gyeonggi-do Goyang-si
117	Jeollabuk-do Gunsan-si
118	Gyeonggi-do Gwangju-si
119	Chungcheongbuk-do Jeungpyeong-gun
120	Gyeonggi-do Anseong-si
121	Gangwon-do Taebaek-si
122	Gyeongsangnam-do Tongyeong-si
123	Gyeonggi-do Pocheon-si
124	Gangwon-do Cheorwon-gun
125	Daegu Jung-gu
126	Busan Dong-gu
127	Gangwon-do Inje-gun
128	Chungcheongnam-do Asan-si
129	Busan Yeongdo-gu
130	Busan Jung-gu
131	Incheon Namdong-gu
132	Jeollanam-do Mokpo-si
133	Gwangju Nam-gu
134	Daegu Nam-gu

135	Jeollanam-do Suncheon-si
136	Gyeongsangbuk-do Pohang-si
137	Busan Buk-gu
138	Gangwon-do Yanggu-gun
139	Daegu Dong-gu
140	Busan Seo-gu
141	Gyeonggi-do Yangju-si
142	Gangwon-do Hwacheon-gun
143	Gangwon-do Sokcho-si
144	Gyeonggi-do Pyeongtaek-si
145	Gyeonggi-do Gimpo-si
146	Gyeongsangbuk-do Chilgok-gun
147	Gwangju Dong-gu
148	Daegu Seo-gu
149	Busan Suyeong-gu
150	Gyeonggi-do Icheon-si
151	Jeollanam-do Gwangyang-si
152	Busan Geumjeong-gu
153	Busan Haeundae-gu
154	Daejeon Jung-gu
155	Busan Busanjin-gu
156	Gyeonggi-do Uijeongbu-si
157	Gyeongsangbuk-do Ulleung-gun
158	Gwangju Buk-gu
159	Busan Yeonje-gu
160	Incheon Dong-gu
161	Busan Saha-gu
162	Chungcheongbuk-do Cheongju-si
163	Gyeonggi-do Yongin-si
164	Daejeon Dong-gu
165	Jeollabuk-do Jeonju-si
166	Chungcheongnam-do Cheonan-si
167	Daejeon Daedeok-gu
168	Seoul Dobong-gu
169	Incheon Jung-gu
170	Seoul Gangbuk-gu
171	Busan Sasang-gu
172	Seoul Eunpyeong-gu
173	Daegu Buk-gu
174	Busan Nam-gu
175	Daejeon Yuseong-gu
176	Gyeongsangnam-do Changwon-si
177	Ulsan Jung-gu
178	Seoul Gangseo-gu
179	Seoul Seodaemun-gu

180	Seoul Jungnang-gu
181	Gyeonggi-do Seongnam-si
182	Incheon Bupyeong-gu
183	Gyeongsangnam-do Gimhae-si
184	Seoul Geumcheon-gu
185	Chungcheongnam-do Gyeryong-si
186	Incheon Seo-gu
187	Seoul Jongno-gu
188	Seoul Dongdaemun-gu
189	Busan Dongnae-gu
190	Seoul Jung-gu
191	Gyeongsangnam-do Geoje-si
192	Gyeonggi-do Suwon-si
193	Gyeonggi-do Uiwang-si
194	Seoul Guro-gu
195	Seoul Nowon-gu
196	Seoul Seongdong-gu
197	Gyeonggi-do Gunpo-si
198	Gwangju Gwangsan-gu
199	Gwangju Seo-gu
200	Seoul Gwanak-gu
201	Daegu Dalseo-gu
202	Seoul Yongsan-gu
203	Gyeonggi-do Bucheon-si
204	Incheon Yeonsu-gu
205	Gyeonggi-do Anyang-si
206	Daejeon Seo-gu
207	Gyeonggi-do Guri-si
208	Gyeonggi-do Gwangmyeong-si
209	Gyeonggi-do Siheung-si
210	Incheon Gyeyang-gu
211	Gyeongsangbuk-do Gumi-si
212	Seoul Yeongdeungpo-gu
213	Daegu Suseong-gu
214	Seoul Mapo-gu
215	Seoul Seongbuk-gu
216	Seoul Yangcheon-gu
217	Seoul Dongjak-gu
218	Seoul Gwangjin-gu
219	Gyeonggi-do Osan-si
220	Ulsan Buk-gu
221	Gyeonggi-do Gwacheon-si
222	Gyeonggi-do Ansan-si
223	Seoul Songpa-gu
224	Ulsan Nam-gu

225	Seoul Gangdong-gu
226	Seoul Gangnam-gu
227	Seoul Seocho-gu
228	Ulsan Dong-gu

Table A.4: Rank of City Attractiveness for Population Aged 60 or older for year 2015

A.3 Ranking of City Attractiveness (2020)

Rank	City
1	Sejong-si
2	Jeju-do Jesu-si
3	Gyeonggi-do Hwaseong-si
4	Jeju-do Seogwipo-si
5	Jeollanam-do Naju-si
6	Busan Gangseo-gu
7	Gyeongsangnam-do Geoje-si
8	Gyeonggi-do Pyeongtaek-si
9	Gyeonggi-do Goyang-si
10	Jeollabuk-do Wanju-gun
11	Gyeonggi-do Hanam-si
12	Daejeon Yuseong-gu
13	Gyeonggi-do Gwangju-si
14	Incheon Namdong-gu
15	Gyeongsangnam-do Yangsan-si
16	Gyeonggi-do Paju-si
17	Gyeonggi-do Namyangju-si
18	Gyeongsangbuk-do Gimcheon-si
19	Gangwon-do Cheorwon-gun
20	Daegu Dalseong-gun
21	Busan Gijang-gun
22	Chungcheongnam-do Cheonan-si
23	Gangwon-do Wonju-si
24	Gyeonggi-do Yongin-si
25	Gyeonggi-do Gimpo-si
26	Gyeonggi-do Suwon-si
27	Ulsan Ulju-gun
28	Chungcheongnam-do Seosan-si
29	Gyeonggi-do Seongnam-si
30	Chungcheongnam-do Asan-si
31	Incheon Yeonsu-gu
32	Gangwon-do Inje-gun
33	Ulsan Jung-gu
34	Incheon Seo-gu
35	Chungcheongnam-do Hongseong-gun
36	Chungcheongnam-do Dangjin-gun
37	Gwangju Gwangsan-gu
38	Gyeongsangnam-do Jinju-si
39	Seoul Gangseo-gu
40	Chungcheongbuk-do Jincheon-gun
41	Gangwon-do Chuncheon-si

42	Chungcheongbuk-do Cheongju-si
43	Ulsan Buk-gu
44	Chungcheongbuk-do Eumseong-gun
45	Gyeonggi-do Yangpyeong-gun
46	Gyeonggi-do Uijeongbu-si
47	Gyeongsangnam-do Hadong-gun
48	Gyeongsangbuk-do Gyeongsan-si
49	Incheon Jung-gu
50	Gyeonggi-do Siheung-si
51	Gyeonggi-do Anyang-si
52	Gyeonggi-do Yangju-si
53	Jeollanam-do Gwangyang-si
54	Incheon Bupyeong-gu
55	Gyeonggi-do Bucheon-si
56	Chungcheongnam-do Taean-gun
57	Gyeongsangnam-do Gimhae-si
58	Chungcheongnam-do Boryeong-si
59	Gyeonggi-do Osan-si
60	Seoul Mapo-gu
61	Gyeonggi-do Gunpo-si
62	Gyeonggi-do Icheon-si
63	Daegu Dong-gu
64	Gyeongsangbuk-do Pohang-si
65	Chungcheongbuk-do Jeungpyeong-gun
66	Gyeongsangbuk-do Andong-si
67	Gyeonggi-do Ansan-si
68	Seoul Gwanak-gu
69	Jeollabuk-do Jeonju-si
70	Gyeonggi-do Yeosu-si
71	Jeollanam-do Mu-an-gun
72	Seoul Eunpyeong-gu
73	Busan Buk-gu
74	Seoul Songpa-gu
75	Seoul Gangnam-gu
76	Seoul Yangcheon-gu
77	Gyeonggi-do Gwangmyeong-si
78	Jeollanam-do Yeosu-si
79	Jeollanam-do Suncheon-si
80	Incheon Ganghwa-gun
81	Jeollanam-do Jangheung-gun
82	Jeollabuk-do Gunsan-si
83	Seoul Seocho-gu
84	Gyeonggi-do Pocheon-si
85	Gyeonggi-do Anseong-si
86	Busan Haeundae-gu

87	Chungcheongbuk-do Goesan-gun
88	Gyeongsangbuk-do Gumi-si
89	Gangwon-do Hoengseong-gun
90	Gyeongsangnam-do Changnyeong-gun
91	Gyeonggi-do Gapyeong-gun
92	Chungcheongbuk-do Chungju-si
93	Jeollabuk-do Gochang-gun
94	Daegu Buk-gu
95	Seoul Yeongdeungpo-gu
96	Gyeonggi-do Yeoncheon-gun
97	Seoul Guro-gu
98	Gyeongsangbuk-do Chilgok-gun
99	Seoul Seodaemun-gu
100	Seoul Seongdong-gu
101	Seoul Nowon-gu
102	Busan Suyeong-gu
103	Daejeon Seo-gu
104	Chungcheongnam-do Nonsan-si
105	Gyeongsangnam-do Miryang-si
106	Gyeongsangnam-do Changwon-si
107	Gangwon-do Hongcheon-gun
108	Gangwon-do Yeongwol-gun
109	Incheon Ongjin-gun
110	Seoul Gwangjin-gu
111	Gyeonggi-do Guri-si
112	Gyeonggi-do Uiwang-si
113	Daegu Jung-gu
114	Gangwon-do Yanggu-gun
115	Incheon Gyeyang-gu
116	Gyeongsangbuk-do Mungyeong-si
117	Seoul Dobong-gu
118	Jeollanam-do Wando-gun
119	Chungcheongbuk-do Jecheon-si
120	Daegu Dalseo-gu
121	Chungcheongnam-do Buyeo-gun
122	Chungcheongbuk-do Yeongdong-gun
123	Seoul Dongdaemun-gu
124	Gyeonggi-do Dongducheon-si
125	Gangwon-do Gangneung-si
126	Chungcheongnam-do Cheongyang-gun
127	Gyeongsangnam-do Tongyeong-si
128	Jeollabuk-do Imsil-gun
129	Gwangju Nam-gu
130	Gyeongsangnam-do Geochang-gun
131	Gyeongsangbuk-do Sangju-si

132	Chungcheongbuk-do Okcheon-gun
133	Ulsan Dong-gu
134	Seoul Dongjak-gu
135	Busan Busanjin-gu
136	Seoul Jungnang-gu
137	Gyeongsangbuk-do Uljin-gun
138	Gyeongsangnam-do Sacheon-si
139	Gwangju Buk-gu
140	Gyeongsangbuk-do Yeongcheon-si
141	Seoul Gangbuk-gu
142	Gyeongsangnam-do Haman-gun
143	Seoul Seongbuk-gu
144	Gangwon-do Pyeongchang-gun
145	Gyeongsangbuk-do Gyeongju-si
146	Ulsan Nam-gu
147	Gyeongsangnam-do Sancheong-gun
148	Seoul Geumcheon-gu
149	Jeollanam-do Jangseong-gun
150	Jeollabuk-do Iksan-si
151	Chungcheongnam-do Gyeryong-si
152	Busan Yeonje-gu
153	Gyeongsangbuk-do Seongju-gun
154	Jeollanam-do Mokpo-si
155	Gyeongsangbuk-do Yeongju-si
156	Gangwon-do Sokcho-si
157	Chungcheongnam-do Geumsan-gun
158	Chungcheongnam-do Gongju-si
159	Jeollanam-do Sinan-gun
160	Jeollanam-do Gokseong-gun
161	Gangwon-do Hwacheon-gun
162	Chungcheongnam-do Yesan-gun
163	Chungcheongbuk-do Boeun-gun
164	Gangwon-do Donghae-si
165	Seoul Yongsan-gu
166	Jeollanam-do Gurye-gun
167	Jeollanam-do Haenam-gun
168	Jeollanam-do Goheung-gun
169	Jeollanam-do Damyang-gun
170	Gyeongsangbuk-do Bonghwa-gun
171	Daegu Suseong-gu
172	Jeollanam-do Jindo-gun
173	Gyeongsangbuk-do Uiseong-gun
174	Jeollanam-do Yeongam-gun
175	Chungcheongnam-do Seocheon-gun
176	Daejeon Jung-gu

177	Busan Geumjeong-gu
178	Jeollanam-do Hampyeong-gun
179	Jeollabuk-do Namwon-si
180	Gyeongsangbuk-do Cheongdo-gun
181	Gyeongsangnam-do Hamyang-gun
182	Gangwon-do Goseong-gun
183	Gangwon-do Yangyang-gun
184	Jeollabuk-do Jeongeup-si
185	Busan Dongnae-gu
186	Gyeongsangbuk-do Yecheon-gun
187	Jeollanam-do Boseong-gun
188	Gangwon-do Jeongseon-gun Ulleung-gun
189	Jeollanam-do Yeonggwang-gun
190	Busan Saha-gu
191	Daejeon Daedeok-gu
192	Gyeongsangnam-do Goseong-gun
193	Seoul Jongno-gu
194	Busan Nam-gu
195	Chungcheongbuk-do Danyang-gun
196	Gwangju Seo-gu
197	Gyeongsangbuk-do Yeongdeok-gun
198	Jeollanam-do Hwasun-gun
199	Gyeongsangbuk-do Cheongsong-gun
200	Jeollabuk-do Buan-gun
201	Busan Sasang-gu
202	Incheon Dong-gu
203	Daegu Nam-gu
204	Jeollabuk-do Sunchang-gun
205	Jeollabuk-do Jangsu-gun
206	Jeollabuk-do Gimje-si
207	Daejeon Dong-gu
208	Gyeongsangnam-do Namhae-gun
209	Jeollabuk-do Muju-gun
210	Jeollabuk-do Jinan-gun
211	Seoul Jung-gu
212	Gyeonggi-do Gwacheon-si
213	Seoul Gangdong-gu
214	Gyeongsangbuk-do Gunwi-gun
215	Daegu Seo-gu
216	Gangwon-do Taebaek-si
217	Busan Seo-gu
218	Busan Yeongdo-gu
219	Gyeongsangnam-do Hapcheon-gun
220	Gyeongsangbuk-do Goryeong-gun
221	Busan Dong-gu

222	Gwangju Dong-gu
223	Gyeongsangbuk-do Yeongyang-gun
224	Gyeongsangnam-do Uiryeong-gun
225	Gangwon-do Samcheok-si
226	Jeollanam-do Gangjin-gun
227	Busan Jung-gu
228	Gyeongsangbuk-do

Table A.5: Rank of City Attractiveness for Total Population for year 2020

Rank	City
1	Sejong-si
2	Gyeonggi-do Hwaseong-si
3	Seoul Gwanak-gu
4	Busan Gangseo-gu
5	Gangwon-do Cheorwon-gun
6	Gyeongsangnam-do Geoje-si
7	Seoul Mapo-gu
8	Daejeon Yuseong-gu
9	Gangwon-do Inje-gun
10	Seoul Gangnam-gu
11	Seoul Gangseo-gu
12	Gyeonggi-do Suwon-si
13	Chungcheongnam-do Cheonan-si
14	Seoul Yeongdeungpo-gu
15	Seoul Gwangjin-gu
16	Seoul Dongjak-gu
17	Jeju-do Jesu-si
18	Gyeonggi-do Pyeongtaek-si
19	Gyeonggi-do Seongnam-si
20	Gyeonggi-do Goyang-si
21	Incheon Namdong-gu
22	Seoul Seodaemun-gu
23	Seoul Seocho-gu
24	Incheon Jung-gu
25	Gyeonggi-do Hanam-si
26	Seoul Dongdaemun-gu
27	Gyeonggi-do Paju-si
28	Gyeonggi-do Gwangju-si
29	Seoul Seongdong-gu
30	Seoul Songpa-gu
31	Jeollanam-do Naju-si
32	Seoul Yongsan-gu
33	Gangwon-do Hwacheon-gun
34	Gyeonggi-do Osan-si
35	Seoul Guro-gu
36	Incheon Seo-gu
37	Seoul Seongbuk-gu
38	Seoul Eunpyeong-gu
39	Incheon Yeonsu-gu
40	Gyeonggi-do Yongin-si
41	Seoul Geumcheon-gu
42	Gyeonggi-do Siheung-si
43	Seoul Jongno-gu
44	Gyeonggi-do Gimpo-si

45	Jeju-do Seogwipo-si
46	Gyeonggi-do Namyangju-si
47	Gyeonggi-do Anyang-si
48	Chungcheongnam-do Asan-si
49	Gyeonggi-do Bucheon-si
50	Incheon Bupyeong-gu
51	Gangwon-do Yanggu-gun
52	Chungcheongbuk-do Cheongju-si
53	Seoul Jung-gu
54	Gyeonggi-do Ansan-si
55	Seoul Yangcheon-gu
56	Seoul Jungnang-gu
57	Busan Gijang-gun
58	Gyeonggi-do Gunpo-si
59	Gangwon-do Wonju-si
60	Chungcheongnam-do Dangjin-gun
61	Gyeongsangbuk-do Gumi-si
62	Gyeonggi-do Uijeongbu-si
63	Seoul Gangbuk-gu
64	Incheon Ongjin-gun
65	Daegu Jung-gu
66	Seoul Nowon-gu
67	Gangwon-do Chuncheon-si
68	Gyeonggi-do Gwangmyeong-si
69	Daejeon Seo-gu
70	Seoul Gangdong-gu
71	Daegu Dalseong-gun
72	Gyeongsangbuk-do Gimcheon-si
73	Seoul Dobong-gu
74	Busan Busanjin-gu
75	Gwangju Gwangsan-gu
76	Ulsan Dong-gu
77	Busan Suyeong-gu
78	Gyeongsangnam-do Yangsan-si
79	Gyeonggi-do Yeoncheon-gun
80	Gyeonggi-do Guri-si
81	Gyeongsangbuk-do Gyeongsan-si
82	Gyeonggi-do Uiwang-si
83	Incheon Gyeyang-gu
84	Chungcheongnam-do Seosan-si
85	Jeollabuk-do Wanju-gun
86	Ulsan Buk-gu
87	Gyeongsangbuk-do Chilgok-gun
88	Gyeonggi-do Icheon-si
89	Gyeonggi-do Yangju-si

90	Chungcheongbuk-do Eumseong-gun
91	Gangwon-do Goseong-gun
92	Ulsan Jung-gu
93	Chungcheongbuk-do Jincheon-gun
94	Chungcheongbuk-do Jeungpyeong-gun
95	Gyeongsangnam-do Jinju-si
96	Ulsan Ulju-gun
97	Gyeonggi-do Gwacheon-si
98	Gyeonggi-do Anseong-si
99	Gyeonggi-do Pocheon-si
100	Gyeonggi-do Dongducheon-si
101	Jeollabuk-do Jeonju-si
102	Daegu Buk-gu
103	Daegu Dong-gu
104	Gyeongsangnam-do Gimhae-si
105	Incheon Dong-gu
106	Busan Yeonje-gu
107	Busan Geumjeong-gu
108	Ulsan Nam-gu
109	Gwangju Dong-gu
110	Busan Haeundae-gu
111	Daegu Nam-gu
112	Daejeon Dong-gu
113	Daejeon Jung-gu
114	Chungcheongnam-do Hongseong-gun
115	Busan Nam-gu
116	Gyeonggi-do Yeoju-si
117	Busan Buk-gu
118	Gwangju Seo-gu
119	Gangwon-do Samcheok-si
120	Daegu Dalseo-gu
121	Jeollanam-do Gwangyang-si
122	Gwangju Buk-gu
123	Jeollabuk-do Gunsan-si
124	Chungcheongnam-do Gyeryong-si
125	Daejeon Daedeok-gu
126	Jeollanam-do Muan-gun
127	Busan Sasang-gu
128	Busan Seo-gu
129	Gyeongsangbuk-do Andong-si
130	Gwangju Nam-gu
131	Chungcheongbuk-do Chungju-si
132	Gyeonggi-do Yangpyeong-gun
133	Jeollanam-do Mokpo-si
134	Busan Jung-gu

135	Gyeongsangbuk-do Ulleung-gun
136	Busan Dongnae-gu
137	Busan Saha-gu
138	Chungcheongbuk-do Jecheon-si
139	Gyeongsangnam-do Changwon-si
140	Busan Dong-gu
141	Gangwon-do Gangneung-si
142	Gyeonggi-do Gapyeong-gun
143	Jeollanam-do Suncheon-si
144	Daegu Seo-gu
145	Chungcheongnam-do Boryeong-si
146	Gyeongsangbuk-do Pohang-si
147	Chungcheongnam-do Taean-gun
148	Jeollabuk-do Iksan-si
149	Gangwon-do Sokcho-si
150	Chungcheongnam-do Nonsan-si
151	Gyeongsangnam-do Haman-gun
152	Chungcheongbuk-do Yeongdong-gun
153	Gyeongsangnam-do Sacheon-si
154	Gangwon-do Donghae-si
155	Gyeongsangbuk-do Uljin-gun
156	Gyeongsangnam-do Tongyeong-si
157	Daegu Suseong-gu
158	Chungcheongnam-do Gongju-si
159	Gangwon-do Hongcheon-gun
160	Gangwon-do Taebaek-si
161	Busan Yeongdo-gu
162	Gyeongsangbuk-do Gyeongju-si
163	Jeollanam-do Yeosu-si
164	Incheon Ganghwa-gun
165	Gangwon-do Yangyang-gun
166	Gangwon-do Yeongwol-gun
167	Gangwon-do Jeongseon-gun
168	Gangwon-do Pyeongchang-gun
169	Chungcheongnam-do Yesan-gun
170	Jeollanam-do Jangseong-gun
171	Gyeongsangbuk-do Yeongcheon-si
172	Jeollanam-do Yeongam-gun
173	Gyeongsangbuk-do Mungyeong-si
174	Jeollanam-do Jangheung-gun
175	Gangwon-do Hoengseong-gun
176	Jeollanam-do Wando-gun
177	Chungcheongbuk-do Okcheon-gun
178	Chungcheongbuk-do Goesan-gun
179	Chungcheongnam-do Geumsan-gun

180	Gyeongsangbuk-do Yeongju-si
181	Jeollanam-do Yeonggwang-gun
182	Jeollanam-do Damyang-gun
183	Gyeongsangnam-do Geochang-gun
184	Chungcheongnam-do Cheongyang-gun
185	Gyeongsangbuk-do Seongju-gun
186	Gyeongsangnam-do Changnyeong-gun
187	Jeollanam-do Hwasun-gun
188	Gyeongsangnam-do Goseong-gun
189	Jeollabuk-do Gimje-si
190	Jeollabuk-do Imsil-gun
191	Jeollabuk-do Jeongeup-si
192	Chungcheongnam-do Buyeo-gun
193	Chungcheongbuk-do Danyang-gun
194	Gyeongsangnam-do Miryang-si
195	Jeollanam-do Sinan-gun
196	Jeollabuk-do Gochang-gun
197	Jeollabuk-do Buan-gun
198	Gyeongsangbuk-do Sangju-si
199	Jeollanam-do Gokseong-gun
200	Gyeongsangbuk-do Goryeong-gun
201	Jeollabuk-do Namwon-si
202	Jeollabuk-do Sunchang-gun
203	Chungcheongbuk-do Boeun-gun
204	Gyeongsangbuk-do Yecheon-gun
205	Jeollabuk-do Muju-gun
206	Jeollanam-do Haenam-gun
207	Gyeongsangnam-do Hadong-gun
208	Jeollanam-do Hampyeong-gun
209	Jeollabuk-do Jangsu-gun
210	Chungcheongnam-do Seochon-gun
211	Jeollanam-do Gurye-gun
212	Jeollanam-do Jindo-gun
213	Jeollanam-do Gangjin-gun
214	Gyeongsangbuk-do Cheongsong-gun
215	Jeollabuk-do Jinan-gun
216	Gyeongsangnam-do Hamyang-gun
217	Gyeongsangbuk-do Bonghwa-gun
218	Jeollanam-do Boseong-gun
219	Gyeongsangbuk-do Yeongdeok-gun
220	Gyeongsangbuk-do Cheongdo-gun
221	Gyeongsangnam-do Uiryeong-gun
222	Gyeongsangnam-do Hapcheon-gun
223	Gyeongsangbuk-do Yeongyang-gun
224	Gyeongsangnam-do Sancheong-gun

225	Gyeongsangbuk-do Gunwi-gun
226	Gyeongsangnam-do Namhae-gun
227	Gyeongsangbuk-do Uiseong-gun
228	Jeollanam-do Goheung-gun

Table A.6: Rank of City Attractiveness for Population Aged 20-30 for year 2020

Rank	City
1	Sejong-si
2	Jeju-do Seogwipo-si
3	Jeju-do Jesu-si
4	Jeollanam-do Naju-si
5	Gyeonggi-do Hwaseong-si
6	Busan Gangseo-gu
7	Gyeongsangbuk-do Gimcheon-si
8	Gyeonggi-do Hanam-si
9	Jeollabuk-do Wanju-gun
10	Ulsan Ulju-gun
11	Gyeonggi-do Gwangju-si
12	Daegu Dalseong-gun
13	Gyeongsangnam-do Yangsan-si
14	Gyeonggi-do Pyeongtaek-si
15	Gyeongsangnam-do Geoje-si
16	Ulsan Jung-gu
17	Gyeongsangnam-do Hadong-gun
18	Busan Gijang-gun
19	Gangwon-do Wonju-si
20	Gyeongsangbuk-do Gyeongju-si
21	Gyeonggi-do Yangpyeong-gun
22	Chungcheongnam-do Hongseong-gun
23	Gyeonggi-do Paju-si
24	Gangwon-do Yeongwol-gun
25	Gyeongsangbuk-do Ulleung-gun
26	Gyeonggi-do Namyangju-si
27	Chungcheongbuk-do Jincheon-gun
28	Incheon Namdong-gu
29	Gyeongsangnam-do Jinju-si
30	Gyeonggi-do Goyang-si
31	Chungcheongbuk-do Goesan-gun
32	Gyeongsangbuk-do Gyeongsan-si
33	Gyeongsangnam-do Miryang-si
34	Gyeongsangbuk-do Seongju-gun
35	Jeollanam-do Sinan-gun
36	Gyeongsangbuk-do Yeongcheon-si
37	Gangwon-do Pyeongchang-gun
38	Chungcheongnam-do Boryeong-si
39	Gangwon-do Hoengseong-gun
40	Incheon Yeonsu-gu
41	Jeollanam-do Gwangyang-si
42	Gyeongsangnam-do Tongyeong-si
43	Incheon Ongjin-gun
44	Jeollanam-do Jangheung-gun

45	Chungcheongbuk-do Eumseong-gun
46	Gyeongsangbuk-do Andong-si
47	Gangwon-do Jeongseon-gun
48	Chungcheongnam-do Taean-gun
49	Gyeongsangbuk-do Pohang-si
50	Jeollanam-do Wando-gun
51	Chungcheongnam-do Seosan-si
52	Gyeongsangnam-do Changnyeong-gun
53	Busan Buk-gu
54	Gyeonggi-do Gimpo-si
55	Gyeongsangbuk-do Uljin-gun
56	Chungcheongbuk-do Chungju-si
57	Gyeonggi-do Yeoju-si
58	Gyeonggi-do Gapyeong-gun
59	Chungcheongnam-do Dangjin-gun
60	Gyeongsangnam-do Haman-gun
61	Jeollanam-do Suncheon-si
62	Gyeongsangnam-do Sancheong-gun
63	Gangwon-do Hongcheon-gun
64	Gyeonggi-do Pocheon-si
65	Jeollanam-do Yeongam-gun
66	Daegu Dong-gu
67	Jeollanam-do Yeosu-si
68	Chungcheongnam-do Cheonan-si
69	Gyeongsangnam-do Gimhae-si
70	Gangwon-do Gangneung-si
71	Jeollanam-do Haenam-gun
72	Gyeongsangbuk-do Sangju-si
73	Incheon Ganghwa-gun
74	Gangwon-do Sokcho-si
75	Chungcheongbuk-do Jecheon-si
76	Chungcheongbuk-do Jeungpyeong-gun
77	Chungcheongbuk-do Danyang-gun
78	Chungcheongnam-do Nonsan-si
79	Chungcheongnam-do Asan-si
80	Jeollabuk-do Gochang-gun
81	Jeollabuk-do Gunsan-si
82	Gangwon-do Chuncheon-si
83	Incheon Jung-gu
84	Daejeon Yuseong-gu
85	Jeollanam-do Gurye-gun
86	Gyeongsangbuk-do Cheongdo-gun
87	Gyeongsangbuk-do Bonghwa-gun
88	Jeollanam-do Damyang-gun
89	Jeollanam-do Hampyeong-gun

90	Jeollanam-do Jindo-gun
91	Gyeongsangnam-do Goseong-gun
92	Busan Yeonje-gu
93	Gyeongsangbuk-do Yeongju-si
94	Gyeongsangbuk-do Yeongdeok-gun
95	Chungcheongnam-do Geumsan-gun
96	Gyeonggi-do Siheung-si
97	Jeollabuk-do Jeongeup-si
98	Incheon Seo-gu
99	Daegu Jung-gu
100	Jeollanam-do Muan-gun
101	Chungcheongnam-do Buyeo-gun
102	Busan Suyeong-gu
103	Gyeongsangnam-do Geochang-gun
104	Jeollanam-do Goheung-gun
105	Chungcheongbuk-do Yeongdong-gun
106	Gyeonggi-do Yangju-si
107	Gangwon-do Samcheok-si
108	Jeollanam-do Boseong-gun
109	Gangwon-do Goseong-gun
110	Gyeongsangbuk-do Cheongsong-gun
111	Gwangju Nam-gu
112	Gangwon-do Yangyang-gun
113	Chungcheongbuk-do Cheongju-si
114	Gyeongsangbuk-do Mungyeong-si
115	Gyeongsangbuk-do Chilgok-gun
116	Gyeonggi-do Uijeongbu-si
117	Chungcheongnam-do Yesan-gun
118	Gangwon-do Donghae-si
119	Gyeonggi-do Icheon-si
120	Jeollanam-do Jangseong-gun
121	Gyeongsangbuk-do Gunwi-gun
122	Chungcheongbuk-do Okcheon-gun
123	Jeollabuk-do Buan-gun
124	Jeollabuk-do Namwon-si
125	Chungcheongnam-do Gyeryong-si
126	Chungcheongnam-do Cheongyang-gun
127	Gyeongsangbuk-do Goryeong-gun
128	Gyeongsangnam-do Namhae-gun
129	Gyeongsangnam-do Hamyang-gun
130	Gyeongsangnam-do Sacheon-si
131	Daegu Seo-gu
132	Gyeongsangnam-do Changwon-si
133	Jeollanam-do Gokseong-gun
134	Ulsan Buk-gu

135	Gyeonggi-do Yongin-si
136	Busan Haeundae-gu
137	Gyeongsangbuk-do Uiseong-gun
138	Jeollanam-do Mokpo-si
139	Jeollabuk-do Gimje-si
140	Jeollabuk-do Jinan-gun
141	Jeollabuk-do Iksan-si
142	Busan Busanjin-gu
143	Daegu Buk-gu
144	Jeollanam-do Hwasun-gun
145	Chungcheongnam-do Gongju-si
146	Gyeonggi-do Anseong-si
147	Jeollabuk-do Jeonju-si
148	Chungcheongnam-do Seochon-gun
149	Daegu Nam-gu
150	Busan Dongnae-gu
151	Jeollabuk-do Imsil-gun
152	Chungcheongbuk-do Boeun-gun
153	Ulsan Dong-gu
154	Ulsan Nam-gu
155	Seoul Eunpyeong-gu
156	Gyeongsangnam-do Hapcheon-gun
157	Gwangju Gwangsan-gu
158	Seoul Gangseo-gu
159	Daegu Dalseo-gu
160	Jeollanam-do Yeongwang-gun
161	Gyeonggi-do Anyang-si
162	Gangwon-do Inje-gun
163	Jeollabuk-do Sunchang-gun
164	Gangwon-do Taebaek-si
165	Gwangju Buk-gu
166	Busan Sasang-gu
167	Gyeonggi-do Bucheon-si
168	Gyeonggi-do Seongnam-si
169	Seoul Seodaemun-gu
170	Busan Geumjeong-gu
171	Gyeongsangbuk-do Gumi-si
172	Gangwon-do Cheorwon-gun
173	Gyeonggi-do Dongducheon-si
174	Jeollabuk-do Muju-gun
175	Seoul Jungnang-gu
176	Jeollanam-do Gangjin-gun
177	Daejeon Daedeok-gu
178	Incheon Bupyeong-gu
179	Jeollabuk-do Jangsu-gun

180	Gyeonggi-do Suwon-si
181	Seoul Yangcheon-gu
182	Seoul Dobong-gu
183	Busan Saha-gu
184	Busan Seo-gu
185	Busan Yeongdo-gu
186	Daejeon Jung-gu
187	Seoul Gangbuk-gu
188	Gwangju Dong-gu
189	Gyeongsangbuk-do Yecheon-gun
190	Gyeonggi-do Gunpo-si
191	Busan Jung-gu
192	Seoul Seongdong-gu
193	Gyeonggi-do Guri-si
194	Busan Dong-gu
195	Incheon Gyeyang-gu
196	Gyeonggi-do Uiwang-si
197	Gyeonggi-do Ansan-si
198	Gyeongsangbuk-do Yeongyang-gun
199	Seoul Geumcheon-gu
200	Gyeongsangnam-do Uiryeong-gun
201	Gyeonggi-do Yeoncheon-gun
202	Busan Nam-gu
203	Seoul Gangnam-gu
204	Seoul Mapo-gu
205	Seoul Songpa-gu
206	Gyeonggi-do Gwangmyeong-si
207	Daegu Suseong-gu
208	Gangwon-do Hwacheon-gun
209	Seoul Nowon-gu
210	Seoul Seocho-gu
211	Seoul Guro-gu
212	Seoul Gwangjin-gu
213	Seoul Dongdaemun-gu
214	Seoul Jongno-gu
215	Daejeon Seo-gu
216	Gangwon-do Yanggu-gun
217	Seoul Yeongdeungpo-gu
218	Daejeon Dong-gu
219	Seoul Yongsan-gu
220	Seoul Jung-gu
221	Seoul Seongbuk-gu
222	Seoul Gwanak-gu
223	Incheon Dong-gu
224	Gwangju Seo-gu

225	Gyeonggi-do Gwacheon-si
226	Seoul Dongjak-gu
227	Gyeonggi-do Osan-si
228	Seoul Gangdong-gu

Table A.7: Rank of City Attractiveness for Population Aged 40-50 for year 2020

Rank	City
1	Jeju-do Seogwipo-si
2	Sejong-si
3	Jeollanam-do Goheung-gun
4	Jeollanam-do Naju-si
5	Gyeongsangbuk-do Uiseong-gun
6	Gyeongsangnam-do Hapcheon-gun
7	Gyeongsangnam-do Sancheong-gun
8	Jeollanam-do Boseong-gun
9	Gyeonggi-do Yangpyeong-gun
10	Jeju-do Jesu-si
11	Chungcheongbuk-do Goesan-gun
12	Gyeongsangbuk-do Gunwi-gun
13	Gyeongsangnam-do Namhae-gun
14	Jeollanam-do Haenam-gun
15	Gyeongsangnam-do Hadong-gun
16	Jeollabuk-do Wanju-gun
17	Gyeongsangbuk-do Cheongdo-gun
18	Incheon Ganghwa-gun
19	Jeollanam-do Hampyeong-gun
20	Gyeongsangnam-do Changnyeong-gun
21	Chungcheongnam-do Cheongyang-gun
22	Gyeongsangnam-do Miryang-si
23	Gyeongsangbuk-do Yeongdeok-gun
24	Jeollabuk-do Imsil-gun
25	Gyeongsangbuk-do Bonghwa-gun
26	Gyeongsangbuk-do Seongju-gun
27	Jeollanam-do Gokseong-gun
28	Jeollanam-do Jindo-gun
29	Gyeongsangbuk-do Yecheon-gun
30	Gyeongsangnam-do Hamyang-gun
31	Jeollabuk-do Buan-gun
32	Jeollabuk-do Gochang-gun
33	Jeollabuk-do Gimje-si
34	Jeollanam-do Wando-gun
35	Chungcheongbuk-do Yeongdong-gun
36	Gyeongsangnam-do Uiryeong-gun
37	Jeollanam-do Sinan-gun
38	Gyeongsangbuk-do Sangju-si
39	Gyeongsangbuk-do Gimcheon-si
40	Chungcheongnam-do Buyeo-gun
41	Chungcheongnam-do Taean-gun
42	Jeollanam-do Jangheung-gun
43	Chungcheongbuk-do Boeun-gun
44	Chungcheongnam-do Seochon-gun

45	Gyeongsangbuk-do Yeongcheon-si
46	Gangwon-do Hoengseong-gun
47	Jeollanam-do Gangjin-gun
48	Chungcheongnam-do Geumsan-gun
49	Gyeongsangbuk-do Cheongsong-gun
50	Jeollanam-do Gurye-gun
51	Jeollanam-do Damyang-gun
52	Jeollanam-do Jangseong-gun
53	Gangwon-do Yeongwol-gun
54	Jeollabuk-do Namwon-si
55	Gangwon-do Hongcheon-gun
56	Chungcheongnam-do Hongseong-gun
57	Jeollabuk-do Jinan-gun
58	Jeollabuk-do Jeongeup-si
59	Jeollabuk-do Jangsu-gun
60	Jeollabuk-do Sunchang-gun
61	Gangwon-do Yangyang-gun
62	Gyeonggi-do Gapyeong-gun
63	Jeollanam-do Yeonggwang-gun
64	Gyeongsangnam-do Geochang-gun
65	Gyeongsangnam-do Goseong-gun
66	Gyeongsangbuk-do Mungyeong-si
67	Chungcheongnam-do Yesan-gun
68	Chungcheongnam-do Boryeong-si
69	Jeollabuk-do Muju-gun
70	Gyeongsangbuk-do Yeongyang-gun
71	Chungcheongbuk-do Okcheon-gun
72	Gyeongsangbuk-do Andong-si
73	Chungcheongbuk-do Danyang-gun
74	Gangwon-do Pyeongchang-gun
75	Jeollanam-do Hwasun-gun
76	Gyeongsangbuk-do Uljin-gun
77	Chungcheongnam-do Nonsan-si
78	Gangwon-do Goseong-gun
79	Gangwon-do Jeongseon-gun
80	Gyeongsangbuk-do Yeongju-si
81	Chungcheongnam-do Gongju-si
82	Jeollanam-do Yeongam-gun
83	Gyeongsangbuk-do Goryeong-gun
84	Daegu Dalseong-gun
85	Gyeongsangnam-do Haman-gun
86	Gyeongsangbuk-do Gyeongju-si
87	Busan Gangseo-gu
88	Chungcheongbuk-do Eumseong-gun
89	Gyeonggi-do Hanam-si

90	Gyeongsangnam-do Yangsan-si
91	Busan Gijang-gun
92	Gyeonggi-do Yeosu-si
93	Incheon Ongjin-gun
94	Gyeonggi-do Namyangju-si
95	Jeollanam-do Muan-gun
96	Gyeongsangnam-do Sacheon-si
97	Gyeonggi-do Hwaseong-si
98	Gangwon-do Gangneung-si
99	Chungcheongbuk-do Chungju-si
100	Gyeonggi-do Yeoncheon-gun
101	Chungcheongbuk-do Jecheon-si
102	Ulsan Ulju-gun
103	Gangwon-do Wonju-si
104	Chungcheongbuk-do Jincheon-gun
105	Chungcheongnam-do Dangjin-gun
106	Chungcheongnam-do Seosan-si
107	Gangwon-do Chuncheon-si
108	Gyeongsangnam-do Jinju-si
109	Jeollabuk-do Iksan-si
110	Gangwon-do Samcheok-si
111	Gyeonggi-do Dongducheon-si
112	Gyeonggi-do Paju-si
113	Jeollanam-do Yeosu-si
114	Gyeongsangbuk-do Gyeongsan-si
115	Gangwon-do Donghae-si
116	Gyeonggi-do Goyang-si
117	Jeollabuk-do Gunsan-si
118	Gyeonggi-do Gwangju-si
119	Chungcheongbuk-do Jeungpyeong-gun
120	Gyeonggi-do Anseong-si
121	Gangwon-do Taebaek-si
122	Gyeongsangnam-do Tongyeong-si
123	Gyeonggi-do Pocheon-si
124	Gangwon-do Cheorwon-gun
125	Daegu Jung-gu
126	Busan Dong-gu
127	Gangwon-do Inje-gun
128	Chungcheongnam-do Asan-si
129	Busan Yeongdo-gu
130	Busan Jung-gu
131	Incheon Namdong-gu
132	Jeollanam-do Mokpo-si
133	Gwangju Nam-gu
134	Daegu Nam-gu

135	Jeollanam-do Suncheon-si
136	Gyeongsangbuk-do Pohang-si
137	Busan Buk-gu
138	Gangwon-do Yanggu-gun
139	Daegu Dong-gu
140	Busan Seo-gu
141	Gyeonggi-do Yangju-si
142	Gangwon-do Hwacheon-gun
143	Gangwon-do Sokcho-si
144	Gyeonggi-do Pyeongtaek-si
145	Gyeonggi-do Gimpo-si
146	Gyeongsangbuk-do Chilgok-gun
147	Gwangju Dong-gu
148	Daegu Seo-gu
149	Busan Suyeong-gu
150	Gyeonggi-do Icheon-si
151	Jeollanam-do Gwangyang-si
152	Busan Geumjeong-gu
153	Busan Haeundae-gu
154	Daejeon Jung-gu
155	Busan Busanjin-gu
156	Gyeonggi-do Uijeongbu-si
157	Gyeongsangbuk-do Ulleung-gun
158	Gwangju Buk-gu
159	Busan Yeonje-gu
160	Incheon Dong-gu
161	Busan Saha-gu
162	Chungcheongbuk-do Cheongju-si
163	Gyeonggi-do Yongin-si
164	Daejeon Dong-gu
165	Jeollabuk-do Jeonju-si
166	Chungcheongnam-do Cheonan-si
167	Daejeon Daedeok-gu
168	Seoul Dobong-gu
169	Incheon Jung-gu
170	Seoul Gangbuk-gu
171	Busan Sasang-gu
172	Seoul Eunpyeong-gu
173	Daegu Buk-gu
174	Busan Nam-gu
175	Daejeon Yuseong-gu
176	Gyeongsangnam-do Changwon-si
177	Ulsan Jung-gu
178	Seoul Gangseo-gu
179	Seoul Seodaemun-gu

180	Seoul Jungnang-gu
181	Gyeonggi-do Seongnam-si
182	Incheon Bupyeong-gu
183	Gyeongsangnam-do Gimhae-si
184	Seoul Geumcheon-gu
185	Chungcheongnam-do Gyeryong-si
186	Incheon Seo-gu
187	Seoul Jongno-gu
188	Seoul Dongdaemun-gu
189	Busan Dongnae-gu
190	Seoul Jung-gu
191	Gyeongsangnam-do Geoje-si
192	Gyeonggi-do Suwon-si
193	Gyeonggi-do Uiwang-si
194	Seoul Guro-gu
195	Seoul Nowon-gu
196	Seoul Seongdong-gu
197	Gyeonggi-do Gunpo-si
198	Gwangju Gwangsan-gu
199	Gwangju Seo-gu
200	Seoul Gwanak-gu
201	Daegu Dalseo-gu
202	Seoul Yongsan-gu
203	Gyeonggi-do Bucheon-si
204	Incheon Yeonsu-gu
205	Gyeonggi-do Anyang-si
206	Daejeon Seo-gu
207	Gyeonggi-do Guri-si
208	Gyeonggi-do Gwangmyeong-si
209	Gyeonggi-do Siheung-si
210	Incheon Gyeyang-gu
211	Gyeongsangbuk-do Gumi-si
212	Seoul Yeongdeungpo-gu
213	Daegu Suseong-gu
214	Seoul Mapo-gu
215	Seoul Seongbuk-gu
216	Seoul Yangcheon-gu
217	Seoul Dongjak-gu
218	Seoul Gwangjin-gu
219	Gyeonggi-do Osan-si
220	Ulsan Buk-gu
221	Gyeonggi-do Gwacheon-si
222	Gyeonggi-do Ansan-si
223	Seoul Songpa-gu
224	Ulsan Nam-gu

225	Seoul Gangdong-gu
226	Seoul Gangnam-gu
227	Seoul Seocho-gu
228	Ulsan Dong-gu

Table A.8: Rank of City Attractiveness for Population Aged 60 or older for year 2020

A.4 Population Growth Rate Ranking vs. $\hat{u}_d$ Ranking

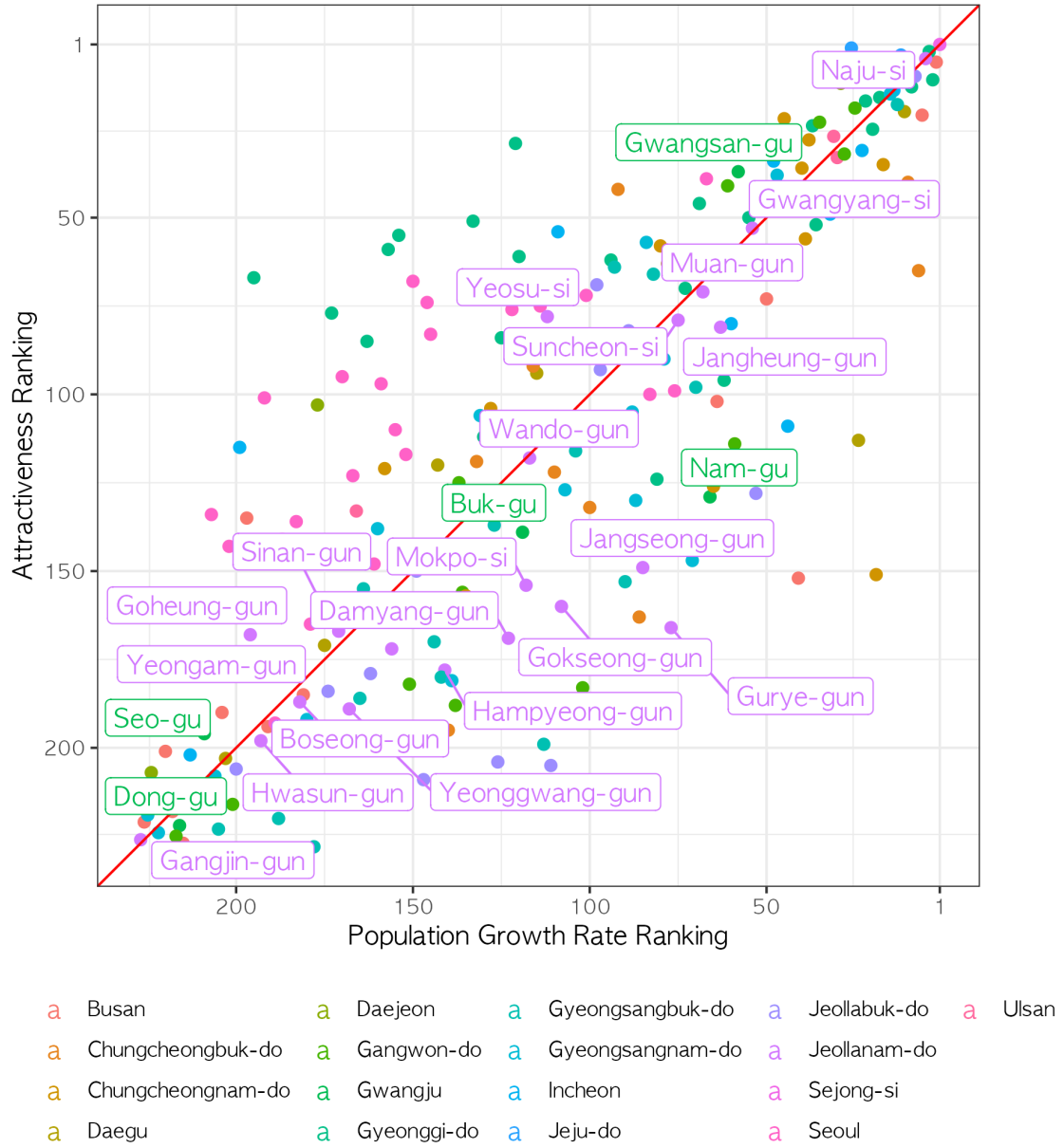


Figure A.2: Population Growth Rate Ranking vs. $\hat{u}_d$ Ranking (Jeollanam-do)

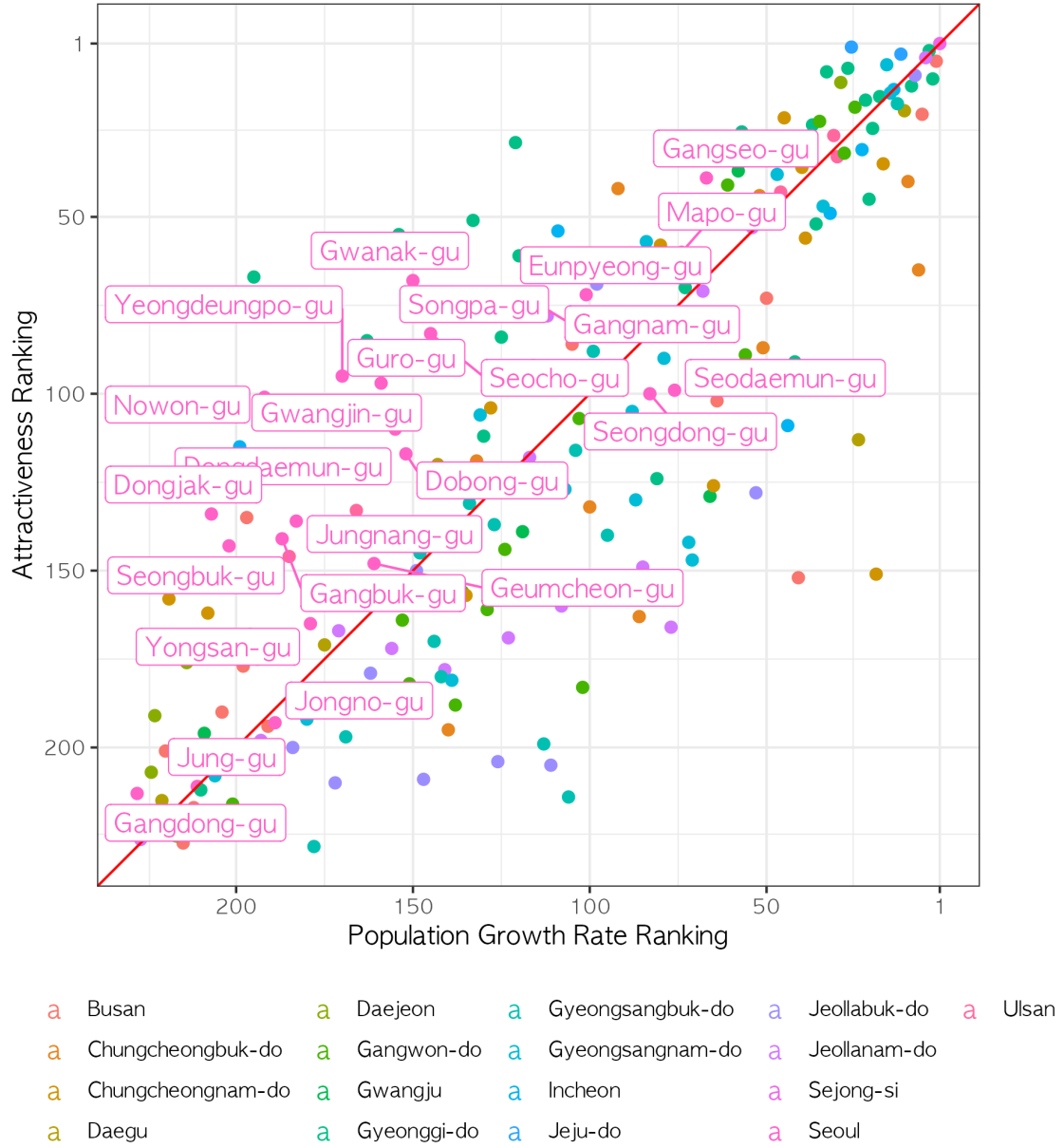


Figure A.3: Population Growth Rate Ranking vs. $\hat{u}_d$ Ranking (Seoul)