

## Article

# Do People Determine Their Subjective Socioeconomic Status Based on the Housing Type and Residential Neighborhood? Empirical Evidence from Seoul

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**Abstract:** Housing has traditionally been regarded as the most valuable asset in South Korea and is frequently used as an indicator of an individual's socioeconomic status. In particular, this preference is evolving into a classification criterion for social class. This has led to rising social conflict and social anxiety in recent years. In this regard, this study examined the effect of residential characteristics, namely housing type and residential neighborhood, on subjective socioeconomic status using a multi-level logistic model centered on Seoul. The following are the key findings: First, it is demonstrated that home ownership has a substantial effect on subjective socioeconomic status. Second, the subjective socioeconomic status was found to vary depending on the type of housing in which a person currently resides, with residents of single-family housing having a higher subjective socioeconomic status than residents of other housing types. Third, residents of multi-household housing evaluated their socioeconomic status as the lowest. Fourth, the type of housing in one's residential neighborhood was also found to be a significant factor in determining subjective socioeconomic status. Fifth, complex residential characteristics, such as the type of housing in which a person currently resides and the type of housing in the residential neighborhood, were found to have a considerable effect on subjective socioeconomic status. Through empirical analysis, this study examined the implications of inclusive housing policies that can reduce social problems and class conflicts and clearly identified the impact of residential characteristics on subjective socioeconomic status.

**Keywords:** socioeconomic status; housing type; residential characteristics; residential neighborhood; living area; real estate price; neighborhood



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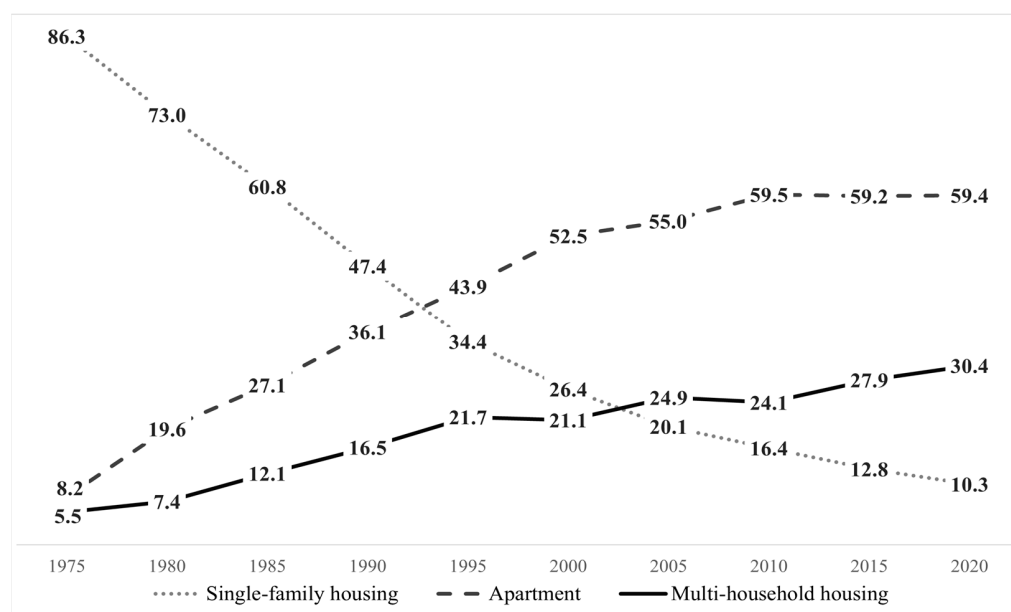
## 1. Introduction

With the advent of global industrialization and informatization, both personal income and opportunities for capital creation have increased rapidly. This process resulted in the inevitable rise in economic disparity, and the accompanying polarization problem has emerged as a major societal concern [1]. The debate over economic polarization has also plagued South Korea since the 1960s, when industrialization began in earnest. In particular, the economic disparity brought forth by rapid fluctuations in real estate prices and the resulting class conflict are intensifying [2–4].

Traditionally, perceptions of status are influenced by objective factors such as income, assets, and occupation [5–9]. However, the recent swift change in asset value is accompanied by a rapid change in the perception of one's status. In other words, it was recognized that the housing and neighborhood areas' values rose due to the surge in real estate prices, which, in turn, raised the subjective socioeconomic status of those who benefited from the increase in values. In this way, the key to judging an individual's socioeconomic status level is the change in the value of wealth rather than the absolute level of wealth. Accordingly, the change in the value of an individual's place of residence and neighborhood is linked to that individual's socioeconomic status [10].

In this regard, changes in subjective socioeconomic status (self-subjective assessment of socioeconomic status) in South Korea also tend to be determined by the type of housing people occupy and the area in which they live. If they live in an area, usually a residential neighborhood, where real estate prices are high or in a specific type of housing, people tend to perceive themselves as having a high socioeconomic status. In addition, the tendency to judge a person's status as high gets stronger if the residential environment in the neighborhood is relatively poor compared to one's living environment. This phenomenon serves as evidence that residential characteristics can play a significant role in determining an individual's subjective socioeconomic status. This recognition of socioeconomic status is cited as a factor that exacerbates issues such as residential segregation, social exclusion, and economic disparity.

In South Korea, there is a strong predilection for specific housing types. There are various types of housing, such as single-family housing, apartments, and multi-household housing, but single-family housing and apartments are preferred [11–14]. Single-family housing was the traditional way of living in South Korea. However, industrialization led to the population being concentrated in the Seoul metropolitan area. As the housing shortage in Seoul worsened, a housing supply policy focusing on multi-unit dwellings (particularly apartments) was promoted. Consequently, Seoul transitioned from single-family housing to apartment living [15]. In 1975, only 8.2% of Seoul's housing comprised of apartments. By 2000, that proportion had risen to 52.5%; by 2020, it had reached a staggering 59.4% (see Figure 1). The government's policy to provide dense high-rise housing to address the severe housing shortage is the fundamental reason why apartments have become a representative type of housing in Seoul.



**Figure 1.** Housing proportion by type in Seoul.

In recent years, the preference for apartments has increased due to the strengthening advancement of residential space and its differentiation from other types of housing [16–20]. Compared to other housing types, single-family homes built on a single parcel of land in land-scarce Seoul are also in the spotlight due to the prospect that their value will rise due to the development of commercial districts or large-scale housing projects [21]. On the other hand, multi-household housing with apartment-like features but constructed with low floors is regarded as economical housing due to issues such as sunlight, privacy infringement, and a lack of parking facilities. Therefore, it is characterized as a type of housing inhabited by people with average and low incomes who cannot afford expensive housing [22,23].

The area of residence is also a crucial indicator of an individual's subjective socioeconomic status. A wealthy area is typically one where the residents can pursue a luxurious lifestyle and enjoy a number of other favorable benefits, such as wealth accumulation due to higher real estate prices appreciation. In particular, the Gangnam area of Seoul (the southeast area) is the wealthiest in South Korea and is widely regarded as an upper-class enclave that has long been distinctly separated socioeconomically and politically from other areas [24]. Consequently, compared to other areas, living in the Gangnam area has contributed to the perception that it belongs to the upper class.

Since subjective socioeconomic status is the perception of one's position in society, a negative perception of one's status is directly associated with relative deprivation [25], whereas an overly high perception of status causes social conflict. Moreover, subjective socioeconomic status is associated with the level of life satisfaction and happiness [26]. Since the assessment of an individual's socioeconomic status is linked to relative deprivation and social conflict, excessive subjectivity of an individual's class level can impede social stability and social mixing. This can aggravate discriminatory behaviors, such as regional egoism, by causing unnecessary social friction. In fact, the perception that it is difficult for the next generation to climb in status if their parents do not have many assets is rising at the bottom in South Korea, and those who live in certain types of housing or wealthy neighborhoods boast about their upper-class status on SNS and other platforms [27–29].

A thorough analysis of the residential characteristics and subjective socioeconomic status is necessary in this regard. In light of this, it is essential to deduce policy implications to prevent housing issues and class conflicts and to improve social capital in South Korea, where economic disparities exacerbate conflicts. Existing research, however, is limited to identifying class formation factors or examining the relationship between income and housing characteristics, with little or no consideration of the effects of residential characteristics, which are key determinants of wealth value change. Therefore, using a multi-level logistic model, this study investigates the effect of residential characteristics, specifically focusing on housing type and residential neighborhood, on subjective socioeconomic status as well as the implications of inclusive housing policies that can alleviate social problems and class conflicts.

## 2. Research Background

Subjective socioeconomic status can be defined as a perception of one's position shaped through comparisons inherent to social interactions with people or colleagues [30–32]. To put it another way, this is a self-subjective assessment of socioeconomic status. The subjective socioeconomic status of individuals takes into account not only their past and future prospects but also their current social and economic circumstances [33,34]. This enables a profound understanding of an individual's social position [35].

Numerous studies have been conducted on subjective socioeconomic status. In particular, the relationship between subjective socioeconomic status and health has been the subject of several empirical studies. Consequently, a rise in subjective socioeconomic status is accompanied by a rise in the perception of health and the objective health index [36–42].

In addition, studies were conducted in various countries, confirming the relationship between subjective socioeconomic level and quality of life. Specifically, a study by Kim and Park [43] found that subjective hierarchical consciousness significantly influenced the overall quality of life of Koreans aged 45 and older. Furthermore, a study by Netuveli and Gartley [44] revealed that subjective social class is a strong variable that can predict the quality of life. Howell and Howell [45] conducted a meta-analysis to identify the relationship between economic status and subjective well-being in 54 developing countries. The analysis confirmed that the association between wealth and subjective well-being appeared stronger than that between income and subjective well-being. Tan et al. [46] also compared the relationships between objective socioeconomic level, subjective socioeconomic level, happiness, and life satisfaction through a literary analysis of 357 previous studies conducted

in various countries. The subjective socioeconomic level was found to have a stronger correlation with happiness and quality of life than the objective socioeconomic level.

In addition, numerous studies determined the effect of individual demography and social characteristics on subjective socioeconomic status. These studies established that personal characteristics such as gender [9,47], age [48,49], race [50–52], education [53], economic activity [54–56], marriage, and childbirth [57–59] were significant factors.

However, subjective socioeconomic status is influenced not only by individual characteristics but also by the environment in which an individual lives. Festinger [60] specifically argued that, based on social comparison theory, people evaluate themselves through social comparisons, such as comparisons with their neighbors, rather than an absolute standard for their status or class. The social comparison theory posits that there are both upward and downward comparisons. Since people tend to compare themselves to those in a higher position or who are superior to them, upward comparison can negatively impact their self-esteem and subjective well-being [61]. These negative emotions are amplified when one's most prized traits or skills are positioned in a relatively inferior position [62]. On the other hand, downward comparison involves comparing oneself to an inferior person. It relieves anxiety while simultaneously promoting a sense of well-being and subjective well-being [63,64]. In this case, the group being compared is called a reference group. In general, the residential area or neighborhood serves as a reference group rather than the structure of income distribution [10,65,66]. Due to its proximity to residents, such a neighborhood setting is encountered frequently and persistently. In this regard, the neighborhood environment plays a significant role as a reference group and is an important consideration in determining subjective socioeconomic status [67–77]. In particular, housing is a major component of wealth [78,79], and housing costs and quality are known to correlate strongly with socioeconomic status [78–81].

In South Korea, housing is viewed as the most valuable asset, which can affect socioeconomic status. As a result, several studies on the relationship between housing-related factors and subjective socioeconomic status have been undertaken. When specifically looking at these studies, Choi [82] confirmed that home ownership significantly influences subjective socioeconomic status. Specifically, Lee and Shin [83] found that shifts in an individual's socioeconomic level are significantly affected by fluctuations in housing prices. Lee et al. [29] confirmed that when housing characteristics associated with the type of residence or occupancy are combined with regional disparities, the perception of class distinctions may become more profound. Particularly, they argued that the likelihood of being perceived as a lower class increases in proportion to the number of people living in rented rather than their own homes and those who live in houses other than apartments. It is interesting to note, nevertheless, that Han and Seo [84] argued the converse, that the difference in housing type had no bearing on the difference in subjective socioeconomic status.

Existing literature confirms that various factors affect subjective socioeconomic status. Particularly, it was found that a neighborhood's housing characteristics can significantly influence socioeconomic status. In the case of South Korea, previous research has demonstrated that the characteristics of housing and residential areas can significantly affect subjective socioeconomic status. In particular, despite the fact that the most obvious social problems caused by class differentiation are concentrated in Seoul, not enough research has been conducted to fully understand the effects of the complex characteristics of housing types and residential areas on the subjective socioeconomic status of Seoul residents. The preference for certain residential areas and housing types in South Korea is primarily concentrated in Seoul. This preference for a specific residential environment is becoming a criterion for distinguishing status levels beyond the domain of culture. This behavior fuels anxiety that social conflicts, such as residential segregation and discrimination of housing types, will intensify. In this regard, this study intends to suggest implications for the future direction of inclusive housing policy by closely examining the relationship between the complex housing environment and subjective socioeconomic status.

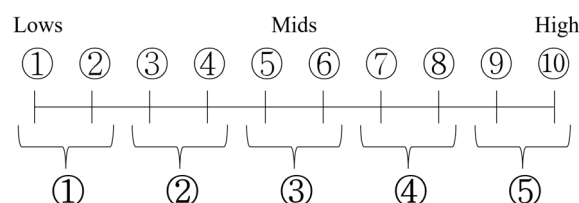
### 3. Analytical Framework

#### 3.1. Data and Variables

As of 2020, Seoul was home to approximately 10 million people, making it the largest metropolis in South Korea and the one with the highest preference for housing. As a result, it has the most expensive housing, but it is also where economic class conflicts and social problems are most visible. This implies that Seoul is the city that best understands the relationship between residential characteristics and subjective socioeconomic status and its implications.

For the empirical analysis, data from the Seoul Survey was used, which is conducted every two years with the participation of about 43,000 household members (people) aged 15 and older and 2500 foreigners living in Seoul. This data contains information on an individual's subjective socioeconomic status. For analysis, the most recent available survey data from 2018 was used. In this study, out of a total of 43,000 subjects (excluding foreigners), 40,860 were used for empirical analysis, excluding data containing missing values.

The dependent variable used the question, "What do you think your current status is based on your socioeconomic conditions? Please answer on a scale ranging from 1 to 10". Basically, the composed response was a 10-point Likert scale, but this study reconstructed it into a 5-point Likert scale and applied it to empirical analysis (see Figure 2).



**Figure 2.** Construction of individual's subjective socioeconomic status level.

Independent variables were divided into two spatial hierarchical levels (individual and neighborhood levels) to identify factors affecting subjective socioeconomic status perception centered on housing type and residential neighborhood (autonomous district). Level 1 included individual characteristics (gender, age, education, marital status, and household income) and housing characteristics (tenure type, housing type). Level 2 included neighborhood characteristics and living areas. This study identified neighborhood characteristics (level 2) based on the residential neighborhood unit (called Gu), the most basic municipality. This regional unit is important because it serves as the subject for most urban and spatial policies and research studies, and residents tend to perceive it as the same neighborhood area [85]. The neighborhood characteristics used were the average apartment price, the proportion of old houses, the ratio of single-family housing, the ratio of apartments, and the ratio of multi-household housing.

In this study, the living area serves as a control variable for the spatial influence by grouping twenty-five autonomous districts (residential neighborhoods), which are level 2, into five living areas: central area (CENTRAL), southwest area (SW), northwest area (NW), southeast area (SE), and northeast area (NE)) (see Figure 3). The five living areas comprise the spatial scopes in which economic activities are carried out. They are used as a standard unit for urban planning in Seoul and take into account various regional characteristics such as topography, transportation, and administrative districts [86]. The central area (CENTRAL) has traditionally played a pivotal role in the spatial structure of Seoul. However, following the Korean War, the government's urban development policy was centered on SE, resulting in the concentration of various functions in the southeast area (SE). Consequently, it has turned into a preferred area with the highest real estate prices in South Korea. From this vantage point, this study used SE as a reference variable to examine how subjective socioeconomic status varied depending on the living area (see Table 1).





**Figure 3.** Twenty-five residential neighborhoods and five living areas in Seoul.

**Table 1.** Variable description.

Variable		Description	Unit
STATUS		Subjective socioeconomic status	5-Likert
Level 1 (N = 40,860)			
Individual Character	SEX	Gender	0 = Man, 1 = Woman
	AGE	Year of age	Year
	EDU	Level of education	1 = Uneducated, 2 = Elementary, 3 = Middle, 4 = High, 5 = College, 6 = University, 7 = Master, 8 = Ph.D.
	MARRIAGE	MA	Married
		Not_MA	Not-Married
		DIVORCE	Divorce, Bereavement
	INCOME	Average monthly income (KRW 10,000)	0 = Other, 1 = Married 1 = Less than 50, 2 = 50~100, 3 = 100~150, 4 = 150~200, 5 = 200~250, 6 = 250~300, 7 = 300~350, 8 = 350~400, 9 = 400~450, 10 = 450~500, 11 = 500~550, 12 = 550~600, 13 = 600~650, 14 = 650~700, 15 = 700~750, 16 = 750~800, 17 = 800~850, 18 = 850~900, 19 = More than 900

Table 1. Cont.

Variable		Description	Unit	
Housing Character	TENURE TYPE	OWN	Home owners (Reference)	0 = Other, 1 = Home owner
		JEONSE	Jeonse residents	0 = Other, 1 = Jeonse
		MONTH	Monthly rent residents	0 = Other, 1 = Monthly rent
	HOUSINGTYPE	APT	Apartment residents (Reference)	0 = Other, 1 = Apartments
		SINGLE	Single-family housing residents	0 = Other, 1 = Single-family housing
		MULTI	Multi-household housing residents	0 = Other 1 = Multi-household housing
Level 2 (N = 25)				
Neighborhood Character	PRICE	Average apartment transaction prices in residential neighborhood	KRW 10,000	
	OLD	30+ Years of housing/Total housing in residential neighborhood	%	
	%_APT	Apartment units/Total housing units in residential neighborhood	%	
	%_SINGLE	Single-family housing units/Total housing units in residential neighborhood	%	
	%_MULTI	Multi-household housing units/Total housing units in residential neighborhood	%	
Living Area	CENTRAL	Living in central area	0 = Other, 1 = CENTRAL	
	NW	Living in northwest area	0 = Other, 1 = NW	
	NE	Living in northeast area	0 = Other, 1 = NE	
	SW	Living in southwest area	0 = Other, 1 = SW	
	SE	Living in southeast area (Reference)	0 = Other, 1 = SE	
Interaction				
Complex Residential Character	APT-APT	%_APT×% of APT in residential neighborhood	%	
	SINGLE-APT	%_SINGLE×% of APT in residential neighborhood	%	
	MULTI-APT	%_MULTI×% of APT in residential neighborhood	%	
	APT-SINGLE	%_APT×% of SINGLE in residential neighborhood	%	
	SINGLE-SINGLE	%_SINGLE×% of SINGLE in residential neighborhood	%	
	MULTI-SINGLE	%_MULTI×% of SINGLE in residential neighborhood	%	
	APT-MULTI	%_APT×% of MULTI in residential neighborhood	%	
	SINGLE-MULTI	%_SINGLE×% of MULTI in residential neighborhood	%	
	MULTI-MULTI	%_MULTI×% of MULTI in residential neighborhood	%	

In addition, the social comparison theory, which evaluates perceptions of socioeconomic status through comparison with neighbors and society, was applied to the housing type variable. To this end, the complex effect of the housing types of residential neighborhoods and the housing types of individuals (household members) on the subjective socioeconomic status was determined by composing the ratio of the housing types in which the respondent resides and the housing types in the residential neighborhood as an interaction term.

### 3.2. Research Methodology

Spatial hierarchies at the individual and neighborhood levels must be used in order to understand the effects of residential characteristics, including housing type and residential neighborhood, on subjective socioeconomic status. When using data with such hierarchical characteristics, general analysis methods such as regression analysis incorrectly estimate standard errors by considering neighborhood-level characteristics as individual-level characteristics, thereby distorting the estimation results. Accordingly, hierarchical data should use a multi-level model. In addition, the multi-level model can more precisely estimate the regression coefficient by satisfying the independence assumption of the error term for each level. Furthermore, unlike the general logistic regression model, which only considers a single level, the multi-level model has the advantage of checking both intra-group and inter-group variations [87–89].

Since subjective socioeconomic status, the dependent variable, is represented by a 5-point Likert scale, analysis using an ordinal logistic model is necessary. In addition, the independent variable includes individual and neighborhood characteristics at different levels, necessitating the application of a multi-level model. Since the data used in this study has both multi-level and ordinal data structures, an empirical analysis was conducted using the multi-level ordinal logistic model.

Empirical analysis using a multi-level ordinal model begins with an unconditional model analysis that includes only constant terms and no independent variables. The unconditional model has only the error terms of level 1 (individual level) and level 2 (neighborhood level), which provide information to distinguish and compare the variance for each level. The unconditional model is expressed as Equation (1), and the ICC (intraclass correlation coefficient) value is calculated through the sum of the level 1 and level 2 error terms. In this case,  $Y_{ij}$  refers to the perception of the subjective economic status of individuals belonging to the  $j$  area,  $\gamma_{00}$  refers to the constant term,  $\mu_{0j}$  refers to the neighborhood-level error term, and  $\varepsilon_{ij}$  refers to an individual-level error term [85].

$$Y_{ij} = \gamma_{00} + \mu_{0j} + \varepsilon_{ij} \quad (1)$$

The ICC value is a criterion that indicates how much the independent variables input for each level explain the variance of the dependent variable [90]. This value is used to determine the validity of the two-level variance's explanatory power. At this point, when the ICC is about 10–30%, the difference between groups is considered relatively large, and the multi-level model is deemed valid. Equation (2) expresses the ICC [91,92]. In this case,  $\sigma_e^2$  represents the variance of the residual between individuals at level 1, and  $\sigma_{u0}^2$  represents the variance of the residual between groups at level 2.

$$ICC = \frac{\sigma_{u0}^2}{\sigma_{u0}^2 + \sigma_e^2} \quad (2)$$

Using the Likelihood-Ratio (LR) test with the unconditional model, this study confirmed whether it is statistically significant to use a multi-level model by comparing the analysis with the general linear regression analysis. Through this test, the difference in deviation statistics between the two models and the chi-square value can be compared; if the difference is statistically significant, the necessity of a multi-level model can be confirmed. In this way, a method of expanding the model was applied by gradually adding



variables and testing the model's fit at each step. Step by step, an individual level model (ILM) with only level 1 independent variables, a neighborhood level model (NLM) with level 2 independent variables, and a multi level interaction model (MLIM) were used that confirmed the interaction between key individual and neighborhood variables. The following equation represents the step-by-step model:

Individual Level Model (ILM):

$$Y_{ij} = \gamma_{00} + \beta_{\tau} X_{tij} + \mu_{0j} + \varepsilon_{ij} \quad (3)$$

Neighborhood Level Model (NLM):

$$Y_{ij} = \gamma_{00} + \beta_{\tau} X_{tij} + \beta_q Z_{qj} + \mu_{0j} + \varepsilon_{ij} \quad (4)$$

Multi Level Interaction Model (MLIM):

$$Y_{ij} = \gamma_{00} + \beta_{\tau} X_{tij} + \beta_q Z_{qj} + \beta_{\tau q} X'_{ij} Z'_j + \mu_{0j} + \varepsilon_{ij} \quad (5)$$

In Equations (3)–(5),  $X_{tij}$  represents the individual-level variables, and  $\beta_{\tau}$  represents the coefficient for the individual-level variables. In Equation (4),  $Z_{qj}$  represents the neighborhood-level variables, and  $\beta_q$  represents the coefficient for the neighborhood-level variables. In Equation (5), which represents the multi level interaction model,  $X'_{ij} Z'_j$  typically denotes the interaction term for the housing type (level 1) and the residential neighborhood (level 2) variables. Through the MLIM, it is possible to see how individual independent variables included in levels 1 and 2 explain the subjective socioeconomic status level and to understand the complex impact of the current housing type and residential neighborhood on the subjective socioeconomic status level.

This study's results are explained by the odds ratio ( $\exp(\beta)$ ). Assuming that the values of other variables remain constant, the odd ratio represents the rate of change of the dependent variable obtained when the coefficient value of particular independent variable increases by one unit [93,94].

## 4. Empirical Analysis

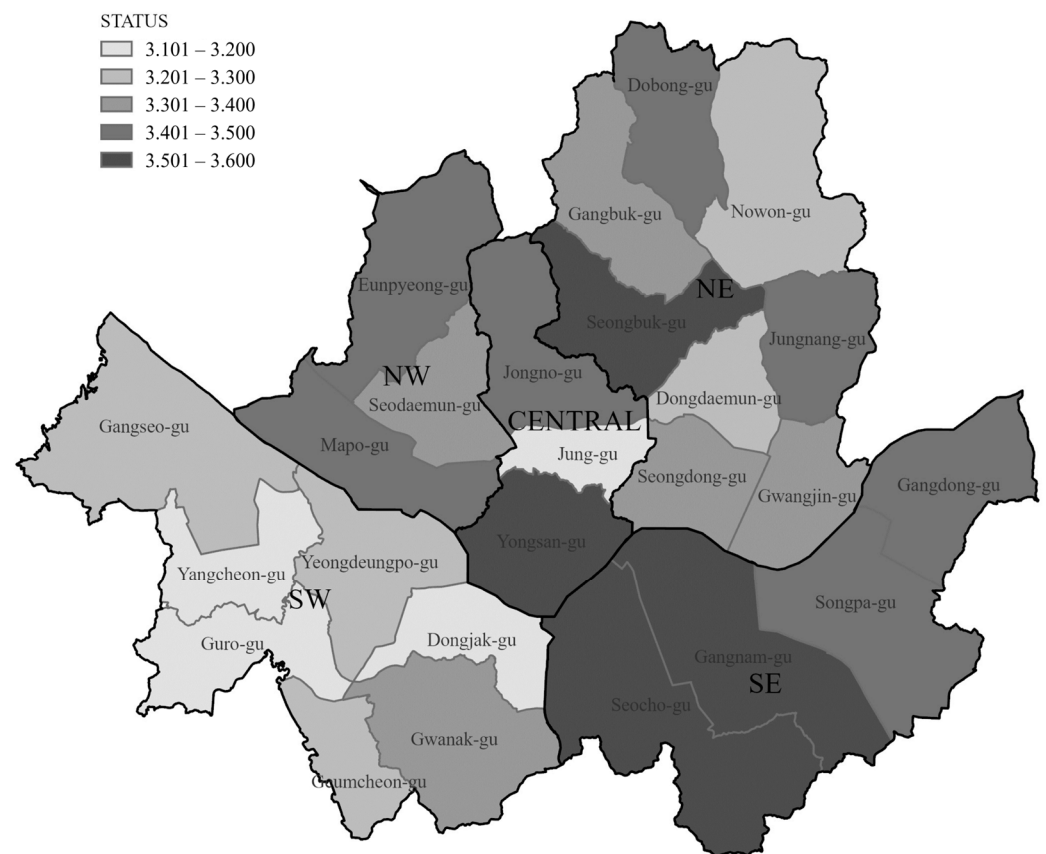
### 4.1. Descriptive Statistics

The basic statistics showed that the average value of subjective socioeconomic status (STATUS), the dependent variable, was 3.36. This indicates that Seoul residents generally perceive their subjective socioeconomic status as being above the middle-class level (see Table 2). In particular, residents of Seongbuk-gu in the NE, Yongsan-gu in the CENTRAL, and Seocho-gu and Gangnam-gu in the SE were found to have relatively high opinions of their socioeconomic status (see Figures 3 and 4). It can be inferred from these findings that there is a correlation between the regional economic power (neighborhood housing price) and the subjective socioeconomic status, as these residential neighborhoods have the highest average housing price in South Korea.

Individual-level (level 1) variables included the individual characteristics and housing characteristics, with a similar proportion of males and females (average 1.53) and an average age of about 50. College graduation was found to be the average level of education (EDU). Married (MA) accounted for 70% of the total, while unmarried (N\_MA) accounted for 19%, and divorce and bereavement (DIVORCE) accounted for 11%. The average monthly household income (INCOME) ranged between KRW 4,500,000 and 5,000,000 (USD 3500 to 4000). In the case of the housing characteristics in which people are currently living, the occupancy type (TENURE) was found to be 60% of the owner (OWN), 31% jeonse (JEONSE), which is the traditional Korean housing lease system based on a lumpsum deposit, and 9% monthly rent. Regarding the housing types, 45% of apartments (APT), 32% of single-family housing (SINGLE), and 23% of multi-household housing (MULTI) were shown.

**Table 2.** Descriptive statistics.

Variable		MEAN	Standard Deviation	MIN	MAX	
Dependent variable	STATUS	3.36	0.82	1.00	5.00	
Level 1						
Individual Character	SEX	0.53	0.50	0.00	1.00	
	AGE	49.96	15.98	20.00	99.00	
	EDU	4.73	1.18	1.00	8.00	
	MARRIAGE	MA	0.70	0.46	0.00	1.00
		Not_MA	0.19	0.39	0.00	1.00
		DIVORCE	0.11	0.31	0.00	1.00
	INCOME	9.68	4.04	1.00	19.00	
Housing Character	TENURE TYPE	OWN	0.60	0.49	0.00	1.00
		JEONSE	0.31	0.46	0.00	1.00
		MONTH	0.09	0.29	0.00	1.00
	HOUSING TYPE	APT	0.45	0.50	0.00	1.00
		SINGLE	0.32	0.47	0.00	1.00
		MULTI	0.23	0.42	0.00	1.00
		Level 2				
Neighborhood Character	PRICE	68,845.03	32,517.87	35,758.01	153,666.99	
	OLD	0.17	0.07	0.05	0.29	
	%_APT	0.57	0.13	0.32	0.87	
	%_SINGLE	0.12	0.06	0.04	0.28	
	%_MULTI	0.31	0.10	0.10	0.52	
Living Area	CENTRAL	0.08	0.27	0.00	1.00	
	NW	0.18	0.39	0.00	1.00	
	NE	0.32	0.47	0.00	1.00	
	SW	0.30	0.46	0.00	1.00	
	SE	0.12	0.33	0.00	1.00	
Interaction						
Complex Residential Character	APT-APT	0.27	0.32	0.00	0.87	
	SINGLE-APT	0.18	0.26	0.00	0.87	
	MULTI-APT	0.12	0.24	0.00	0.87	
	APT-SINGLE	0.05	0.07	0.00	0.28	
	SINGLE-SINGLE	0.05	0.08	0.00	0.28	
	MULTI-SINGLE	0.03	0.06	0.00	0.28	
	APT-MULTI	0.13	0.16	0.00	0.52	
	SINGLE-MULTI	0.11	0.16	0.00	0.52	
	MULTI-MULTI	0.08	0.15	0.00	0.52	



**Figure 4.** Subjective socioeconomic status by the residential neighborhood (Gu).

Next, the neighborhood-level (level 2) included the neighborhood characteristics and living area. When looking at the variables specifically, the average housing price was approximately KRW 690 million (USD 520,000), and the proportion of older houses over 30 years old was 17%. Single-family housing accounted for 12%, apartments for 57%, and multi-household housing for 31%. This confirmed that most respondents lived in apartments. Interestingly, there was more multi-household housing distribution than single-family housing in the residential neighborhood of single-family housing, indicating that there are not many clusters of single-family housing in Seoul.

The living area used in the analysis was comprised of a group of residential neighborhoods (Gu), which is the spatial range of Level 2 and is divided into units that share an economic hub and the actual living area [95]. Twenty-five residential neighborhoods (autonomous districts) were grouped into five living areas ((CENTRAL, NE, NW, SW, and SE), which served as variables to control the spatial influence of Seoul. The following is the percentage of residents in each area: 8% in the CENTRAL, 32% in the NE, 12% in the SE, 30% in the SW, and 18% in the NW.

Finally, the complex residential characteristics comprised the housing type of the residents and the ratio of housing types in the residential neighborhood (Gu) as an interaction term. Specifically, the type of housing in which residents live consists of apartments, single-family, and multi-household housing. The ratio of housing types in a residential neighborhood where residents live is also comprised of apartments, single-family housing, and multi-household housing. Therefore, there were a total of nine types of complex residential characteristics (see Table 1). Through these variables, it is possible to determine how residents perceive their socioeconomic status when the type of housing they live in differs from the type most prevalent in the residential neighborhood. In addition, it is possible to examine in detail residents of which housing types consider their subjective socioeconomic status to be high or low and whether the subjective socioeconomic status varies depending on the type of housing in the residential neighborhood.

#### 4.2. Effects of Residential Characteristics on Subjective Socioeconomic Status

Prior to the empirical analysis, this study confirmed the model's suitability based on an unconditional model to confirm whether the factors affecting the subjective socioeconomic status have multi-level characteristics. As a result, the total variance was 0.6827, of which 0.6104 was on level 1, and 0.0723 was on level 2. ICC, a value that indicates how much independent variables input by level explain the variance of dependent variables, was confirmed to be 89.4% for level 1 and 10.59% for level 2, confirming that level 2 has important meaning for subjective socioeconomic status (see Table 3). Accordingly, it was determined whether or not it would be appropriate to utilize a multi-level model for the empirical analysis of this study.

**Table 3.** Result of unconditional model analysis.

Fixed Effect	Coefficient	Standard Error	t-Value
Intercept	2.8861	0.02586	111.62 ***
Random Effect	Variation	Standard Deviation	ICC
Level 1 (Individual)	0.6104	0.004901	0.8941
Level 2 (Neighborhood)	0.0723	0.004723	0.1059
Total	0.6827	-	1.00

Note: \*\*\* denotes rejection of the hypothesis at the 0.01 (1%) level. ICC: intraclass correlation coefficient.

This study used an independent level model (ILM) with only level 1 variables, a neighborhood level model (NLM) with level 2 variables, and a multi level interaction model (MLIM) that confirmed the interaction between individual and neighborhood-level variables. On testing the fit for each model, LR test results that can compare the model's fit with general linear regression analysis showed that both NLM and MLIM were more effective multi-level models. Next, upon comparing the  $-2$  Log likelihood ( $-2LL$ ) value with the AIC (akaike information criterion) and BIC (Bayesian information criterion) values, the  $-2LL$ , AIC, and BIC values of NLM were found to be smaller than those of ILM. This confirmed that the model's explanatory power was higher with level 2 variables. In addition, compared to NLM, the values of  $-2LL$ , AIC, and BIC of MLIM were found to be smaller, confirming that the suitability of MLIM was the highest (see Table 4).

**Table 4.** Model fits of the empirical analysis.

	Individual Level Model (ILM)	Neighborhood Level Model (NLM)	Multi Level Interaction Model (MLIM)
LR test vs. linear reg. Chi2 (3)	-	292.19 ***	117.29 ***
$-2$ Log Likelihood	107,136.7	94,132.23	94,088.13
AIC	107,166.7	94,169.35	94,147.21
BIC	107,185.0	94,191.13	94,176.35

Note: \*\*\* denotes rejection of the hypothesis at the 0.01 (1%) level. AIC: akaike information criterion. BIC: Bayesian information criterion.

Table 5 outlines the empirical analysis results. In the case of individual characteristics, the subjective socioeconomic status was deemed higher if the age, educational background, marital status rather than unmarried, divorce, or bereavement, and income were all higher. These results are consistent with previous studies indicating that high economic power, education, and diverse social experiences are significant indicators of one's socioeconomic status [48,49,53–59].

Table 5. Results of empirical analyses.

Variable		ILM			NLM			MLIM		
		$\beta$	OR	SE	$\beta$	OR	SE	$\beta$	OR	SE
Intercept1		−3.14 ***	-	0.94	−5.62 ***	-	1.62	−5.43 ***	-	1.66
Intercept2		−0.72 ***	-	0.94	−2.38 ***	-	1.62	−2.22 ***	-	1.66
Intercept3		1.37 ***	-	0.94	−0.47 ***	-	1.62	−0.29 ***	-	1.66
Intercept4		3.72 ***	-	0.94	1.92 ***	-	1.62	2.10 ***	-	1.66
SEX		−0.10	0.90	0.02	−0.01	0.99	0.02	−0.01	0.99	0.02
AGE		0.01 ***	1.01	0.00	0.00 ***	1.00	0.00	−0.01 ***	1.00	0.00
EDU		0.07 ***	1.07	0.01	0.18 ***	1.20	0.00	0.18 ***	1.20	0.01
MA (Reference)	Not_MA	−0.03 ***	0.97	0.00	−0.10 ***	0.90	0.03	−0.10 ***	0.90	0.03
	DIVORCE	−0.09 ***	0.91	0.03	−0.27 ***	0.76	0.03	−0.27 ***	0.76	0.03
INCOME		0.10 ***	1.11	0.05	0.08 ***	1.08	0.00	0.08 ***	1.08	0.00
OWN (Reference)	JEONSE	−0.21 ***	0.81	0.02	−0.19 ***	0.83	0.02	−0.19 ***	0.83	0.02
	MONTH	−0.37 ***	0.69	0.04	−0.36 ***	0.70	0.04	−0.36 ***	0.70	0.04
APT (Reference)	SINGLE	0.12 ***	1.13	0.02	0.07 ***	1.07	0.02	-	-	-
	MULTI	−0.08 ***	0.92	0.02	−0.04 **	0.96	0.03	-	-	-
PRICE		-	-	-	−0.01 *	0.99	0.14	−0.01 *	0.99	0.14
OLD		-	-	-	0.68 **	2.14	0.47	0.69 **	2.01	0.48
%_APT (Reference)	%_SINGLE	-	-	-	1.34	3.82	0.99	-	-	-
	%_MULTI	-	-	-	0.31 *	1.36	0.47	-	-	-
	CENTRAL	-	-	-	−0.24 **	0.79	0.08	−0.24 ***	0.79	0.09
SE (Reference)	NW	-	-	-	−0.15 **	0.86	0.07	0.15 **	0.86	0.07
	NE	-	-	-	−0.15 **	0.86	0.08	0.17 **	0.85	0.08
	SW	-	-	-	−0.27 ***	0.77	0.07	0.27 ***	0.76	0.07
Interaction Effect in MLIM										
APT-APT		Reference			−0.51 *	0.60	0.52	0.28 *	1.33	0.54
SINGLE-APT		0.33 *	1.39	0.08	−0.80 *	0.45	0.86	0.44 *	1.44	0.52
MULTI-APT		−0.02 *	0.98	0.09	−0.44	0.65	1.02	0.13	1.14	0.52
APT-SINGLE		−1.58	0.21	1.03	−0.72	0.49	0.48	−0.93	0.39	1.25
SINGLE-SINGLE		1.04 *	2.83	1.03	Reference			0.91 *	2.47	1.27
MULTI-SINGLE		−1.06	0.35	1.04	−0.16	0.85	0.38	0.09	1.1	0.2
APT-MULTI		0.13 *	1.14	0.50	−0.14 *	0.87	0.97	0.37	1.44	1.3
SINGLE-MULTI		0.86 **	2.36	0.49	−0.93 *	0.39	0.38	0.80 **	2.22	0.21
MULTI-MULTI		−0.02	0.98	0.50	−0.50	0.61	1.06	Reference		

Note: \*\*\*, \*\*, \* denote rejection of the hypothesis at the 0.01 (1%), 0.05 (5%), and 0.1 (10%) levels, respectively.

In the case of housing characteristics, it was found that the higher the number of people living in their own homes, the higher their status is compared to those who pay jeonse or monthly rent. Due to South Korea's persistently high economic growth rate, real estate prices have continued to rise, fostering a conducive environment for real estate investments [96,97]. Given this scenario, home ownership has evolved into a prerequisite for maintaining or boosting the value of personal assets, and housing and real estate assets account for the largest share of Korean household assets [98]. As a result, it is natural to subjectively evaluate the socioeconomic status of a house owner as being higher.

In addition, the subjective socioeconomic status was found to be higher when living in single-family housing (SINGLE) than in apartments (APT) and higher when living in apartments (APT) than in multi-household housing (MULTI). Again, these results can be interpreted as a natural phenomenon in light of the situation in Korean society, which identifies housing as a fundamental asset and views it as a benchmark for investment products, as opposed to simply a residential space. In the case of multi-household housing residents, the subjective socioeconomic status was evaluated as being the lowest. It appears that multi-household housing tends to underestimate its subjective socioeconomic status, as its investment value is not high, due to the perception that it is a place where people with low-income levels live. On the other hand, residents of single-family housing have

the largest land share compared to other housing types; therefore, having single-family housing in Seoul, which has the highest land price, can be an indicator of wealth.

While examining the impact of neighborhood characteristics identified through the NLM model, the subjective socioeconomic status was found to be higher when the ratio of multi-household housing (%\_MULTI) was greater than the ratio of apartments (%\_APT) and when the ratio of old housing (OLD) was higher in the residential neighborhood. The residential environment of multi-household housing is fundamentally substandard. This type of housing is supplied with high density on small lots and relaxes regulatory obligations, resulting in a lack of infrastructure such as parking facilities, which affects convenience in comparison to other types of housing. Such a residential environment has fixed the negative perception of multi-household housing. In addition, the perception that it is inhabited by those who find it difficult to live in other housing types has become widespread, giving the impression that the subjective socioeconomic status is relatively low. The high ratio of old homes indicates a physical decline in the neighborhood. Due to relativity, the socioeconomic status of residents of these neighborhoods is deemed higher than that of others living in the same neighborhoods. This eventually results in a favorable assessment of one's status level. People get comfort and satisfaction from comparing themselves to those who are inferior [99].

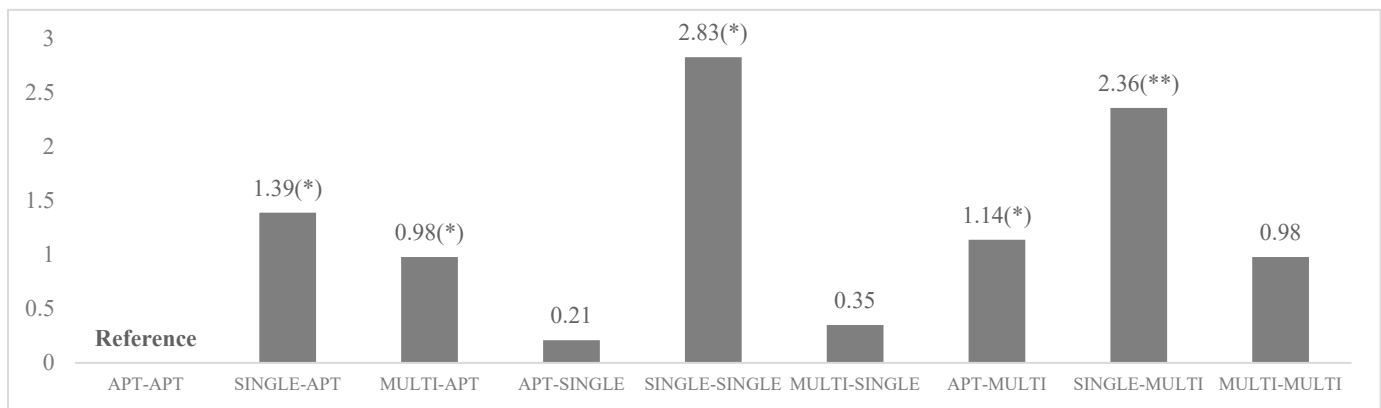
On the other hand, it was found that the higher the average housing price in the residential neighborhood area, the lower one's subjective socioeconomic status. In other words, people living close to groups with high housing prices tend to undervalue their status. This is an upward comparison, and as revealed in a study by Fernandez and Kulik [67], which analyzed the contextual and social effects of neighbors, it can be seen in a similar context as the decrease in life satisfaction of people living with neighbors who easily incur high living expenses.

Next, based on the results of the living area characteristics, residents of other living areas (CENTRAL, NE, NW, and SW) evaluated their socioeconomic status as being lower than those of the SE. Modern urbanization in Korea began in the southeastern part of Seoul. Consequently, housing prices have risen sharply due to the concentration of various amenities and cultural education facilities brought about by urbanization, making it the region with the highest real estate price level in South Korea [82,100,101]. This trend has continued until recently and has reinforced its unrivaled status compared to any region in Korea. For this reason, residents of the southeast area (SE) appear to value subjective class consciousness more highly than residents of other regions.

Finally, to examine the complex influence of housing type and residential neighborhood, the MLIM model was used to examine the interaction effect with APT-APT, SINGLE-SINGLE, and MULTI-MULTI as three reference variables. Here, the former refers to the type of housing in which an individual currently lives, while the latter refers to the type of housing in the residential neighborhood area.

The analysis reveals that single-family housing residents living in an area with a high apartment ratio (SINGLE-APT), single-family housing residents living in an area with a high single-family housing ratio (SINGLE-SINGLE), and single-family housing residents living in an area with a high multi-household housing ratio (SINGLE-MULTI) all had a higher subjective socioeconomic status than apartment residents living in an area with a high apartment ratio (APT-APT) (see Figure 5). On the other hand, the subjective socioeconomic status was evaluated as relatively low when an individual living in a multi-household house lives in an area with a high apartment ratio (MULTI-APT). These results demonstrate that apartments, which have a relatively high preference in South Korea, are a type of housing that can raise residents' socioeconomic status compared to multi-household housing. However, apartment residents living in apartment-intensive areas did not appreciate their socioeconomic status.





**Figure 5.** Interaction effect (odds ratio) in MLIM with reference to APT-APT. Note: \*\*, \* denote rejection of the hypothesis at the 0.05 (5%) and 0.1 (10%) levels, respectively.

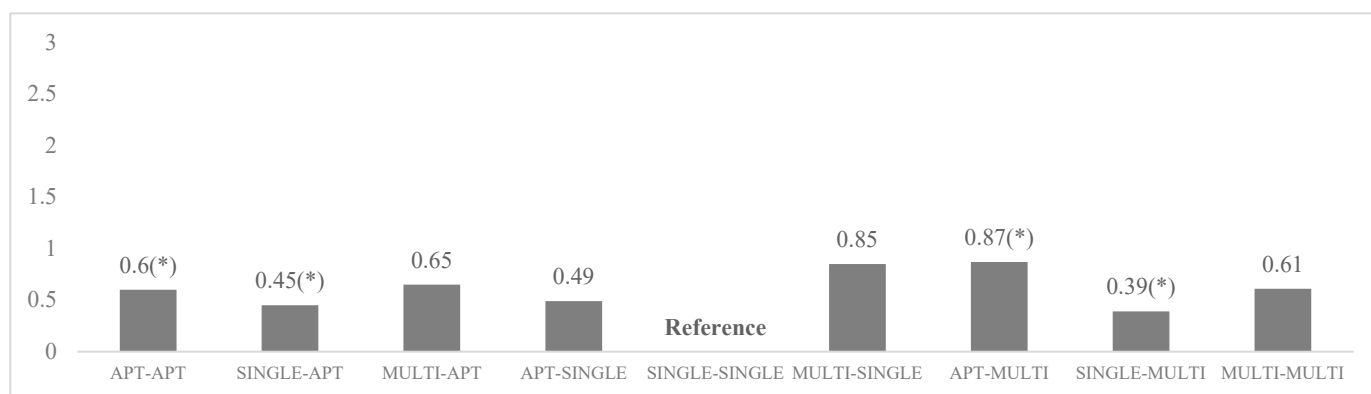
Due to their adherence to standardized design methods, apartments are believed to offer higher exchangeability and investment efficiency compared to other housing types [102]. Since Seoul has had a protracted housing crisis, most housing development projects focus on increasing the supply of apartments. It is believed that this trend will further encourage a preference for apartments. However, the long-established concentration of large-scale apartments has led to issues such as discord between apartment complexes and existing dwellings [103] and difficulties in communication among residents due to disconnected housing types [104]. In addition, as the majority of Seoul residents live in apartments, the pride and differentiation associated with living in a different house from others have disappeared, which is deemed to understate the subjective socioeconomic status compared to the relatively rare single-family house residents.

Next, it was found that MULTI-APT residents evaluated their subjective socioeconomic status as being lower than APT-APT residents. Multi-household residents have a lower socioeconomic status than apartment residents, notwithstanding the equally high apartment ratio in residential neighborhood areas. Apartment residents tend to view multi-household housing residents as having a lower status than them, as evidenced by the fact that APT-MULTI residents likewise regard themselves as higher than APT-APT residents.

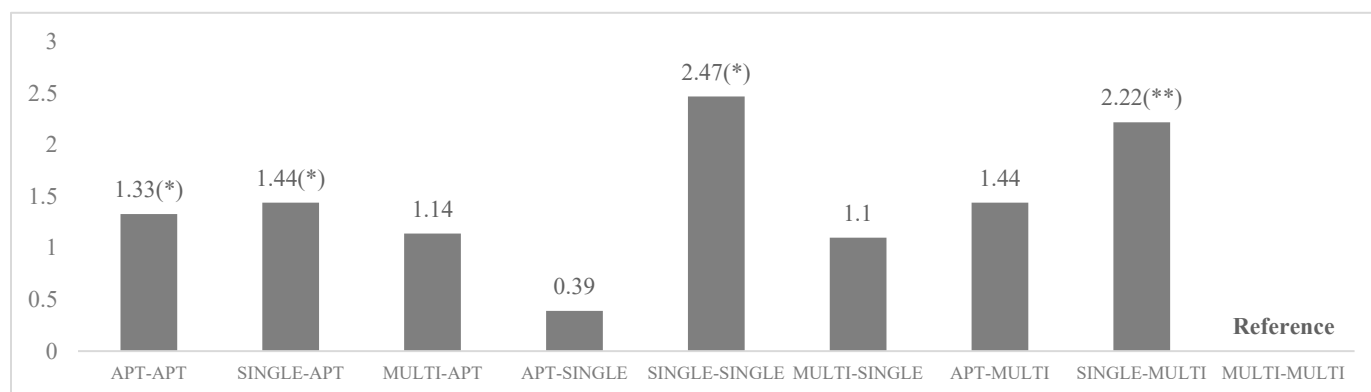
The result of analyzing SINGLE-SINGLE as a reference variable is as follows (see Figure 6): The subjective socioeconomic status of apartment residents living in an area with a high apartment ratio (APT-APT), single-family housing residents living in an area with a high apartment ratio (SINGLE-APT), apartment residents living in an area with a high multi-household housing ratio (SINGLE-MULTI), and single-family housing residents living in an area with a high multi-household housing ratio (SINGLE-MULTI) was higher compared to SINGLE-SINGLE. To put it another way, SINGLE-SINGLE residents have the highest opinion of their status compared to all other types. As mentioned previously, the development of multi-unit dwellings such as apartments and multi-household housing in Seoul has reduced the proportion of single-family housing. As a result, single-family housing and single-family housing clusters are becoming increasingly scarce. Thus, as the value of single-family housing increases, the superior perception of the socioeconomic status of single-family housing residents and single-family housing cluster areas strengthens.

Lastly, the subjective socioeconomic statuses of apartment residents living in an area with a high apartment ratio (APT-APT), single-family housing residents living in an area with a high apartment ratio (SINGLE-APT), single-family housing residents living in an area with a high single-family housing ratio (SINGLE-SINGLE), and single-family housing residents living in an area with a high multi-household housing ratio (SINGLE-MULTI) were all higher compared to multi-household housing residents living in an area with a high multi-household housing ratio (MULTI-MULTI) (see Figure 7). This shows that residents of multi-household housing make a strong upward comparison, evaluating themselves as inferior to all other complex residential types. Multi-household housing in

South Korea is a housing supply method that utilizes small-scale land in old single-family residential areas and has been constructed mainly by local small-scale builders. On the other hand, apartments are similar to multi-household housing, with the exception that large construction companies build on a large scale and include a variety of conveniences. Due to these structural limitations, the perception of multi-household housing as a low-income residential area has become entrenched. In addition, demand is limited since profitability is low in comparison to apartments and the residential environment is poor, owing to factors such as privacy infringement, lack of parking lots, and security issues [105,106]. Based on this aspect, the subjective socioeconomic status of multi-household housing residents in multi-household housing areas (MULTI- MULTI) is deemed lower than that of residents of other types.



**Figure 6.** Interaction effect (odds ratio) in MLIM with reference to SINGLE-SINGLE. Note: \* denotes rejection of the hypothesis at the 0.1 (10%) level.



**Figure 7.** Interaction effect (odds ratio) in MLIM with reference to MULTI-MULTI. Note: \*\*, \* denote rejection of the hypothesis at the 0.05 (5%) and 0.01 (1%) levels, respectively.

The empirical analysis confirmed that Seoul residents generally evaluate their socioeconomic status differently depending on their type of housing and neighborhood characteristics. In particular, they perceive themselves to have a high socioeconomic status when living in apartments and single-family housing, and this perception is primarily attributed to the values of housing and residential areas. Specifically, in the case of apartments, liquidity and investment efficiency in accordance with standardized design, and in the case of single-family housing, land ownership and scarcity are factors that increase housing value. This situation serves as a criterion for evaluating one's socioeconomic status. In addition, it was found that residents of the southeastern area (SE), who enjoy an unrivaled status in South Korea, perceive their status as the highest compared to other regions. Finally, considering housing types and the concentration of housing types in the residential neighborhood, it was confirmed that residents of single-family housing who

lived in an area where single-family housing was concentrated had the highest subjective socioeconomic status.

## 5. Discussion and Conclusions

In South Korea, where housing has long been considered the most significant asset, it is often used as an indicator of an individual's socioeconomic status. In particular, this preference is evolving into a classification criterion for social class. This has contributed to a rise in both social conflict and social anxiety in recent years. In this regard, this study focused on studying the relationship between residential characteristics and subjective socioeconomic status. To this end, we empirically confirmed how individuals' housing types and neighborhood characteristics affect subjective socioeconomic status in Seoul.

The major findings are as follows: First, it is shown that home ownership significantly influences subjective socioeconomic status, which appears to be particularly associated with traditional Korean culture. In addition to being the core of asset growth, home ownership is also tied to the belief that raising social status and passing it on to their children can sustain a family's socioeconomic status. Second, the subjective socioeconomic status was found to vary depending on the type of housing in which an individual currently resides, with residents of single-family housing having a higher subjective socioeconomic status than residents of other housing types. Third, residents of multi-household housing were found to rate their socioeconomic status as the lowest. Fourth, the type of housing in one's residential neighborhood was also found to be an important influencing factor in determining subjective socioeconomic status. Fifth, complex residential characteristics, such as the type of housing where one currently resides and the type of housing in the residential neighborhood, were found to affect subjective socioeconomic status significantly. Specifically, the situation in which residents of single-family housing reside in an area with a high concentration of single-family housing increased the subjective socioeconomic status the most.

The desire to own a home is a universal phenomenon in all countries. However, the level of desire and the economic rewards of home ownership differ from country to country. In countries with relatively high homeownership aspirations, such as South Korea, housing is a crucial indicator of social recognition and socioeconomic status. The steep rise in housing prices during COVID-19 has become a global phenomenon, and the hurdles to homeownership are increasing. A sharp increase in housing prices, coupled with an already widening economic gap, is exacerbating class conflict. Countries where people have a strong desire to own their homes likewise tend to have negative perceptions of public housing. In such countries, promoting public housing supply policies as the primary solution to social conflicts in order to resolve class conflicts is only a stopgap measure. However, in the absence of public intervention in the housing market, it is apparent that the class divide and the resulting conflict will intensify. To this end, it would be more reasonable to expand people's access to homeownership through public-led housing or the promotion of economic support for home ownership than public housing supply policies.

Seoul is the largest city in Korea, with a population of 10 million, and its metropolitan area is home to half the country's population. In this regard, the demand for housing in the Seoul market is unfathomably high, while the supply falls short of the demand. As a result, apartment-focused, large-scale housing supply projects are continuously underway in Seoul. The study's findings demonstrate that there is a phenomenon in which people prefer living in single-family homes, despite the fact that many prior studies have demonstrated that Koreans have a strong preference for apartments and the belief that living in an apartment can lead to a rise in status. However, single-family housing is gradually disappearing due to the large-scale supply of apartments. As a result, it is vital to examine whether building apartments with a focus on quantitative needs rather than people's preferred housing type is the appropriate housing supply policy direction. Due to land scarcity and widespread land ownership, attributable to the current flawed housing supply policy, this study found that residents of single-family housing have a significantly higher subjective socioeconomic

status. Given that having a sense of superiority by virtue of living in a specific housing type does not help resolve social conflicts, large-scale apartment-oriented supply policies such as those in place currently should be avoided. If the proportion of single-family housing is increased by developing single-family housing on the outskirts of Seoul and supporting the restore/renovate of aging single-family housing, the preference for specific houses will gradually decrease, thereby reducing social conflicts in the long run.

As a result of the fact that the type of housing in the neighborhood is also an important influencing factor on the subjective socioeconomic status, it can be seen that the residential characteristics and subjective socioeconomic status are inextricably linked to one another as causal factors. It is necessary to evaluate the significance of social mixing in areas where the preferred housing type, such as single-family housing, is concentrated and residents place a significant emphasis on their class. Currently, South Korea is implementing a large-scale apartment-oriented housing supply policy that can accommodate hundreds of thousands of households. Fortunately, there is no large-scale development of single-family housing with the highest subjective socioeconomic status, but it can lead to class segregation and conflict. In this regard, it is also necessary to promote a small-scale mixed development method rather than the large-scale development of specific types of houses in the most preferred areas of the country, such as Seoul. Currently, urban regeneration projects are being promoted in many areas in South Korea. Urban regeneration projects focusing on small-scale development and supporting existing communities rather than large-scale development centered on specific types are considered effective policies for resolving social segregation and conflict caused by large-scale development. Thus, this might be a crucial aspect of inclusive housing policy.

Finally, multi-household housing with the lowest subjective socioeconomic status appears to require further policy attention. In Seoul, where around 30% of the population resides, residents with low incomes have no choice but to choose multi-household housing. Due to a lack of clarity on responsibility, multi-household housing has a poor living environment, including maintenance issues and a lack of convenience facilities. Although changing the current perception of multi-household housing residents overnight is difficult, improving their low self-esteem by improving the residential environment in multi-household housing and multi-household housing concentrated areas is vital. Therefore, it can be argued that providing financial and administrative support is a pressing need.

Through empirical analysis, this study established the effect of residential characteristics on subjective socioeconomic status, thereby offering housing policy recommendations for South Korea and other countries with similar social structures. However, this study has the following limitations: First, it highlighted the relationship between housing and subjective socioeconomic status, but it is also crucial to consider the multifarious perspectives that affect subjective socioeconomic status. In turn, it is necessary to identify various influencing factors that can affect an individual's subjective socioeconomic status through further empirical analysis. Next, the perspective on housing is expected to differ depending on the region and country. Therefore, it is hoped that in the future, case studies will be conducted in various regions and countries to further a universal understanding of the relationship between the residential environment and subjective socioeconomic status.

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