



# Envy and Pride: How Economic Inequality Deepens Happiness Inequality in South Korea

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## Abstract

This paper examines how economic inequality at the local level affects individuals' subjective well-being (SWB) through social comparison in Seoul, South Korea. We implement a multi-level analysis combining asset inequality, calculated using the actual transaction prices of apartments, and public opinion surveys conducted by Seoul Metropolitan City between 2008 and 2016. Our analysis shows that inequality negatively affects SWB among respondents whose family income is lower than the median (the envy effect), but drives up SWB among the other half (the pride effect). Further analysis on the effect of inequality on subjective class awareness corroborates a social comparison mechanism: the have embracement of an upper-class awareness as local inequality increases, while the have-nots embrace a lower class awareness. These findings suggest that, despite concerns about economic inequality and its negative consequences, calling for policy reform to reduce inequality may be unpersuasive to the better off members of society, especially if doing so increases individual financial burdens.

**Keywords** Inequality · Social comparison · Pride · Envy · South Korea

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# 1 Introduction

How does income inequality affect individuals' subjective wellbeing (SWB)? A widening income gap around the world has aroused increasing public and scholarly interest in the relationship between income inequality and people's views of their own status.<sup>1</sup> In contrast to the widespread perception that deepening inequality would undermine SWB, findings from academic research are mixed. Cross-national studies have found positive (e.g., Haller and Hadler 2006; Helliwell and Huang 2008; Rözer and Kraaykamp 2013; Schyns 2002), negative (e.g., Delhey and Dragolov 2014; Graham and Felton 2006; O'Connell 2004; Oishi et al. 2011; Tomes 1986; Verme 2011) and insignificant (e.g., Zagorski et al. 2014) associations between income inequality and SWB.

One possible explanation for these mixed findings is heterogeneity in the type and strength of the inequality-SWB link at the individual level. For example, theoretical discussions on income comparisons and SWB suggest that inequality either increases or decreases SWB through four different channels, namely, *envy*, *information/signals*, *compassion* and *pride* (e.g., Bárcena-Martín et al. 2017; Hopkins 2008). Envy and compassion are presumed to adversely affect the SWB of poor and rich people, respectively, while information/signals and pride are associated with increased SWB. In view of those claims, the nature of the association between inequality and SWB at an aggregate level would be different depending on the relative proportion of people whose SWB either increases or decreases in the context of inequality.

Existing studies suggest that the association between inequality and SWB is negative in Western, mostly European, countries (e.g., Delhey and Dragolov 2014; Ferrer-i-Carbonell and Ramos 2014). According to Alesina et al. (2004), the negative link between inequality and SWB in Europe is largely due to the poor and the political left, who believe that they live in less mobile societies. In the US, on the other hand, it tends to be the rich rather than the poor who drive the relationship between inequality and SWB, due to the perception that American society is more mobile and that, with personal effort, people can move up and down the social ladder. The inequality-SWB link is less consistent or even positive in non-Western countries (e.g., Berg and Veenhoven 2010; Helliwell and Huang 2008; Graham and Felton 2006). For example, Cheung (2016) and Wang et al. (2015) show that inequality increases happiness in China through its effects on rural residents, who are optimistic about their future prospects, though it has no effect on urban residents.

Given this heterogeneity, understanding the relationship between inequality and SWB in a given country requires analyzing the overall association at the aggregate level as well as the underlying mechanisms at the individual level. In particular, in this paper, we examine the inequality-SWB link in South Korea, focusing on how concerns about income comparisons lead to distinctive responses among the haves and the have-nots to inequality at the local level. Compared to studies using a cross-national design, a single country study has some advantages in addressing the question at hand. Deepening inequality in a given country proceeds at a difference pace in different localities. Given that people tend to be more responsive to economic conditions at the proximate neighborhood level than at the distant national level (e.g., Newman et al. 2015; Reyes-García et al. 2019), studies relying

<sup>1</sup> For example, Gozgor and Ranjan (2017) find that income inequality increases with globalization. See also McCall and Percheski (2010) and Piketty and Saez (2014) regarding recent changes in equality worldwide.

on an inequality index estimated at the national level may suffer from measurement errors in seeking to capture individual experiences with and reactions to inequality.

Moreover, Korea is a representative example of the potentially dynamic relationship between economic prosperity and people's happiness. The Korean economy has grown at a remarkable pace since the middle of the twentieth century, spurring references to the Miracle of the Han River: GDP per capita in South Korea increased from \$70 in 1954 to \$26,761.9 as of 2018,<sup>2</sup> and as of 2019, the South Korean economy is the 12th largest in the world, with a nominal GDP of \$1.62 trillion. Yet, the gap between the rich and the poor in Korea has also increased rapidly as a side effect of rapid economic growth; the estimated Gini coefficient of Korea in 2017 was 0.36, suggesting a serious degree of inequality.<sup>3</sup> Meanwhile, according to the 2019 World Happiness Report, South Korea ranks 54th among 156 listed countries. This study thus seeks to understand the relationship between economic inequality and variation in happiness at the individual level using the case of Korea, the findings from which may have policy implications for other countries suffering from rising inequality.

For the empirical analysis, we exploit a multilevel model to examine how local inequality measured at the local administrative district level affects individuals' subjective well-being in Seoul, South Korea during the period between 2008 and 2016. To measure economic inequality at the local level, we employ the actual transaction prices of apartments that the South Korean Ministry of Land Infrastructure and Transport provides. In South Korea, non-financial assets comprise a substantial portion of family income. Moreover, studies demonstrate that asset prices have a greater effect on individual redistributive preferences compared to labor income inequality (e.g., Lee et al. 2013; Kim and Kwon 2017). Thus, people are likely to be sensitive to inequality in asset prices. For individual level covariates, we rely on the 2008–2016 Seoul Survey results. Our multilevel analysis identifies previously underrated heterogeneity in response to inequality conditional on individual economic conditions, demonstrating that inequality diminishes happiness among the poor but enhances it among the rich. At the aggregate level, the positive and negative effects cancel each other out, such that the overall association at the aggregate level is significant but small in magnitude. Our findings are consistent with recently emerging literature that shows inequality induces affluent citizens be less generous (Côté et al. 2015) and less supportive of redistributive policies (Sands 2017).

## 2 Theoretical Background

Economic inequality promotes social stratification between the haves and the have-nots (Andersen and Curtis 2012; Newman et al. 2015). In localities where income is more evenly dispersed, residents tend to treat income differences as less salient. Conversely, in localities with greater income inequality, the difference between the haves and the have-nots draws more attention and appears more drastic. Thus, “compared to lower (upper) income individuals in more equal contexts, lower (upper) income individuals in more unequal contexts will be more aware that they are ‘poor’ (‘wealthy’) and that others around them are doing much better (worse) than themselves” (Newman et al. 2015, p. 329).

<sup>2</sup> Trading Economics, <https://tradingeconomics.com/south-korea/gdp-per-capita>

<sup>3</sup> Statista, <https://www.statista.com/statistics/642046/south-korea-gini-coefficient/>

**Table 1** Comparison effects

	Decrease	Increase
Upward comparison	Envy	Information/signal
Downward comparison	Compassion	Pride

Social comparisons are widespread and ubiquitous in human social life (Baldwin and Mussweiler 2018). Compared to other species, humans have developed highly elaborate social systems with strong reciprocity and norms (Fehr and Gächter 2002; Fehr and Rockenbach 2004), which make the practice commonplace. To perform social interactions successfully, individuals look to others to assess their standing, strengths, and weaknesses in a relative sense and to understand how to behave (Baldwin and Mussweiler 2018). Several decades of research have demonstrated that numerous different cognitive, emotional, and psychological human activities incorporate comparison processes (e.g., Choplin and Hummel 2002; Lange and Crusius 2015).

Comparison with other members in society affects whether or not individuals feel positive about their lives (Ferrer-i-Carbonell 2005; Fliessbach et al. 2007; Suls et al. 2002). In other words, individuals tend to be concerned not only about their absolute income but also about their socioeconomic position relative to others. The standing of other community members thus provides the referential standard against which an individual measures herself in a social hierarchy. Since Duesenberry (1949) tested the impact of relative income in the context of saving behavior in the US, a long list of studies have theoretically and empirically demonstrated that relative income matters for SWB (e.g., Alvarez-Cuadrado and Van Long 2011; Bárcena-Martín et al. 2017; Clark et al. 2008; Luttmer 2005; McBride 2001). However, whereas absolute income is generally positively associated with individual happiness, studies on the effects of relative income have provided mixed results.

Income comparisons typically occur in two directions: upward by the have-nots toward the haves, and downward by the haves toward the have-nots. Existing theoretical discussions suggest that each comparison may have positive or negative effects on individual wellbeing, due to different motivations. Table 1 shows a summary of four possible channels of comparison effects (e.g., Bárcena-Martín et al. 2017; Hopkins 2008).

Upward comparison affects SWB through two channels: the envy effect and the information/signal effect. The envy effect suggests that upward comparison negatively affects SWB (e.g., Clark and Oswald 1996; Luttmer 2005; McBride 2001). According to Parrott and Smith (1993), “*envy* occurs when a person lacks another’s superior quality, achievement, or possession and either desires it or wishes that the other lacked it” (p. 906). Hedonic adaptation to additional income and consumption encourages people to strive for even higher aspirations to rise on the social ladder (Stutzer 2004). Conversely, one’s experience of sliding down the social ladder “might produce a sense of relative deprivation that could unleash negative emotions, including envy, shame, guilt, anger, depression, hostility, cynicism, or insecurity” (Reyes-García et al. 2019, p. 2). This is also consistent with the negative impact of status anxiety on SWB (Delhey and Dragolov 2014; Wilkinson and Pickett 2010). Status reflects the esteem and recognition that an individual receives from others in society (Ridgeway 2014). When an individual loses in a competition over status, self-esteem and the hedonic level of affect are undermined, thus lowering SWB.

In contrast, the information/signal effect suggests that upward comparison increases SWB. An individual finds that the success of a reference group positively affects his SWB when he compares himself to that group and sees himself as a likely member of the group

in the future (Clark and D'Ambrosio 2015). According to Taylor and Lobel (1989), social comparison processes include “the desire to affiliate with others, the desire for information about others, and explicit self-evaluation against others” (p. 569). Therefore, the advances of others going through a similar experience may “supply information about a more benign external environment; receipt of this information produces gratification; and this gratification overcomes, or at least suspends, *envy*” (Hirschman and Rothschild 1973, p. 546). Scholars have suggested that the information/signal effect appears salient in the early stages of a country's economic development, as evidenced in China (Cheung 2016; Wang et al. 2015), Poland (Grosfeld and Senik 2010) and Russia (Ravallion and Lokshin 2000), where people form positive expectations about their future living conditions as they watch others climb the social ladder. This effect is also consistent with Alesina et al. (2004) claim that the poor in the US have relatively positive attitudes toward inequality compared to their counterparts in Europe, because of beliefs about strong social mobility in the former.

On the other hand, scholars are divided over the effect of downward comparison (Hopkins 2008). A group of scholars has claimed that the effect is asymmetric, meaning that, unlike upward comparisons by the have-nots, downward comparisons by the haves do not affect their SWB. For example, Ferrer-i-Carbonell (2005) claims that “[w]hile the happiness of individuals is negatively affected by an income below that of their reference group, individuals with an income above that of their reference group do not experience a positive impact on happiness or well-being (p. 1004).” One possible explanation for the asymmetry is the effect of income aspiration on people's utility (Stutzer 2004). When an individual finds that her income level is higher than that of the reference group, it does not enhance her aspiration to rise in the hierarchy.

Conversely, other scholars claim that downward comparison also affects SWB through two channels: the compassion effect and the pride effect. The compassion effect indicates that SWB decreases when people find that others have incomes lower than their own. One of its theoretical foundations is the literature on inequity aversion that Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) have outlined, where scholars assume that individuals dislike having both more and less than others have. In particular, Fehr and Schmidt (1999) model fairness as inequity aversion and suggest that “people resist inequitable outcomes; i.e., they are willing to forego some material payoff to move in the direction of more equitable outcomes (p. 819).” Empirical evidence for inequity aversion is mostly found in the experimental literature (e.g., Blanco et al. 2011; Dawes et al. 2007; Tricomi et al. 2010). A partial exception is the work of Blanchflower and Oswald (2004). Using data from the US, they find that very low incomes among the poorest negatively affect others' happiness. In addition, the popularity of charity in daily life provides anecdotal evidence that compassion is widespread.

Finally, the pride effect captures the phenomenon in which downward comparison leads to increases in SWB. Among the four possible channels, the pride effect has received the least attention in the context of SWB. However, envy and pride are two facets of the same reality. According to Wilkinson and Pickett (2010), “[i]f you don't want to feel small, incapable, looked down on or inferior, it is not quite essential to avoid low social status, but the further up the social ladder you are, the easier it becomes to feel a sense of pride, dignity and self-confidence” (p. 40). An individual takes pride in herself when ascribing success to internal reasons (Horberg et al. 2013; Williams and DeSteno 2008) and expresses it spontaneously in response to victory (Tracy and Matsumoto 2008). Displays of pride are also an effective way to reveal status to others (e.g., Cheng et al. 2010; Martens et al. 2012), making it easier for a low status person to recognize the difference between the self and the envied person. In this sense, Lange and Crusius (2015) claim that “envy should be

fueled by a superior person's emotional display of higher status" (p. 455). They also provide experimental evidence that envy and pride often co-occur and that the display of pride strengthens envious feelings.

### 3 Data and Methods

To examine the effect of economic inequality on individual psychological well-being, we employ a multilevel framework. Individual level variables originate from the Seoul Survey, which is an annual survey that the Seoul Metropolitan City has been conducting since 2003. As of 2010, the population in Seoul amounts to 10.5 million people (4.2 million households), which is about one-fifth of the South Korean population. The target population of the survey was residents in Seoul aged 15 or over, drawn from 20,000 households. In each survey, approximately 47,000 individuals were sampled using a multi-stage area probability sampling method.<sup>4</sup> The first stratum comprised 25 administrative districts. The second stratum is town, "*dong*" in Korean, which is the third-tier unit in South Korean administrative system. As of 2017, the number of towns in Seoul is 424. The survey provides information about the administrative districts but not about the town. At the individual level, we use the surveys that Seoul Metropolitan City conducted between 2008 and 2016.<sup>5</sup>

We construct a subjective well-being measure, our dependent variable, using responses to the following question: "Do you think you are happy these days? Choose how happy you are between 0 (least happy) and 10 (happiest) in each of the following areas: health, finance, relationship with friends and relatives, family life, and social life (work place, school, religious organization, etc.)."<sup>6</sup> To ascertain the latent pattern, we use a principal factor analysis, which demonstrates that the responses to the five items load into one factor. The Eigenvalue is 3.107. The factor loadings are 0.73, 0.69, 0.84, 0.82, and 0.84, respectively. For ease of interpretation, we also use the average score of the responses to the five items.

<sup>4</sup> Each survey samples different households. The survey thus does not generate panel data but rather pooled cross-sectional data. The number of individual respondents varies between 45,605 in 2011 and 48,669 in 2008. Refer to Table A in the Supplementary Material regarding the specific sample size in each survey. The survey data is publicly available at Seoul Open Data Portal (<https://data.seoul.go.kr/>). Last accessed on January 29th, 2020.

<sup>5</sup> The Seoul Survey is widely used in domestic research in South Korea but less known internationally. Recently, Kim and Jin (2018, 2019) use the Seoul Survey to examine how welfare facilities and urban parks affect the happiness of Seoul residents. Cho and Park (2017) use the data to explore the effects of CCTV on fear of crime.

<sup>6</sup> Various scales have been proposed to measure SWB. One common measure is to rate global life satisfaction using a question like – "How satisfied are you with your life as a whole?". However, single-item measures are known to be less reliable than multi-item scales (Diener et al. 1985; IWG 2013). In this sense, scales like the Personal Wellbeing Index (PWI) propose to deconstruct 'life-as-a-whole' into several first-level domains. Although some claim that individual SWB should be assessed globally rather than by averaging satisfaction with specific domains (Pavot and Diener 2009), the PWI is also widely used and shown to be reliable across western and non-western countries (IWG 2013; Lau et al. 2005; Tiliouine et al. 2006). Theoretically, the five domains considered in this paper reflect existence needs (health and finance) and relational needs (relationships with friends and relatives, family life, and social life), which represent two of the three categories of basic human needs proposed by Schneider and Alderfer (1973). Studies suggest that both needs are important factors that affect the happiness of South Korean people (Kim and Han 2006; Oh and Lee 2017).

The two main independent variables of interest are the Gini coefficient of asset inequality and family income. To the best of our knowledge, indicators for economic inequality at the local level in South Korea are unavailable. As an alternative, we rely on the actual apartment transaction prices that the Ministry of Land Infrastructure and Transport provides. Using individual transaction records for each year between 2008 and 2016, we calculate the Gini coefficient for apartment prices at the administrative district level. Though incomplete, we believe that inequality in real estate values serves as a reasonable proxy for economic inequality at the local level. According to the Bank of Korea, the average household had 361.5 million won in net assets in 2015, 75% of which were non-financial assets, primarily housing.<sup>7</sup> In fact, previous studies suggest that asset prices have meaningful effects over redistributive preferences in South Korea, but not over labor income, which indicates that South Koreans perceive asset inequality as a more serious problem than income inequality (Lee et al. 2013; Kim and Kwon 2017).

Panel (a) in Fig. 1 shows the geographic distribution of inequality at the local district level. On average, the level of inequality measured in terms of apartment transaction prices is highest in *Jongno* district (0.32) and lowest in *Gangbuk* district (0.15). *Jongno* district is home to palaces in the *Chosun* dynasty as well as the South Korean president's current residence. Both traditionally wealthy villages such as *Pyengchang-dong* and *Sungbuk-dong* and poor villages such as *Changsin-dong* and *Soonging-dong* are located within the district. Panel (b) depicts the annual change in inequality in Seoul between 2008 and 2016. In general, the degree of inequality decreases over time (except for 2012), which seems to reflect the fact that the housing transactions market continued to experience some depression from the 2008 Global Financial Crisis through 2016 (Kim et al. 2016).

We measure family income using responses to the following question: "How much is your pre-tax average monthly family income? Please include every financial source (rents, interests, pensions, etc.) of all family members." The survey provides family income data categorically, and specific categories vary across years.<sup>8</sup> To create a comparable measure of family income across the different surveys, we divide the respondents into four groups for each year, where 1 denotes the lowest quartile and 4 denotes the highest quartile.<sup>9</sup>

We include a number of control variables that may affect SWB. Studies (e.g., Diener et al. 1999; Wilson 1967) suggest that demographic variables such as gender, age, education, and marital status are correlates of SWB, although the nature of those associations is not always straightforward. For example, Wilson (1967) suggests that young people are happier than older people; however, later studies suggest that SWB does not change or increase with age (Angelini et al. 2012; Horley and Lavery 1995). Regarding gender, similarly, Haring et al. (1984), Eaton and Kessler (1981), and Zuckerman et al. (2017) suggest that men tend to be happier, to feel less depressed and to have more positive affect than

<sup>7</sup> See Korea Times on June 14, 2016 (<https://goo.gl/1212qK>). Last accessed on January 29, 2020.

<sup>8</sup> From 2008 to 2012, family income was measured using five categories. The later surveys increased the number of income categories to 15 (2013) and 19 (2014, 2015 and 2016). Table B in the Supplementary Material provides the specific values for each category used in the different surveys.

<sup>9</sup> We chose quartiles to create approximately similar sized groups given the distribution of respondents in the original category. Still, the proportion of respondents in each group does not exactly correspond to 25%. For example, in 2008, 33% of respondents were assigned to the lowest quartile, while only 18% were assigned to the second highest quartile. When combining data from the entire sample, the proportion of respondents in each category approximated 25% (25.1%, 26.1%, 24.4%, and 24.4%). A quartile approach captures the economic standing of each family in Seoul in each year. This approach meets our needs for estimating how the effect of economic standing on SWB varies with the local inequality context.



**Fig. 1** Geographical and temporal variations in apartment price inequality. *Note.* We calculate district-level asset inequality annually using the actual transaction prices of apartments provided by the Ministry of Land Infrastructure and Transport. For ease of presentation, **a** depicts the geographic distribution of average district-level Gini scores between 2008 and 2016. **b** Depicts the annual average of district-level Gini scores in Seoul during the same period

women, while Blanchflower and Oswald (2004) and Wood et al. (1989) suggest the opposite. On the other hand, studies generally indicate that SWB is positively associated with marital status (e.g., Kim and McKenry 2002; Wadsworth 2016; Waite and Gallagher 2001) and education (e.g., Campbell et al. 1976; Chen 2012; Cuñado and Garica 2012). In addition, we control for homeownership and employment status. Homeownership has a strong positive effect on housing satisfaction as well as overall individual happiness (e.g., Diaz-Serrano 2009; Hu 2013). Unemployment, conversely, negatively affects psychological and physical well-being (e.g., Böckerman and Ilmakunnas 2009; Clark et al. 2001; Winkelmann and Winkelmann 1998). The specific coding for each variable is as follows: gender (0 = female, 1 = male); age category (1 = 10s, 2 = 20s, 3 = 30s, 4 = 40s, 5 = 50s, 6 = 60s and up); education (1 = middle school and below, 2 = high school, 3 = college and undergraduate, 4 = post-graduate); marital status (0 = unmarried, divorced, bereavement, 1 = married); home ownership (0 = rental and others, 1 = own); and unemployment (0 = employed, 1 = unemployed).<sup>10</sup>

At the local district level, we include three variables that capture affluence at the aggregate level. Studies acknowledge that affluence at the aggregate level has a positive effect on SWB independent from individual wealth (e.g., Deaton 2008; Inglehart et al. 2008; Ng and Diener 2019). Unfortunately, per capita income or gross domestic product, a common measure of affluence at the aggregate level, is not available at the district level. As a proxy for affluence, we include the average transaction price of apartments (logged), the Fiscal Independence Index (FII) of local government and the number of businesses to account for the economic conditions and wealth of each local district.<sup>11</sup> Table 2 provides the descriptive statistics of individual and local district-level variables. The total number of respondents in the dataset is 422,472. The number of observations at the district level is 225 (25 districts times 9 years). The main dependent variable is the factor loading score of five SWB items, which ranges between  $-5.932$  and  $2.743$ . The Gini coefficient based on apartment price ranges from  $0.137$  to  $0.391$ . The average Gini coefficient in the dataset is  $0.217$ . The minimum value of the average apartment price at the district level is 250 million won (about \$225,000) and the maximum value is 1.1 billion won (about \$1,000,000).

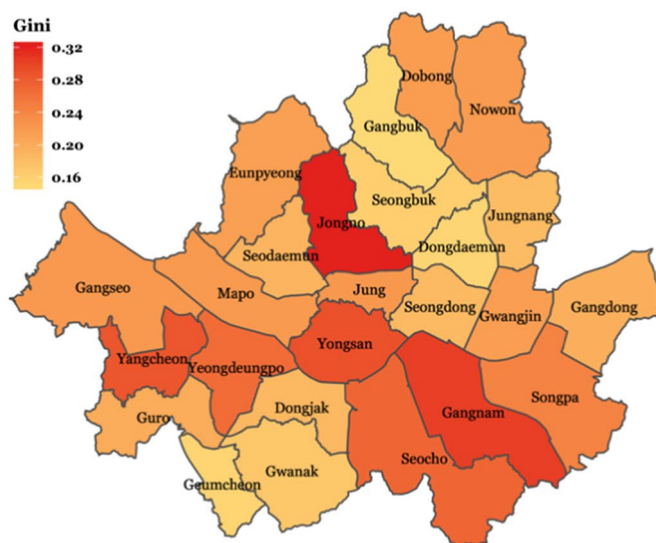
For the empirical estimation, we exploit a multi-level analysis to address the fact that individual respondents are nested into 25 administrative districts. Failure to address the nested data structure and ignoring interdependence among respondents within the same administrative district would inflate Type I errors (Steenbergen and Jones 2002). Moreover, our main interest is to understand how the association between family income and SWB at the individual level varies with local inequality at the administrative district level.

<sup>10</sup> Due to the data limitations, we treat Age as a categorical variable. In 2011 and 2012, birth year data are not provided in the dataset. For Education, different options are provided in each year. Refer to Table C in the Supplementary Material regarding the original scale. We group respondents into four groups comparable across the different surveys. The Employment variable is constructed using the occupation question. We code students, housewives and respondents without any job as unemployed.

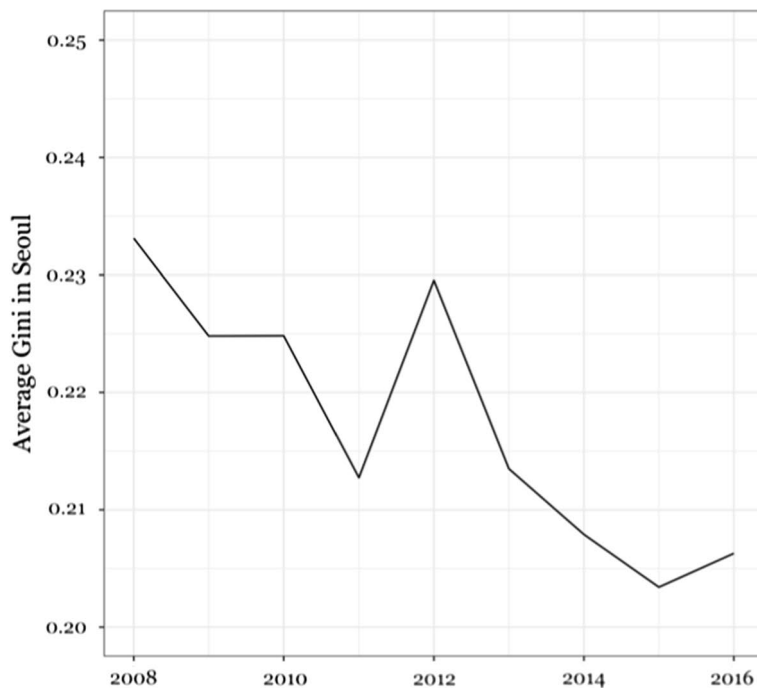
<sup>11</sup> The Fiscal Independence Index reflects the capacity of each local government to appropriate its revenue. The higher the value is, the sounder the local government's tax base.



**(a) Average Gini by districts (2008-2016)**



**(b) Annual changes of Gini in Seoul (2008-2016)**



**Table 2** Descriptive statistics

Variable name	N	Mean	SD	Min	Max
<i>Individual level variables</i>					
SWB (factor)	422,472	0	1	− 5.932	2.743
SWB (sum)	422,472	34.027	5.76	0	50
SWB (average)	422,472	6.805	1.152	0	10
Family income	421,140	2.48	1.113	1	4
Male	422,521	0.484	0.5	0	1
Married	422,522	0.671	0.47	0	1
Education	422,013	2.368	0.741	1	4
Homeownership	422,522	0.568	0.495	0	1
Age category	422,522	3.768	1.501	1	6
Unemployed	422,522	0.399	0.49	0	1
Subjective class	422,292	3.942	0.83	1	6
<i>District level variables</i>					
APT price Gini	225	0.217	0.052	0.137	0.391
Average APT price	225	45,903.24	17,724.46	24,919.44	107,128.20
Average APT price (logged)	225	10.671	0.344	10.123	11.582
Number of business (thousands won)	225	93.15	88.992	40.07	526.43
Fiscal independence index	225	44.116	16.76	17.5	86

Multi-level modeling provides advantages in examining such cross-level interaction effects compared to classical regression models (Gelman and Hill 2006). In particular, we use a linear mixed effects model with a Gaussian error structure since our main dependent variable, a factor loading score for SWB, has a continuous scale.

## 4 Results

Table 3 shows the main results. In columns (1) and (2), we consider the effects of the two main independent variables. In columns (3) and (4), we control for individual- and district-level covariates. In columns (1) and (3), we estimate a varying-intercept model to examine the overall effect of inequality on SWB. In columns (2) and (4), we estimate a varying-intercept-varying-coefficient model to examine whether the effect of inequality on SWB varies among respondents with differential family income levels.

In column (1), the coefficient on Gini is insignificant. In column (3), the coefficient is negative and significant, indicating that increasing inequality is associated with decreasing subjective wellbeing. However, the size of the estimated coefficient is small: a ten-unit increase in apartment price inequality (e.g., a change in the Gini from 0.2 to 0.3) would result in a 0.36 percentage point decrease in the SWB score.<sup>12</sup> The effects of other covariates are generally consistent with theoretical expectations. Family income, marital status, education, and home ownership are associated with higher subjective well-being. Males

<sup>12</sup> The range of the dependent variable is 8.674. The amount of change in the dependent variable associated with a ten-unit change in the Gini is calculated as follows:  $(0.312 \times 0.1) / 8.764 \times 100 = 0.36$ .

**Table 3** Inequality and subjective wellbeing

	Dependent variable: SWB factor score			
	(1)	(2)	(3)	(4)
Gini	−0.088 (0.088)	−4.274** (0.193)	−0.312** (0.090)	−4.310** (0.190)
Gini × family income		1.620** (0.066)		1.543** (0.064)
Family income	0.171** (0.001)	−0.182** (0.023)	0.113** (0.001)	−0.223** (0.021)
Average apartment price (logged)			0.085** (0.033)	0.146** (0.033)
Fiscal independence index			0.009** (0.001)	0.009** (0.001)
Total number of business			0.0001 (0.000)	0.0002 (0.000)
Male			0.017** (0.003)	0.017** (0.003)
Married			0.218** (0.004)	0.217** (0.004)
Education			0.123** (0.002)	0.122** (0.002)
Homeownership			0.097** (0.003)	0.095** (0.003)
Age category			−0.162** (0.001)	−0.162** (0.001)
Unemployed			−0.055** (0.003)	−0.056** (0.003)
Constant	−0.582** (0.030)	0.334** (0.072)	−1.639** (0.335)	−1.420** (0.338)
$\delta_y$	0.963	0.962	0.931	0.93
$\delta_d$	0.108	0.287	0.178	0.224
$\delta_{\text{family income}}$		0.09		0.082
Observations	421,095	421,095	420,597	420,597
Log likelihood	−581,792	−581,138	−566,899	−566,336

The dependent variable is the factor score of five SWB items. Year dummies for 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016 are included for estimation but not reported. Columns (1) and (3) estimate a random intercept model. Columns (2) and (4) estimate a random intercept random coefficient model. Two-tailed  $p$  values are reported

\* $p < 0.05$ ; \*\* $p < 0.01$

enjoy higher subjective well-being than do females, while unemployed people experience lower levels of happiness than the employed. Contrary to previous findings, older people feel less happy than younger people in South Korea, which may reflect the fact that the poverty rate among senior citizens aged 65 or older in South Korea is the highest among all OECD countries.<sup>13</sup> Among the district-level variables, the average apartment price and the

<sup>13</sup> See Business Korea on December 5, 2019 ([shorturl.at/blwY1](http://shorturl.at/blwY1)). Last access on February 9 2020.

FII are statistically significant, indicating that residents in local districts with more expensive apartments and sounder tax bases enjoy greater subjective well-being.

In columns (2) and (4), the coefficients on Gini are negative and significant. In both columns, the coefficient on Gini reflects a hypothetical situation where the value of family income is zero. The interaction variables between Gini and family income are positive and significant, indicating that the marginal effects of inequality are significantly different across respondents with different family incomes.<sup>14</sup> To understand these changes better, we present Fig. 2.

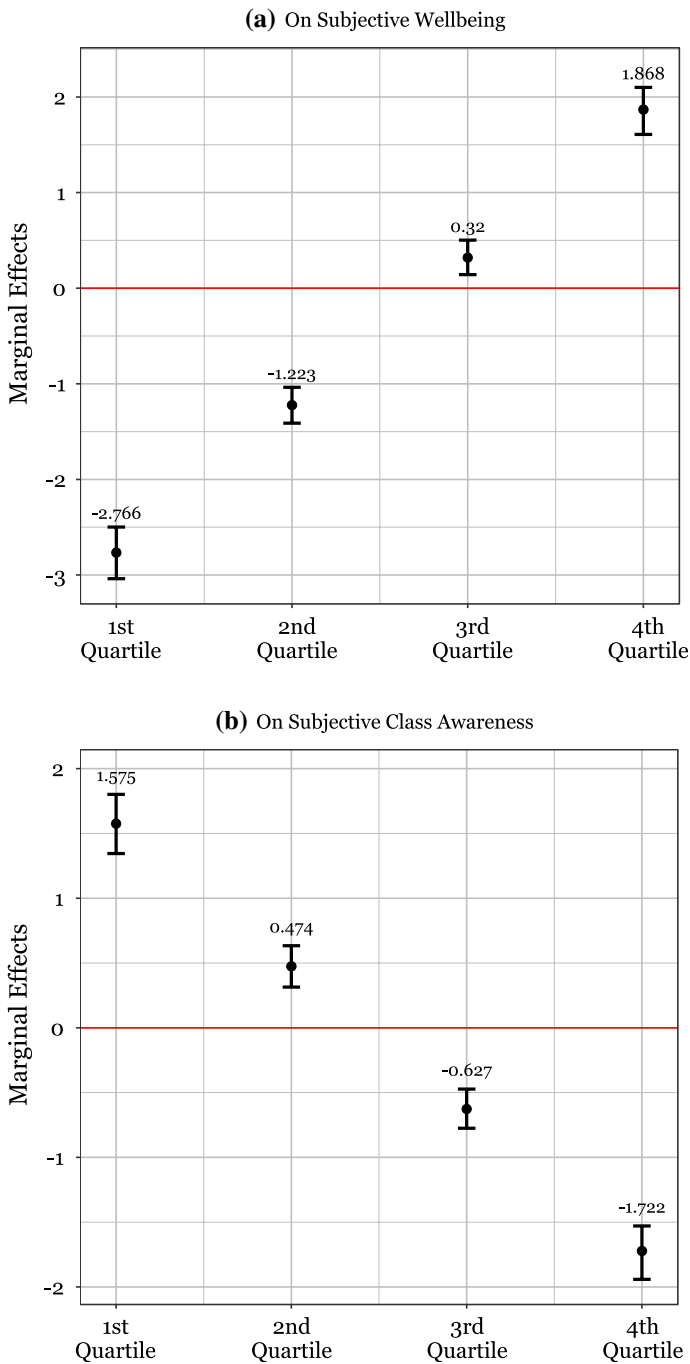
In this figure, panel (a) is generated using 1000 simulated coefficients of estimates from column (4). The black dots and vertical lines around the dots denote the median of the simulated coefficients and their 95% confidence intervals at different levels of Family Income. The number above each bar denotes the median value. In Panel (a), the marginal effect is negative among respondents whose family income is lower than the median, but the opposite occurs among the wealthier half. Compared to lower (upper) income individuals in more equal districts, lower (upper) income individuals in less equal districts express less (greater) happiness. The magnitude of coefficients indicates that a ten-unit increase in apartment price inequality leads to a 3.2 percentage point decrease in the SWB score for the lowest quartile, but a 2.1 percentage point increase for the highest quartile. Such a contrast indicates that two different channels coexist in South Korea, as suggested in Lange and Crusius (2015). Upward comparison by the have-nots toward the haves leads to a decrease in SWB, consistent with the envy effect argument (e.g., Clark and Oswald 1996; Luttmer 2005; McBride 2001). On the other hand, downward comparison by the haves toward the have-nots enhances SWB, consistent with the pride effect argument (e.g., Hopkins 2008; Wilkinson and Pickett 2010). The opposite signs for the inequality effects between the lower and upper halves explain why the overall effect of inequality on SWB in columns (1) and (3) is insignificant or significant but relatively small. The positive effect of inequality among respondents in the upper half offsets the negative effect of inequality among those in the lower half.<sup>15</sup>

## 5 Corroborating the Mechanism

The results provide evidence that inequality affects SWB through two different channels, depending on the income level of the respondents. We now examine the hypothesized mechanism underlying these findings. We assume that inequality raises the salience of one's own relative position in the economic hierarchy. In other words, lower income individuals in more unequal contexts perceive their position as lower compared to lower income individuals in more equal contexts, and vice versa. To examine whether this

<sup>14</sup> The results are substantively identical when we consider the sum of the five SWB scores or their average as the dependent variable. We re-estimate the models in columns (3) and (4) for each variable in Table D in the Supplementary Material.

<sup>15</sup> Given concerns about treating the Family Income variable as an interval scale, we also examine the models with the Family Income variable as a categorical variable. As shown in Table E and Figure A in the Supplementary Material, the results are substantively identical. A minor difference among the respondents in the two lower quartiles warrants a comment. The negative effect of inequality on SWB becomes even greater in the lowest quartile, but it becomes insignificant in the second lowest quartile. These findings may imply that it would be challenging to reach a consensus to address income inequality in South Korea. It is only the poorest members of society who suffer from inequality.



**Fig. 2** Marginal effects of inequality conditional on family income. *Note.* This figure depicts the marginal effect of inequality on individual subjective wellbeing in (a) and on subjective class awareness in (b). The black dots and vertical lines around the dots denote the median of simulated coefficients and their 95% confidence intervals at different levels of family income

**Table 4** Inequality and perceived social class

	Dependent variable: subjective class awareness			
	(1)	(2)	(3)	(4)
Gini	0.074 (0.072)	3.420** (0.160)	− 0.194* (0.077)	2.675** (0.160)
Gini × family income		− 1.294** (0.055)		− 1.100** (0.053)
Family income	− 0.165** (0.001)	0.118** (0.018)	− 0.133** (0.001)	0.107** (0.016)
Average apartment price (logged)			0.422** (0.028)	0.371** (0.028)
Fiscal independence index			0.001** (0.001)	0.001* (0.001)
Total number of business			0.001** (0.000)	0.001** (0.000)
Male			− 0.016** (0.003)	− 0.016** (0.003)
Married			− 0.142** (0.003)	− 0.141** (0.003)
Education			− 0.132** (0.002)	− 0.131** (0.002)
Homeownership			− 0.111** (0.003)	− 0.109** (0.003)
Age category			0.028** (0.001)	0.028** (0.001)
Unemployed			− 0.042** (0.003)	− 0.042** (0.003)
Constant	4.413** (0.023)	3.680** (0.055)	0.133 (0.295)	0.067 (0.296)
$\delta_y$	0.8	0.799	0.79	0.789
$\delta_d$	0.074	0.21	0.258	0.34
$\delta_{\text{family income}}$		0.068		0.058
Observations	420,924	420,924	420,431	420,431
Log likelihood	− 503,506	− 502,885	− 497,675	− 497,175

The dependent variable is the response to subjective class awareness. Year dummies for 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016 are included for estimation but not reported. Columns (1) and (3) estimate a varying intercept model. Columns (2) and (4) estimate a varying intercept and varying slope model. Two-tailed  $p$  values are reported

\* $p < 0.05$ ; \*\* $p < 0.01$

assumption holds, we use a question about subjective class awareness: “Which group do you think your political, economic and social status belong to?” Respondents choose one of the following six groups: (1) upper high, (2) lower high, (3) upper middle, (4) lower

**Table 5** The effects of inequality on SWB via class perception—mediation analysis

Income category	Type	Estimates	Confidence interval [95%]
First quartile	Mediation effect	−0.006**	[−0.01, −0.002]
	Direct effect	−0.071**	[−0.088, −0.055]
	Total effect	−0.077**	[−0.094, −0.06]
	% of total effects mediated	0.075**	[0.029, 0.141]
Second quartile	Mediation effect	0.005	[−0.002, 0.002]
	Direct effect	−0.047**	[−0.068, −0.031]
	Total effect	−0.047**	[−0.068, −0.03]
	% of total effects mediated	−0.015	[−0.065, 0.042]
Third quartile	Mediation effect	0.004**	[0.002, 0.006]
	Direct effect	−0.024**	[−0.043, −0.008]
	Total effect	−0.02**	[−0.04, −0.005]
	% of total effects mediated	−0.19**	[−1.104, −0.079]
Fourth quartile	Mediation effect	0.004**	[0.003, 0.005]
	Direct effect	−0.003	[−0.023, 0.016]
	Total effect	0.001	[−0.02, 0.02]
	% of total effects mediated	0.145	[−4.379, 4.211]

Analysis is based on OLS with mediation effects calculated using the algorithm in Tingley et al. (2014). The dependent variable is the factor loading of five SWB items. The mediation variable is subjective class perception. Two-tailed  $p$  values are reported

\* $p < 0.05$ ; \*\* $p < 0.01$

middle, (5) upper bottom, and (6) lower bottom.<sup>16</sup> Using this question, we perform two analyses.

First, we examine whether perceived status moves in the opposite direction as inequality increases. Table 4 shows the effect of inequality on subjective class perceptions. In column (1), the coefficient on Gini is insignificant. In column (3), it is negative and significant. Given the coding of the subjective class perceptions variable, respondents in more unequal contexts perceive their subjective class as higher than lower income respondents in more equal contexts do. In columns (2) and (4), the coefficients on the interaction terms are significant, indicating that the effects of inequality vary with Family Income. We illustrate how the marginal effect of Gini changes with different income levels in Panel (b) in Fig. 2. The results show that subjective class awareness associated with individual income varies with the local inequality context, in line with previous findings (e.g., Andersen and Curtis 2012; Lindemann and Saar 2014). The marginal effect of inequality is positive among respondents in the first quartile. Compared to lower income respondents in more equal contexts, those living in a more unequal context tend to perceive their status as lower. In contrast, the marginal effect of inequality is negative among respondents in the fourth quartile. Compared to upper income respondents in the more equal context, those in a more unequal context tend to perceive their status as higher.

<sup>16</sup> In the 2015 and 2016 surveys, a respondent is asked to place herself between 1 (lowest) and 10 (highest). We recode these responses into six categories in a way that approximates the distribution of respondents in previous years: upper high (10), lower high (9), upper middle (8), lower middle (7, 6, 5), upper bottom (4, 3), and lower bottom (2, 1).



Second, we examine the mediation effect of class perception over SWB more closely based on the approach proposed in Imai et al. (2011) and Tingley et al. (2014). In Table 5, the effect of inequality on SWB is decomposed into the direct effect and the mediated effect via subjective class perception. Among respondents in the first quartile, both the direct effect and the indirect effect are negative and significant, indicating that inequality lowers SWB. Among respondents in the third and fourth quartiles, in contrast, the mediation effects are positive and significant, consistent with the proposed mechanism. The haves living in unequal environments tend to perceive their social status as higher and to embrace greater happiness than the haves in equal environments.

Note that the direct effect of inequality differs among respondents at different income levels. Among respondents in the first quartile, the direct effect of inequality is negative and significant. Among respondents in the fourth quartile, in contrast, the direct effect of inequality is insignificant. The contrast indicates that social comparison primarily explains the association between inequality and SWB among the haves, but that other mechanisms should be considered in understanding how inequality affects SWB of the have-nots.

## 6 Concluding remarks

Despite public and scholarly concerns about increasing economic inequality, the literature on the effects of inequality on individual subjective well-being provides mixed results at best (e.g., Delhey and Dragolov 2014; Graham and Felton 2006; Haller and Hadler 2006; Helliwell and Huang 2008; O'Connell 2004; Oishi et al. 2011; Rözer and Kraaykamp 2013; Schyns 2002; Tomes 1986; Verme 2011; Zagorski et al. 2014). One possible explanation for the existing findings is the heterogeneous nature of responses to inequality contingent on individual characteristics and/or social contexts. In particular, the literature on social comparisons suggests various theoretical channels through which inequality may affect SWB positively or negatively among the haves and the have-nots (e.g., Bárcena-Martín et al. 2017; Hopkins 2008). Empirical studies, however, generally focus on the effect of the upward comparison of the have-nots toward the haves, paying only limited attention to the effect of the downward comparison of the haves.

In this paper, we aim to fill this gap by exploring how the effect of inequality on SWB differs between the haves and the have-nots in Seoul, South Korea. Our multi-level analysis demonstrates that two channels are salient in South Korea. Upward comparison by the have-nots toward the haves lowers SWB, as posited in the envy effect argument (e.g., Clark and Oswald 1996; Luttmer 2005; McBride 2001), whereas downward comparison by the haves toward the have-nots enhances SWB, as suggested in the pride effect argument (e.g., Hopkins 2008; Wilkinson and Pickett 2010). Further analysis on subjective class awareness corroborates a social comparison mechanism. Consistent with Andersen and Curtis (2012) and Lindemann and Saar (2014), the haves embrace upper-class awareness as local inequality increases, while the have-nots embrace lower class awareness. The mediation analysis also demonstrates that the indirect effect of inequality through subjective class perceptions is statistically significant but runs in opposite directions between the haves and the have-nots.

These findings have several implications. Inequality is often associated with a variety of social ills such as high levels of crime and violence, and low levels of social cohesion and trust (Elgar and Aitken 2011; Haller and Hadler 2006; Uslander and Brown 2005). Despite the theoretical prediction that democracies should self-cure inequality through additional

redistributive spending (e.g., Meltzer and Richard 1981), however, the so-called “Robin Hood Paradox” suggests that greater inequality is often accompanied by less rather more redistributive spending (Lindert 2004). The findings in this paper provide one possible explanation for the paradox: the haves, unlike the have-nots, enjoy greater subjective well-being as inequality rises, which lowers their support for measures to address inequality. Consistent with this possibility, previous studies also report that inequality bifurcates the haves and the have-nots. Newman et al. (2015), for example, show that the haves more strongly endorse the meritocratic belief that hard work leads to economic success than do their counterparts living in more equal counties in the United States. Côté et al. (2015) and Sands (2017) provides experimental evidence that affluent individuals become less generous in terms of giving and willingness to redistribute when exposed to inequality.

In this sense, future studies on the consequences of inequality should consider not only its aggregate level effect but also possible heterogeneity at the individual level. As shown above, when the effects of inequality run in opposite directions among different groups of people, the magnitude of the inequality effect at the aggregate level diminishes. Relatedly, studies need to pay greater attention to the effect of inequality at the local level. Perhaps due to the absence of available measures, previous efforts have often relied on cross-national differences. However, the extent of inequality certainly varies within countries, and with that variation comes variation in individuals’ happiness, depending on where they live. Without disentangling heterogeneous responses to inequality among individual in different economic conditions, it would be difficult to address inequality effectively, despite a consensus on the collectively negative consequences of rising inequality.

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