Perceptions of Inequality in America

by

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ABSTRACT

This paper investigates the gap between actual and perceived inequality in America and mechanisms driving perceptions. To measure perceived inequality, I used responses from the International Social Survey Programme asking respondents to identify a diagram that best describes his/her society, then matched survey responses to local housing prices. My research finds Americans consistently underestimating the income inequality. Controlling for demographic factors, I find place of residence does not have a significant influence in driving perceptions of inequality. However, two-year change in housing prices have significant effects on perceived inequality, though the directions of the relationship are contradictory between survey years and do not yield significant results. The results also indicate education and political affiliation to have significant correlations with perceived inequality.

INTRODUCTION

"The combined trends of increased inequality and decreasing mobility pose a fundamental threat to the American Dream, our way of life, and what we stand for around the globe."

Barack Obama

In the same speech, Barack Obama called "growing inequality and lack of upward mobility...the defining challenge of [America's] time." Indeed, various measures of income inequality have indicated rising inequality in America over the past few decades. Yet, do Americans truly understand the extent of inequality in their society? This paper explores the gap between actual and perceived inequality and its determinants.

Using results from the International Social Survey Programme (ISSP) Social Inequality Modules in 1999 and 2009, I find Americans to underestimate the extent of inequality in society and to believe in a larger middle class than there is. My findings confirm studies that consistently find significant gaps between perceived and actual inequality in America.

To explore drivers of such misperceptions, this paper builds on behavioral and sociology studies on cognitive mechanisms, including reference group formations and heuristics. Most existing studies explore subjective inequality through reference groups formed based on income and subjective social status (Osberg and Smeeding 2006). This paper proposes other environmental factors -- place of residence as references groups and housing costs as heuristic -- could also contribute to perceptions of inequality. Using the same set of ISSP survey data and matching it with housing data from Zillow, I find place of residence, defined by census regions and size of community, to not have a significant effect on perceived inequality. While changes in housing prices play a significant role in perceptions of inequality, their direction of change does not, indicating people might use the general housing market as an indicator of the broader

economic health. Education and political affiliations also play important roles in explaining perceptions of inequality.

BACKGROUND

I. <u>**Income Inequality**</u>

A. Objective measures of income inequality

A common objective measure of income inequality is the Gini coefficient. Ranging from 0 (complete equality) to 1 (complete inequality), the Gini coefficient is calculated by taking the area under the Lorenz curve, which maps out the cumulative income share on the y-axis and the cumulative population share on the x-axis.

Figure 1: Gini coefficient 1967-2015
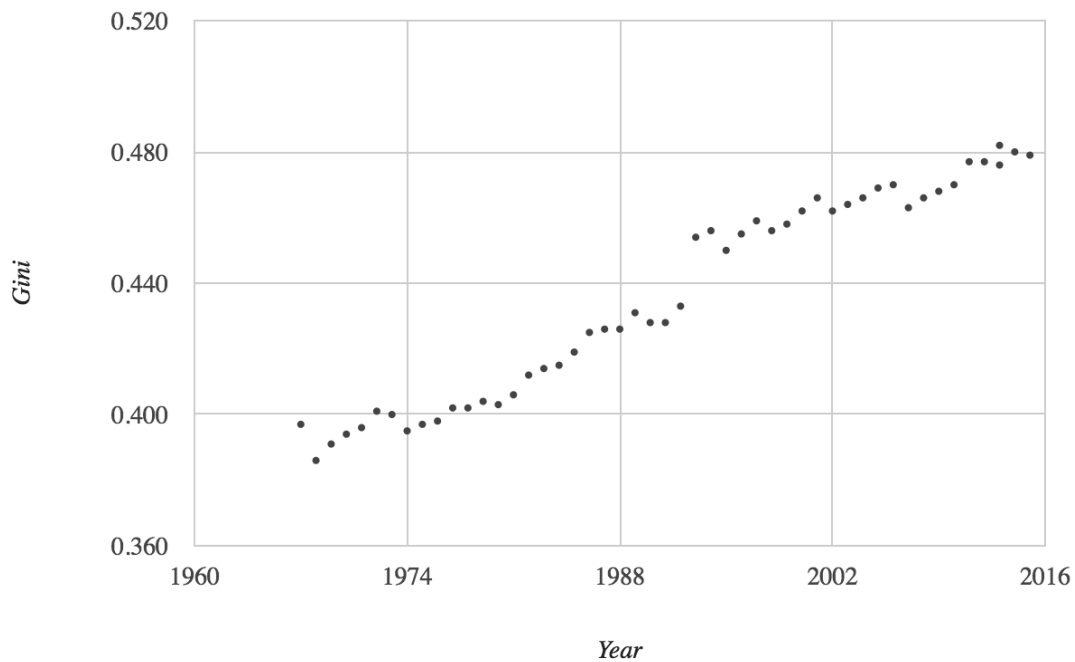
Data Source: U.S. Census, Table H-4. Gini Ratios for Households for all races, 1967-2015

Income inequality in the United States, measured by the Gini coefficient, has increased steadily over the past few decade and is among the highest across developed economies. Noting negative effects of inequality on education, health, and social cohesion drive that further perpetuates cycles of inequality (E.g. Kawachi and Kennedy, 1997; Gregorio and Lee, 2002; Wilkinson and Pikkett, 2005), rising inequality has received increasing attention by researchers, policymakers, and the public,

B.   Perceptions of income inequality

One less-studied measure of income inequality is *perceptions* of income inequality. As surveys and experimental studies have found, perceptions of income inequality often differ from actual income inequality. Yet, as these perceptions could influence and explain redistribution preferences, civic participation, and individual well-being when objective measures of income inequality cannot.

A popular study by Norton and Ariely (2011) finds Americans underestimating wealth inequality in the United States by asking survey participants to estimate the percent of wealth each quintile of his/her society owns. While in reality the top quintile owns around 84% of America's wealth, the respondents estimated that the wealthiest quintile to own around 59% of the wealth. Other survey experiments (Chambers, Swan, and Heesacker, 2014; Cruces, Perez-Truglia, and Tetaz, 2013) find similar inconsistencies between perceived and actual inequality.

Research has found perceived inequality to influence redistributive preferences, happiness, and trust in society. Comparing cross-country responses from the ISSP: Social Inequality modules, Osberg and Smeeding (2006) find Americans to have greater underestimation of top-end income differences, more polarization in attitudes towards inequality, but also less preferences for redistribution. Were Americans to continue perceiving less

inequality than there is in reality, polarization of attitudes could lead to public policies that serve voters at either extremes, having detrimental effects on social stability and egalitarian values. While the objective Gini coefficient of income inequality does not have statistically significant effect on redistribution preferences, Niehues (2014) and Gimpelson and Treisman (2016) find strong correlations between the level of perceived inequality on redistributive preferences. Furthermore, using varying questions that measure perceived inequality, including on economic ladder estimations and probability of upward mobility, Graham and Felton (2005) find perceived inequality act as a signal to fairness in society. Oishi, et al. (2011) similarly concludes that the negative relationship between inequality and happiness is explained by perceived unfairness and trust in society.

Most research focuses on making descriptive comparisons of the gap between actual and perceived inequality and the effects of the phenomenon, but few has looked into the formation of these perceptions. Noting the significance of perceived inequality on individuals and society, as well as its digression from objective measures of income inequality, there needs to be further understanding as to how these perceptions arise. The next section will discuss potential decision-making mechanisms, including reference groups and heuristics, that could influence and bias individuals' perceptions of society.

II.   Perspectives from behavioral studies

Behavioral studies have found that people often operate and make decisions with incomplete information. For example, people rely on political and institutional systems, rather than actively gathering objective, unbiased information, when they feel unable to understand complex social issues (Shepherd & Kay 2012). Misperceptions could therefore further ignorance and create a false feedback loop. Understanding decision-making and cognitive mechanisms

could therefore shed light on factors that influence people's subjective judgement of society. This paper hypothesizes neighbors (proxied by place of residence) could serve as reference groups and housing costs as signals. Neighborhood information and housing costs in turn contribute to individuals' perceptions of inequality among the broader society.

A. Place of Residence as Reference Groups

Reference groups serve as a central analytic tool in social psychology (Shibutani, 1955). Those in the same reference group use the group as "the frame of reference in the organization of his perceptual field." Kemper (1968) theorizes that reference groups form, in relation to aspiration for achievement, through comparison groups, "groups, collectivities, or persons that provide actor with a frame of reference which serves to facilitate judgments about any of several problematic issues… [such as] the equity of one's fate." These groups can form by sharing the same social class, ethnic group, a given community, or special interest. Different reference groups therefore create variations in outlooks and perspectives on society.

Cruces, Perez-Truglia, and Tetaz (2012) find reference groups to play a salient role in individuals' perceptions of income distributions. In turn, individuals with more heterogeneous social circles to be less prone to bias. Reference groups and social comparisons could therefore reinforce (sometimes inaccurate) perceptions of society and continue to motivate behavior that perpetuates inequality, i.e. neighborhood selection and redistributive preferences.

Previous research mostly focused on reference groups formed based on income levels. Yitzhaki (1979) proves Gini-coefficient consistent with the relative deprivation theory. A study by Loewenstein, Thompson, and Bazerman (1989) reinforces the importance of *relative* payoff in decision making and the social utility function. The study finds subjects more concerned with their relative payoff - compared to others' - than individual payoffs independent of others.

Individuals experience "relative deprivation," when they compare themselves with other people (Runciman, 1980). When comparing oneself with others, relative deprivation has a negative impact on emotional well-being and social order (e.g. Ross, 2000).

However, place of residence also plays an important role in how people perceive society, mobility, and opportunities, as neighbors often serve as reference groups and used for comparison. Using data from the National Survey of Families and Households and the U.S. Census, Luttmer (2005) finds individuals' happiness to be negatively affected by earnings of others in proximate areas, especially for individuals who have higher exposure to their neighbors. Furthermore, research has find people living in places of different sizes and densities to have different outlooks in society. Graham and Felton (2005) find prospects for upward mobility to vary with city size. Compared to those living in big cities, those living in small towns tend to have lower perceived mobility and believe they will attain their ideal standards of living. Studies (Okulicz-Kozaryn, 2016; Okulicz-Kozaryn and Mazelis, 2016) have found size and density of places, especially in cities, to have significant effects on subjective well-being and life satisfaction.

Place of residence could play an increasingly important role on perceptions of inequality, as America sees trends of increasing income segregation, which refers to the uneven distribution of income groups among geographic areas (Reardon and Bischoff, 2010). Testing with different measures of segregation, research has found strong links between income inequality and income segregation (Mayer, 2001; Watson, 2009). By sorting themselves based on income and willingness to invest in public resources (such as parks, services, and utilities), households with similar socioeconomic background and preferences will integrate to form communities (Tiebout, 1956; Reardon and Bischoff, 2010). Furthermore, the spatial segregation of high-income

households from middle- and low-income households may decrease the likelihood that individuals from different income groups will interact (Reardon and Bischoff 2010). This in turn will influence perceptions of overall income distribution, as neighbors might not serve as accurate representations of broader patterns of income levels.

Given the increasing divide in income between neighborhoods and regions, as well as the differences in outlook among residents in different communities, I hypothesize that place of residence could serve as reference groups when people make inferences on inequality within the broader society.

B. Saliency of Housing Costs

In face of uncertain events or value of an uncertain quantity, people rely on heuristic principles and limited data to reduce complex estimations to simpler judgmental operations (Tversky and Kahneman, 1974). People use availability heuristics to "assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind." Salient factors, those that are "prominent in the perceiver's field of view or...easily retrievable from memory," are often used instead of "weighing many possible causes to make a decision" (Smith and Miller, 1979). Noting the reliance on heuristics in individuals decision-making processes, this paper investigates whether housing price serves as salient information that might influence people's perceptions of society.

According to the U.S. Census, American homeownership rates hover between 63% and 70% between 1996 and 2017 (Appendix 1). The Zillow Mortgage Affordability index, which computes the percentage of median mortgage to median household income, shows mortgage payments to take up around one-fifth of household incomes (Appendix 2). Moreover, housing serves as a status symbol in American culture and seen as having emotional, not just financial,

returns (Searle, Smith, & Cook, 2008). Syed (2016) finds a positive relationship between housing prices and happiness, while Robinson (1873) finds homeowners to have perceive more equality than renters do. Given majority of Americans are homeowners, with housing prices highly tied to financial and emotional returns, it is natural to assume Americans are sensitive to changes in housing prices and use them as signals to understanding the broader economy.

Using housing price to calculate a housing consumption Gini coefficient and comparing the index to income Gini coefficient, Glaeser, Resseger, and Tobio (2008) found low correlation between housing consumption inequality and income inequality. Using data from 2000, their calculated mean housing consumption inequality is 0.28, versus the income Gini coefficient of 0.45. In general, housing consumption inequality is lower than income inequality. Given the difference between the two Gini coefficients, if people do use housing costs to interpret inequality in the broader society, then they might see less inequality than there is measured by income.

Given the close associations between housing prices and income, as well as the importance of homeownership in American culture, I hypothesize that housing prices might serve as a heuristic when people make assumptions about income inequality in society.
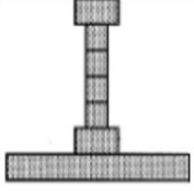
DATA

I. **Measuring perceived income inequality**

The International Social Survey Programme (ISSP) takes place every year across 40 countries, including the United States, to collect cross-national attitudinal data. Starting in 1987, the program has conducted four special modules on Social Inequality (1987, 1992, 1999 and

2009.) After filtering for only U.S. respondents in 1999 and 2009, I end up with a total of 2853

observations, with 1271 observations in 1999 and 1581 observations in 2009.

I specifically chose one question (14a in 2009 and 16a in 1999) as a measure of perceived
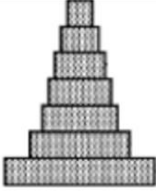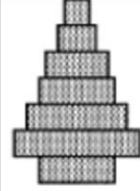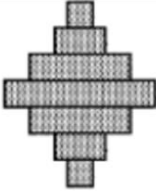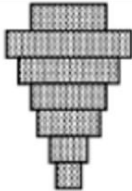
inequality. The question shows respondents five diagrams and text descriptions of different types

of societies. Respondents have to select the diagram and description that best fit their countries.

Type A	Type B	Type C	Type D	Type E
A small elite at the top, very few people in the middle, and the great mass of people at the bottom.	A society like a pyramid with a small elite at the top, more people in the middle, and most at the bottom.	A pyramid but with a few people are at the bottom.	A society with most people in the middle.	Many people near the top, and only a few near the bottom.

Source: ISSP source questionnaire, Item 14a in 2009 and Item 16a in 1999.
Question: These five diagrams show different types of society. Please read the descriptions and look at the
diagrams and decide which you think best describes [country].

The question is chosen for several reasons. In his discussion of measuring expectations,

Manski (2004) addresses economists' unrealistic assumptions that individuals make rational

expectations and with full information, as well as bias using subjective statements in surveys.

Instead, he suggests eliciting ranges of subjective probabilities, rather than specific individual

probabilities. The use of diagrams guide respondents to express their ideas of distributions more

concretely. Using the bars in each diagram to represent different population shares in seven

social classes, the question also allows for computation of distributive measures, which can be

compared to measures of actual income distribution (Niehues 2014; Gimpelson and Treisman

2016). Experimental studies (Norton and Ariely 2011; Chambers, Swan, & Heesacker 2014)

have similarly employed the use of diagrams to collect respondents' perceptions and preferences on wealth and income distributions.

Using the same question, Gimpelson and Treisman (2016) calculated the corresponding Gini coefficients for each diagram using the total area of each class and proportion of respondents choosing each society type. The resulting Gini coefficients for the five diagrams are: (A) .42, (B) .35, (C) .30, (D) .20, (E) .21. This Gini coefficient is used as my dependent variable, as proxy for perceived inequality.

II.   Actual Inequality

Data on actual inequality, measured by the Gini coefficient, is taken from the Total Personal Income variable from the 2000 and 2010 American Community Surveys.

III.   Geographic variables and divisions

The lack of detailed geographic variables in the ISSP survey presented the biggest challenge in the data collection process. Due to respondent confidentiality, I was unable to obtain geographic data more detailed than nine census divisions. To provide more precise observations, I combined nine census regions (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific) and community sizes to create fifty-seven geographic profiles (excluding regions with missing observations) across the United States.

Using census regions and community sizes as identifiers across datasets, I was also able to merge ISSP survey responses with real estate data and unemployment rates. I obtained 2000 and 2010 county population estimates from the U.S. Census Bureau's Population Estimates Program, then reconstructed the seven Community Size categories used in ISSP.

U.S. Regions	Community Size
New England	1 - 9 Millions
Middle Atlantic	500,000 - 999,999
East North Central	100,000 - 499,999
West North Central	50,0-00 - 99,999
South Atlantic	10,000 - 49,999
East South Central	1,000 - 9,999
West South Central	Under 1,000
Mountain	
Pacific	

IV.   **Housing prices**

I obtained housing data from Zillow's Home Value Index to estimate median home value

per square feet. The index provides monthly home values for each county from April 1996 to

March 2017. Median home value per square feet was chosen to allow for comparison across

different housing sizes and types. However, the index has limitations in that it includes only

homes sold on the market at specific time periods. This means that the index could be subjected

to biases in the changing composition of properties from one time period to another. This

approach also would not be able to fully control for variations in housing quality.

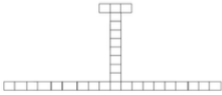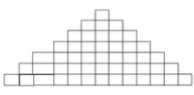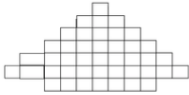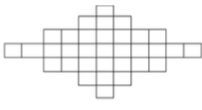V.   **Demographics**

ISSP also asks respondents key demographic characteristics, including age, gender, years

of education, political affiliation, religion, and income. These can be obtained either through

ISSP's cumulative files and add-on modules.

RESULTS AND DISCUSSION

I.   Descriptive Data: Perceived vs Actual Inequality

Results from the survey show Americans to consistently underestimate the level of inequality in America. Table 1 summarizes proportion of people choosing each diagram, as well as Gimpelson and Treisman's calculations of the of the gini-coefficient for each diagram. The diagram that most resemble actual inequality in America is Diagram A (Gini coefficient of 0.42). However, in both years, most respondents chose Diagram B (Gini coefficient of 0.35), followed by Diagram D (Gini coefficient of 0.2). I then calculated weighted average of the perceived Gini coefficient for each year. In the 1999 module, society is estimated to have a Gini of 0.3056, when the actual Gini is 0.458; In the 2009 module, the average estimated Gini coefficient is 0.3113, much lower than the actual Gini of 0.468.

Table 1: Response summary on ISSP question for perceived inequality.

	Diagram: What type of society is [Respondent's] today?					
	Type A	**Type B**	**Type C**	**Type D**	**Type E**	
	A small elite at the top, very few people in the middle, and the great mass of people at the bottom.	A society like a pyramid with a small elite at the top, more people in the middle, and most at the bottom.	A pyramid but with a few people are at the bottom.	A society with most people in the middle.	Many people near the top, and only a few near the bottom.	
Gini Coefficient	0.42	0.35	0.3	0.2	0.21	
1999 and 2009						
Frequency	393	818	388	626	66	2291
Percentage	17.15%	35.70%	16.94%	27.32%	2.88%	
1999 Total						
Frequency	193	364	213	322	32	1124
Percentage	17.17%	32.38%	18.95%	28.65%	2.85%	
2009 Total						
Frequency	200	454	175	304	34	1167
Percentage	17.14%	38.90%	15.00%	26.05%	2.91%	

To visually demonstrate the differences, I followed Niehues' method (2016) to reproduce

diagrams of how society is perceived. Each bar in each diagram represents a different area, as

found in ISSP codebooks. Each area is then weighted by the proportion of respondents who

selected that society type. To create comparable diagrams of actual inequality, I further followed

Niehues's method and assigned individuals to seven classes based on where individual incomes

fall relative to the population's median income. While how each class is assigned is arbitrary, the

relative definitions allow for the purpose of comparing actual and perceived inequality. Using

Niehues's definition, the seven classes are classified as such:

Class	Percentage of total population's median income
1	Below 60%
2	60%-80%
3	80%-110%
4	110%-150%
5	150%-200%
6	200%-250%
7	Above 250%

Figure 2: Perceived vs Actual Inequality in 1999 and 2009
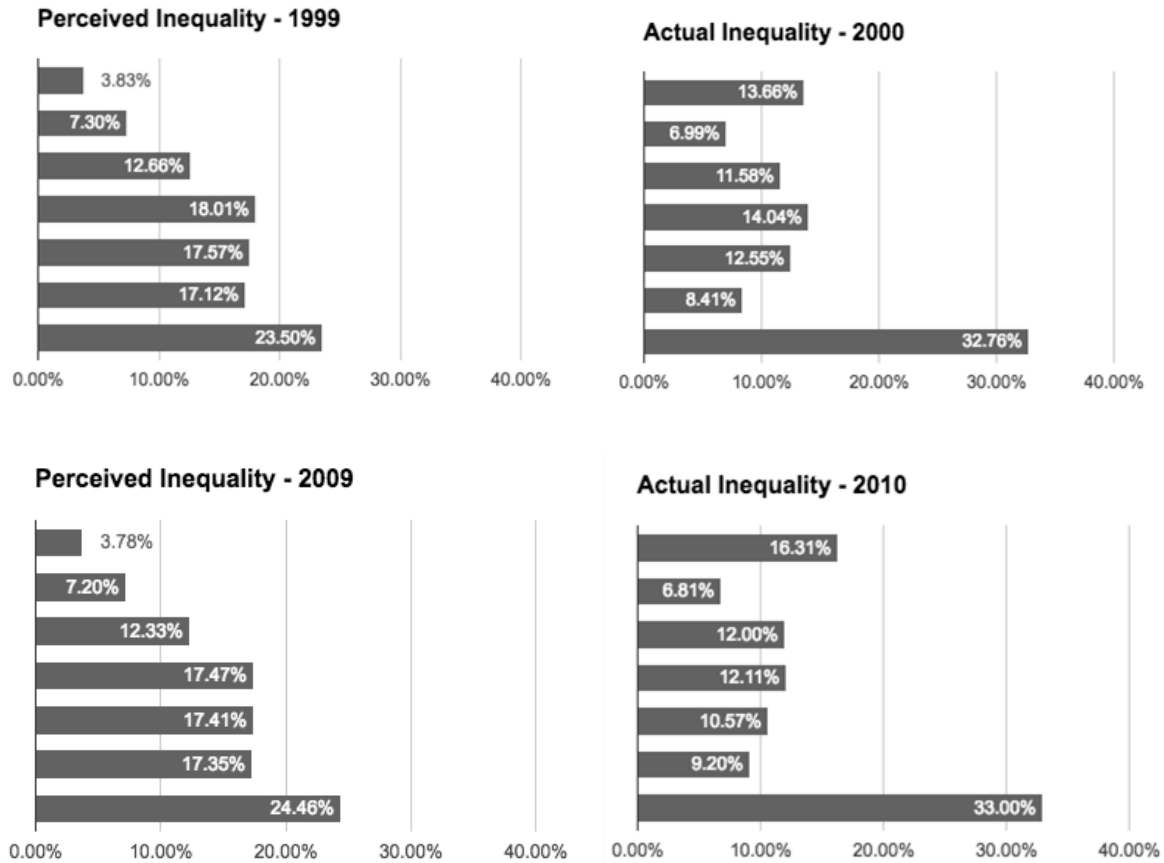
Perceived inequality calculated by responses to ISSP 1999 and 1999. Actual inequality calculated using U.S. Census data and according to Niehues' method (2014).

The resulting diagrams show that Americans perceive society to have a larger middle class than there actually is. Moreover, Americans underestimated the proportion of population among the highest-income class, as well as underestimated the proportion of population that belongs to the lowest-income bracket. Together, this indicates that respondents see the United States as more equitable and possesses more even income distribution than in reality. This is

consistent with research findings discussed above, in which Americans are found to be more optimistic about their societies.

II.   Regression Results

To investigate factors influencing perceived inequality, a linear regression model is used. The dependent variable is the perceived Gini-coefficient, based on respondent's response to the ISSP survey and calculated using diagrams provided in the question. Place of residence is defined by size of community and U.S. region. Change in house prices is defined by the difference in the log of average home prices per geographic profile, assigned using regions and community sizes. Individual-level control variables include log income, log years of education, gender, marital status. The results are listed in Table 2 below.

The results show that neither size of community nor region has a significant effect on the perceived Gini coefficient in either year. Thus, rejecting my hypothesis that where people live influence the formation of reference groups, which could influence perceived inequality.

Table 2: Linear Regressions

Dependent Variable: *Perceived Gini Coefficient*	2009		1999	
	Coeff.	S.E.	Coeff.	S.E.
Log *Years of Education*	-0.1806	0.0800	-0.0437**	0.0167
Log *Respondent Income*	-0.0032	0.0164	0.0048	0.0036
Two year difference of Log *Housing Prices*	-0.0032**	0.0029	0.0912**	0.0387
SEX				
Female	0.0068	0.0063	-0.0005	0.0064
MARITAL STATUS				
Widowed	0.0048	0.0183	0.0176	0.0185
Divorced	-0.0005	0.0090	0.0164**	0.0086
Separated	0.0020	0.0190	0.0273	0.0174
Never married, single	0.0008	0.0075	0.0066	0.0075
SIZE OF COMMUNITY				
500,000 - 999,999	0.0085	0.0191	0.0190	0.0254
100,000 - 499,999	0.0130	0.0173	0.0087	0.0156
50,0-00 - 99,999	0.0134	0.0175	0.0126	0.0171
10,000 - 49,999	0.0203	0.0178	-0.0030	0.0147
1,000 - 9,999	0.0109	0.0152	0.0092	0.0162
REGION				
Middle Atlantic	0.0407	0.0290	0.0053	0.0252
East North Central	0.0332	0.0268	0.0181	0.0244
West North Central	0.0325	0.0300	-0.0084	0.0252
South Atlantic	0.0155	0.0260	0.0018	0.0234
East South Central	0.0341	0.0317	-0.0046	0.0275
West South Central	0.0179	0.0285	-0.0114	0.0247
Mountain	-0.0064	0.0272	0.0086	0.0252
Pacific	0.0036	0.0270	0.0125	0.0244
Adjusted R2	-0.0028		0.0163	
Number of observations	674		702	

Focusing on the effect of housing price change, I ran the same regressions with fixed regional effects. The results are shown in Table 3 Columns (1) and (3) for 2009 and 1999 respectively. I then included additional control variables for political affiliations and religious affiliations. The results of the new regressions displayed in Table 3 Columns (2) and (4). In all four sets of results, two-year change in log of housing price has a significant effect on perceived inequality, measured by the Gini coefficient. However, the results show opposite directions for the relationship between housing price change and perceived inequality. Results in 2009, in Columns (1) and (2), show housing price change to have a negative effect on perceived Gini. This means that, controlling for other factors, a drop in housing price results in the perception that society as more unequal. On the other hand, results for 1999, presented in Columns (3) and (4), indicate that a two-year change in log housing prices to have significant and positive effect on perceived inequality. Increase in housing prices is associated with perceptions of higher income inequality. The contradicting results suggest mediating factors underlying the relationship between housing price changes and perceived inequality.

One potential explanation for the contradicting results could be the subprime mortgage crisis in the late 2000s. As displayed in Appendix 3, homeowners saw their home values falling as average housing prices decline since the peak in 2006. Although the housing prices used in this paper is on the aggregate level, instead of individual-level changes experienced by each respondent, the widespread financial effects had detrimental effects on the economy and

Table 3: Linear regression with fixed regional effects

Dependent Variable: Perceived Gini Coefficient	(1) 2009		(2) 2009		(3) 1999		(4) 1999	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Log Years of Education	-0.0032	0.0164	-0.0026	0.0166	-0.0437**	0.0167	-0.0395**	0.0170
Log Respondent Income	-0.0032	0.0029	-0.0010	0.0030	0.0048	0.0036	0.0047	0.0036
Two year difference of Log Housing Prices	-0.1806**	0.0800	-0.1832**	0.0796	0.0912**	0.0387	0.0916**	0.0386
SEX								
Female	0.0068	0.0063	0.0078	0.0062	-0.0005	0.0064	-0.0027	0.0065
MARITAL STATUS								
Widowed	0.0048	0.0183	0.0034	0.0182	0.0176	0.0185	0.0129	0.0184
Divorced	-0.0005	0.0090	-0.0007	0.0089	0.0164*	0.0086	0.0160*	0.0086
Separated	0.0020	0.0190	0.0001	0.0190	0.0273	0.0174	0.0228	0.0174
Never married, single	0.0008	0.0075	-0.0023	0.0075	0.0066	0.0075	0.0036	0.0076
SIZE OF COMMUNITY								
500,000 - 999,999	0.0085	0.0191	0.0085	0.0191	0.0190	0.0254	0.0228	0.0253
100,000 - 499,999	0.0130	0.0173	0.0130	0.0173	0.0087	0.0156	0.0144	0.0156
50,0-00 - 99,999	0.0134	0.0175	0.0134	0.0175	0.0126	0.0171	0.0178	0.0171
10,000 - 49,999	0.0203	0.0178	0.0203	0.0178	-0.0030	0.0147	0.0061	0.0148
1,000 - 9,999	0.0109	0.0152	0.0109	0.0152	0.0092	0.0162	0.0172	0.0162
PARTY AFFILIATION								
Center, liberal			0.0022	0.0073			-0.0141*	0.0074
Right, conservative			-0.0212**	0.0082			-0.0307**	0.0084
Other, no specification			-0.0168	0.0215			0.0138	0.0229
RELIGIOUS AFFILIATION								
Roman Catholic			-0.0261**	0.0100			-0.0110	0.0098
Protestant			-0.0193**	0.0089			-0.0045	0.0088
Christian Orthodox			-0.0563	0.0558			-0.0289	0.0194
Jewish			-0.0336	0.0220			-0.0270	0.0404
Islam			-0.0358	0.0469			0.0111	0.0405
Buddhism			0.0381	0.0409			-0.1084	0.0797
Hinduism			-0.0446	0.0401			-0.0214	0.0172
Other Christian..			-0.0053	0.0206			0.0864	0.0800
Other Religions			-0.0743**	0.0259			-0.0265*	0.0143
Regional fixed effects	Yes		Yes		Yes		Yes	
Adjusted R2	-0.0028		0.0217		0.0163		0.0345	
Number of observations	674		673		702		700	

individual income levels that extend beyond homeowners. The subprime mortgage crisis was

to people's reactions. The declining housing prices, as a result of the housing crisis, could have

increased saliency and drive perceptions of more inequality. This is consistent with findings from

Alesina and Guiliano (2009) in which recent misfortune, such as death of a relative, divorce, and

unemployment, has positive and significant effects on preferences for redistribution. They

explain that misfortune may "make people more risk-averse, less optimistic about their future

upward mobility and more inclined to equalize everybody's income."

In contrast, the late 1990s generally witnessed positive change in housing prices. This

leads to two potential explanations for the positive relationship between housing price change

and perceived inequality. One is that the positive relationship is a "normal" scenario, when there

is no recession or consistent decline in housing prices. Appendix 4 demonstrates that housing

prices generally have an upward trend. Another explanation is that the relationship is mediated

by other factors, which I will discuss in a latter section of this paper.

A. Negative versus positive price changes

To further break down the effects of negative versus house prices change, I separate each

year's data into positive and negative changes in house prices. I then ran the regressions for 1999

and 2009 using the same controls and fixing regional effects. The results are displayed below in

Table 4.

Apart from log years of education in 1999, no results show significant effects on

perceived inequality. The point of interest, however, is that the positive and negative two year

differences in housing prices affect perceived inequality in the same direction. Whether the two-

year change in housing prices observed is positive or negative does not influence whether people

see increasing or decreasing inequality. In other words, although we know that changes in

housing prices have significant effects on perceived inequality, the effects do not seem to arise

from a specific direction of change in housing prices.

Table 4: Regression separating Positive versus Negative changes

Dependent Variable: *Perceived Gini Coefficient*	(1) 2009		(2) 1999	
	Coeff.	S.E.	Coeff.	S.E.
Log *Years of Education*	-0.0028	0.0159	-0.0385**	0.0159
Log *Respondent Income*	-0.0023	0.0029	0.0022	0.0034
Two year difference of Log Housing Prices - Positive	-0.0598	0.4455	0.0780	0.0608
Two year difference of Log Housing Prices - Negative	-0.1072	0.0727	0.0936	0.0709
SEX				
Female	0.0065	0.0060	-0.0034	0.0061
MARITAL STATUS				
Widowed	0.0070	0.0178	0.0199	0.0180
Divorced	0.0050	0.0085	0.0141*	0.0083
Separated	-0.0108	0.0176	0.0215	0.0159
Never married, single	0.0016	0.0072	0.0027	0.0071
SIZE OF COMMUNITY				
500,000 - 999,999	0.0056	0.0189	0.0168	0.0256
100,000 - 499,999	0.0058	0.0168	0.0071	0.0162
50,0-00 - 99,999	0.0069	0.0170	0.0097	0.0179
10,000 - 49,999	0.0105	0.0170	-0.0049	0.0149
1,000 - 9,999	0.0117	0.0149	0.0079	0.0161
Under 1,000	0.0360	0.0269	0.0389*	0.0233
Regional fixed effects	Yes		Yes	
Adjusted R2	-0.0072		0.0140	
Number of observations	728		770	

However, the dataset use is limited, as housing price change was overwhelmingly

positive in 1999 and overwhelmingly negative in 2009. The results should therefore be taken

with a grain of salt and are worth further investigation with more robust data.

B. Discussion of other mechanisms

Apart from the key variables of interest, place of residence and housing prices, I would also like to discuss noteworthy findings in education, political affiliation, and income that contribute to the broader literature on perceived inequality.

The effect of education on perceived inequality and demand for redistribution has been debated. One side sees education as a form of cultural capital (Alesina, et al., 2009; Poppitz, 2016), which closely relates to perceived social status and future mobility and leads to more equitable perceptions of society. However, the opposite side of the debate finds education to have "an enlightenment effect" (Robinson, 1983; Castillo, 2011), in which more educated individuals perceive more inequality than those less educated, as education "produces a greater awareness of inequality in society by familiarizing individuals with lifestyles and experiences different from their own" (Robinson, 1983). My findings indicate the former effect prevails. Regression results for 1999 survey data indicate years of education have statistically significant and negative effects on perceived Gini coefficient. This means that the more years of education a person has received, the more equal s/he will perceive society. However, this significant effect is missing from the 2009 regressions, potentially overwhelmed by the effects of the recession.

Results from Table 3 Columns (2) and (4) also indicate political affiliations influence perceptions of income inequality. Identifying as right wing has a significant, negative effect on perceived Gini coefficient, meaning those individuals are likely to perceive less inequality than other respondents. On the other hand, the remaining political affiliations do not have a significant effect on perceived inequality. This contributes to literature on the relationship between political

ideology, inequality, and redistribution preferences. Research consistently characterizes right-wing individuals to be less favorable towards redistribution and more accepting of inequality (Alesina & Giuliano, 2009; Rockey, 2014). While my results cannot conclude how political affiliations and perceived inequality interact, future research can reframe questions on policy preferences based on *perceived* inequality -- Are right-wing individuals less supportive of redistribution and more accepting of inequality because they perceive less inequality? Or is confirmation bias at play, in which right-wing individuals rationalize their preferences by perceiving less inequality?

Lastly, my results are consistent with literature finding perceptions of society and life satisfaction often cannot be fully by absolute income levels (Layard, Mayraz, and Nickell, 2010; Cheung and Lucas, 2016). As indicated in all sets of results, log of respondent income does not have significant effects on perceived inequality. This further confirms the need for future studies to look into the role and formation of perceptions in relation to political outcomes and preferences.

CONCLUSION

This paper explores the gap between actual and perceived inequality in America. Results from ISSP Surveys conducted in 1999 and 2009 are consistent with other research that finds Americans to perceive society to be more equitable than it really is. However, it is important to note that the emphasis on *perceived* inequality in this paper do not intend to diminish the importance of *actual* inequality, but to demonstrate the disconnect between actual and perceived inequality and effects of which. It is also important to note that the Gini coefficient is by no means a perfect measure of income inequality, but simply one that has been broadly used and suitable for the purpose of this research.

This paper also shows that changes in housing prices have significant effects on perceived Gini coefficient. However, results from both years contradict and show opposite effects between change in housing prices and perceived inequality. While 2009 change in housing prices have a negative effect on perceived Gini, results from 1999 surveys indicate those experiencing increase in housing prices perceive more inequality. Further investigation finds the direction of change in housing prices to be insignificant. A potential explanation is people associated the housing prices drastic drop, during subprime mortgage crisis in late 2000s, with higher perceived inequality. On the other hand, respondents in 1999 did not experience any momentous events in the housing market. Additionally, I have included a brief discussion of the role of education and political affiliation, both of which yield significant results.

These findings have important political implications. First, the results confirm a persisting gap between actual and perceived inequality, in which Americans see society as more equitable than reality. Perceptions of income inequality have significant influence on individual well-being and policy outcomes. Income inequality matters to people because they desire equal opportunities and fair outcomes. Fehr and Schmidt (1999) believe people experience "inequity aversion," in which people "are willing to give up some material payoff to move in the direction of more equitable outcomes." Income inequality also matters because people care about their relative positions -- how an individual place himself against society and his neighbors (Luttmer, 2006). The frequently-cited Easterlin paradox (1974) posits that subjective happiness does not necessarily depend on income growth, but also on "relative income" and social norms. Subjective inequality could also influence attitudes towards redistribution, in which individuals demand less redistributive policies if they perceive more equality than in reality (Cruces, et al.,

2011). In turn, this could influence policy outcomes that have influence in *actual* income inequality.

Second, the significant relationship between housing price and perceived inequality indicates people make inferences on society based on heuristics and salient information. In particular, the subprime mortgage crisis in late 2000s seems to have negative impact beyond those in financial terms; Individuals who experience negative housing price change have more unequal perceptions of society. Further understanding of how the inequality perceptions gap forms can help reframe policy issues and correct individual biases. For example, survey experiments indicate immediate, consistent correction of bias has an effect on subjective distribution (Cruces, et al., 2011).

My paper is only a preliminary exploration into factors that may shape people's perceptions of society. My research's most obvious limitation is the poor matching of data, as my geographic variables only include broad census regions and community sizes. Future research could therefore focus on more granular or different measures of geographic segmentation to continue exploring the role of place of residence on perceived inequality. More robust data, including housing price change specific to each individual and his/her neighbor, can also help better understand people's cognitive mechanisms in approaching complex social issues. Lastly, future ISSP's Social Inequality modules (upcoming in 2019) will provide more and richer data to add to the growing literature on perceived inequality.

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Appendix 1: Homeownership Rates
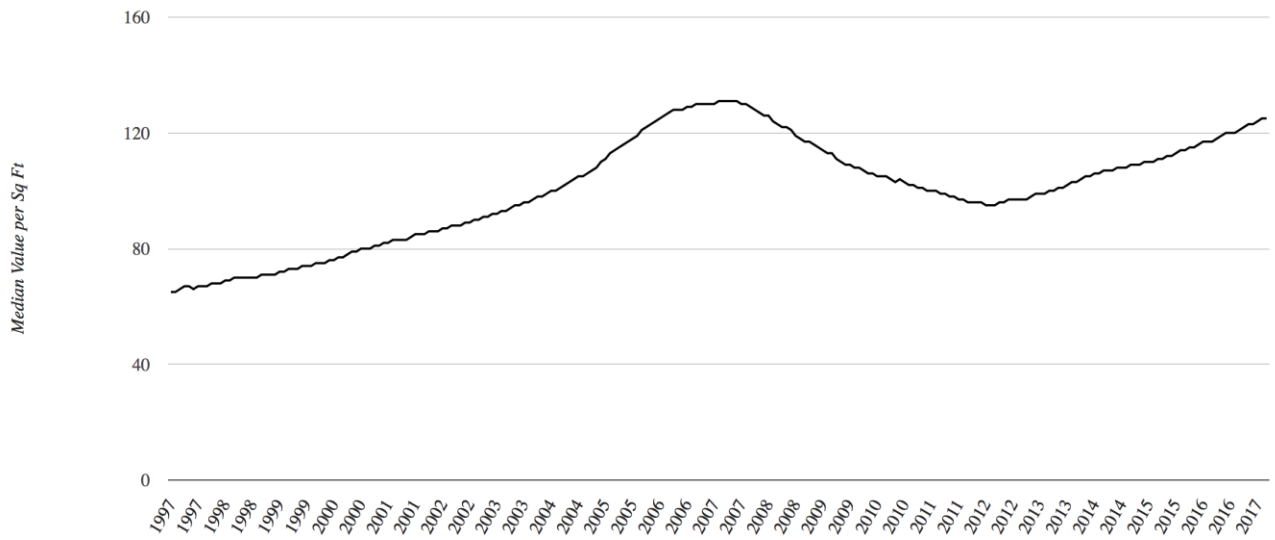
Homeownership Rates 1980-2017
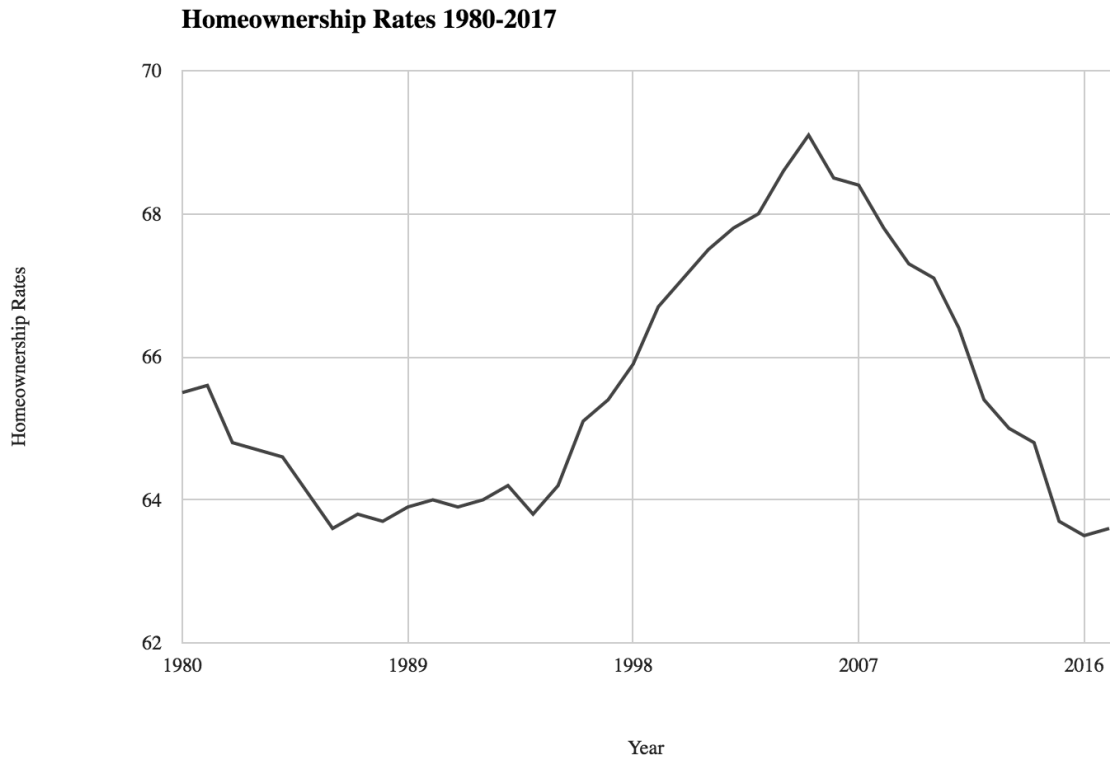
Source: Current Population Survey/Housing Vacancy Survey, Series H-111, Bureau of the Census

Appendix 2: Trends in Mortgage Payment as Household Income

Source: Mortgage Affordability, Zillow Research, 1979-2016

Appendix 3: Trends in Median Price Per Square Ft (in dollars)

Source: Median Home Value Per Sq Ft, Zillow Research, 1979-2016