Patience Moderates the Class Cleavage in Demand for Redistribution

January 30, 2017

Abstract

Previous studies on class voting render mixed results linking income and demand for redistribution. Why does the revolutionary consciousness fail to be established? In one-shot game, redistribution is zero-sum between the rich and poor. When people extend their time horizon, however, the poor sees the possibility of upward mobility, while the rich puts more weight on future loss like unemployment and economic instability. This article argues that an individual's patience may moderate the effect of one's class on redistributive preference. A simple mathematic model with simulation is provided. Consistent with the hypotheses, data from 2014 Comparative Congressional Election Survey and a representative data from Taiwan conducted in 2016 both reveal a clear class cleavage in demand for redistribution among the impatient poor and rich respondents, but the cleavage diminished between the patient counterparts. The pattern of convergence extends previous studies on upward mobility and risk perception theory.

Keywords. Patience; Discount Factor; Redistributive Preference; Social Class

1 Introduction

> *"...Society as a whole is more and more splitting up into two great hostile camps, into two great classes directly facing each other: Bourgeoisie and Proletariat."* - in *Communist Manifesto*, Chp.1

When the idea of democracy firstly bumped into human civilization, Aristotle explicitly warned in *The Politics* that "*...Democracy is for the benefit of the poor...If justice is what the numerical majority decide, they will commit injustice by confiscating the property of the wealthy few.*" After two thousand years, when the democratic system and capitalism were gradually established in most of the Western world and spread to the worldwide, Karl Marx foreshadowed the future conflict between haves and have-nots. Given these pessimistic predictions, however, empirical studies linking class and redistribution render mixed results(e.g. Hochschild, 1981; Ladd and Bowman, 1998; Alesina and Giuliano, 2011). The poor does not always support the idea of redistribution, while a considerable proportion of rich is willing to be taxed by the government for the poor. When people systematically deviate from the *Homo economicus* assumption, class consensus can hardly be formed.

Why do people not follow the self-interest motivation, which is also known as the Meltzer-Richard Model? Following studies try to explain this irrational phenomenon through religion (Stegmueller, 2013), social mobility (Benabou and Ok, 2001), and education (Alesina and Giuliano, 2011). However, why do religious and well-educated people tend to support redistribution? The psychological mechanism behind the two factors is not explicitly illustrated, while cross-national empirical studies yield inconsistent results (Alesina and Giuliano, 2011). Meanwhile, even though the widely cited *prospect of upward mobility* theory (POUM hereafter) suggested by Benaou and Ok may help explain the influence of American Dream on the poor, how about the rich? Why do rich people in the U.S. worry about inequality (Alesina,

Di Tella and MacCulloch, 2004)? Why do the rich shows relatively higher support toward redistribution in the state with higher inequality (Dimick, Rueda and Stegumeller, 2014)? Why did the wealthy people support Barack Obama and his idea of redistribution during and after the 2008 presidential election (Page and Jacobs, 2009)? Are people really irrational?

The ultimate goal for *Homo economicus* is to maximize his utility across lifespan. However, people tend to put different weights on immediate and distant outcomes (Senior, 1836; Loewenstein and Elster, 1992). When some rich people focus on the tax cut and the reduce of social welfare this month, while the others emphasize on the risk of being laid off in the next ten years, the different value of individual discounting factor influences how one maximizing the lifespan utility.

This article argues that *individual patience* is the key determinant on explaining the redistributive preference; especially, the inconsistency of preference in each class. Patience is widely explored in the field of economics and psychology. In economics, patience is called intertemporal choice, and is usually formalized and measured as discounting factor. Intertemporal choice refers to the calculation of payoffs occurring at different times (Frederick, Loewenstein and O'donoghue, 2002). People invest in a resource because it is expected to yield a stream of payoffs over a single time period or a delayed payoff that is altogether greater than the payoff received from the single period alone. In psychology, patience is defined as self-regulation or future-orientation, and numerous scale is established to capture individual's time preference (e.g. Strathman et al., 1994; Zimbardo and Boyd, 2008). Patience is widely considered to be both a personal characteristic and a skill (Hofmann et al., 2008; Mischel, 2014), which is pivotal in the determination of human behaviors such as drug abuse (Kirby, Petry and Bickel, 1999), smoking (Hardisty et al., 2013), academic performance (Funder, Block and Block, 1983), risk driving (Zimbardo, Keough and Boyd, 1997), and weight control (Chabris et al., 2008).

To link between patience and redistributive preference across classes, we can assume that

there are two classes, the rich and the poor, live in a democracy with some level of social mobility and stable proportion between the two groups of people. When everyone is myopic and only cares of immediate outcome, the redistributive policy is merely a single-shot zero-sum game between the two classes; the poor supports redistribution, while the rich opposes the idea. When the game is extended to repeated one, patient poor sees the possibility of becoming the upper class, while patient rich notices the chance of falling to the lower class one day in the future. Empirical analyses suggest that people in the higher class are much likely to suffer from downward mobility, while those in the lower class are much likely to move upwardly (e.g. Smith, 1994; Hertz, 2006). Meanwhile, the preference among the impatient rich and poor remain unchanged since they still focus on immediate gain and loss. Patient poor and rich are like behind the *partial veil of ignorance*: they know the whole structure, and they know where they are currently, but they are not sure where they will be in the next round and forward. Since the redistributive policy cannot be implemented by only one time across one's life, people should treat the redistribution as (infinitely) repeated game. Thus, the different levels of individual patience among members in each group may be the cause of class in-consensus. Every member in each class still behave rationally, but individual patience influences one's decision on maximizing lifespan utility.

Figure 1 summarizes the main hypothesis of this article: patience (as is represented by δ in the figure) moderates the class cleavage in demand for redistribution. When everyone in the society only emphasized on immediate reward and punishment, the class cleavage will be widened. In this scenario, politicians can exploit the class cleavage and mobilize class conflict. In a patient society, people's time horizon is extended, and the gap of supporting redistribution between the rich and the poor is narrower. A mathematical model with simulation will be provided in the next section.

My argument is distinct from previous studies on POUM and risk perception on predicting the convergence of preference between classes. On the one hand, if POUM is correct,

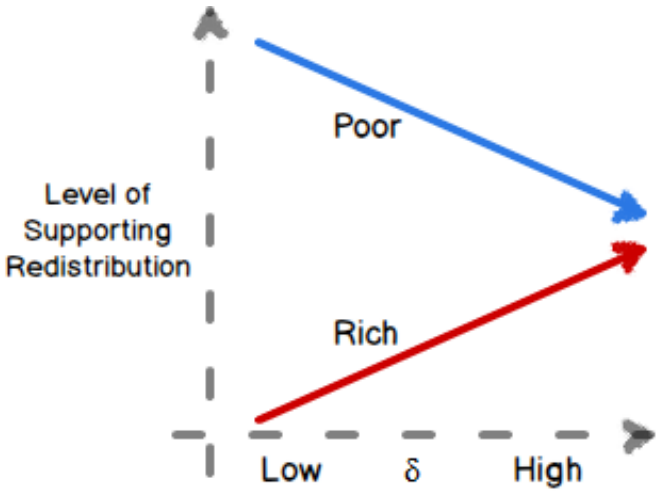

Figure 1: Intertemporal Choice, Redistribution, and Class Cleavage

patience will make people emphasizing more on the future outcome, then both rich and poor should show less supportive attitude toward redistribution when they are with patience. On the other hand, if the risk perception hypothesis (Iversen and Soskice, 2001) is correct, people with longer time horizon will take the future unfortunate into consideration, then both patient rich and patient poor would support redistribution more than their impatient counterparts. Both POUM and risk perception models exclude the possibility that the class cleavage can be narrowed, and therefore may not explain the decline of class vote, at least in many countries (eg. Clark and Lipset, 1991; Van der Waal, Achterberg and Houtman, 2007; Evans and Tilley, 2012).

The remainder of this paper is organized as follows. In Section 2, a model linking patience and redistributive preference among the rich and the poor will be provided. Simulation result will help illustrate how the level of individual patience influences voter's preference on redistribution in the multiple-shot game. Section 3 presents the individual-level empirical examination using 2014 Cooperative Congressional Election Study (CCES hereafter) survey data ($n = 1000$). To address potential threat on external validity and question wordings, the analysis of a representative dataset with revised questionnaire conducted in Taiwan in 2016

($n = 503$) is also provided. Basically, two results are highly consistent. In the end, Section 4 concludes my findings, and discusses its possible linkage to religion, level of inequality, and macro-level political cleavage.

2 Model of Patience and Redistributive Preference

Assuming there are two types of citizens in a specific society, the rich class and the poor class. Each citizen is either rich or poor, and the proportion of rich people in this society is $W, 0 < W < \frac{1}{2}$, indicating there are more poor people than the rich. In each round of the game, a certain amount of citizen $P, P \leq W$, will switch their type - $\frac{P}{W}$ of rich will become poor, while $\frac{P}{1-W}$ of poor will join the rich. P captures the consideration of social mobility. Meanwhile I assume the social structure - the fraction between rich and poor - will hold constant.

The total wealth generated by the society in each round is 1. When there is no redistribution, rich people evenly separate the whole wealth 1, so each rich individual will gain $\frac{1}{W}$. Each poor individual will then gain 0. Rich citizen would receive more wealth than the poor in each round. In the first round of the game, they will hold a referendum whether to implement the redistribution policy. If the referendum is passed, all of the citizens will receive $\frac{1}{W+1-W} = 1$ in every round. Moreover, since people's perception toward reward is closer to the law Of diminishing marginal utility, I assume that people's utility for the reward follows a concave function $f(\frac{1}{W})$. For simplification, I assume that the concave function can be represented as the square root of received reward, $f(\frac{1}{W}) = \frac{1}{\sqrt{W}}$.

In the end, the main explanatory variable in this article, individual's level of patience, is defined as $\delta, 0 \leq \delta \leq 1$. An individual will discount the outcome in the next round by the factor δ. In this model, people did not vote behind *the veil of ignorance* (Rawls, 1999). Every citizen knows that he is in the upper or lower class in the first round, and their decision on

redistribution policy is decided by how much weight they would like to put on the possible social mobility in the future.

2.1 One-shot game as pure class conflict

When everyone in this society has extremely small discounting factor $\delta = 0$, they only care what they will receive immediately in the first round. Since the rich expects to gain $f(\frac{1}{W}) \geq f(\frac{1}{max(W)}() = \frac{1}{\frac{1}{\sqrt{2}}} = \sqrt{2} > 1$, they will always oppose redistribution. In contrast, the poor will receive $0 < 1$, so the poor will ultimately support redistribution in this one-shot game. When everyone only cares what they will immediately receive and ignore the potential future mobility, redistribution is a pure class conflict between the rich and the poor. Since the poor outnumbers the rich ($W < \frac{1}{2}$), redistribution referendum will be passed.

Two-shot game and social mobility

Assuming everyone will gain the wealth in two rounds. When $\delta = 0$, everyone will still behave the same as in the one-shot game. However, when $\delta > 0$, the rich and the poor start putting more weight on what would happen in the second round. Especially, there is a chance that the rich people would fall into poverty, while the poor may join the upper class.

When there is redistribution, the expected utility for everyone in the first round is $1 + \delta\sqrt{1} = 1 + \delta$. Without redistribution, however, the rich expects to gain $\frac{1}{\sqrt{W}} + \delta((1 - \frac{P}{W})\frac{1}{\sqrt{W}})$. Thus, rich people have incentive to support redistribution if $\delta \geq \frac{1-\sqrt{W}}{\frac{P}{W}-(1-\sqrt{W})}$. δ exists when $\frac{P}{W} - (1 - \sqrt{W}) \geq 1 - \sqrt{W}$. Since $P \leq W$, δ exists when $W \geq \frac{1}{4}$ and $P \geq \frac{4}{27}$. Therefore, when there is *certain level of social mobility and enough number of people in the rich class*, farsighted rich has incentive to support redistribution to prepare for the rainy day. The same boundary conditions also apply to the poor people's opposition to redistribution.

2.2 Infinitely repeated game and simulation

When the time horizon is extended to infinity, after redistribution everyone is expected to gain $1 + \delta + \delta^2 + ... = \frac{1}{1-\delta}$. Without redistribution, let $T\begin{bmatrix} 1-P/W & P/(1-W) \\ P/W & 1-P/(1-W) \end{bmatrix}$, and the utility for the rich people without redistribution is given by $\sum_{n=1}^{\infty} \delta^n [\frac{1}{\sqrt{W}} \ 0] T^n [\frac{1}{0}]$. Note that T has eigenvalues 1 and $1 - \frac{P}{W} - \frac{P}{1-W}$ with corresponding eigenvectors $[W \ 1-W]^T$ and $[1 \ -1]^T$. Since $[\frac{1}{0}] = [\frac{W}{1-W}] + (1-W)[\frac{1}{-1}]$, the utility function can therefore be reduced to $\frac{\sqrt{W}}{(1-\delta)} + \frac{1-W}{\sqrt{W}(1-\delta(1-\frac{P}{W}-\frac{P}{1-W}))}$. Therefore, the rich people have incentive to support for redistribution when $\delta \geq \frac{1}{1+\frac{P}{\sqrt{W}(1-W)}}$. Similarly, poor people would be motivated to oppose redistribution when $\delta \geq \frac{1}{1+\frac{P}{W(1-\sqrt{W})}}$. For both the rich and the poor people, when the level of social mobility or when the amount of people in the rich class increases, the level of patience needed for changing redistributive preference from one-shot game is lower.

To further illustrate the influence of individual patience on the redistributive preference among classes, I use simulation to illustrate the theoretical interaction effect. Assuming in the society, one-fourth of the residents are rich $W = 25\%$. In each round of the game, $P = 10\%$ of the people would either switch to the rich or poor categories, while 90% remains in the same class. At the beginning of the simulation, 1000 citizens are randomly assigned to be in the rich category with probability 25%. For each round, everyone may either stay in the previous category, or move to another, and the wealth everyone gains in each round is discounted by δ and then accumulated. The game is repeated 1000 times under different conditions of δ from 0 to 1. The accumulated wealth without redistribution is then compared with those under redistributive policy. [1]

Figure 2 illustrate how people's level of patience in an unequal society would influence their perceived utility on redistribution policy, given the social mobility as constant. In the first round of the game, when rich people put more weight on the future outcome, they may treat the downward mobility in the future much seriously. In this Figure, when the patience

[1]The simulation is run through R 3.1.3, and the code can be found on the author's website.

of rich people is around 0.9, they can expect around 30% of chance that they will gain less than after redistribution in the 1000 rounds of game. To avoid the worse outcome in the future, patient rich then has a higher motivation to support redistribution in the first round. Similarly, myopic people. Similarly, myopic poor people support redistribution in general, but their level of support decreases when they discount less on the potential upward mobility in the future. Simulation result in Figure 2 generated by the model is similar to the main argument in the last section and Figure 1.

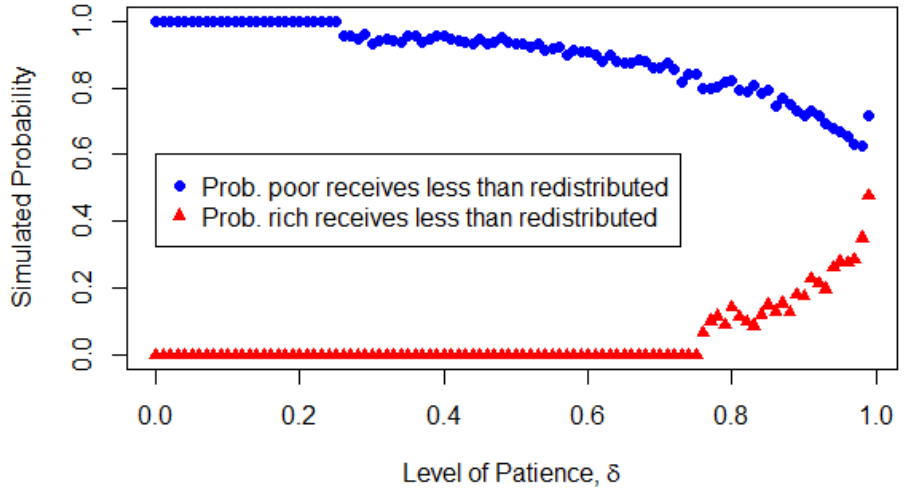

Figure 2: Patience, Class, and Expected Utility in Infinitely Repeated Game

2.3 Discussion

In the model suggested above, individual's level of patience plays an important role in understanding whether he or she in different social class will support redistribution now. When everyone is myopic and only cares immediate reward, redistribution is a pure class conflict. When the time horizon is extended and people think more about the future, patience moderates the class cleavage in demand for redistribution. People are still rational actors, but

the level of patience influences how people calculate the expected utility under the scenario with and without redistribution across the lifespan.

One distinction between this article and previous studies on POUM and risk perception is the assumption of social structure. POUM implicitly assumes that everyone could be rich through upward mobility, while risk perception assumes that everyone may fall. However, empirical studies suggest that the trend in each class is different. Hertz (2006) uses Panel Study of Income Dynamics survey (PSID) from 1968 to 2001 and shows that for those who were on the top 5% of household income in 1967, only 21.7% remains on top 5% in 2000. Among those who were in the second quartile and earned $29900 to $42000 in 1967, 22.6% moved downwardly to the first quartile; meanwhile, 51.6% moved upwardly. In contrast, those who were in the fourth quartile and earned $54301 to $72300 in 1967, only 24% moved to the fifth quartile, but 50.8% moved downwardly in 2000. Similar asymmetric upward/downward mobility between the rich and the poor can also be found on the previous study on the PSID data (Smith, 1994), another representative survey of the U.S. citizen (Johnson and Reed, 1996), and also survey data from Mexico (Parrado, 2005) and rural China (Shi, Nuetah and Xin, 2010).

I fully agree with the argument that people who believe in upward mobility tend to oppose redistribution, and those who have higher risk perception tend to support it (e.g. Guillaud, 2013). My suggestion to existing studies is that since members of different classes face a different level of upward and downward mobility, it is patience that helps explain the diversity within each class, and the convergence of redistributive attitude between the classes.

3 Empirical evidence: US data

3.1 Data and measures

The empirical analysis on the individual patience and redistributive preference is based on 2014 Cooperative Congressional Election Survey. In the module, 1000 respondents were asked about their level of patience (discussed later), preference on social welfare policy, family economic condition, party identification, and socio-demographic background. The analysis is done by R 3.1.3, and the regression models are estimated by the *glm* function.

In 2014 CCES, two items are used to measure individual patience, the main moderate variable and the goal of this article. The description and option of the two items are as followed: "Imagining you will receive a certain amount of money. Which of the following way do you prefer? (A) To gain $10 today (B) To gain $20 six months year later" and "(A) To gain $1000 today (B) To gain $2000 a year later." The design of the item used in this article is similar to the discounting rate choice battery in economics (Frederick, Loewenstein and O'donoghue, 2002; Hardisty et al., 2013). Those who prefer delayed and larger rewards are assumed to have more patience and a higher level of self-control, and those who choose immediate but smaller rewards are believed to be myopic and emotional (Berns, Laibson and Loewenstein, 2007; Metcalfe and Mischel, 1999); this money-early-or-later (MEL) design is the most widely used battery on measuring time preferences (Reimers et al., 2009; Cohen et al., 2016). The more items are asked, the more precisely the researcher is able to estimate the discounting rate for an individual participant. Recent studies show that the measure of patience based on this design has been found with good test-retest stability (Kirby, 2009; Urminsky and Zauberman, 2016). Besides, this measurement positively correlates with other scales measuring self-regulation and future-orientation created by psychologists (Daly, Harmon and Delaney, 2009; Vischer et al., 2013).

In this article, I simply assume those who choose the immediate but smaller reward on

both items to be impatient ($Patience = 0$), and those who choose both delayed and larger rewards are patient ($Patience = 1$). In the 2014 CCES, 393 (39.3%) are coded as impatient while 375 (37.5 %) are patient. This distribution suggests enough variance for analysis, and people are not choose at random. [2] Besides, measuring patience by using two or less DR item is not uncommon, albeit not perfect (e.g. Klochko and Ordeshook, 2005; Reimers et al., 2009; Wang, Rieger and Hens, 2009; Hoel, Schwab and Hoddinott, 2016). Moreover, to suggest the credibility of the two-item DR measure, I can examine whether the measure has similar properties with previous studies. In 2014 CCES, consistent with previous studies, being patient positively correlates with educational level (Duckworth and Seligman, 2005) ($r = 0.28, p < 0.01$), family income (Harrison, Lau and Williams, 2002) ($r = 0.28, p < 0.01$), regulating CO2 emission ($r = 0.07, p = 0.05$), and not correlates with age (Chao et al., 2009) ($r = 0.02, p = 0.51$). The correlations above suggest a certain level of external validity on measuring individual patience by using the two items. Therefore, in this article I will use the binary coding on individual patience derived from 2 items in 2014 CCES.

The dependent variable, *Redistribution*, takes the value of 2 if the respondent suggests that the amount of social welfare should be greatly increased, 1 for the slightly increased, -1 for the slightly decreased, and -2 for the greatly decreased. The main independent variable *Income* is measured by self-reported family monthly income by respondents. The response will be coded 1 if his or her monthly income is less than $10,000, and 12 if more than $500,000.

The interactive term between individual's family income and patience is the product of the two independent variables. However, since the product will generate the problem of collinearity, the independent variable *income* is mean-centered before multiplying with

[2]It is also possible to calculate the range of discounting rate basing on the two items. There are 54 (5.4%) respondents who chose delayed reward in the first item (with smaller reward) but immediate one in the second item (with larger reward), and 178 (17.8%) with opposite choice. The main result and conclusion is not changed with different coding.

patience and before added to the regression model. Theoretically, mean-centering will not change the estimated effect, but will only reduce the uncertainty and the intercept of the regression model.

Apart from patience and family income, covariates capturing the individual difference on redistributive preference are put into the regression model, including age (in 2014), gender (male=1), level of education (1-7), race (black=1), uni-dimension party identification (1-7), self-reported ideology (1-7, 7 as very conservative), and religion (1 = Protestant or Roman Catholic, and 0 otherwise). The descriptive analysis of subjects in CCES 2014 and the correlation table among redistributive preference, income, patience, and all control variables can be found in the Appendix. General speaking, the correlations among the control variables are consistent with previous studies, but VIF test is needed to prevent from potential collinearity problem in regression analysis.

3.2 Results

Table 1 illustrates the relationship between patience, family income, and redistributive preference. Across the three models, family income negatively correlates with preference on redistributive policy; the rich supports social welfare less, while the poor tends to support it. In model 1, patience did not correlate with redistributive preference controlling for family income; the relationship between patience and redistribution is not linear at least. However, in model 2 and 3, the partial coefficient of the interactive term between household income and patience significantly correlates with redistributive preference, indicating the influence of family income on redistributive preference is moderated by the level of individual's patience. The significant interaction effect remains strong even controlling for respondent's partisanship, self-reported ideology, religion, and socio-demographic background. VIF test in the last row of the table shows that the problem of multicollinearity is not serious among the three models.

Table 1: Patience, Income, and Resitributive Preference (CCES2014)

	Dependent variable:		
	Supporting Redistributive Policy (-2 - +2)		
	(1)	(2)	(3)
Family Income	-0.064^{***}	-0.087^{***}	-0.101^{***}
	(0.012)	(0.017)	(0.020)
Patience	-0.069	-0.074	-0.067
	(0.084)	(0.084)	(0.095)
Income × Patience		0.049^{*}	0.082^{**}
		(0.026)	(0.029)
Age			-0.002
			(0.003)
Male			0.089
			(0.082)
Edu			0.012
			(0.029)
Black			0.189
			(0.131)
PID			0.106^{***}
			(0.026)
Ideology			-0.170^{***}
			(0.033)
Religion			-0.049
			(0.088)
Constant	-0.163^{***}	-0.180^{***}	-0.274
	(0.054)	(0.055)	(0.184)
Observations	844	844	664
Log Likelihood	$-1,245.182$	$-1,243.439$	-946.209
Akaike Inf. Crit.	2,496.363	2,494.878	1,914.418
$VIF_{highest}$	1.074	2.293	2.656
Note:			*p<0.1; **p<0.05; ***p<0.01

Figure 3 illustrates the moderation effect of patience on class voting. The two lines indicate the predicted probabilities to support redistribution, controlling all other variables in model 3 in Table 1 at the mean. The area surrounded by dashed line is the 95% of the distribution of the 500 predicted value generated by the variance-covariance matrix estimated by model 3. Overall, rich people show less support for redistribution (≤ 0), while the poor tends to support the idea (≥ 0). However, the effect of family income on explaining redistributive preference is smaller among the respondents who choose delayed but larger option in both items in the questionnaire. The simulated result in Figure 3 provides empirical support to the main argument of this article, as is shown in Figure 1.

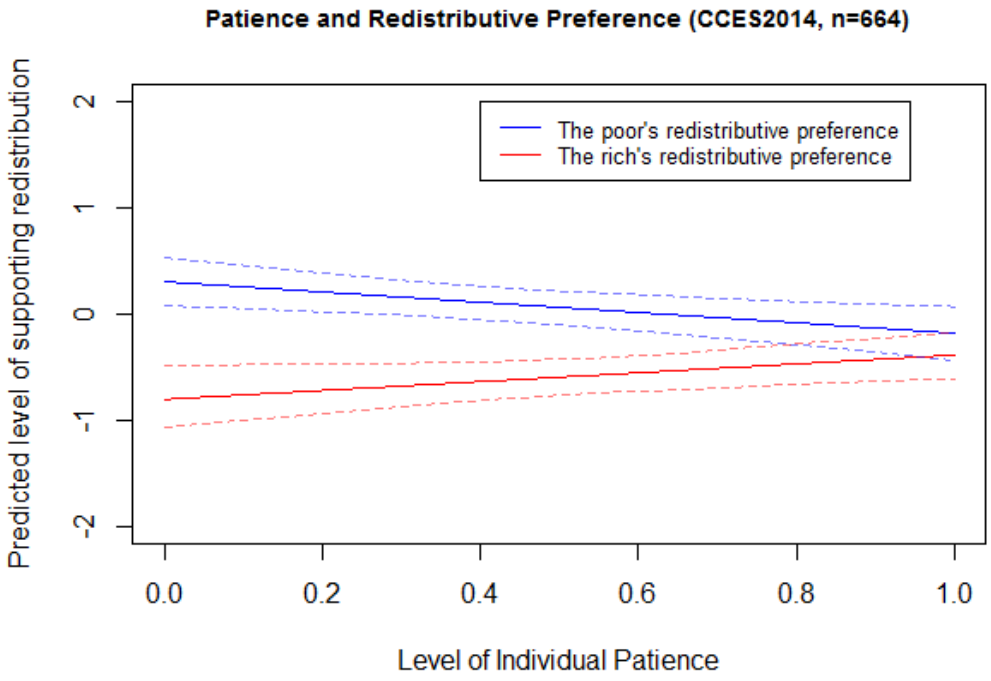

Figure 3: Predicted redistributive preference across the poor and rich is moderated by individual patience, US 2014 data.

The consideration of social mobility influences how an individual calculates the potential future payoff, so patient people did not regard redistribution as a pure class conflict. To the

opposite, redistribution may serve as a safety net, which may save the rich once he or she falls into poverty one day in the future. Empirical evidence from 2014 CCES supports the hypothesis that patience moderates the influence of class on redistributive preference.

4 Empirical evidence: Taiwan data

There are three major weaknesses for using the CCES 2014 data. First of all, redistributive preference in the U.S. is distinct from other people around the world (e.g. Alesina, Di Tella and MacCulloch, 2004; Alesina and Giuliano, 2011), so the external validity of using CCES 2014 may be questioned. Second, the item measuring redistributive preference in CCES 2014 did not ask redistribution directly; instead, the description of the item only mentions "*social welfare spending*". It can be possible that people think the idea of social welfare differently, or the source supporting the policy differently (e.g. Mettler, 2011). Third, CCES 2014 was not conducted in the year with the Presidential election. Therefore, it can be possible that respondents in EECS 2014 are biased toward engaged voters and those with higher political knowledge.

Apart from the technical issues, Taiwan as a comparison group provides a special advantage for examining the relationship between redistributive preference and the interaction between income and individual patience. In the western world, left-right ideology and religion undoubtedly shaped people's attitude toward redistribution, and data in CCES 2014 is no exception. Hence, the influence of these two variables may remain even though they are controlled in linear regression model. However, left-right ideology is by no mean an issue in the political arena in Taiwan (Jou, 2010; Yi-ching and Su-feng, 2014) - Taiwanese people can hardly tell the meaning of left and right, not mentioning the difference between the two (Huber and Stanig, 2006). Moreover, the majority of Taiwanese does not hold a strong religious belief, and its influence on the preference of redistributive policy is mixed (Chang, 2010).

Therefore, the outcome of analyzing Taiwan data may be less suffered from attribution bias or the substance of morality, but emphasize more on how individual patience of the rich and poor influences the calculation of lifespan utility.

4.1 Data and measures

To address with these issues, I conducted a revised survey in Taiwan in January 10-11, 2016 - one week before its Presidential election ($n = 503$). Taiwanese subjects were recruited through the Pollcracylab web service [3]. The most distinctive characteristic of Pollcracylab is that its sample frame is based on official house registration records of Taiwanese citizens. [4] Subjects were randomly sampled from the official house registration records, and were invited by Pollcracylab to register through mails and phone calls. To conduct the survey used in this article, 500 subjects were randomly invited by their email address for participating in this online surveys and earning NTD $50 (equal to USD$1.5) gift card for a convenience store. Compared to other experimental studies or opt-in surveys, the advantage of Pollcracylab is its probability sampling of a nation-wide population, which means that every Taiwanese citizen has a non-zero probability to be chosen. This method would boost the diversity of subjects.

At the beginning of the questionnaire, subjects were first asked to report their routine political behaviors including news consumption, political interest, political discussion, and thermometer toward the three Presidential candidates in 2016. Then, subject's level of patience is measured by two items as followed: "(In Chinese) Imagining you will receive a certain amount of money. Which of the following way do you prefer? (A) To gain $300 today (B) To gain $450 six months later" and "(A) To gain $500 three months later (B) To gain $800 six months later." Following the same coding method in the previous section, I assume those

[3] http://pollcracylab.com/

[4] Pollcracylab is established by National Chengchi University in Taiwan, and the official record can only be used for research and academic propose.

who choose the immediate but smaller reward on both items to be impatient ($Patience = 0$), and those who choose both delayed and larger rewards are patient ($Patience = 1$). Among the 503 respondents, 114 (22.4%) are coded as impatient while 293 (57.6 %) are patient.

The dependent variable, *Redistribution*, is measured by a binary item: "*(In Chinese) People hold different attitudes on what the government should do. Some believe the government should enforce redistribution between the rich and the poor, while others disagree. Do you agree with the idea that the government should tax more on the rich and redistribute to the poor?* ". Those who agrees with this argument is coded $Redistribution = 1$, otherwise 0. This item directly records respondent's attitude toward redistribution. Moreover, the description clearly emphasizes the source of redistribution be from the rich to the poor, which may eliminate alternative explanation, such as helping the poor through charity or by eliminating anti-corruption. Since the dependent variable is binary coded, Logit regression is used for falsifying hypotheses.

The main independent variable $Income$ is measured by self-reported family monthly income by respondents. The response will be coded 1 if his or her monthly income is less than NTD $20,000, and 5 if more than NTD$150,000. The interactive term between individual's family income and patience is the product of the two independent variables. To avoid the problem of multicollinearity, $Income$ is mean-centering again.

Apart from patience and family income, covariates capturing the individual difference on redistributive preference are put into the regression model, including age (in 2016), gender (male=1), level of education (1-5), race (Mainlander=1), and party identification (Pan-blue camp=1) [5]. However, the regression model does not include people's ideology and religion

[5]In Taiwanese politics, attitude toward China is always the most salient issue. The pan-blue camp consists of Kuomintang (Nationalist Party, KMT), the People First Party (PFP), and the New Party (NP), which is pro-unification and supports expanding cross-Strait exchange. In contrast, the pan-Green camp contains the Democratic Progress Party (DPP), the Taiwan Solidarity Union (TSU), the New Power Party, and other pro-independence parties. This camp is seeking a more independent status of Taiwan and argues that Taiwan should be cautious when interacting with China.

since the lack of data and lack of empirical importance in the context of Taiwan. The descriptive analysis of subjects in PollcracyLab and the correlation table among redistributive preference, income, patience, and all control variables can also be found in the Appendix.

4.2 Results

Table 2 illustrates the relationship between patience, family income, and redistributive preference among Taiwanese samples. Indeed, Table 1 and 2 show the same pattern. Across the three models, household income negatively correlates with preference on redistributive policy, and patience itself cannot help explain the dependent variable. However, in model 2 and 3, the partial coefficients of the interactive term between family income and patience significantly correlates with redistributive preference, which also suggest that the influence of family income on redistributive preference is moderated by the level of individual's patience among Taiwanese people. The interaction effect remains strong controlling for individual's partisanship and socio-demographic background.

Figure 4 illustrates the moderation effect of patience on class voting among Taiwanese people, with the solid line indicating the predicted probability supporting redistribution through taxing the rich. The dashed area is the 95% of simulated results similar to Figure 3. Generally speaking, both rich and the poor in Taiwan support redistribution through taxing the rich (≤ 0.5), but the level of support is lower among the upper class. However, the distinction diminishes among patient poor and rich: patient poor is less likely to support redistribution compared with its impatient counterpart, while patient rich increases their level of support. Among the respondents who choose both delayed but larger options in the patience items, income or social class cannot help explain the redistributive preference. Empirical evidence from 2014 Pollcracylab supports the hypothesis that patience moderates the influence of class on redistributive preference, as can be shown by comparing the similarity between Figure 1 and 4.

Table 2: Patience, Income, and Resitributive Preference (Pollcracylab 2016)

	Dependent variable:		
	Supporting Redistribution (0-1)		
	(1)	(2)	(3)
Income	-0.404^{***}	-0.997^{***}	-1.041^{***}
	(0.146)	(0.285)	(0.295)
Patience	0.308	0.008	-0.090
	(0.332)	(0.375)	(0.386)
Income × Patience		0.925^{***}	0.961^{***}
		(0.355)	(0.362)
Age			-0.277^{**}
			(0.132)
Male			0.120
			(0.298)
Edu			-0.028
			(0.367)
Race			-0.023
			(0.368)
PID			-0.322
			(0.563)
Constant	1.871^{***}	2.086^{***}	3.116^{***}
	(0.258)	(0.308)	(1.931)
Observations	503	503	502
Log Likelihood	-177.597	-173.957	-170.518
Akaike Inf. Crit.	361.195	355.914	359.036
$VIF_{highest}$	1.007	3.802	3.923
Note:			*p<0.1; **p<0.05; ***p<0.01

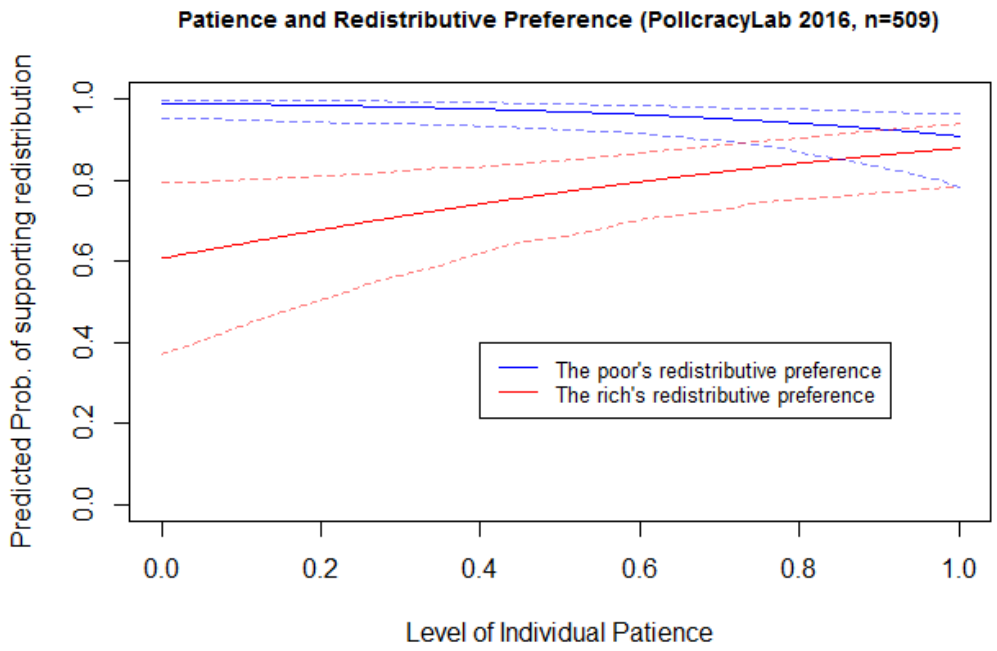

Figure 4: Predicted redistributive preference across the poor and rich is moderated by individual patience, Taiwan 2016 data.

5 Conclusion

This article tries to explain why the class consensus is hard to form, and why the class conflict did not yet come. Because people have a different level of patience, they put different weights on the immediate and future outcomes provided by redistributive policies. Even though everyone follows their own rationality, individual in the same class may make distinct decision based on his or her level of individual patience. By assuming the stable social structure and a certain level of social mobility in both directions, this article suggests that patience generates counterbalance effect on the rich and poor people opposed to the one-shot game, and the hypotheses is supported both by numerical simulation and empirical data from the U.S. in 2014 and Taiwan in 2016. The convergence pattern in Figure 1, 2, and 3 represents the distinction between this article and the POUM and risk perception theory.

Both POUM and risk perception fails to predict that patience rich and poor people may have a similar attitude toward redistribution.

In the macro level, the convergence pattern predicts that a country may fall into class conflict when both upper and lower class becomes myopic. Even though the level of individual patience is relatively stable over time, it can be manipulated through psychological treatment like ego-depletion (Baumeister et al., 1998), or by natural disasters such as earthquake (Li et al., 2011). Therefore, we should observe the increase of class voting in a country when voters were just suffered from a random shock. Alternatively, we should observe that democracies with lower average level of patience among theirs voters would have higher level of class voting compared to those with higher average level of patience.

Another prediction generated by the mathematical model is the relationship between the level of inequality and the redistributive preference among the rich people. In the infinitely repeated game, if W is small, rich people with a moderate level of patience would also support redistribution. W is the amount of rich people in society, which is also the upper limit for poor people to move upward. Therefore, when the level of inequality is high (W is small), we should observe that more rich people would support redistribution because they are afraid of becoming poor one day in the future. Empirically, Dimick, Rueda and Stegumeller (2014) provide evidence in the U.S. showing that rich people in states with higher inequality tend to support redistribution more. Their argument for this phenomenon is fairness. Based on the results in this article, I argue that individual patience (among the rich) can help linking self-interest motivation to policy preference.

Moreover, by focusing on the psychological effect of patience, we can explore deeper about the influence of religion on redistributive preference. Stegmueller (2013) and De La O and Rodden (2008) suggested that Christianity may distract the poor from supporting redistribution by its emphasis on moral value. However, why do similar effect can be found on those who believe in Buddhism, but not in Jews (Alesina and Giuliano, 2011)? Why

do religious wealthy people have higher tendency to vote on the left in many countries in De La O and Rodden (2008)'s study, but opposite trend is found among the poor? Sticking on Christianity moral value fails to explain the behavior among the religious rich across cultures. In contrast, McCullough and Willoughby (2009) summarize existing study linking patience and different religions. Thus, patience may serve as mediator linking different religion and redistributive preference. The value and practice of the religion need to be seen closer to reveal its linkage to individual patience and redistributive preference.

In the end, the major weakness of this article is that both datasets are cross-sectional. Therefore, it is impossible to examine the causal relationship between patience, income, and redistributive preference. The first possible step in the future is to estimate the change people's preference by temporarily manipulating people's patience. Second, in the model I strongly assume that people would perceive the social structure - the proportion between the rich and the poor - is relatively stable. To my knowledge, this assumption has not been studied empirically. The previous study measures people's attitude on self upward/downward mobility, the belief in the American Dream, and deservedness. If the majority of respondents hold different imagination on the stability of the social structure, my model needs sufficient revision. In the end, the gap between public opinion and policy outcome is worth studying. In the two countries I analyzed, the average federal tax rate in the U.S. is around 18% in 2011, while the average tax rate in Taiwan is around 12%. However, according to the 2016 Pollcracylab, both the extreme poor and extreme rich Taiwanese support the idea of redistribution by taxing the rich. Is it possible that Taiwanese people are, in general, more patient, so the inequality does not transform to class conflict, and therefore redistributive policy cannot be realized? Based on the WVS dataset, Hofstede, Hofstede and Minkov (1997) suggests that Chinese culture is related to future orientation attitude. The linkage between patience of the voters, redistributive preference, and the implementation of redistribution are waiting to be further explored.

6 Appendix

Table 3: Descriptive Analysis of CCES 2014

Statistic	N	Mean	St. Dev.	Min	Max
Supporting Increase in Social Welfare (Redis.)	1,000	−0.227	1.080	−2	2
Level of Individual Patience	946	0.490	0.451	0.000	1.000
Category of Family Income	890	6.096	3.166	1	12
Age	1,000	49.034	16.429	18	95
Male	1,000	0.458	0.498	0	1
Edu	1,000	3.686	1.453	1	6
Black	1,000	0.135	0.342	0	1
PID (Republican = -3 Democrats = 3)	789	0.247	2.209	−3	3
Ideology (Liberal = 1, Conservative = 7)	996	4.161	1.731	1	7
Religion (1 = Protestant or Roman Catholic)	1,000	0.620	0.486	0	1

Table 4: Correlation Table of CCES 2014

	Redis.	Patience	Income	Age	Male	Edu	Black	PID	Ideology
Patience	-0.07*								
Income	-0.19***	0.26***							
Age	-0.13***	0.02	0.05						
Male	-0.07*	0.13***	0.16***	0.14***					
Edu	-0.04	0.25***	0.36***	-0.02	0.08**				
Black	0.14***	-0.16***	-0.04	-0.08**	-0.12***	0.02			
PID	0.42***	-0.07	-0.10*	-0.13***	-0.13***	-0.01	0.26***		
Ideology	-0.40***	-0.05	0.05	0.16***	0.10**	-0.06	-0.09**	-0.70***	
Religion	-0.15***	-0.09**	0.10**	0.23***	0.00	0.03	0.04	-0.25***	0.31***

Table 5: Descriptive Analysis of PollcracyLab 2016

Statistic	N	Mean	St. Dev.	Min	Max
Supporting taxing the rich for the poor (Redis.)	509	0.884	0.320	0	1
Individual Patience	503	0.678	0.413	0.000	1.000
Family Income	509	3.299	1.005	1	5
Age (1=20-29,5=60 up)	508	2.697	1.149	1	5
Male	509	0.585	0.493	0	1
Edu	509	4.538	0.727	2	5
Race (Mainlander = 1)	509	0.173	0.379	0	1
PID (Pan-blue camp = 1)	509	0.322	0.468	0	1

Table 6: Correlation Table of PollcracyLab 2016

	Redis.	Patience	Income	Age	Male	Edu	Race
Patience	0.03						
Income	-0.12**	0.10*					
Age	-0.11*	-0.08	0.05				
Male	-0.01	0.14**	0.06	0.13**			
Edu	0.03	0.04	0.15***	-0.24***	-0.01		
Race	-0.03	-0.05	-0.02	0.20***	-0.04	-0.01	
PID	-0.04	-0.06	-0.15***	0.24***	0.03	-0.87***	0.02

References

Alesina, Alberto F and Paola Giuliano. 2011. "Preferences for redistribution". In *Handbook of Social Economics*, ed. Jess Benhabib, Alberto Bisin and Matthew O Jackson. San Diego: North-Holland pp. 93–131.

Alesina, Alberto, Rafael Di Tella and Robert MacCulloch. 2004. "Inequality and happiness: are Europeans and Americans different?" *Journal of Public Economics* 88(9):2009–2042.

Baumeister, Roy F, Ellen Bratslavsky, Mark Muraven and Dianne M Tice. 1998. "Ego depletion: is the active self a limited resource?" *Journal of personality and social psychology* 74(5):1252.

Benabou, Roland and Efe A Ok. 2001. "Social Mobility and the Demand for Redistribution: The POUM Hypothesis." *The Quarterly Journal of Economics* 116(2):447–487.

Berns, Gregory S, David Laibson and George Loewenstein. 2007. "Intertemporal choicetoward an integrative framework." *Trends in cognitive sciences* 11(11):482–488.

Chabris, Christopher F, David Laibson, Carrie L Morris, Jonathon P Schuldt and Dmitry Taubinsky. 2008. "Individual laboratory-measured discount rates predict field behavior." *Journal of Risk and Uncertainty* 37(2-3):237–269.

Chang, Wen-Chun. 2010. "Religion and preferences for redistributive policies in an East Asian country." *Poverty & Public Policy* 2(4):81–109.

Chao, Li-Wei, Helena Szrek, Nuno Sousa Pereira and Mark V Pauly. 2009. "Time preference and its relationship with age, health, and survival probability." *Judgment and Decision Making* 4(1):1.

Clark, Terry Nichols and Seymour Martin Lipset. 1991. "Are social classes dying?" *International sociology* 6(4):397–410.

Cohen, Jonathan D, Keith Marzilli Ericson, David Laibson and John Myles White. 2016. Measuring time preferences. Technical report National Bureau of Economic Research.

Daly, Michael, Colm P Harmon and Liam Delaney. 2009. "Psychological and biological foundations of time preference." *Journal of the European Economic Association* 7(2-3):659–669.

De La O, Ana L and Jonathan A Rodden. 2008. "Does Religion Distract the Poor?: Income and Issue Voting Around the World." *Comparative Political Studies* 41(4/5):437.

Dimick, Matthew, David Rueda and Daniel Stegumeller. 2014. Inequality, fairness, and preferences for redistribution. In *21st International Conference of Europeanists*. Ces.

Duckworth, Angela L and Martin EP Seligman. 2005. "Self-discipline outdoes IQ in predicting academic performance of adolescents." *Psychological science* 16(12):939–944.

Evans, Geoffrey and James Tilley. 2012. "How parties shape class politics: Explaining the decline of the class basis of party support." *British journal of political science* 42(01):137–161.

Frederick, Shane, George Loewenstein and Ted O'donoghue. 2002. "Time discounting and time preference: A critical review." *Journal of economic literature* pp. 351–401.

Funder, David C, Jeanne H Block and Jack Block. 1983. "Delay of gratification: Some longitudinal personality correlates." *Journal of Personality and Social Psychology* 44(6):1198.

Guillaud, Elvire. 2013. "Preferences for redistribution: an empirical analysis over 33 countries." *The Journal of Economic Inequality* 11(1):57–78.

Hardisty, David J, Katherine F Thompson, David H Krantz and Elke U Weber. 2013. "How to measure time preferences: An experimental comparison of three methods." *Judgment and Decision Making* 8(3):236–249.

Harrison, Glenn W, Morten I Lau and Melonie B Williams. 2002. "Estimating individual discount rates in Denmark: A field experiment." *American economic review* pp. 1606–1617.

Hertz, Tom. 2006. "Understanding mobility in America." *Center for American Progress Discussion Paper* .

Hochschild, Jennifer. 1981. *What's fair: American beliefs about distributive justice*. Cambridge, MA: Harvard University.

Hoel, Jessica B, Benjamin Schwab and John Hoddinott. 2016. "Self-control exertion and the expression of time preference: Experimental results from Ethiopia." *Journal of Economic Psychology* 52:136–146.

Hofmann, Wilhelm, Tobias Gschwendner, Malte Friese, Reinout W Wiers and Manfred Schmitt. 2008. "Working memory capacity and self-regulatory behavior: toward an individual differences perspective on behavior determination by automatic versus controlled processes." *Journal of personality and social psychology* 95(4):962.

Hofstede, Geert, Gert Jan Hofstede and Michael Minkov. 1997. *Cultures and organizations*. McGraw Hill New York, NY.

Huber, J and Piero Stanig. 2006. "Voting polarization on redistribution across democracies." *Working Paper. Department of Political Science, Columbia University* .

Iversen, Torben and David Soskice. 2001. "An asset theory of social policy preferences." *American Political Science Review* 95(4):875–894.

Johnson, Paul and Howard Reed. 1996. "Intergenerational mobility among the rich and poor: results from the National Child Development Survey." *Oxford Review of Economic Policy* 12(1):127–142.

Jou, Willy. 2010. "The heuristic value of the leftright schema in East Asia." *International Political Science Review* 31(3):366–394.

Kirby, Kris N. 2009. "One-year temporal stability of delay-discount rates." *Psychonomic bulletin & review* 16(3):457–462.

Kirby, Kris N, Nancy M Petry and Warren K Bickel. 1999. "Heroin addicts have higher discount rates for delayed rewards than non-drug-using controls." *Journal of Experimental Psychology: General* 128(1):78.

Klochko, Marianna A and Peter C Ordeshook. 2005. *Endogenous time preferences in social networks*. Edward Elgar Publishing.

Ladd, Everett Carll and Karlyn H Bowman. 1998. *Attitudes toward economic inequality*. Washington, DC: AEI Press.

Li, JinZhen, Shu Li, WenZhong Wang, LiLin Rao and Huan Liu. 2011. "Are people always more risk averse after disasters? Surveys after a heavy snowhit and a major earthquake in China in 2008." *Applied cognitive psychology* 25(1):104–111.

Loewenstein, George and Jon Elster. 1992. *Choice over time*. Russell Sage Foundation.

McCullough, Michael E and Brian LB Willoughby. 2009. "Religion, self-regulation, and self-control: Associations, explanations, and implications." *Psychological bulletin* 135(1):69.

Metcalfe, Janet and Walter Mischel. 1999. "A hot/cool-system analysis of delay of gratification: dynamics of willpower." *Psychological review* 106(1):3.

Mettler, Suzanne. 2011. *The submerged state: How invisible government policies undermine American democracy*. University of Chicago Press.

Mischel, Walter. 2014. *The marshmallow test: Mastering self-control*.

Page, Benjamin I and Lawrence R Jacobs. 2009. *Class war?: what Americans really think about economic inequality*. University of Chicago Press.

Parrado, Emilio A. 2005. "Economic restructuring and intra-generational class mobility in Mexico." *Social Forces* 84(2):733–757.

Rawls, John. 1999. *A Theory of Justice*. Harvard University Press.

Reimers, Stian, Elizabeth A Maylor, Neil Stewart and Nick Chater. 2009. "Associations between a one-shot delay discounting measure and age, income, education and real-world impulsive behavior." *Personality and Individual Differences* 47(8):973–978.

Senior, N. W. 1836. *An Outline of the Science of Political Economy*. London: Clowes ad Sons.

Shi, Xuehua, J Alexander Nuetah and Xian Xin. 2010. "Household income mobility in rural China: 1989–2006." *Economic Modelling* 27(5):1090–1096.

Smith, Patricia K. 1994. "Downward mobility: is it a growing problem?" *American Journal of Economics and Sociology* pp. 57–72.

Stegmueller, Daniel. 2013. "Religion and redistributive voting in Western Europe." *The Journal of Politics* 75(04):1064–1076.

Strathman, Alan, Faith Gleicher, David S Boninger and C Scott Edwards. 1994. "The consideration of future consequences: Weighing immediate and distant outcomes of behavior." *Journal of personality and social psychology* 66(4):742.

Urminsky, Oleg and Gal Zauberman. 2016. "The psychology of intertemporal preferences.".

Van der Waal, Jeroen, Peter Achterberg and Dick Houtman. 2007. "Class is not deadit has been buried alive: class voting and cultural voting in postwar western societies (1956–1990)." *Politics & Society* 35(3):403–426.

Vischer, Thomas, Thomas Dohmen, Armin Falk, David Huffman, Jürgen Schupp, Uwe Sunde and Gert G Wagner. 2013. "Validating an ultra-short survey measure of patience." *Economics Letters* 120(2):142–145.

Wang, Mei, Marc Oliver Rieger and Thorsten Hens. 2009. "An international survey on time discounting." *Norwegian School of Economics working paper* .

Yi-ching, Hsiao and Cheng Su-feng. 2014. "Citizens Perceptions of the Left-Right Ideology in Taiwan: Replacing Left-Right Ideology with the Unification Independence Issue to Measure Taiwans Party Polarization." *Taiwan Political Science Review* 18(2):79–138.

Zimbardo, Philip G, Kelli A Keough and John N Boyd. 1997. "Present time perspective as a predictor of risky driving." *Personality and Individual Differences* 23(6):1007–1023.

Zimbardo, Philip and John Boyd. 2008. *The time paradox: The new psychology of time that will change your life.* Simon and Schuster.