

Patience, Dynamic of Protest, and Ukraine's 2004 Orange Revolution

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Abstract

Studies have found many determinants of joining the protests such as personal network, personality, group identity, and resource. However, the recent mass demonstrations usually took weeks and even months on the street and citizens may join the rally at different points of time. Why did some people join the protest at the first day against the government's wrongdoing, while others may join a few days later? This article suggests that patience - an important personal trait of how much people discount the future payoff - determines whether an individual will join the mass demonstration in the early stage. Analysis of the representative 2007 Ukrainian Longitudinal Monitoring Survey reveals that Ukrainians who discount the future less were much likely to join the Orange Revolution right after the large-scale electoral irregularity broke out in the presidential runoff election. Meanwhile, patience failed to explain the protest participation before, or long after, the electoral fraud. Its implication to the formal theories, democratic consolidation, and protest mobilization are finally discussed.

Keywords. Patience, Delay Discounting, Protest, Orange Revolution, Ukraine Politics

Word count 8,268

Introduction

On November 21, 2004, large-scale electoral irregularities favored the incumbent party broke out in the runoff of Ukraine's 2004 Presidential election. When the more and more evidence showed that the election was stolen, the opposition candidate Yushchenko's campaign team and youth organization mobilized about 25,000 activists to the Maidan Nezalezhnosti (Independence Square hereafter) and were ready to start a long-term street occupation by setting tents (Shukan, 2010). Even though the number of activists being mobilized was larger than the previous demonstrations like "Ukraine without Kuchma" in 2001 or "Rise Up, Ukraine!" in 2002, the campaign team could not ensure that the protest would grow and become self-enforcing (Beissinger, 2011). The previous two demonstrations also mobilized tens of thousands of people for months but ended up with violence and arrests.

However, this time was different. Even though it was snowing heavily outside, people kept showing up and gathering to the Independence Square and nearby streets. In a documentary filmed by a Ukrainian-American during the Orange Revolution,¹ a restaurant in Kyiv accommodated 50 people in the first night of the protest, then the number grew to 300, 800, 1300, 2500, then 3000 from day to day. The scale of the protest and the increasing number of the protesters on the streets was crucial for Yushchenko to start the negotiation with President Kuchma and the incumbent party's presidential candidate Yanukovich throughout the early December.² Despite for the possibility of violent repression and the involvement of the military, Yushchenko estimated that 300,000 protesters were standing on the Independence Square. According to a national representative survey conducted three weeks after the runoff, 13 percent of citizens above 17 years old participated in pro-Yushchenko demonstrations, which means 4 million Ukrainian adults (Way, 2010). Even though the Supreme

¹"Orange Revolution Documentary Film THE ORANGE CHRONICLES short version" by Damian Kolodiy, <https://www.youtube.com/watch?v=iOYzIqJQu74>, Access: May 23, 2017

²"Viktor Yushchenko The Orange Revolution" by The Freedom Collection, <https://www.youtube.com/watch?v=TQVWcMJpFng>, Access: May 22, 2017

Court announced that the runoff election would be re-run on December 26, which can be seen as a temporary victory for Yushchenko's team, many protesters still sit in the Independence Square until the orange camp eventually clinched the victory in early January.

For the critical mass demonstration like the Orange Revolution, the core activists, early comers, and the later comers are of equal importance for a movement to succeed (Beissinger, 2011). The core activists prepared the necessities (tents, food, music, and socks in this case) for the long-term occupation and shaped the discourse and slogans, but they needed more people to join the rally. When the electoral fraud was witnessed and became a focal point for the demonstration, the early comers showed up to prove that the demonstration was not purely driven by partisanship but was for everyone, and ignited the self-reinforcing process. The later comers then strengthened the demonstration and showed to the authority that people would not give up and return home within a few days. It was the combination of the three that makes authoritarian overturn possible.

However, who were the core activists, early comers, and later comers? Even though 84% of Ukrainians agreed that they have the right to protest against electoral fraud publicly (Kuzio, 2006*b*), why did some people join the protest in the earlier stage, while some other people participated later? For those Ukrainians who went to the Independence Square right on the evening of the runoff election, they should expect to stand in the snow for days or even months, based on the previously failed movements. Moreover, standing up first to protest against the fraud was dangerous: President Kuchma was associated with the assassination of a journalist and the opposition presidential candidate Yushchenko was mysteriously poisoned during the campaign. Nevertheless, if no one appeared except for the activists on the first evening, the Orange Revolution could be easily smeared by the government-controlled media as a meeting of sore losers and fail to establish its legitimacy and morality; it would have followed the destiny of the previous two protests.

This article aims at explaining why people choose to join the mass demonstration at

different points of time. Previous studies on protest participation usually focus on the social network (Opp and Roehl, 1990), expected public good (Muller and Opp, 1986), political efficacy (Opp and Kittel, 2010), personality (Brandstätter and Opp, 2014), and a series of socio-demographic background. Other studies formalize the protest against the government as a repeated prisoners' dilemma game and a problem of collective action (Axelrod, 1981; Weingast, 1997; Ostrom, 1998; Acemoglu and Robinson, 2001). One weakness of these studies is to (implicitly) treat one protest as a time point, and all actors simultaneously decide to join or not. Even though Opp and his colleagues conducted a 10-years panel survey including four major protests, the protests were still treated as one time point rather than an accumulated and dynamic process within each protest. This one-shot assumption is not true for the recent mass demonstrations: the 2004 Ukraine Orange Revolution took 62 days, the 2011 Belarusian protest took 86 days (and failed), the 2014 Taiwanese Sunflower Movement took 23 days, and the 2011 Egyptian revolution took 17 days. People may decide to join other people on the street at different points of time, and different points of time would bring different levels of cost and benefit into the rational calculation.

Inspired by the works in behavioral economics, formal theories, and psychology, this article suggests that *an individual's level of patience* plays a major role in explaining the time points to join the mass demonstration. In the repeated Prisoners' Dilemma, an individual's tendency to discount the future payoff is usually captured by the discounting factor δ . In economics, δ is also called delay discounting or intertemporal choice (Frederick, Loewenstein and O'donoghue, 2002); in psychology, δ is called time preference, self-control, or, in daily language, *patience* (e.g. Kirby, Winston and Santiesteban, 2005; Fowler and Kam, 2006; Curry, Price and Price, 2008). Patience is widely considered to be both a personal characteristic and a skill (Karoly, 1993; Frederick, Loewenstein and O'donoghue, 2002), which is pivotal in the determination of human behaviors such as drug use (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).

Patience influences how ordinary people calculated the immediate cost and expected future benefit for joining the protest at different time points. If an individual joins the protest in the early stage, he or she may expect to stand in the freezing cold winter for weeks or even be arrested for the possible overturn of the authoritarian regime. However, joining the protest earlier may attract more people to come, which ultimately increase the probability of success. Therefore, individuals who discount the future benefit less - which may originate from a democratic system, the rule of law, or fair election (Diamond, 1999; Ostrom, 1997) - should be much likely to join the protest in the early stage. When the demonstration went further to the later stage, since the future outcome may be closer and the probability of being punished is lower, people with a moderate level of patience would also join the protest. In the next chapters, a theoretical model will be provided to formally explain the relationship between patience and the points of time to join the protest.

Investigating the relation between patience and the dynamic of protest can contribute to many aspects, theoretically and empirically. First, it may provide a psychological mechanism explaining how people make the decision to participate in the protest at different points of time. Second, the psychological mechanism can be further used for civic empowerment and mobilization. Patience is considered as temporally stable but can also be trained, and recent studies on patience and self-control show that an individual's ability to delay discounting can be trained and extended (e.g. Holbein, 2016; Wu, Cheng and Chiou, 2017). Third, Wilson (2011) noticed that the discounting factor is widely used in the formal models derived by political scientists, but the empirical investigation on the impact of the discounting factor on the behavior is scarce. In a recent work modeling people's decision of protest in a repeated game, Meirowitz and Tucker (2013) directly pinpoint that "*...to the extent we can successfully estimate individual discount rates, we should be able to get a good predictor of who protests.*"

The remainder of this paper is organized as followed. Section 2 will provide a model explaining why patience may influence people's decision to join the protest at different points of time, and why those with a higher level of patience tend to join in the early stage. In Section 3, the theoretical prediction will be falsified by the 2007 Ukrainian Longitudinal Monitoring Survey ($n = 6774$) (Lehmann, Muravyev and Zimmermann, 2012) (ULMS 2007 hereafter), a face-to-face interview conducted by Institute for the Study of Labor, IZA. The representative ULMS 2007 includes the measure of patience and a series of item asking when did the Ukraine respondents participate in the Orange Revolution. In the end, Section 4 concludes my findings and discusses its possible linkage to education, group identity, and the macro-level political cleavage.

Patience and Protest: A Model and Literature Review

First, I assume that there is a country with N citizens. A demonstration can succeed if more than the critical mass T citizens went to the street (Marwell and Oliver, 1993).

In the society, there are two groups of citizens - the core activists C ($C < T$), and the ordinary people $N - C$. It is reasonable and meaningful to distinguish between the activists and the ordinary individuals in the mass demonstration since there are always debates over whether the mass demonstration is elite-driven or not. For the case of Ukraine Revolution, Lynch (2010) analyze how the pro-democracy activists in Ukraine tried and failed since 2000 or since the collapse of USSR, how Yushchenko and Yulia Tymoshenko chose to join or not to join each movement, and how the pro-Yushchenko ally could be formed before the 2004 Presidential Election. Furthermore, Shukan (2010) analyzed the documents provided by Yushchenko and Tymoshenko's campaign team to show how the activist groups set a quota for mobilization, organized, collected and distributed resource, and shaped the discourse before, during, and after the Orange Revolution.

However, it would be insufficient to merely focus on the activist groups when analyzing the mass demonstration. As is discussed earlier, on the evening of the runoff Election Day in 2004, the Yushchenko's campaign team mobilized only 25,000 activists, but the number of protesters stood in the snow is ten times more than that activists. In a national representative survey conducted by the National Academy of Sciences of Ukraine in early 2005 (Stepanenko, 2005) (NASU 2005 hereafter), 45% of the respondents believed that the Orange Revolution was "conscious struggle of the people" or "spontaneous people's protest", while only 23.9% and 12.4% thought the revolution was "prepared with Western support" or "by political opposition". Therefore, the core activists and ordinary people are both important in the analysis of political participation, and I meaningfully distinguish them for the analytical reason above.

All citizens had a net democratic benefit D if the demonstration against the large-scale electoral fraud succeeded. D serves as a public good such as a fair electoral system and rule of law, which is non-excludable and non-rivalrous. Undoubtedly, people joined the protest for a variety of reasons. But for the case of Orange Revolution, Fournier (2010) conducted surveys during the period and revealed that one major reason for people to go to the street is for "restoring order (*poriadok*)."³ During the protest, the sticker saying "We will not give Ukraine to bandits (*Ne viddamo Ukrainy bandytam!*)" was plastered all over Kyiv. Besides, NASU 2005 shows that most Ukraine people believed that the Orange Revolution was a protest "against the authorities" (41.9%), while only 5.2% thought the was "a choice between the West and Russia".³ Even though the motivation for joining the protest varies, this simplest assumption D for all citizens are not unreasonable.

The mass demonstration can then be divided into four stages. In Stage I, the large-scale electoral fraud had not happened, and it was the stage for the activist groups to emerge, network, organize, and practice. In short, the number of activists C is assumed to be de-

³The respondents can list three thoughts in the survey

terminated exogenously in Stage I. Most importantly, the activist groups may prepare for the prerequisites which make the mass demonstration possible. For example, Tymoshenko and other opposition lawmakers tried to occupy the UT-1 television station in September 2002. According to Lynch (2010)'s analysis, all the main television stations reported the event, which was the first time many Ukrainians heard of such an action opposing the President since President Kuchma controlled all mass media. Before the runoff election in 2004, Yushchenko's campaign team worked with the youth organizations to create "volunteer popular brigades (*dobrovolny narodny druzhyni*)" which overseen all polling stations and counted the votes (Shukan, 2010). These actions can mitigate the serious problem of information transparency in the authoritarian setting, and make the fraud able to be witnessed by all citizens.

When the large-scale electoral fraud broke out, for simplicity, I separate the following mass demonstration into two stages. Stage II is the early stage which started at the day of electoral fraud; Stage III is the later stage, which the demonstration had existed for several days and the later comers knew that there were already many protesters on the street. The number of people joined in the protest in Stage II is k_2 , and the number of individuals joined in Stage III is k_3 . In Stage IV, the result of the protest will be announced. If the protest succeeded, all citizens would receive D and 0 if failed. However, the probability of success is decided by the ratio of the total number of protesters and the threshold of critical mass, which is $\frac{C+k_2+k_3}{T}$.

It is costly to join in Stage II and III, which is defined as $-S$ for all protesters in each stage. Protesters had to stand on the street in the snowing days with wet socks. Unfortunately, alcohol was banned by the core activists. Police officers trooped around the tents, and rumor of military intervention was rampant. At the night of November 27, Yushchenko and Tymoshenko warned the protesters that police would bring down the tents at 2 AM. It did not happen at the end, but all protesters stayed awake for the whole night. It was worse for

the Ukraine without Kuchma in 2001 and Rise Up, Ukraine! in 2002, which ended up with violence and arrests.

The ordinary people have different level of patience, δ ($0 \leq \delta \leq 1$). δ is defined as how much an individual discount the future outcome in the next stage. For people who participated in the protest in Stage II, their expected benefit on the night of the electoral fraud was $(\delta_{k_2})^2 \times D \times \frac{C+k_2+k_3}{T}$, while the expected cost is $-S - \delta_{k_2} \times S$. For those who joined in Stage III, the expected benefit was $\delta_{k_3} \times D \times \frac{C+k_2+k_3}{T}$ with expected cost $-S$.

Why is $0 \leq \delta \leq 1$? Why do people put more weight on the immediate outcome while discounts the distant one? There are two main theories to explain why people tend to deviate from the norm of rationality: risk and future-self connectedness. Because the outcome of the far future event has not happened yet and might change, risk-averse people would prefer the certainty, which means the event occurs immediately. Moreover, if an individual dies unexpectedly due to an accident or sickness, he/she can never receive the utility of the future outcome. However, although many studies have found a robust correlation between risk and time preference (e.g. Gafni and Torrance, 1984; Andersen et al., 2008), they remain two distinct concepts. The second potential explanation for patience comes from the philosophical debate. According to Loewenstein, Read and Baumeister (2003), there are two views of personal identity: simple and complex. The simple view is that there is an irreducible entity of "I" that remains unchanged over time; an individual has no reason to discount the future self. The complex view argues that the personal identity across time is based on reducible characteristics (Parfit, 1984). One may forget previous experiences while the cells on one's body are continuously renewed; therefore, people discount the future event because the future-self and the current-self are different. Recent studies in neuroscience suggest that the choice of delayed reward is a deliberative cognitive process: an individual *automatically* prefer immediate reward, but the consciousness will control the impulse and compare the immediate reward with delayed one; McClure et al. (2004, 2007) use fMRI to

show that there are different neural systems value immediate and delayed monetary reward. Therefore, although the future outcome provides the same utility to the current one, an individual can receive an immediate reward after choosing the nearer alternative but must expend extra energy to imagine the feeling of receiving future rewards.

Since the democratic benefit D is a public good, an individual had a good reason to stay and home and enjoy a glass of Vodka for the winter. An individual's decision to join the protest or not will be influenced by his level of patience, the number of protesters in each stage, and the benefits and costs. For the ordinary citizen i at the time of Stage II, if he calculate the payoff strategically, he would join the protest if $(\delta_i)^2 \times D \times \frac{C+k_2+k_3}{T} - S - \delta_i \times S \geq (\delta_i)^2 \times D \times \frac{C+k_2+k_3-1}{T}$. For the same citizen at the time of Stage III, he would join the protest if $\delta_i \times D \times \frac{C+k_2+k_3}{T} - S \geq \delta_i \times D \times \frac{C+k_2+k_3-1}{T}$. If i chose not to participate in the protest, the probability of success at the end Stage IV may slightly decrease by $\frac{-1}{T}$, but he did not need to suffer from $-S$ or even $-S - \delta_i \times S$.

Lamma 1: People who joined the protest in Stage II have higher level of δ than those in Stage III

The proof from the super-simplified model is below: for a rational citizen to join the protest in Stage III, his level of patience will be at least $\delta_{k3} \geq \frac{S \times T}{D}$. For him to join in Stage II, his level of patience will be at least $\delta_{k2} \geq \frac{S \times T (1 + \sqrt{1 + \frac{4D}{S \times T}})}{2D}$. Since $\frac{D}{S \times T}$ is positive, $\delta_{k2} > \delta_{k3}$, which means that people who joined the protest in Stage II have higher level of δ than those in Stage III.

One major weakness for the calculation above is that the number of protesters in each stage are canceled out with each other in the decision-making process, which would not be the case. To loose this assumption, we can assume that the probability of success is not a linear function but a parabolic one, such as $(\frac{C+k_2+k_3}{T})^2$. In this scenario, the lowest level

of patience for people to join in Stage II will be $\delta_{k2} \geq \frac{S \times T^2 (1 + \sqrt{1 + 4D \frac{2(C+k_2+k_3)}{S^2 \times T^2}})}{4D \times (C+k_2+k_3)}$, while join in Stage III will be $\delta_{k3} \geq \frac{S \times T^2}{2D \times (C+k_2+k_3)}$. Since $\sqrt{1 + 4D \frac{2(C+k_2+k_3)}{S^2 \times T^2}} > 1$, $\delta_{k2} > \delta_{k3}$. Besides, this scenario also shows how the initial preparation by the activist group C works. If C is larger, both δ_{k2} and δ_{k3} will decrease, indicating that more people may join the protest if the core activist group can contribute more at the beginning. Besides, δ_{k2} and δ_{k3} are both a function of $k2$ and $k3$. If we take the first derivative of $k2$ and $k3$ on δ_{k2} and δ_{k3} , it will be negative in all cases. Therefore, the number of protesters in Stage II and Stage III will help each other to mobilize more people to come, which can be seen as the avalanche effect for mass mobilization. However, it would be worth noticing that the $k2$ and $k3$ are decided by the distribution of the level of patience among all citizens.

In the end, if people did not think strategically but only consider their own actions, they would join in Stage II if $(\delta_i)^2 \times D \times \frac{C+k_2+k_3}{T} - S - \delta_i \times S \geq 0$ and join in Stage III if $\delta_i \times D \times \frac{C+k_2+k_3}{T} - S \geq 0$. Under this assumption, $\delta_{k2} \geq \frac{S \times T (1 + \sqrt{1 + \frac{4(C+k_2+k_3)}{S \times T}})}{2D \times (C+k_2+k_3)}$, while $\delta_{k3} \geq \frac{S \times T}{D \times (C+k_2+k_3)}$. Since $\sqrt{1 + \frac{4(C+k_2+k_3)}{S \times T}} > 1$, $\delta_{k2} > \delta_{k3}$ in any condition, indicating that those who joined in Stage II must have higher level of patience than those in Stage III.

To sum up, the discussion above shows that ordinary people with different level of patience may join the protest at various points of time; how people view the future plays a major role in the fate of mass demonstration. The four-stage model also extends previous studies which assume the mass demonstration as a one-shot game and all people must behave simultaneously (e.g. Weingast, 1997; Acemoglu and Robinson, 2001; De Mesquita, 2013).

Before the empirical analysis, some evidence had shown that patience, or the perception of future, is an important factor for people to join the mass demonstration like the Orange Revolution. In NASU 2005 (Stepanenko, 2005), about 20% of the Ukraine respondents pointed out that Orange Revolution was a protest "for the next generation." In the documentary *THE ORANGE CHRONICLES* mentioned earlier, a grandma wearing down jacket

who were interviewed on November 23 claimed that ”...*For me it’s all the same. I’ve lived my life. But for the happiness of my children and grandchildren, I came here. And I will not leave until the government is changed.*” In the political rap *Razom Nas Bahato* (Together we are many)⁴ which became the unofficial anthem for the Orange Revolution for the first day, the lyrics kept reminding the protesters that ”...*what you wanna say to your daughters and sons? You know the battle is not over till the battle is won!*” The idea and framing of time are common in the protest, but whether it can help us understand people’s decision to join waits for the examination.

Data and Measure

The Ukrainian data comes from Ukrainian Longitudinal Monitoring Survey (Lehmann, Muravyev and Zimmermann, 2012), a face-to-face interview conducted by Institute for the Study of Labor, IZA (Forschungsinstitut zur Zukunft der Arbeit)⁵. The population of the survey is the working-age/labor-age population in Ukraine; that is aged 15-72 inclusive. The three waves of ULMS survey was conducted in 2003, 2004, and 2007. In this article, the 2007 individual-level survey ($n = 6774$) was analyzed because it includes the measure of patience and level of participation in the Orange Revolution. The 2007 survey was conducted from March to December 2007.

One important feature in the ULMS 2007 dataset is that the questionnaire not only asked whether the respondent participated in the Orange Revolution, but also when did they were involved. This question is important because there were also protests before and after the period of Orange Revolution. Starting from early 2004, student activists like *Pora!* already organized and protested against the president Leonid Kuchma. Before the runoff election, election irregularities in the first-round and presidential candidate Yushchenko’s mysterious

⁴<https://www.youtube.com/watch?v=PZLmE1OW2nU> Access: May 20, 2017

⁵<https://idsc.iza.org/?page=27&id=56>, Access: August 06, 2016

poisoning episode also caused sporadic protests. On December 8, the former members of the Central Election Board resigned, and Kuchma signed a new law to limit his own power, and the protesters ended the blockade of all administrative buildings. Still, many protesters stayed in the Independence Square and nearby street until Yushchenko eventually won the rerun runoff election on December 26.

Therefore, Ukrainian who decided to participate in the protest at different time points might hold different motivations. For those who protested before the runoff election fraud, they were much likely idealist who held strong ideological stance. These activists may not be captured by the PD game model since their ideal surmounted the cost. When the election fraud broke out, it sent a signal to the ordinary people that the incumbent did not care those activists and still want to steal the election. The ordinary people faced a collective action problem because the government was able to violently punished the protesters (and it was freezing outside). After the Supreme Court had announced that the runoff must be rerun, the Orange Revolution was formally justified; those who came out to the street after the announcement faced smaller uncertainty compared to those who protested before. The ULMS 2007 makes it possible to test this complex dynamic of protests across the progress of the Orange Revolution.

DV: Measure of the time to Participate in the Orange Revolution

In ULMS 2007, subjects were asked whether they participated in the Orange Revolution, and when did they participate by the items followed:

During the presidential election process in October-December 2004, the so-called Orange Revolution took place in Ukraine. We would like to ask you some questions about these events. Of course, these questions are somewhat sensitive, but please keep in mind that your answers will be kept anonymous and confidential. Since it is very important for researchers and policymakers to have a detailed picture of the political motivations of Ukrainian citizens,

we very much hope that you will be able to answer these questions.

I64. Were you personally involved in such political activities surrounding the three elections? Yes/No

I65. Please try to remember when you started participating in these political activities. Was it

1 before the first election round (before Oct. 31, 2004)

2 between the first and the second election round (Nov. 1, 2004 Nov. 21, 2004)

3 soon after the second election round (Nov. 22, 2004 Dec. 8, 2004)

4 soon before the third election round (Dec.9, 2004 Dec. 26, 2004)

5 after the third election round (after Dec. 26, 2004)

In the dataset, 405 in 6774 (6.0 %) claimed they had ever participated in the Orange Revolution. The percentage is smaller than the (Way, 2010)'s 17%. There are several possible reasons to explain this gap. One major reason could be that Yushchenko and Tymoshenko's performance during 2004-2007 was not good as expected, so some revolutionaries might feel shameful to reveal their past participation. It can also be possible that the respondents were tired and wanted to avoid answering more questions. In ULMS 2007, the items related to the Orange Revolution are numbered 1720 and more, indicating that the respondents had answered over 1700 items before this section! (But all of the previous items are not related to politics; they asked questions which relates to employment and lifestyle including patience) However, the aim of this article is to examine whether patience influences the decision of participating in the protest, and I did not see a theoretical reason of how patience influences the answer, and how the gap may bias the analysis.

Among the 405 revolutionaries, 77 (19.0 %) joined the revolution before the first election, 94(23.2 %) between the first and the runoff, 100 (24.7%) immediately after the runoff (when the Orange Revolution formally started), 55 (13.6%) before the re-run runoff (after the supreme court's decision and protesters left the governmental buildings), and 8 (2.0%) after

the final election.

The reason for Ukrainian to participate in the protests before the runoff may come from the poisoning episode before the election, anti-Russia movement, or anti-Kuchma movement since 2000. Nevertheless, the possibility that participants failed to recall the exact date of participation cannot be ruled out, especially since this survey was conducted two years after the Orange Revolution.

For further analyses, respondents who participated the Revolution before the large-scale election fraud were combined, and those who came to the street after the Supreme court's announcement were also combined. On December 3, Ukraine's Supreme Court announced that a re-run runoff must be held on December 26 because the election result cannot be decided to owe to the number and scale of electoral fraud. This resolution was seen as a pathway victory for the Yushchenko camp. Meanwhile, Yanukovich stated that he gave up the victory to avoid social conflict. On December 26, the runoff election was monitored intensively by both local and international observers. With no grave concern throughout the voting process, Yushchenko won the election by 8% (52%:44%), and the Election Commission declared the result on January 5, 2015.

IV: Measure of Patience

An Individual's level of patience is measured in ULMS 2007 by a five-item choice battery. The subject was firstly asked "Imagine that you were offered to receive 1000 Hryvnias today or 1200 Hryvnias in a year from now. What would you prefer? (translated by IZA)"⁶ If the subject chose the later but larger option, this battery ended. If the subject chose the smaller but immediate one, he or she was then asked to choose between 1000 and 1400, then 1600, 1800, and 2000.

The design of the patience measurement is similar to the discounting rate choice battery

⁶\$1000 Hryvnias is about USD \$ 186.1 in 2004.

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 higher self-control, and those who choose the immediate but smaller rewards are believed to be myopic and emotional (Berns, Laibson and Loewenstein, 2007; Metcalfe and Mischel, 1999). Recent studies show that the measure of patience based on this design has been found with good test-retest stability (Kirby, 2009), and the measurement positively correlates with other scales measuring self-regulation and future-orientation created by psychologists (Daly, Harmon and Delaney, 2009; Vischer et al., 2013).

Subject’s responses were then transformed into individual’s level of patience which follows previous studies. If the subject chose 1200 over 1000 in the first item, his or her level of patience is $\frac{1+\frac{1000}{1200}}{2} = 0.917$, which is the mean value of the possible range of the discounting factor based on the response. Similarly, if the subject chose 1000 over 1200 in the first item, but 1400 over 1000 in the second, then his or her patience is $\frac{\frac{1000}{1200}+\frac{1000}{1400}}{2} = 0.773$, and so on. If the subject chose 1000 on all five items, then his or her patience is assumed to be $\frac{\frac{1000}{2000}+0}{2} = 0.25$.

Figure 1 shows the distribution of individual’s patience in ULMS 2007. Compared to my previous studies focusing on the United States or Taiwan, the percentage of ”myopic” respondents in Ukraine is relatively high - 69.6% of respondents chose the straight small-but-near option across the battery. In the U. S. and Taiwan, the proportions being labeled as myopic are 39.3% and 22.4% respectively. Fortunately, the distribution also provides enough variance for analyzing the relationship between individual’s patience and the decision to join the protest. Pearson r test also shows that individual’s level of patience in ULMS 2007 negatively correlates with the respondent’s BMI ($r = -0.08, p < 0.001$) and positively correlates with supporting environmental protection ($r = 0.05, p < 0.001$), which are consistent with previous studies on linking patience and personal behavior. ⁷

⁷The high proportion of impatient respondents in the survey may also be because of the unstable inflation rate in Ukraine. In 2007, the inflation rate (by consumer price) was about 12.8%.

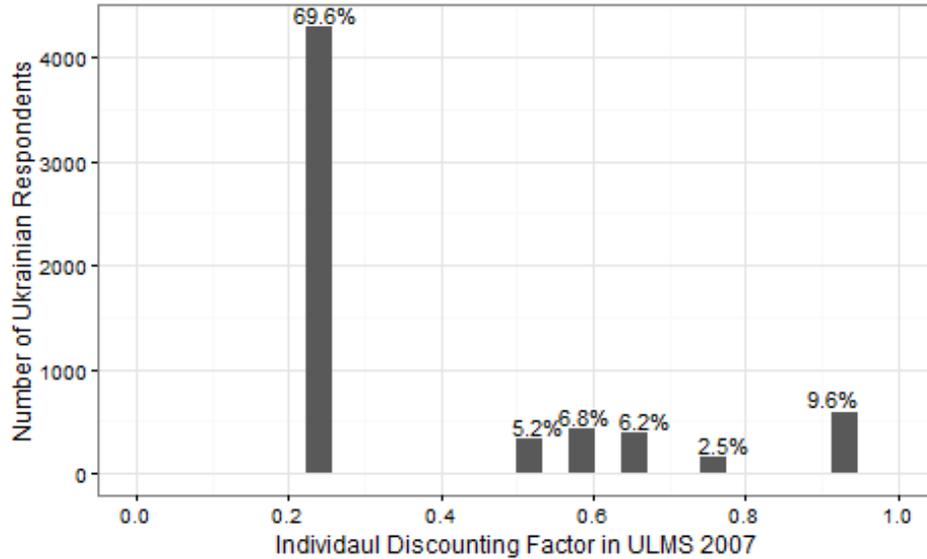


Figure 1: Distribution of individual's patience in Ukrainian, ULMS2007

Descriptive Analysis

Figure 2 shows the distribution of subjects' level of patience in each group, in which the blue lines are the distribution of the non-participants, while the red lines indicate the distribution of protest participants in each period. The errorbars are the 95% confidence intervals.

Consistent with Lamma 1, it is clear that the Ukrainians who joined the protest in the second period in Figure 7 have a higher level of patience. Two-tail t-test suggests that the difference reaches statistically significant level ($p = 0.07$). These protesters also have a statistically higher level of patience compared with those before the election fraud or after the Supreme court's announcement ($p = 0.052$ and 0.057 , respectively). Therefore, even though all protesters joined the same protest, their personality trait still influences WHEN did they join, which is consistent with the theoretical analysis of the difference between participants in Stage II and Stage III.

Even though the model in this article did not assume the level of patience that activists

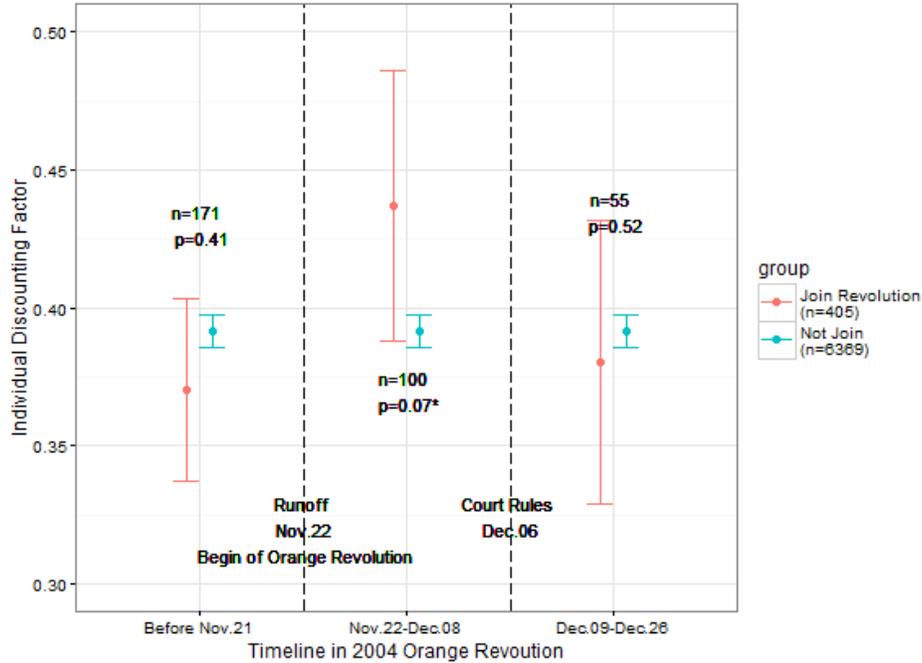


Figure 2: Level of Patience among Orange Revolution participants

have, it is interesting to see that those who joined the protest before the runoff election, who should be the core activists, did not have a higher level of patience. According to the social construal theory (Liberman and Trope, 1998), idealists should have a higher level of patience since they can use their ideology to imagine what would or should happen in the future. However, it is not the case in the Orange Revolution.

One may argue that it is not precise to simply separate the huge protest into two or three stages, and I fully agree with this concern. In ULMS 2007, the respondents were also encouraged to recall the exact day for them to join and leave the Orange Revolution. Unfortunately, the non-response rate is too high - only 114 in 405 respondents gave the exact dates. Therefore, this small response rate seriously limits the possibility for further analysis.

Multinomial Regression Analysis

Since the dependent variable is the points of time to join the revolution or not, multinomial regression will be used to control for the potential influences from the covariates.

Covariates

The most important covariate for joining the protest is the personal network (e.g. Finkel, Muller and Opp, 1989; Schussman and Soule, 2005). In ULMS 2007, Ukrainian respondents were also asked that if they knew that their friends or colleagues also participated in the Orange Revolution. Their responses were coded 1 for knowing, and 0 for not knowing. Overall, 21.3% of respondents (1443 in 6774) knew that their friends had joined the protest. Unfortunately, the item failed to distinguish between whether the respondents made his decision to protest before or after they knew their friend's decision. Since the analysis of the network is beyond the scope of this article, I simply put this binary variable to capture the influences from the personal network.

The second group of covariates is the ethical identity and policy preference. For ethical identity, respondents who self-identified as Ukraine as 1, others as 0 (including Russian, Byelorussian, and Jewish). Albeit Stepanenko (2005)'s survey showed that only 5% of Ukrainians believed that the Orange Revolution is "a choice between the West and Russia," other studies still show that EU-integration was a critical issue throughout the campaign (Shukan, 2010). In ULMS 2007, respondents were asked: "*In your opinion, which state union would be better for Ukrainian people to live in, the European Union or in the union with Russia, Belarus and Kazakhstan.*" The responses are coded 2 for "In the European Union," 1 for "Rather in the European Union," 0 for "No union with any other country," -1 for "Rather in the union with Russia, Belarus and Kazakhstan," and -2 for "In the union with Russia, Belarus and Kazakhstan." I expect that these two variables can help capture

the influence of policy preference on the decision to protest. Moreover, these variables may help explain why did some Ukrainians were core activists and chose to protest even before the large-scale fraud in the runoff.

The last group of covariates is the traditional "resource" model. Respondent's age (in 2007), gender (female=1), and level of education (0 12 grade) are included in the regression analysis. Previous studies on self-control and patience show that age, gender, and education may influence one's patience (e.g. Schmidt, Lamm and Trommsdorff, 1978; Mello and Worrell, 2006). Controlling for this socio-demographic background can help clarify the effect of patience on joining the demonstration at different points of time.

Table 1 and 2 show the descriptive statistics and correlations of the variables used in the regression analysis. In Table 2, patience is not correlated with joining the Orange Revolution when we combined all stages. Patience is negatively correlated with age and female, which is consistent with the previous study in Ukraine one year before the ULMS 2007 (Klochko and Ordeshook, 2005). However, Klochko and Ordeshook only corrected student samples, but the ULMS 2007 provide a valuable opportunity to extend the representativeness of the sample and help us further understand how patience influences other preferences and behaviors.

Table 1: Descriptive statistics of ULMS 2007

Statistic	N	Mean	St. Dev.	Min	Max
Level of Patience	6,167	0.391	0.229	0.250	0.917
Joined Orange Revolution	6,774	0.060	0.237	0	1
Joined in what stage	6,774	0.079	0.389	0	3
Friends also joined	6,774	0.213	0.409	0	1
Self-identified Ukrainian	6,774	0.813	0.390	0	1
Preferred EU integration	6,774	-0.363	1.416	-2	2
Age	6,774	43.874	16.993	15	73
Female	6,774	0.572	0.495	0	1
Level of Education	6,758	9.671	1.306	0	12

Besides, knowing that friends also joined the Orange Revolution is positively correlated

with one’s willingness to join, but not patience. The null finding may mitigate the problem of endogeneity that one may discount the future less because of the perceived cooperation, as was suggested by Klochko and Ordeshook (2005). In the end, people’s preference on EU integration was also strongly correlated with joining the Orange Revolution. Therefore, it is necessary to include ad control this important issue during the campaign.

Table 2: Pearson’s R correlation of ULMS 2007

	Patience	Join_O	Fri_J	Uk_ID	EU_att	Age	Female
Joined Orange Revolution	0.00						
Friends also joined	-0.01	0.41*					
Self-identified Ukrainian	-0.01	0.06*	0.08*				
Preferred EU integration	0.05*	0.17*	0.25*	0.23*			
Age	-0.10*	-0.05*	-0.09*	-0.08***	-0.25*		
Female	-0.07*	0.00	-0.02	0.00	-0.03*	0.08*	
Level of Education	0.02	0.06*	0.07*	0.03*	0.12*	-0.30*	0.01

Note:

*p<0.05

Regression result

Table 3 provides the analysis of multinomial model explaining who and when did Ukrainian participate in the Orange Revolution. The base group for comparison is the non-participants, while each column is the estimated coefficient for the participants in each stage of the protest. The analysis is conducted by the nnet library in R 3.1.3.

In the second column of Table 3, consistent with the Lamma 1, those who joined and created the revolution were those who had a higher level of patience, even when we control for the impact of the respondent’s personal network, national identity, and personal resource. However, the similar effect does not appear in the core activists and late comers in column 1 and 3, respectively. This result echoes the distribution in Figure 2, indicating that protesters’ personality may influence how they calculate the cost and benefit for joining the protest, and therefore influences when did they participate in such a history-changing mass mobilization.

Table 3: Multinomial regression explaining participating in the Orange Revolution

	<i>Dependent variable:</i>		
	<i>Before_runoff</i>	<i>After_fraud</i>	<i>After_court</i>
	<i>Not – join</i>	<i>Not – join</i>	<i>Not – join</i>
Level of Patience	–0.415 (0.393)	0.857** (0.433)	–0.234 (0.666)
Friends also joined the protest	2.975*** (0.224)	3.997*** (0.427)	3.481*** (0.443)
Identified as Ukrainian	0.003 (0.266)	0.236 (0.374)	0.532 (0.494)
Ukraine should be closer to EU	0.277*** (0.064)	0.245*** (0.083)	–0.018 (0.104)
Female	–0.054 (0.167)	–0.152 (0.213)	–0.049 (0.287)
Age	0.004 (0.005)	0.0001 (0.007)	0.011 (0.009)
Level of Education	0.115 (0.080)	0.100 (0.103)	0.494*** (0.173)
Constant	–6.263*** (0.957)	–8.055*** (1.278)	–12.390*** (2.045)
Akaike Inf. Crit.	2,433.705	2,433.705	2,433.705

Note:

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

Besides, those early comers in column 2 are also who are captured by the PD game models. Weingast (1997) suggested that citizens will cooperate and punish the government when the government transgresses the human right if they "discount the future less" and "know others will also react." In column 2, both patience and the perception that friends also joined the protest are the most important determinants for Ukrainian to join the Orange Revolution right after the large-scale electoral fraud broke out on November 21, 2004. These citizens successfully solved the problem of collective action as is suggested by the formal models.

However, those people in column 2 only account for part of the protesters in the Orange Revolution. In column 1, the core activists - who protested before the fraud - did not have a higher level of patience. Instead, they held the strongest attitude toward EU integration. The result is not surprising since Yushchenko and his campaign team are the main promoters of the pro-European stance. Even though the youth organization Pora! claimed that it aimed at protecting the democratic process and legitimacy of the election, it is believed that pro-European attitude also motivated the young people to organize and protest against Kuchma and Yanukovich before the runoff election (Kuzio, 2006b). Several days before the runoff election, the documentary director of the Orange Revolution⁸ interviewed a protester who had already stayed at the Independence Square, saying that "*...the young people of Ukraine vote against Yanukovich, not for Yushchenko, but against Yanukovich, for we want to be a European country...and not in the Soviet Union republic...*"

Besides, the third column in Table 2 shows that those who participated in the Orange Revolution after the Supreme court's announcement were those with a higher level of education; meanwhile, they did not have a greater level of patience, nor were they pro-European. This result is quite deferent from the previous study which only sees the protest as a whole (Beissinger, 2011). Instead, Table 3 further evidenced that people joined the protest at dif-

⁸See footnote 1.

ferent stages owing to the different weights toward the future. Regarding the impact from education, I did not have a theory for this distribution, but my guess is that the court justified the revolution so that people with higher education were much likely to join and pursue the rule of law.

It is worth mentioning that the variable age is not significantly correlated with joining the Orange Revolution in all stages. This result is counterintuitive at first sight since it is widely recognized that youth organization plays a major role in the protests for years (Kuzio, 2006*a*). Actually, in ULMS 2007, the average age for Orange Revolution participants is significantly younger than the non-participants (40.45 to 44.09, $p < 0.001$ by T-test). In we only put the age variable into the multinomial regression model, young people are significantly much likely to join the Orange Revolution before and immediately after the runoff ($p < 0.05$ in Stage I and $p < 0.01$ in Stage II), which is consistent with the previous observations. However, the negative correlations disappear when the variable "friends also joined the protest" is added into the regression model. Goldstein (2007) illustrates how the Internet and mobile phone helped the spread of information and organizing the protest during the Orange Revolution, which implies that young people who mostly used the technology were much likely to perceive that his or her friends also joined the protest.

Reverse causality?

An alternative explanation for the finding linking patience and protest is that those who participated in the Orange Revolution became much patient since they won eventually. For example, Duan, Wu and Sun (2017) show that people who received power tend to discount the future less in the experimental setting. Klochko and Ordeshook (2005) also provide a theoretical model suggesting that people may increase their level of patience through interaction and learn across time.

However, I would like to argue that it is not the case for the analysis above. If patience

increased owing to the success of the movement, we should observe that all participants of the Orange Revolution should have a higher level of patience. Especially, the core activists and Yushchenko's campaign team in Stage I should enjoy the biggest increase in their level of patience. Nevertheless, such distribution does not appear in Figure 2. Moreover, studies show that the measure of patience is quite stable across time (e.g. Kirby, 2009; Martínez-Loredo et al., 2017). Therefore, I would like to argue that it was an individual's level of patience influenced how he or she decided to join the Orange Revolution at different stages.

Conclusion and future works

By exploiting the ULMS 2007 dataset and investigating the case of Ukraine's Orange Revolution, this article extends previous understanding of protest participation. People may join the mass demonstration at different points of time owing to their rational calculation, which is based on how much people discount the future outcome. Even though previous studies provide ample evidence linking protest with personality (Brandstätter and Opp, 2014), the perception of others (Opp and Kittel, 2010), political efficacy (Muller and Opp, 1986), and socio-demographics (Dalton and Klingemann, 2007), they usually treat the protest as a whole and neglect the nuance between the core activists, early comers, and late-comers. Thus, the findings in this article are important since recent mass demonstrations usually took weeks and even months. This analysis also extended previous studies on Orange Revolution which categorized the respondents by their action rather than by the timeline (Beissinger, 2013).

The result in this article provides a significant implication to the core activists who have prepared for the "focal point" to shake the politics. The result in the multinomial regression implies that more people will join the protest at the early stage if they were framed to be more patient. At the end of the literature review, I have provided numerous discourses

in the Orange Revolution that emphasized the concept of future such as "your sons and daughters." If the early comers are crucial for the following avalanche, the core activists may try to include the framing of future for attracting more early comers.

The result also speaks to previous studies on the theories of democratic consolidation. In Weingast (1997)'s repeated PD model, patience and the belief of others' cooperation are both the necessary condition for citizens to cooperate against the governments transgress of human right. However, no empirical evidence had ever provided to falsify the previous prediction. In Table 3, the early comers, who tend to have a higher level of patience and are much likely to be influenced by friend's behavior, closely fit Weingast's prediction. However, the same model failed to explain the participants in Stage I and III. Why are the idealists did not have a higher level of patience? Future work may focus on how the activists see the future.

Besides, this result may provide a psychological mechanism of the socio-demographic variable on explaining protest participation. Based on the World Value Survey datasets from 1999 to 2002 in 50 countries, Dalton and Klingemann (2007) suggest that education and group membership are the two most important determinants of individual level on explaining the protest behavior. On explaining how the education promotes joining the protest, the authors allude that education may bring "political skills" and is the evidence of "personal resource." However, the logic linking (higher) education and political skill is vague. What kind of political skill could an undergraduate student majoring in electrical engineering learn during the completion of his degree? One recent study points out that the training of patience at school is the main reason why education increases turnout rate (Holbein, 2016).⁹ Another experimental study shows that people temporarily increase the level of patience when their group identity is mentioned (Benjamin, Choi and Strickland,

⁹Alternative explanation can see Sondheimer and Green (2010). Also, previous studies suggest the bi-directional influence between patience and academic performance (e.g. Bauer and Chytilov, 2010; Castillo et al., 2011; Mello and Worrell, 2006).

2007). Therefore, it can be possible that education and group membership increase the protest behavior just because they increase the level of patience among the citizens.

In the end, even though both patience and the perception of others are necessary, further analysis of the multinomial regression shows that the interaction between them is not predictive of the protest behavior. In the PD game, an individual will choose to cooperate if and only if the person is patient enough *and* believe that others will work together. However, the interaction between the two factors in the regression model did not provide extra motivation for Ukrainian people to join the Orange Revolution at any stage. What is the motivation behind a farsighted individual who will protest given he had perceived that others would not cooperate? Is he the privileged member or ideology-driven? Future work may further investigate how the patience influences the preference formation process and the decision-making in the politics.

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