ทฤษฎีเกมของการต่อต้านทางสังคม
A Game Model of Social Protest

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บทคัดย่อ

การต่อต้านทางสังคมที่เกิดขึ้นในสังคมทั่วโลกนั้นเป็นวิถีทางของชนกลุ่มน้อยทางการเมืองในการต่อรองเพื่อให้ได้มาซึ่งอำนาจในการตัดสินใจในบางประการของประเทศ ประวัติศาสตร์ที่ผ่านมาได้แสดงให้เห็นถึงความสำเร็จของกลุ่มประท้วงบางกลุ่ม ทั้งที่ได้มาซึ่งการชุมนุมโดยสันติ หรือโดยใช้ความรุนแรง บทความนี้ได้แสดงให้เห็นถึงบทบาทอันสำคัญของ public sympathy ที่มีต่อการตัดสินใจของกลุ่มผู้ประท้วงในการเลือกที่จะประท้วงโดยสันติวิธี หรือใช้ความรุนแรง ในบทความนี้ทฤษฎีเกมได้นำมาใช้ในการพิจารณา การดำเนินการของรัฐบาลต่อกลุ่มผู้ประท้วง และการตอบโต้กลับของกลุ่มผู้ประท้วง ยิ่งไปกว่านั้นทฤษฎีเกมได้แสดงให้เห็นว่าการประท้วงโดยสันติจะเกิดขึ้นเมื่อ public sympathy อยู่ในระดับสูง และรัฐบาลจะหลีกเลี่ยงการใช้การสลายการชุมนุมอย่างรุนแรงในกรณีนี้ แต่เมื่อในกรณีของ public sympathy อยู่ในระดับต่ำ ยุทธวิธีของทั้งสองฝ่ายจะถูกดำเนินการในทิศทางตรงกันข้าม

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Abstract

Social protest is an important means for a political minority to achieve a greater role in the decision making of a country. History has shown that effective protests result in varied outcomes, with some being peaceful and others violent. This paper considers the role that public sympathy for a protest movement has in explaining why these demonstrations are peaceful or violent events. A game model is constructed that considers how a government responds to a demonstration and the subsequent response by protestors. Peaceful demonstrations by protestors are more likely when the public sympathy for the protest movement is high. The government strategically avoids creating martyrs of the protestors by avoiding the use of harsh policing tactics against the protestors. These results work in reverse when public sympathy for the protest movement is low.

Keywords: Public Sympathy, Perfect Bayesian Equilibrium

1. Introduction

Social protest is a prominent tool used by political minorities to achieve a greater role in the collective decision making of a country. Numerous examples exist of social protest carried out as a means to acquire greater political leverage, ranging from the American civil rights movement in the 1960s to the Tiananmen Square demonstrations of 1989 in Beijing to the recent protests by the so-called 'redshirts' against the current Thai government

in Bangkok. With the recent advancements in communication technology, citizens around the world can observe these protests unfold in virtually real-time and often in graphic detail. The occurrence of these protests on the international stage creates an important dynamic between the demonstrators and the existing political establishment since success for both entities can be defined, at least in part, by the amount of public sympathy garnered.

Acquiring public sympathy is not, of course, the only way protestors can achieve success. In some instances, social protests become violent, as evidenced, for example, by the anti-globalization demonstration at the Seattle World Trade Organization conference in 1999. In what would subsequently be known as the "Battle in Seattle", this protest escalated into a full-scale riot and was countered by a declaration of a state of emergency and an activation of the national guard. Thus why do some protests remain peaceful while others devolve into rioting and violence? It is this fundamental question that this paper considers from a game model perspective. This paper models the decision to protest peacefully or violently as a complex dynamic between how the protestors believe the government will respond to the demonstration. Public support plays a crucial role in determining the payoffs to the government and protestors where the use of heavy-handed tactics against a non-violent opponent will result in greater sympathy for the opponent. The paper proceeds as follows: section 2 reviews related literature; a perfect Bayesian equilibrium model is constructed in section 3; section 4 identifies key constraints with the equilibrium conditions of the model and provides comparative statics; and section 5 concludes.

2. The literature

Much of the literature concerning social protests has focused on an individual's decision to participate in the demonstration. Viewing the act of protesting as an effort to gain greater political clout, Lewis-Beck and Lockerbie (1989) apply a voter-turnout model to investigate the determinants of why citizens of Britain, France, Germany, and Italy decide to protest. Among the significant determinants making a protest more likely include a more youthful person in age, expectations of a downturn in the economy, and greater political discussion. The decision to participate in a demonstration can also be viewed as a free-rider problem since a successful demonstration can yield benefits to everyone regardless of whether an individual participated in the protest (Kuran, 1989). These free-riding individuals lessen the probability that others will decide to incur the costs of demonstrating and thus the protest is less likely to occur. Karklins and Petersen (1993) consider how and why people rebel against highly repressive regimes using an assurance game which specifies higher levels of utility accruing to an individual deciding to join a protest as the existing size of the demonstration increases. The safety in numbers and minimization of the free-riding problem involved with large protest movements lead to a snowballing effect such that the movement continues and prospers. Karklins and Petersen also find that actual punishment by a government against protestors, as opposed to the threat of punishment, can help unite public sympathy behind the protestors.

On a theme more related to this paper, Buenrostro et al. (2006) consider a reputation game where the success of a protest movement depends on how the government responds. The government's reputation is

built by the government's ability to successfully deter protestors. The authors are interested in building a model to explain "protest contagion" that spreads across countries. Specifically, their model has potential protesters in a domestic jurisdiction competing in a common market with protestors of a foreign jurisdiction, resulting in a situation where domestic governments care about the decisions of foreign governments. This model is then used to examine the fuel-tax protests in France and England during 2000 as well as the three successive pro-democracy revolutions in Georgia, Ukraine, and Kyrgyzstan in 2003-05.

3. The Model

The focus of this paper is considering why some social protests are peaceful and others violent. To analyze this decision, a dynamic game involving the beliefs of protestors about the government response is constructed such that all players behave rationally in a sequential manner. The game tree shown in Figure 1 below is described as follows:

1. Protestors (P) will protest and the government (G) must decide whether or not to use police force against P.

2. P is unaware of G's decision to use force but believes force will be used with probability.

3. P must make a decision to keep the protest peaceful or not peaceful after which the payoffs are realized and the game ends.

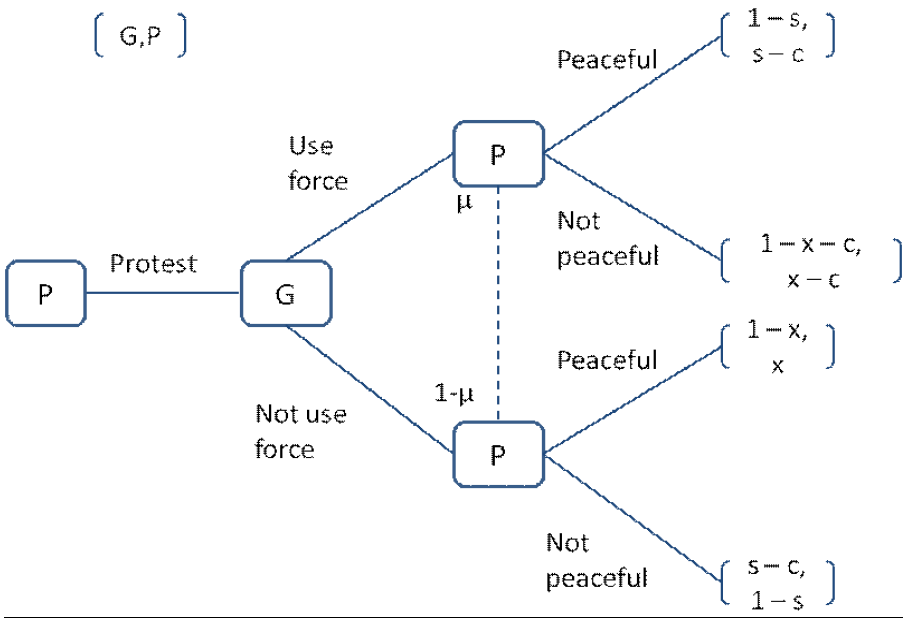

Figure 1: Game Tree

The payoffs for the game are as follows:

1. Government force against a peaceful protest results in P gaining world sympathy (s) but incurring a fighting cost (c). P's gained sympathy comes at G's expense, thus G's payoff is (1-s).

2. Government force against a violent protest results in both P and G incurring a fighting cost (c). Additionally, P is likely to win amount x and G win amount (1-x) in the "battle of the wills".

3. No government force combined with a peaceful protest results in P winning amount x and G winning amount (1-x) in the "battle of the wills".

4. No government force combines with a violent protest results in G gaining world sympathy (s) but incurring a fighting cost (c). G's gained sympathy comes at P's expense, thus P's payoff is (1-s).

Note that all payoff variables (s, x, and c) are normalized such that they lie between zero and 1: $\{s,x,c\} \in (0,1)$. To begin the analysis, I first find the expected payoff, $E(U)$, for the protestors (P) conditional on their choice to protest peacefully and on their choice not to protest peacefully:

$$E(U^P)\Big|_{\text{Peace}} = \mu(s-c) + (1-\mu)x \text{ and}$$

$$E(U^P)\Big|_{\text{Not Peace}} = \mu(x-c) + (1-\mu)(1-s).$$

If the expected payoff from a peaceful demonstration is greater than a non-peaceful demonstration, protestors (P) will choose the former option and the following condition must hold:

$$\mu \geq \frac{1-s-x}{1-2x} = \Psi \qquad (1)$$

Now considered are the choices faced by the government (G). If P chooses to protest peacefully (and $\mu \geq \Psi$), then G will use force only if the payoff is greater than not using force, which implies the following condition: $x \geq s$. On the other hand, P can choose to protest violently (and $\mu \leq \Psi$) and G will use force, again, if the payoff is greater than not using force: $1-s \geq x$. Lastly, P may be indifferent to what type of protest it undertakes (and $\mu = \Psi$); in this case, G must also be indifferent to using force. Let ρ

be defined as the probability P chooses to demonstrate peacefully, thus G's expected payoff when it chooses to use force must equal its expected payoff when it opts for restraint:

$$E(U^G)\Big|_{\text{Force}} = E(U^G)\Big|_{\text{Restraint}} \Rightarrow \rho = \frac{s + x - 1}{2x - 1}.$$

Perfect Bayesian Equilibria (PBE) conditions can now be obtained given the preceding analysis. First, supposeing $\mu \geq \Psi$ in which case P chooses to protest peacefully. If $x \geq s$ then G will use force with probability 1 and P will update its beliefs about G such that $\mu = 1$ and choose to protest peacefully if and only if $s \geq x$ which is inconsistent with the original premise and thus a PBE does not exist. On the other hand, if $x \leq s$ then G will not use force with probability 1 and P will update its beliefs about G such that $\mu = 0$ and choose to protest peacefully if $x \geq 1 - s$ and a PBE exists. Lastly, if $x = s$ then G is indifferent between using force and not using force, and will choose force with probability r. P will then choose to demonstrate peacefully if its expected utility from choosing peace conditional on the r probability that G uses force is greater than the expected utility P gains from not protesting peacefully conditional on the (1-r) probability that G does not use force. In this manner, it can be shown that if $r \geq \frac{1 - s - x}{1 - 2x} = \Psi$, then a PBE may exist. However, since $x = s$ it must be the case that $r \geq 1 = \Psi$ which is impossible and therefore a PBE in this instance fails.

Now supposing $\mu \leq \Psi$ in which case P chooses to not protest peacefully. If $1 - s \geq x$ then G will use force with probability 1 and P will update its beliefs about G such that $\mu = 1$ and choose to protest non-peacefully when $x \geq s$ and a PBE exists. Alternatively, if $1 - s \leq x$ then G will not use force with probability 1 and P will update its beliefs about G such that $\mu = 0$ and choose to demonstrate

violently if $1-s \geq x$ which violates the original condition for the government to avoid using force and therefore cannot be a PBE. Lastly, if $1-s = x$ then G chooses to use force with probability r, upon which P will demonstrate violently when $r \leq \frac{1-s-x}{1-2x} = \Psi$. However, since $x = 1-s$ then it must be the case that $r \leq 0 = \Psi$ which is impossible and therefore a PBE does not exist

The final possibility to consider is if $\mu = \Psi$ which indicates that P is indifferent to protesting in a peaceful or violent manner. In order for this to be a PBE, G must also be indifferent to using force or not using force which requires the following condition to hold: $\rho = \frac{s+x-1}{2x-1}$. In such a scenario, P demonstrates peacefully with probability ρ and demonstrates non-peacefully with probability 1-ρ; G uses force with probability Ψ and uses no force with probability $1-\Psi$. Table 1 provides a succinct listing and description of the three possible PBE obtained from the model.

Table 1: Perfect Bayesian Equilibria

No.	PBE Conditions	Constraints	Description
1	$\mu = \psi$, and $_{1\text{-}S} \leq X \leq S$	x < 0.5	P protests peacefully and G does not use force.
2	$\mu = \psi$, and $S \leq X \leq _{1\text{-}S}$	x > 0.5	P protests violently and G uses force.
3	$\mu = \psi$, and $\rho = (s + x - 1) / (2x - 2s - 1)$	--	P protests peacefully with probability ρ and violently with probability 1 - ρ; G uses force with probability ψ and uses no force with probability 1 - ψ.
Note: $\psi = (1 - s - x) / (1 - 2x)$			

4. Analysis

The PBE conditions provided in Table 1 show an interesting relationship between the variables x and s. Variable x is the amount which arises when P and G match tactics (i.e. a violent protest occurs with government's use of force or a peaceful protest occurs with government restraint). On the other hand, variable s is the public sympathy that accrues to the "loser" which arises when tactics by P and G do not match (i.e. a peaceful protest met with government force or a violent demonstration with police restraint). Considering first the PBE (1) in Table 1, the fact that $s+x \geq 1$ implies the numerator of ψ is always negative and is always smaller than the denominator in absolute value. When $x < 0.5$, ψ is negative and therefore PBE (1) holds trivially. Alternatively, when $x > 0.5$, ψ is necessarily greater than one and thus PBE (1) will not hold since μ cannot exceed 1. PBE (2) shares a symmetrical relationship with PBE (1), and thus it is not surprising that $s + x \leq 1$ implies that the numerator of ψ is positive and is always larger than the denominator in absolute value. Thus when $x < 0.5$, ψ is necessarily larger than 1 and PBE (2) cannot hold since μ cannot exceed 1. Yet if $x > 0.5$, then ψ becomes negative and PBE (2) holds trivially.

The constraint obtained for PBE (1) is interesting because it requires the benefit to P from protesting violently be less than the benefit obtained by G by using force (which is intuitively consistent with P's belief that G will use force, $\mu \geq \psi$). However, G is disinclined to use force because the amount of public sympathy accrued to P by appearing as a victim is sufficiently large (i.e., $x \leq s$). Under these conditions, public sympathy acts as a stabilizing force against police brutality even though the government

has the ability to dominate the protestors in the event of a violent confrontation. The precise opposite holds true for PBE (2). Here, the public is relatively uninvolved on both sides of the demonstration (i.e., $s \leq x$) thus the payoff to either G or P from appearing as a victim when the opponent uses aggression is relatively small. Consistent with this point is that the government has an incentive to use force since its payoff from using force against a violent protest exceeds its payoff from appearing as a non-aggressor against a violent protest (i.e. $x \leq 1 - s$). Similarly, protestors have an incentive to engage G in a "battle of the wills" since they benefit relatively more (i.e., $x > 0.5$).

Comparative static analysis of the equilibrium conditions and constraints in Table 1 suggests several interesting dynamics. First, the effect on Ψ from an increase in P's payoff from matching tactics with G is negative : $\frac{\partial \Psi}{\partial x} = \frac{-1}{1-4x-4x^2} < 0$. This makes it easier for PBE (1) to hold so far as P's payoff from choosing peace exceeds its payoff from demonstrating violently (i.e., $\mu \geq \Psi$). The opposite is true for PBE (2). Here, $\frac{\partial \Psi}{\partial x} < 0$ implies that it is more difficult to satisfy P's expected payoff from choosing violence over peace (i.e.,$\mu \leq \Psi$). Secondly, PBE (1) requires $x < 0.5$, and thus an increase in public sympathy negatively impacts Ψ and makes $\mu \geq \Psi$ less binding: $\left.\frac{\partial \Psi}{\partial s}\right|_{x<0.5} = \frac{-1}{1-2x} < 0$. Similarly, PBE (2) requires $x > 0.5$, and thus an increase in public sympathy positively impacts Ψ and makes $\mu \leq \Psi$ less binding: $\left.\frac{\partial \Psi}{\partial s}\right|_{x>0.5} = \frac{-1}{1-2x} > 0$. Perhaps the most

important finding here is that the variables s and x cannot change indefinitely in equilibrium since each is constrained by the other. The peaceful demonstration and non-aggressive government response in PBE (1) requires $1 - s \leq x \leq s$, thus higher values of public sympathy and moderate values of x makes this equilibrium more likely to hold. Conversely, the violent protests and the government's use of force in its response in PBE (2) requires $s \leq x \leq 1 - s$, and thus lower values of public sympathy and moderate values of x make this equilibrium more likely to hold.

5. Conclusion

Social protests function as an important tool for political minorities to gain greater clout in the policy making of the country. Social protests typically have as their opponent the political establishment, and sometimes devolve into riots and other forms of violent demonstrations. Yet this is not always the case. Many historical examples of peaceful protests exist, regardless of whether or not the government employs aggressive actions to suppress demonstrations. The fundamental question this paper has sought to address is why some social protests are peaceful while others become violent. The existing literature on this topic is scant, with most researchers focusing on why protests occur or do not occur.

The key insight obtained in this paper concerns the degree of public sympathies involved in the protest movement. Both protestors and the government have a strategic option to appear as innocent victims and obtain sympathy in the face of aggression by the opponent. When the

public has a high degree of sympathy, protestors are most likely to engage in peaceful demonstrations since they obtain these sympathy points if in fact the government uses force and also because it makes it easier for the relative power that protestors have over the government to be binding (and credible) when the latter matches tactics. Yet when public sympathy for the protest movement is low (and by construction, sympathy for the government is high), the government is more likely to use force and protestors are more likely to engage in violent demonstrations.

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