The Effect of Opportunity Cost and Pacifism on Protests in Occupied Regions

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Abstract

This paper examines how the opportunity costs of the leaders of a national protest movement, and the intrinsic hawkishness or pacifism of the occupier, affect the nature of the movement against occupation. A two-stage game is modeled, in which a protest leader and an external occupier fight over the control of the population of an occupied region. The protest leader can actively convert the populace to protest. On the other hand, the occupier chooses how much to punish the protest leader and other protestors for their actions. The findings of this paper indicate that under certain circumstances leaders who have a greater opportunity cost of leading protests may be more active, compared to leaders with lower opportunity costs. Further, the former may be able to lead a movement with more mass support. This paper also characterizes equilibria, among others, where a more hawkish occupier can actually de-escalate the conflict with the protestors. The characteristics of the population residing in the occupied region, the nature of punishment that is being meted out to the protestors, and the structure of enforcement costs that lead to these outcomes, are discussed in the paper.

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1 Introduction

1.1 Aims and objectives

The aim of this paper is to analyze how the nature of a national protest or liberation movement, against external occupation, might be affected by the nature of decision-makers on both sides of the conflict. On one side of the conflict, there are the protest leaders leading the protest movement against occupation. On the other side, there are the leaders of the occupying force (maybe a government or a prime decision-maker). This paper is motivated by two seemingly counter-intuitive outcomes that have been known to occur historically, namely: (i) a protest leader whose opportunity cost may be very high, but he or she still very actively leads a powerful protest movement; (ii) an occupier whose intrinsic level of aggression is very high, but he or she still faces a strong protest. Based on these two observations, two corresponding questions are studied in this paper. First, how is the nature of a protest movement affected by the opportunity costs of the protest leaders who lead these movements? Second, how is the nature of the protest movement affected by the degree of

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hawkishness of the leaders of occupiers? In order to simplify the analysis, I will henceforth assume that the protest movement is led by a representative leader, known as the "protest leader". On the other hand, I assume the occupying force is lead by a central authority, henceforth known as the "occupier".

Before proceeding further, let me clarify what I mean by the phrase "nature of a protest movement". In the model analyzed in this paper, the nature of a protest movement (or uprising) is described by: (i). The level of activity by the protest leader; and (ii). The level of mass participation by the population of the occupied region. In this context, when I mention the "level of activity by the protest leader", I am not asserting that the protest leader undertakes any specific kind of activity. His activity, which I have tried to broadly capture in this model, may include a certain combination (in various degrees) of propaganda, holding rallies or marches, non-cooperation, direct attacks, and other acts seen in revolts - which are used to inspire the public to join the movement. The simplifying assumptions in this regard will be made clear in my model.

What is the motivation behind the first question related to opportunity costs? Opportunity costs of protest leaders include both economic and non-economic cost components like financial, professional, psychological, moral, familial and social costs. Given the different social, economic, professional and political backgrounds of protest leaders in history, their opportunity costs for leading protest movements, have been different. This is observed by studying the contrasting leadership elements in the Indian Freedom Struggle, the Irish Republican Movement, the Israel-Palestinian Conflict, the Kashmir Separatist Movement, and numerous others. For example, in the case of the Indian Independence Struggle, the moral values of Gandhi and the socioeconomic background of Nehru (hence their opportunity costs of protest) were quite different from those of the previous leaders of the Congress Party.[1] Yet they were able to lead a more successful independence struggle, with greater mass-support, compared to the latter. Historical facts like these lead us to the first question. As will be seen from the model, it is possible for leaders with greater opportunity cost to be more active and lead protests with more mass-support. Possibilities for such a seemingly counter-intuitive outcome may arise in a multi-agent game because the leaders' strategy may depend not only on their opportunity cost, but also on the strategy of the occupier. One of the contributions of this paper lies in identifying the specifics of the environment that make this outcome possible. It is identified how certain factors, like the intrinsic population characteristics of the occupied area, the nature of the punishment inflicted on the protest leaders, and enforcement costs, contribute to these outcomes.

The second question, related to the degree of pacifism of the occupier, is driven by the fact that in many real world conflicts, the command of occupying forces has been transferred between governments that have different attitudes towards the protestors. For example, the Labor governments in Israel have generally been more pacifist compared to Likud governments in dealing with Palestinian uprisings. In this paper I have

[1] I discuss this matter extensively, later in the paper.

characterized, among others, equilibria where having a more hawkish occupier may lead to a de-escalation of the protest. As before, I have identified the primitives (including the population characteristics and the nature of punishment) that give rise to these equilibria.

1.2 Background

In order to study the questions raised in this paper, I have modeled a two-stage game, in which a protest leader and the external occupier fight over the control of the population mass of the occupied region, with the occupier having a first-mover advantage and the protest leader moving in the second stage of the game. This game is described in Section 2. [2] Important contributions in this area include Grossman's (1991) model of insurrections and his study of kleptocracy and revolution (1991). Roemer's (1985) article, in which he rationalizes revolutionary ideology as a strategic device of the revolutionary leaders (rather than any intrinsic pre-commitment on their part), is also significant. Kuran (1989) identifies that preference falsification by the masses might be a reason why some of the major revolutions in history seem to be sudden occurrences, without prior warnings of social discontent. Esteban & Ray (1999) discuss the links between the level and pattern of social conflict and the level of polarization in society.

In a notable contribution, Sandler and Siqueira (2007) study the role of deterrence versus preemption in the fight against global terrorism. The authors develop a model of counter-terrorism operations by targeted nations when a nation's property and people can fall victim to terrorists both at home and abroad. Counter-terrorist operations can be deterrent or preemptive in nature. For the purposes of my paper, Sandler and Siqueira's analysis of the counter-terrorism operations of countries, using Stackelberg type leader-follower behavior, is of much comparative interest, given the similarity in analytical techniques. The authors use the notions of strategic complementarity and substitutability between the actions of targeted nations, to study the efficiency implications of their strategies. They conclude that such behavior lessens inefficiency for deterrence but worsen inefficiency for preemption. My paper also utilizes the notions of strategic complementarity and substitutability to characterize important results. The effectiveness of such characterization has been demonstrated by Sandler and Siqueira's paper, and in my case facilitates intuitive understanding of the results, and employment of useful diagrammatic tools. A feature of Sandler and Sequeira's paper is that the countries fighting terrorism (the players in their model) have symmetric payoff functions. However, as will be seen later, the players in my model are "non-symmetric" with respect to their utility functions. Further, they vie for the control of an occupied region, making their goals much more at odds with one another, than the players in Sandler and Siqueira's model (where the nations stand to gain, at least to a certain extent, from the decisions of other nations). In particular, the interesting comparison of the efficiency implications

[2] Other authors have also used sequential games to study various aspects of conflict, protest, revolution and repression. For surveys of this literature see Hartley and Sandler (1995), Garfinkel and Skaperdas (1996), Sandler and Hartley (2004).

of simultaneous-move versus leader-follower type games, made by Sandler and Siqueira are not present in my paper for two reasons: (i). The non-symmetry of the players makes such a comparison difficult; and (ii). The concept of efficiency is more readily defined (and more relevant) in the context of provision of global security against terrorism, than in the context of protests in disputed regions.[3]

Recent contributions by Chang, Potter, and Sanders (2007a & b) and Chang and Sanders (2009) have analyzed conflict in disputed territories, particularly with regard to the scope of third-party intervention in reducing conflict, along the lines of earlier work by Siqueira (2003). The first two contributions have very interesting implications for the peaceful outcomes of territorial disputes (depending on the destructiveness of the conflict process), and the interplay of third-party "intervention technology" with "conflict technology". The main difference between these papers and the current paper lies in the fact that the environment laid out in them, in my opinion, is best suited to analyze conflict between nation-states or principalities involved in war over disputed territories (as the authors identify, in their examples of the India-Pakistan inter-state dispute and the Bosnian conflict). The environment laid out in the current paper, however, seems more suitable for examining conflicts in disputed or occupied territories when the source of conflict lies from within - i.e. when there is a self-determination movement comprising of the populace of the disputed territory facing up to the occupier. The last paper, Chang and Sanders (2009), is even more interesting in the context of this current paper, as it seeks to explore the conditions under which an outside party optimally intervenes in a conflict in a disputed region, such that the strength of the rebel group is diminished or the rebellion is deterred altogether. My paper will present an alternate policy option to interventionist third-parties - that of making the cost of suppressing the rebellion greater for the occupier, particularly when the self-determination movement is led by moderate leaders.

The above literature recognizes the importance of leadership in the revolutionary process. However, to the best of my knowledge, these contributions have not adequately studied the impact of opportunity costs of revolutionary leaders on the conflict process.[4] Thus, one of the contributions of this paper lies in the incorporation of opportunity costs (where such costs might even be non-pecuniary or non-economic in nature). Further, how conflict processes have been influenced by the degree of hawkishness of the occupier, is also an

[3] Other than the actions of nations combating terrorism, there have also been studies of the efficient provisioning of global security to combat other common threats. For example, Gupta (2010) studies the efficient provisioning of global security to combat threats from rogue nations.

[4] Though some (Grossman, 1991 & 1999, and Hirshleifer, 2000, among others) have recognized that the presence of competing "productive activities" would impact the participation of the masses ("peasant or worker families" in Grossman's papers) in revolutionary activities. The focus of Grossman's papers, however, is to model the behavior of the masses in the revolutionary process - and not the behavior of revolutionary leaders. Further, it is interesting to note that Grossman does not explicitly include the role of punishment in his model of insurrection - an aspect included in this paper. Roemer (1985) does incorporate punishment in his model of revolution (as part of which he models the decision process of revolutionary leaders), but disregards the presence of competing productive opportunities for the revolutionaries. Hirshleifer (2000) models conflict between rival rulers in his study of conflict technology, but ignores the behavior of the rulers' subjects. Further, Hirschliefer's model does not incorporate the notion of punishment, as it primarily analyzes conflict in the context of territorial conquest and expansion.

issue that has not received due attention in the literature. Yet, as seen in the earlier discussion of historical facts, these factors are present and pertinent in most anti-occupation struggles. A clear understanding of the impact of these factors is crucial to the understanding of such conflicts. The current paper seeks to fill this gap in the literature. As already mentioned, I will demonstrate that the answers to the two questions analyzed in this paper depend a great deal on certain underlying population characteristics, and the nature of punishment that is being inflicted. To the best of my knowledge, this paper is unique in demonstrating the connection between these fundamental population characteristics, the intrinsic nature of punishment, the opportunity cost of protest leaders, and the pacifism of the occupier - in determining the nature of a protest movement.

In order to correctly place this paper in the conflict literature, it is important to distinguish protests in occupied regions[5] from other forms of conflict, most notably terrorism, and to a lesser extent, guerilla warfare. If terrorist methods and guerilla warfare are considered as tactics of conflict, I will discuss how protest leaders may use both of them, under certain circumstances. However, there are many options other than terrorism and guerilla warfare (including non-violent options) that are available to protest leaders. More to the point, in my model I analyze the intensity of "actions" of the protest leaders in winning over the populace of the occupied territory to their cause. I make no predictions about the exact tactic that will be chosen. While terrorist actions and successful guerilla warfare against the occupier might both inspire the population to join the cause, other tactics might also lead to successful (perhaps more successful) mass movements.

As a tactic, terrorism threatens a target group not directly involved in the political decision-making process. However, if a government fails to protect its constituents, its legitimacy is threatened (see Sandler and Hartley (1995)). Kirk (1983) distinguishes terrorism from revolution in the fact that *the immediate objective of terrorist acts is one of intimidation rather than the overthrow of the existing government.* Going by Kirk's definition, it is easy to see the difference between terrorism and insurgency in occupied regions. However, in light of the fact that terrorism has been used by the Hamas against Israeli targets in the Israeli-Palestinian conflict, and the Liberation Tigers of Tamils Elam in Sri Lanka, among others, a discussion on the topic is warranted in the context of protests in occupied regions. First, terrorist attacks by protest leaders carried out on the civilian populace within the occupied territory would have a limited impact on the occupying government, and might be used only as an ultimate attention-grabbing tool, or to terrorize the indigenous population into switch allegiance to the protest movement (though it might, as readily, drive popular sentiment away from the protest movement).[6] Second, terrorist attacks on the soil of the occupier's

[5] This protest might take various forms of expression, both violent and non-violent in nature.

[6] The Irish Republican Army has on occasion carried out assassinations of Irish nationals suspected of collaborating with British, as examples to the rest of the population.

country (transnational terrorism)[7] will perhaps make as a bold statement to the indigenous populace that the leaders seek to convert.[8] Finally, terrorist attacks against the occupier's assets might have a motivational impact (over and above the direct damage, of course).[9] However, it must be stressed that while terrorism might indeed be one of the tactics ultimately chosen by protest leaders in occupied regions, it will be only one among a host of tactics under consideration at the outset. The protest leaders in my model are not terrorists to begin with, especially as they may have intrinsic moral "opportunity costs" of violent behavior, but may be forced to adopt such tactics in the face of repression. In any case, my model does not make predictions on the exact tactics of the protest leadership, but only on the intensity of whichever tactic they choose. While under certain circumstances it might be possible to hypothesize that those tactics might be violent, or even terrorist in nature, there is a huge difference in a terrorist's choice of how to go about his attacks, and a protest leader's choice of the best method to achieve the goal of freedom.[10] Particularly, from a terrorism viewpoint, support by the population mass of the contested territory is not a matter under consideration - however, for someone leading an independence movement, it is a significant point. Hence, the choice of a tactic that might alienate the mass base must surely rank among less desirable options.

Guerilla tactics involving armed attacks on the occupier's bases and partial takeovers of territory, may also be used by the leader of a protest movement. A protest leader may indeed use guerilla tactics, if he were to choose a violent method of protest. However, as the reader might have already guessed, these tactics will be only one among a host of violent and non-violent tactics originally considered by the protest leader, while making his choice. As mentioned before, my model does not make predictions on the tactics of the protest leadership, but only on the intensity of the chosen tactic (though I will have more to say on this later).

The structure of the paper is as follows. Section 2 analyzes protest and its control as a two-player game between the occupier and protest leader. Section 3 analyzes how the nature of a protest movement is affected by the opportunity costs of the protest leader and the hawkishness of the occupier. Section 4 discusses the results of the paper and policy implications. Section 5 concludes the paper.

2 Protest and its Control as a Two Player Game

2.1 Players, decision variables, and the payoff structure

There are two players, the protest leader and the occupier. The decision variables of these players are an 'activity level' and 'permissiveness level' respectively. Let a and c denote these respective decision variables.

[7] The terror bombing of targets within Israel by Hamas militants provide an example of this tactic.

[8] Chalmers and Shelton (1975) suggest that a government's repression of non-violent acts would ceteris paribus lower the price of violent acts, and lead to more of the latter.

[9] This might actually be part of guerilla tactics discussed below.

[10] Kirk's (1983) analysis of the terrorists' choosing between non-violent and violent methods as cost-effective means of maximizing net gains from rent-seeking, is somewhat similar in this regard. However, in my model, the inclusion of opportunity costs of violent behavior makes the protest leaders intrinsically shy of terrorist methods.

Let $a \in [0,1] \equiv A$, and $c \in [0,1] \equiv A'$, with the respective end values being the least and the highest possible level in either case. The objective of both players is to maximize their own payoff arising from the revenues and costs that will arise due to their own action and that of their opponent. I will discuss below how such revenues and costs are generated. An environment of perfect information and common knowledge is assumed throughout the paper.

The protest leader and the occupier are the key players in the model. There is also a fixed population mass residing in this region. A certain percentage of the total population mass gets converted to protest, depending on the players' strategies.[11]

Let f denote the 'conversion function', which maps every pair (a, c) to a population percentage in the interval $[0, 100]$.[12]

$f : A \times A' \longrightarrow [0, 100]$

The function f is assumed to have the following properties:

A1. Conversion Effect of Activity: f is strictly increasing and concave in a, i.e., $f_a > 0, f_{aa} < 0$.

A2. Conversion Effect of Permissiveness: f is strictly increasing and convex in c, i.e., $f_c > 0, f_{cc} > 0$.

The first assumption states that the decision of a greater level of protest activity by the leader converts a greater percentage of the population to protest.[13] More activity by the leader might persuade more people to join his cause.[14] For the sake of simplicity, it is useful to think of a as the intensity of the "messages" from the protest leader, conveyed through various "activities or actions" (remaining agnostic about the nature of such activities for modeling purposes). It is assumed that there are decreasing marginal returns to a with respect to conversion. In other words, the conversion function behaves like a usual production function, as far as input a is concerned.

The second assumption states that if the occupier is more permissive, for a given decision level of activity by the protest leader, then the population mass takes advantage of that fact and converts to protest in greater numbers. It may be reasonably argued that there are increasing marginal returns to conversion with regard to the level of permissiveness of the occupier.

Note that the nature of the conversion function gives information regarding the nature of the population of

[11] In what follows we ignore the free-rider problem associated with collective action. In reality, such problems have been overcome in many historical contexts. We refer the reader to Sandler (1992), for a survey of various means by which the collective action problem has been overcome in numerous situations.

[12] This function bears resemblance to the 'contest success functions' used by Skaperdas (1996), and Hirshleifer (2000). It is to be noted, though, that contest success functions are essentially probability functions, denoting the chance of success in contests.

[13] It may be assumed that the leader asks the converted mass to engage in a certain given level or kind of protest activity.

[14] There is another way in which assumption A1 may be justified. Under certain situations, a leader with a higher decision level of activity might be able to coerce a greater percentage of the population to side with him, especially if that activity is violent in nature. In that case, the populace might be more fearful of her than a leader with a lower decision level (of violence). In such a scenario, though the population may not itself be indulging in protest activities, they would be lending 'tacit' support out of fear to the violence undertaken by the leader. This situation is in fact akin to the situation in Kashmir during 2002, where militants coerced the population by indulging in violent activities, both against the population and the controlling forces. This created an atmosphere of terror under which the population was fearful of participating in democratic activities. This fact of non-participation was then used by the militant organizations in international fora to gain political mileage.

the occupied region. For example, how susceptible is the population to revolutionary propaganda? This can be measured, for specified functional forms, by the elasticity of the conversion function with respect to a. How would the population react to a lessening of controls by the occupier? It is possible to measure this by the elasticity of the conversion function with respect to c, for specified functional forms.

Depending on the percentage of the population converted to protest, a certain amount of revenue (political gains for example) R accrues to the protest leader and R^0 to the occupier. For the protest leader, it is assumed this revenue is a linear function of $f, R = \omega f$. The occupier's revenue level R^0 depends on the percentage of the population not converted to protest and is $R^0 = \rho(100 - f)$, where $\rho > 0$.

I will now describe the players' costs. These costs from their own action and that of their opponent. There is a 'punishment function' p which maps every pair (a, c) to a punishment level $P \in [0, \infty)$.The function p describes the technology of punishment. Punishment is a cost for the protest leader and is administered by the occupier.

$p : A \times A' \longrightarrow [0, \infty)$

Let $P = \phi p(a, c)$ where ϕ is a scaling parameter. So, punishment P is a monotonic transformation of p.

The function p is assumed to reflect the following properties:

A3. Punishment Effect of Activity: p is strictly increasing and convex in a, i.e., $p_a > 0, p_{aa} > 0$.

A4. Punishment Effect of Permissiveness : p is strictly decreasing and convex in c, i.e., $p_c < 0, p_{cc} > 0$.

It is assumed that given a level of permissiveness, punishment increases for an increase in activity. Also, the punishment schedule p is such that the marginal rate of punishment increases with the level of activity.

The assumption of *punishment effect of permissiveness* is based on the logic that any credible punishment level should depend not only on the level of activity of the protest leadership, but also on the occupier's action. This assumption requires that for any level of activity by the protest leader the punishment delivered is more, if the occupier was less permissive. Now, what is measured by the permissiveness parameter c? Parameter c measures (or signals) the level of control of the occupied territory by the occupier, and may be approximated by military or police provision by the controller.[15] A larger military or police presence would lead to less permissiveness, or a lower c in our model. Further, we assume that punishment decreases at an increasing rate for greater permissiveness.[16]

[15] To deliver a certain level of punishment (for a given activity level) there needs to be an appropriate force to apprehend the protestors. In other words, the level of policing is very important - the size of the police and military, their equipage, and proper deployment is essential in apprehending the protestors. These combined features are captured in the variable c, the level of permissiveness.

[16] To the best of my knowledge, the use of "permissiveness" as a decison variable by the controller, is a novel aspect of my model. Models of conflict usually have warring parties choose an amount of offensive effort or force with which to combat their enemies. Though the choice of force and the choice of permissiveness might be two sides of the same coin, my choice of the decision variable of the controller is driven by the particular situation studied in this paper - namely protests in occupied territories. A survey of history shows foreign occupation to almost always start with the presence of a devastating level of force on part of the occupier, which makes the occupied territory into a garrison state. As time goes by, the occupier decides to "let up" to a certain extent. Protests against the occupier are often embarked upon, depending on this "tolerance" of the occupier.

Examining the punishment function, the level of actual punishment that might be credibly meted out would depend on the actions of both the players. The punishment function recognizes that the activities of both the concerned parties need to be taken into account, since actual punishment would not only depend on protest activity, but also on the level of policing. For further discussions on desirable features of 'punishment technology' see Becker (1968) and Mookherjee & Png (1994). We note that the punishment function gives information regarding the characteristics of the punishment being delivered by the occupier. For example, are successive increases in punishment very harsh for increases in protest activity (which may be measured by the elasticity of the conversion function with respect to a)? If the occupier reduces the size of its army, is its ability to punish greatly diminished (which may be measured by the elasticity of the conversion function with respect to c)? I also assume that $p(0, c) > 0$, for any c < 1. That is, without any level of activity, the occupation itself is a cost to the protest leader. This is a property that distinguishes terror and guerilla warfare from insurgency. Moreover, in what follows, this will also imply that the occupying force is a cost to the occupier regardless of whether any action takes place or not. The implication of this is that the equilibrium level of activity by the protest leaders will always be positive, unless punishment levels were suitably extreme at the first sign of dissent and the general populace are sufficiently non-responsive to the activities of the protest leaders. Realistically speaking, there is a low chance of a corner solution arising in the theoretical model presented below.

Lastly, there are no special restrictions on the cross-partials of the conversion and punishment functions, or $f_{ac} \gtreqless 0$ and $p_{ac} \gtreqless 0$. These assumptions regarding the conversion and punishment functions mean that as permissiveness increases, the marginal effect of activity by the leadership on conversion and punishment may either increase or decrease. Thus, more permissiveness might or might not increase the receptiveness of the population to the activities of the protest leader. Similarly, as more permissive environment might mean that punishment is less for protest activities in absolute terms, but the marginal increase for more activity might not necessarily be lower.

I will now discuss a very important feature of the model. There is a 'opportunity cost' C of activity by the protest leader, in addition to the punishment cost mentioned earlier. There is a function which maps every $a \in [0, 1]$ to a opportunity cost space C, or $C = \psi g(a)$ where ψ is a finite positive scalar. Opportunity costs are increasing and convex in the level of activity, i.e. $g_a > 0, g_{aa} > 0$. The incorporation of this opportunity cost distinguishes our model from those of previous authors. One of the main contributions of this paper is to analyze the effect of this opportunity cost on the nature of the protest movement, so I will discuss the source of these costs in some detail. These costs may be divided into: (i). Psychological or moral costs; (ii). Economic and professional costs; (iii). Social costs; and (iv). Networking costs.

This paper tries to capture this unique aspect of reality seen in occupied territories.

(i). Psychological or moral costs: These costs arise from personal convictions or religious beliefs of the leaders. For example, leaders of mass movements like Mahatma Gandhi in India and Daniel O'Connell in Ireland had personal or religious beliefs against violence. This is not true of many radical leaders, for example those belonging to the Hamas Movement in the Israeli-Palestinian conflict. The cost calculus entailed by these beliefs would certainly enter into the decisions of leaders of mass movements and would affect the stridency of their message. This is especially true when the leaders have little control over the minor activists participating in the movement. Then, the stridency of the leader's message would to some extent be tempered by the knowledge that a more strident message, while encouraging a larger mass participation, would by its very nature also lead a higher chance of violence (leading to higher moral cost for the leader). A historical example makes this clear. In 1922, in response to Mahatma Gandhi's strident call for the ouster of the British from India, a non-violent Non-Cooperation Movement was in full swing, with hundreds of thousands participating. However, on February 4, 1922, a minor mob of protestors set fire to a police station in the small town of Chauri Chaura and killed twenty three policemen trapped inside. This incident was so morally repugnant to Gandhi that he cancelled the Non-Cooperation Movement, effectively ending the quest towards independence for some time. Thus, the opportunity cost of the independence movement was too much for Gandhi, in this case.

This brings us to an important question: is there a difference in the opportunity cost for a violent protest versus a non-violent protest for a moral leader? The answer certainly is yes. The moral leader has a much higher opportunity cost in case the protest turns violent. However, given the example of the Indian Non-Cooperation Movement, the important point that I would stress on is that even when leaders explicitly urge non-violence, too strident a message against the occupier might cause violence (especially in the context of large mass movements involving a volatile or eager public, each element of which cannot be directly controlled). Thus, even when protest leaders admittedly urge non-violent protest, they might need to moderate their rhetoric against occupiers for a large mass protest to remain completely non-violent. There may be a difference between just advocating non-violent protest, and actually reigning in the rhetoric to ensure that it in fact remains so.[17] This point is important in the context of my theoretical model, which does not comment on the exact tactics of the protest leadership. Rather, my model analyzes the mechanics behind the choice of intensity of whichever tactic (activity) they use, to win over converts to their cause.

(ii). Economic and professional costs: The literature on conflict recognizes economic opportunity costs as one

[17] The process I am trying to model here is a static snapshot of a protest movement, as opposed to a revolution. This protest movement would be akin to an insurgency. Such insurgencies may be violent or non-violent in nature, and the leaders of the movement will have the same opportunity cost considerations that I have outlined above. As an aside, a cursory study of history indicates revolutions always hold a high probability of bloodshed (even if such bloodshed is not ultimately realized). This obviously might mean that a moral leader would have a natural proclivity against revolutions (though, of course, such a leader undertaking revolution as a rational choice cannot be ruled out).

of drivers behind the decision to participate in insurgent activities.[18] This would be true not only for minor participants, but also for leaders. It is reasonable that if the leaders of protest movements had economic and professional opportunities as doctors, lawyers, academics, etc. open to them, which would be lost if they increased their protest activities too much, they would take that cost into account. On the other hand, the lack of such opportunities would reduce these costs. Also, these costs are not just limited to the professional classes, but to leaders arising out of other walks of life, having settled livelihoods and strong connections to property, home, and hearth.

(iii). Social costs: There are social opportunity costs of leading protest movements, for leaders who have social ties to the occupiers. For example, in the Indian Independence Movement, Jawaharlal Nehru's opportunity cost of leading the independence movement had a great deal of social cost for him. Nehru was educated in Britain in the best public schools, select colleges, and was elected to the Bar. Moreover, he was intimate in the highest British social circles. So, his decision to engage in anti-British activities had certain opportunity costs for him. These costs increased as he distanced himself more and more from the British by engaging more and more in the independence struggle. Needless to say, these opportunity costs were not present for other leaders without Nehru's social connections. Again, social costs are not limited to connections with the occupier, but extends to other kinds of connections and ties to the social fabric that a protest leader has.

(iv). Networking costs: This is the cost borne by the protest leader to spread his message to the masses. Examples may include the costs of maintaining a political network or the apparatus to spread the insurgent message. Further, it may be argued that this cost rises as the intensity of the insurgent message rises - as more persuasion is needed to spread a message of higher intensity to the masses. It may also be assumed that a relatively unknown leader, or a leader with less social connections and mass base, low profile, or unaffiliated with a mainstream political party, has a much higher networking (opportunity) cost than one who is more advantaged in these respects. The importance of this opportunity cost should not be overlooked, and it drives the intuition behind one of the major results seen in this paper (proposition 2).

Thus, opportunity costs for leading mass movements may be substantial for protest leaders, and must enter into their rational decision process. As mentioned, this paper explicitly takes this factor into account.

Coming to the cost structure of the occupier, there is an 'enforcement cost' E for administering punishment to the leadership group. This cost is given by $E(P) = \eta P$. This cost includes not only the pecuniary costs of provisioning the army, but also other non-pecuniary costs like international sanctions and boycotts that the occupier faces for taking action against the protestors.[19]

[18] See Frey and Luechinger (2003) for a discussion in the context of terrorism.

[19] A real-world example of such non-pecuniary costs would be the international pressures faced by Israel for its actions to control Palestinian uprisings in the West Bank and Gaza Strip. Of course, international sanctions may have pecuniary losses (like loss in international trade) as well.

Using notation developed above, the payoff of the protest leader can be written as:

$\pi(a,c) = R - C - P = \omega f - C - P = \omega f(a,c) - \psi g(a) - \phi p(a,c)$

The occupier's payoff is:

$\tau(a,c) = R^0 - E = \rho(100 - f) - \eta P$

$= \rho[100 - f(a,c)] - \mu p(a,c)$, where $\mu = \eta\phi$

Do protest leaders and the occupiers in the actual world really try to maximize payoff functions similar to the ones described above? While there is little doubt that considerations of punishment and costs would figure in their decisions, there might be some debate whether these players would attach much importance to the level of population being converted to protest. Even though there is a connection between the success of a protest movement and the level of mass participation, critics might argue that the exact nature of this connection is open to debate. Their argument might be that the fundamental objective of the protest leader is to achieve independence, so her payoff function should explicitly reflect this particular objective, rather than the objective of converting the population to protest. While acknowledging some of the critics' concerns, I believe that the payoff functions outlined above capture the essence of the day-to-day decision making processes of the leaders in many independence movements. As an example, in the Indian Independence Movement, for a long period the ultimate goal of independence seemed to be distant and elusive. The daily focus and activities of the independence leaders was geared more towards disseminating the idea of self-rule and 'building a nationwide mass movement'.[20] As this paper does not seek to model the entire revolutionary process, from conception to culmination, but only seeks to capture a snapshot of the process (in which I analyze certain characteristics of an ongoing movement), the payoff functions used in the model are suitable. Figure 1 illustrates the iso-utility maps of the protest leader (Panel 1) and the controller (Panel 2), as entailed by the payoff functions above. In panel 1, the protest leader's utility level increases in the vertical direction with a movement from iso-utility curve U_1 to U_2 to U_3, so on. This is because for any level of a, greater c leads to greater utility for the protest leader. Alternatively, holding c constant, utility rises and then falls with an increase in a. In panel 2, the controller's utility level increases towards the left direction with a movement from iso-utility curve U_1' to U_2' to U_3'. For any level of c, less a leads to greater utility for the controller. Alternatively, holding a constant, utility rises and then falls with an increase in c.

2.2 The two person game and its solution

It seems logical to model the game between the protest leader and the occupier as a sequential, rather than a simultaneous move game. A huge army or police force is usually in place beforehand in occupied territories. The occupier usually chooses to retain its troop level or cut it, thereby signalling permissiveness. Protests

[20] The focus of the Non-Cooperation Movement (1918-22) against the British, led by Gandhi, seems to be an example of this.

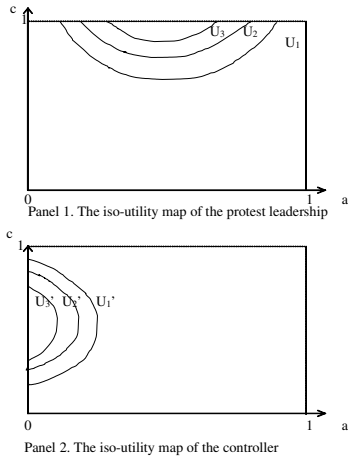


Figure 1: The iso-utility maps

take place, even after the protestors account for the police presence.[21] In order to model this situation, I will consider a two-stage perfect information game, with the occupier acting in the first stage and the protest leader doing so in the second stage. The players get to act only once in this model. The occupier has complete information about the protest leader's best response to its own strategy. After observing the occupier's action, the protest leader maximizes his payoff in the second stage of the game.

I will solve for the subgame perfect equilibrium of the two-player game through backward induction. In the second stage, the protest leader solves the problem:

Maximize:$_{\{a\}}$ $\pi = \omega f(a, c^*) - \psi g(a) - \phi p(a, c^*); 0 \leq a \leq 1$

such that: $\pi \geq 0$.

The FOC for an interior solution to the protest leader's problem is:

$\omega f_a(a, c^*) - \psi g_a(a) - \phi p_a(a, c^*) = 0$

The solution to the above equation gives the reaction function of the protest leader:

$a^* = a^*(c^*, \omega, \psi, \phi)$

Lemma 1. $\frac{\partial a^*}{\partial \psi} < 0$ *always.*[22]

This implies that if the cost of activity increases, ceteris paribus, the protest leader will curtail activity.

Lemma 2. The reaction function of the protest leader is positively (negatively) sloped, i.e. $\frac{\partial a^*}{\partial c^*} \gtrless 0$, *iff* $\omega f_{a^*c^*} - \phi p_{a^*c^*} \gtrless 0$.[23]

When the reaction function is positively (negatively) sloped, a and c are strategic complements (substitutes)

[21] In a related context, robbers look at the level of police patrols in a area, and then decide on the extent of their illegal activities.

[22] As $\frac{\partial a^*}{\partial \psi} = \frac{g_{a^*}}{\omega f_{a^*a^*} - \psi g_{a^*a^*} - \phi p_{a^*a^*}}$, the result follows from the assumptions regarding the partials.

[23] Since $\frac{\partial a^*}{\partial c^*} = h_{c^*} = -\frac{\omega . f_{a^*c^*} - \phi . p_{a^*c^*}}{\omega . f_{a^*a^*} - \psi . g_{a^*a^*} - \phi . p_{a^*a^*}}$ and the denominator is always negative.

for the protest leaders.[24]

Case 1 (Strategic Complementarity): We see that for strategic complementarity, there should be a positive marginal gain in the protest leader's payoff for an increase in permissiveness, even with some increase in his activity. A look at the condition strategic complementarity, seen in lemma 2 above, is instructive. In this case, the conversion function f reacts positively enough to greater action by the leader in a more permissive environment to counter any increase in punishment that might occur due to increased action (note that punishment can increase in this situation to a certain extent, even with greater permissiveness). It may be argued that the populace of this region are kept in check in the face of strict control , but quick to take advantage of opportunities to participate in the insurgency.

Case 2 (Strategic Substitutability): On the other hand, for strategic substitutes, there would be a positive gain for increase in permissiveness, only by cutting back on activity. Thus, in this case, the conversion function f does not react positively enough to greater action by the leader, even in a more permissive environment. Intuitively, this might happen in the real world when a sufficient portion of the general populace is impressed by the munificence of the occupier to distance themselves from the insurgency, or are indifferent to the freedom movement due to other social or historical causes. In fact, sufficient oppression is needed for a significant portion of the populace to consider the message of insurgency.[25] Thus, in a more permissive environment, the protest leaders seeking to maximize payoff would have to cut back on activity, which would substantially reduce their punishment from the occupier. If however, permissiveness were to decline, more activity would be substituted for permissiveness to maximize payoff levels. Intuitively, less permissiveness would cause the punishment level of the protest leader to go up, so the protest leader would try to gain converts (and maximize his payoff), even though more activity would entail greater punishment. Though lower permissiveness, ceteris paribus, brings lesser converts - by increasing activity sufficiently (in an environment where the effectiveness of a increases, i.e. the populace is more receptive to the insurgent message), enough converts might be won to make such a strategy optimal (ex post to the decrease in permissiveness).

[24] See Eaton (2001; 2004) and Gal-Or (1985) for definitions of strategic substitutability/complementarity, as well as plain substitutability/complementarity. In particular, Eaton (2004) characterizes social dilemmas as games of plain complements/substitutes and strategic complements/substitutes. Based on various combinations of plain and strategic complementarity/substitutability seen in social dilemmas, Eaton is able to comment on "first or second mover" advantages in stage games. My model differs from Eaton, as the players' payoff functions are not symmetric. Incidentally, note that an increase in permissiveness c by the controller increases the payoff of the protest leader, ceteris paribus. On the other hand, an increase in the activity a of the protest leader decreases the payoff of the controller, ceteris paribus. Hence, it is not possible to directly apply the concepts of plain substitutability/complementarity seen in Eaton (2001; 2004) in this model. However, the notions of strategic substitutability/complementarity are readily usable, as is Eaton's diagrammatic analysis for those cases, with minor modifications. The diagrammatic analysis provides us with an intuitive understanding of the theorems below.

[25] A word of caution - I do not imply that more absolute numbers of people convert to protest in a more oppressive environment. People's receptiveness to the protest leader goes up, so ceteris paribus the same level of activity by the leader would convert more people. But a higher level of policing would make them afraid to join the protest. A combination of these two effects might mean that there are less converts in absolute terms - but this number is still more than the number that would have converted under greater policing, had their receptiveness stayed the same. Hence there is scope for the leader to be more active, and offset the higher punishment that he receives, in a more oppressive environment.

The occupier's decision problem occurs in the first stage of the game. The occupier solves:

Maximize:$_{\{c\}}$ $\tau = \rho[100 - f(a^*, c)] - \mu p(a^*, c); 0 \leq c \leq 1$

such that: $\tau \geq 0$.

The FOC for an interior solution to the occupier's problem is:

$-[\rho f_{a^*} + \mu p_{a^*}]\frac{\partial a^*}{\partial c^*} - [\rho f_c + \mu p_c)] = 0 \equiv F$

The solution to this equation gives us $c^* = c^*(a^*, \rho, \mu)$.

The subgame perfect equilibrium of this game is the strategy pair (a^*, c^*) which satisfy the simultaneous solution of the FOCs of the protest leader and the occupier.[26]

Condition C2. As $f_{a^*}, p_{a^*}, f_c > 0$, and $p_c < 0$, *a solution to the problem exists for* $\frac{\partial a^*}{\partial c^*} > 0$ *only if* $\mu\,|p_c| > \rho\,|f_c|$ *and for* $\frac{\partial a^*}{\partial c^*} < 0$ *only if* $\mu\,|p_c| < \rho\,|f_c|$ *at equilibrium.*

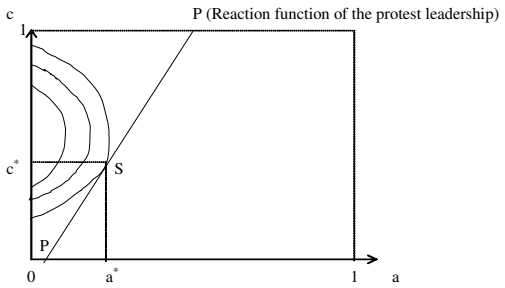
This is because the term $[\rho f_{a^*} + \mu p_{a^*}]$ in the above expression is always positive, hence the term $[\rho f_c + \mu p_c]$ needs to be suitably positive or negative, according as a_c^* is negative or positive for the FOC of the occupier to hold in equilibrium.

In figure 2, we see the equilibrium when: (i). The reaction function of the protest leadership is positively sloped (panel 1), and (ii). Its reaction function is negatively sloped (panel 2). The positive slope would arise when the peaks of the successive iso-utility curves of the protest leadership, signifying higher utility levels, are arranged in a south-westerly direction in the Cartesian plane. Conversely, negative slope would arise when the peaks of the successive iso-utility curves of the protest leadership, signifying higher utility levels, are arranged in a south-easterly direction in the Cartesian plane.[27]

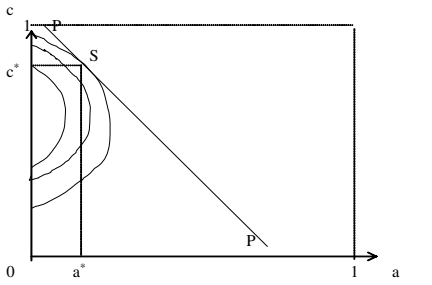
A study of the diagrams in figure 2 is instructive. In the case of strategic complementarity, the equilibrium entails a comparatively low level of permissiveness for the equilibrium level of activity. These facts are in line with observation made earlier that in the case of strategic complementarity, the population is quick to take advantage of the controller's leniency, and is initially held in check through strict controls. In this environment, greater action by protest leaders is optimal only for greater permissiveness. On the other hand, in the case of strategic substitutability, a comparatively high level of permissiveness is obtained for the equilibrium level of activity. This would be in keeping with the situation where the population is non-

[26] For conditions for which there is a subgame perfect equilibrium to games of perfect information (as in this model) see Harris (1985). The assumptions with respect to the second partials of the conversion, communication, and punishment cost functions ensure that the payoff function of the protest leader is strictly concave in her strategies. I assume that the following sufficiency condition for the strict concavity of the occupier's maximand function w.r.t. c is satisfied at (a^*, c^*): $-[(\rho f_{a^*a^*} + \mu p_{a^*a^*})(a_c^*)^2 + (\rho f_{a^*} + \mu p_{a^*})a_{cc}^* + (\rho f_{cc} + \mu p_{cc})] < 0$. The satisfaction of this condition does not violate the assumptions regarding the partials of the conversion and punishment functions. For the reaction function of the protest leader being strictly monotonic, the equilibrium to this game will be unique. Further, this second order condition can hold simultaneously with the conditions outlined in the main propositions of the model, for sufficiently high values of f_{cc} and p_{cc}, even without imposing strong restrictions on the values of a_{cc}^*.

[27] For the slopes of the reaction function of the protest leadership being positive or negative respectively, the iso-utility map of the controller has to be as seen in the respective figures for the existence of an equilibrium to this game. Otherwise condition C2 will be violated. Further, along the negatively (positively) sloped stretches of the controller's iso-utility curves, $\rho f_c + \mu p_c$ is positive (negative). Combining this with condition C2 means that an upward sloping reaction function implies a low c^* and vice versa.



Panel 1. Equilibrium with a positively sloped reaction function.



Panel 2. Equilibrium with a negatively sloped reaction function.

Figure 2: Equilibrium: The two possible cases

committed to protest for the controller acting liberally, but is roused to disaffection when the controller is harsh. In this environment, greater action by protest leaders is only optimal for lesser permissiveness.

3 Analytical Implications of the Model

3.1 The effect of leadership type on the nature of protest

A protest leader having an intrinsically greater opportunity cost of decision at every level of protest activity is defined as a 'higher-cost' leader.

Definition 1. (Higher-Cost Leader): Protest leader i is defined to be 'higher-cost' than leader j if $\psi^i > \psi^j$.

Protest leader i having $\psi^i > \psi^j$ has higher opportunity costs of any level of protest activity than leader j. Recall that ψ is the weighting parameter of the opportunity cost function, in the payoff of the protest leadership.

I will analyze below how the equilibrium level of protest activity and popular participation changes when a movement is lead by a higher opportunity cost leadership, versus a lower opportunity cost one. For this, I will consider the effect of a variation of ψ on the equilibrium level of activity and mass participation. But before performing this exercise, let me define how the level of mass support for a protest movement will be measured.

Remark. A protest movement is defined has greater 'mass-support' vis-a-vis another, if the level of conversion f^* is higher in the former compared to the latter.

The above remark simply states that the equilibrium level of conversion (measured by the equilibrium value given by the conversion function) measures the level of mass support for the protest movement. A movement with more mass support will have a higher f^*.

The following propositions characterize equilibria where activity rises for the leadership moving to the hands of a higher-cost group. It will be observed that it is not automatic that a higher-cost leadership will indulge in less activity.[28] I will also analyze the 'mass support' level of the protest movement in each case. It will be possible to comment on the nature of conversion and punishment functions that lead to these results. As mentioned before, the nature of these functions shed light on the characteristics of the population,[29] and the type of punishment, that need to exist for these outcomes to occur.

Proposition 1: For a and c *being strategic complements (i.e.* $\frac{\partial a^*}{\partial c^*} > 0$*) for the protest leader, a leader with higher opportunity costs will be more active compared to ones with lower opportunity cost if: (i).* $\frac{\partial^2 a^*}{\partial \psi \partial c^*} < 0$*; (ii).* $\mu \left| \frac{\partial^2 p}{\partial a^{*2}} \right| > \rho \left| \frac{\partial^2 f}{\partial a^{*2}} \right|$ at c^**; and (iii).* $\left| \frac{\partial a^*}{\partial c^*} \frac{dc^*}{d\psi} \right| > \left| \frac{\partial a^*}{\partial \psi} \right|$ *. Under these conditions, the protest movement has greater mass-support for a higher-cost leader.*

Proof: See appendix 1. ⊟

From the above proposition, it is seen that the occupier may be more permissive for a higher cost leadership. The proposition outlines the conditions that would make the occupier more permissive for a higher opportunity cost leadership. I interpret these conditions below:

(i). There must be strategic complementarity of a and c. Recall from lemma 2 that the case of strategic complementarity arises if the gain in conversion (in a situation of both greater activity and permissiveness) more than offsets the change in punishment.[30] As mentioned before, an intuitive reason for this would be that the populace of this region is sufficiently quick to take advantage of the controller's leniency, which coupled with the leaders' insurgent activity (message) cause them to convert in sufficient numbers. This more than offsets the the extra punishment that accrues to the protest leaders for more activity. Further, the extra punishment entailed by higher activity by the protest leaders, is also not sufficiently harsh, given a more permissive (political or security) climate.

(ii): The condition $\frac{\partial^2 a^*}{\partial \psi \partial c^*} < 0$ implies that for a higher-cost leadership, the reaction function $(\partial a^*/\partial c^*)$ should be steeper (if a is measured on the horizontal and c on the vertical axis of a graph), compared to a lower-cost one (see figure 3 below). So, higher opportunity costs make the former less reactive to (or less willing to take advantage of) greater permissiveness. The occupier certainly considers this fact when

[28] Note that any leader with $\psi^i > \psi^j$ fits our definition of being higher-cost. The following propositions outline conditions where a higher-cost leader (satisfying those conditions) would indulge in more activity. They do not claim that *any* higher-cost leader would be more active. Indeed, that would not make sense, since for sufficiently large values of ψ, the cost of activity would be so high that very low activity would result.

[29] For example, their susceptibility to the propaganda and other activities of the protest leader.

[30] Note that for an increase in both activity and permissiveness, punishment could either increase or decrease. For an increase, an offestting increase in conversion would be required for the payoff of the protest leader to increase.

deciding to be more permissive.

(iii). The condition $\mu \left| \frac{\partial^2 p}{\partial a^{*2}} \right| > \rho \left| \frac{\partial^2 f}{\partial a^{*2}} \right|$ implies that the rate of increase in enforcement costs will be higher than the conversion rate, for a rise in the protest leader's activities. As the occupier does not want this inflationary pressure on enforcement costs to hugely deplete its payoff, it increases permissiveness. Note that it is possible for the occupier to increase permissiveness and cut back on punishment, hence saving enforcement costs.[31] Recall that in this particular case, the higher-cost protest leader is less reactive to greater permissiveness. Thus, though this type of leader takes advantage of a permissive environment, the increase in the subversive actions (or rhetoric) is not too excessive (hence there is not an explosive uprising leading to an immediate ouster of the occupier). Given these facts, the occupier is able to save on enforcement costs (and actually increase its payoff level) by becoming more permissive, and reducing confrontation with the protest leader. In this scenario, with the occupier becoming more permissive when faced with a higher-cost protest leader, the latter is more active than a lower-cost one.[32]

(iv). A final condition needs to be satisfied for greater activity by the higher-cost leader. His opportunity cost must not be 'too high'. This makes sense, as for sufficiently large values of ψ, the opportunity cost would be so high that we would observe very low activity. In fact, higher opportunity costs do have a negative impact on the activity decision of a higher-cost leader. But, for the result outlined in proposition 1, these costs must not be so high as to violate the condition $\left| \frac{\partial a^*}{\partial c^*} \frac{dc^*}{d\psi} \right| > \left| \frac{\partial a^*}{\partial \psi} \right|$. The left hand term in this inequality denotes the positive effect of the occupier's increasing permissiveness on activity level. The right hand term denotes the negative effect of greater opportunity cost on their activity [33] Finally, we observe that the protest movement has greater mass-support under these circumstances, as both permissiveness and activity level go up.

The result is represented graphically below in figure 3. As seen, the reaction function of the protest leadership would shift left due for an increase in ψ, causing a movement in the equilibrium from S to S$'$. Both permissiveness and protest activity increase. The payoff of the protest leaders go up due to this. The payoff of the controller goes up since it is able to save on the costs of inflicting punishment.

The punchline of proposition 1 is that high opportunity cost protest leaders, leading a general population quick to take advantage of leniency, are more likely to be successful compared to radical leaders in leading workable protest movements, though inherently they may use more moderate forms of protest. A caveat here

[31] If the controller becomes more permissive, he would cut back on the level of military or police presence. Logically, greater permissiveness should lead to lower forces, as lower enforcement services are needed. Since military and police presence costs money, cutbacks commensurate to the needed level of service is logical.

[32] It must be remembered, though, that if the occupier were as permissive as this to a lower-cost leader then it would face more activity in equilibrium. A lower-cost leader would indulge in less activity in equilibrium as she would face the deterrence effect of less permissiveness on the occupier's part.

[33] For explicit functional forms, the elasticities of the conversion and punishment functions with respect to a and c are crucial in obtaining the result. The interested reader may obtain a numerical example from the author , which demonstrates the role played by these elasticities.

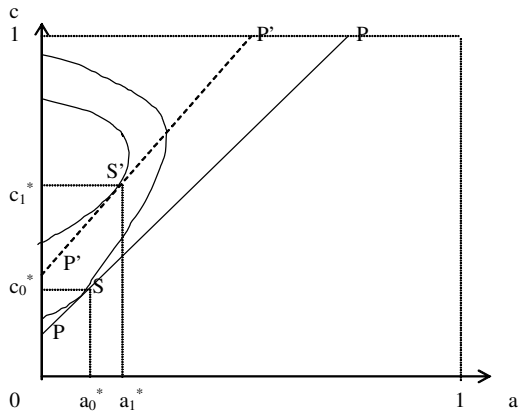


Figure 3: Case 1: Rise of a* due to a shift in a positive reaction function

is that there must be significant cost to the occupier for harshly punishing these moderate leaders (which might arise due to international third-party intervention).[34] Some stylized facts of history provide a reality check of the above findings. During the Indian Independence movement, during the period 1900-47, many leaders of the Congress Party had close social ties with the British. Others, like Gandhi, had moral attitudes that made them have a high opportunity cost of escalating conflict.[35] Given their high opportunity costs of indulging in protest, it was unlikely that the situation would get out of hand, even if the British were more permissive. Also, some of these leaders like Gandhi and Nehru, had great international stature, and the cost of punishing them harshly was very costly for the British.[36] Given this, the British slowly eased the pressure on them, and the Congress Party was able to lead a substantial movement.[37] Also note that the Indian middle class (which was the backbone of the Congress-led movement), was not warlike enough to erupt in revolt against the amassed might of the British conquerors under strict oppression, but were quick to take advantage of the easing political climate, and actively converted to the cause of independence in large numbers during this time. Thus, to summarize, the British were lenient, the Congress Party was able to be more active than its more aggressive counterparts, but moderated itself by not advocating a revolutionary ouster of the British. In the end, the Congress Party led a hugely successful mass movement to win India's Independence, and yet retain cordial relations with the British. This situation is in sharp contrast to British policy in India in the mid-1800s, when they faced uprisings by the remnants of India's feudal class and

[34] This gives us some idea of the importance of international intervention in promoting moderate leadership in self-determination movements, occurring in occupied regions.

[35] As mentioned earlier, Gandhi feared such escalation could cause the movement to get out of control, and result in violence, which he was firmly against.

[36] The role played by the cost of punishment seems to be significant. The leaders of the Bengal Revolutionary Movement in India (1907-30) were also students and intellectuals, and had high opportunity costs. But as they did not have international visibility, the enforcement cost against them (in terms of international condemnation, etc.), was not much. So the British employed very repressive tactics against them.

[37] See Ghosh (1998), Sarkar (2001), and Sharma (2005) for accounts of the evolution of the Indian independence movement.

rebellious units of the British Indian Army [38] The leaders of these uprisings did not have high opportunity costs of insurgency, given that they were mostly dispossessed feudal nobility, and did not capture the popular imagination of the greater Indian populace. The uprisings were quickly crushed with military force, and did not spread. In fact, due to the aggressive response of the British, relatively few of the dispossessed nobility actually revolted - the majority did not revolt.[39]

Proposition 2: For a and c *being strategic substitutes (i.e.* $\frac{\partial a^*}{\partial c^*} < 0$*) for protest a leader, a leader with higher opportunity costs will be more active compared to ones with lower opportunity cost if: (i).* $\frac{\partial^2 a^*}{\partial \psi \partial c^*} > 0$*; (ii).* $\left|\frac{\partial^2 f}{\partial a^{*2}}\right| < \frac{\mu}{\rho}\left|\frac{\partial^2 p}{\partial a^{*2}}\right|$ at c^**; and (iii).* $\left|\frac{\partial a^*}{\partial c^*}\frac{dc^*}{d\psi}\right| > \left|\frac{\partial a^*}{\partial \psi}\right|$ *. Under these conditions, the protest movement has lower mass-support for a higher-cost leader.*

Proof: It can be verified that the proof of the first part of the proposition is similar to the proof of proposition 1. To prove the second part of the statement suppose that the occupier was at utility level τ^* for the lower-cost group, i.e. when ψ was lower. In this case, for an increase in ψ, the occupier maximizes its utility by decreasing c as its best response (the algebra from the first part of this proof shows this). Let its utility level in the latter case be τ^0. But $\tau^0 > \tau^*$, as the occupier could have stayed at least at the utility level τ^*, but chose not to do so. This is because if the occupier had remained at the initial level of c^*, given ψ had increased, a^* would have fallen (since $\frac{\partial a^*}{\partial \psi} < 0$ always). Thus, given the assumptions of our model, the occupier would have remained at least at τ^*. Therefore, the best-response reduction in c^* would only move it to a higher utility level. Now given $p_{c^*} < 0, p_a > 0$, a^* rises, and c^* falls in equilibrium for a rise in ψ, $\tau^0 > \tau^*$ only if $(100 - f^*)$ is greater, i.e. f^* is lower than the initial level. Hence, under the assumptions outlined in the proposition the protest movement is less mass supported for a higher-cost leadership. ⊟

Note from the proof of this proposition that the controller is less permissive to a higher-cost leader than a lower-cost leader. This means that the occupier realizes the severe opportunity cost related disadvantages of the higher-cost leader (compared to a low-cost one) and tries to stamp out the leader by being sufficiently harsh (especially if the general populace does not react sufficiently adversely to harshness). The high-cost leader tries to counter the harshness by being more active.[40] Interpreting the conditions of this proposition shows this case may arise when:

(i). a and c are strategic substitutes. In this case, if permissiveness declines, the protest leader will maximize his payoff by increasing activity. Note that this would happen only if sufficient oppression is needed for a significant portion of the populace to consider the message of insurgency.

[38] The most significant uprising against the British during this period, known as the Sepoy Mutiny or the First War of Indian Independence, occurred in 1857.

[39] The feudal nobility in India still retained their traditional role as social leaders into the latter part of the 19th century.

[40] If the controller were more harsh to a low-cost leader, the latter would be even more active, ex post, compared to the high-cost leader. But this situation does not arrive, as optimal strategy for the controller is to be more lenient to the low-cost leader (who is not so active, in equilibrium).

(ii). In this case the condition $\frac{\partial^2 a^*}{\partial \psi \partial c^*} > 0$ implies that for a higher-cost leadership, the reaction function ($\partial a^*/\partial c^*$) is flatter (if a is measured on the horizontal and c on the vertical axis of a graph), compared to a lower-cost one. Thus a higher-cost leader will be more reactive than a lower cost leader to changes in permissiveness by the controller. Recalling from the second part of the proof of this proposition that the controller is less permissive to a higher-cost leader, a flatter reaction function, combined with less permissiveness, makes a high-cost leader more active (or strident) than a low-cost one.

(iii). The condition $\left|\frac{\partial^2 f}{\partial a^{*2}}\right| < \frac{\mu}{\rho}\left|\frac{\partial^2 p}{\partial a^{*2}}\right|$, is equivalent to the one seen in proposition 1. However, as a and c are strategic substitutes in this case, the interpretation is a bit different. Given that the occupier decreases c here, the protest leader will increase a. It has already been seen in this case, that under conditions of less permissiveness, people become more susceptible to revolutionary propaganda or other activities. However, the second condition states that in spite of that, the responsiveness of the population to revolutionary activities (their conversion) should not be too high, beyond a point. Thus, in absolute terms their rate of conversion to the protest movement due to an increase in a (or $\frac{\partial^2 f}{\partial a^{*2}}$) should be sufficiently low. Particularly, the rate of conversion should be sufficiently lower than the rise in the cost of punishment, brought about by the lower permissiveness and higher activity.

(iv). Finally, note that higher opportunity costs lead to lesser proclivity for activity (i.e.$\frac{\partial a^*}{\partial \psi} < 0$). But here, lesser permissiveness forces the protest leader to substitute (in order to maintain a certain level of conversion), and be more active. In fact this substitution requirement should be so great as to outweigh the negative effect higher costs have on their activity ($\left|\frac{\partial a^*}{\partial c^*}\frac{dc^*}{d\psi}\right| > \left|\frac{\partial a^*}{\partial \psi}\right|$ needs to hold). Under these circumstances, a higher-cost leader will be more active - though she will lead a movement with lower mass support compared to a lower-cost leader.

This result is represented graphically in figure 4. Note in the diagram that the utility of the higher-cost protest leadership is less than the utility of a lower-cost one (as its reaction function P'P' is flatter than the PP reaction function of the lower-cost one). Further, the controller is able to move to a higher profit level if a higher-cost protest leadership is operational. Notice that if P'P' were not flatter than PP, then a leftward shift of the reaction function might have given a lower value of activity (compared to a_0), when permissiveness declines (from c_0).

The punchline of proposition 2 is that high opportunity cost protest leaders are less likely to be successful compared to lower-cost leaders in leading workable protest movements, when leading a population not prone to revolution in the first place, and not driven to revolt in sufficient numbers by the strident message of the leaders (in spite of greater receptiveness to the revolutionary message in a harsher political environment). However, in order to lead a semblance of a movement, these leaders will pursue strident activities. Note that there must be low costs to the occupier for harshly punishing these leaders (which might arise due to

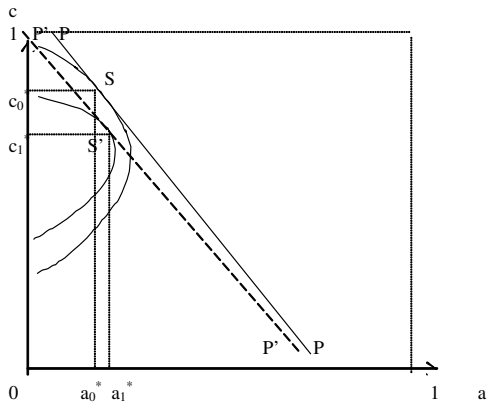


Figure 4: Case 2: Rise in a* due to shift in negative reaction function

these leaders being relatively unknown at the national and international level). Intuitively, this case can happen in case where high opportunity costs arise from networking disadvantages (see the discussion on the sources of opportunity costs in section 2). A historical example of this would be the revolutionary activities launched by students and intellectuals against Tsar Alexander III of Russia during the period1881-94.[41] This revolutionary movement was launched by small groups of students and intellectuals, and had high opportunity costs (due to their lack of an organized political apparatus that could reach the masses). The Tsar adopted a high level of enforcement and employed very repressive tactics against them. However, the revolutionaries saw their actions as the only hope for galvanizing the Russian people, and were very active against the Tsar. However, their movement did not gain enough mass participation. On the other hand, it seems that the revolutionary leadership in Russia during the period 1905-17 comprised more of career politicians, belonging to organized political parties having a nation-wide organizational apparatus. Further, as these leaders had adopted politics as a career, they arguably had lower opportunity costs of leading political (protest) movements. These leaders were able to lead more widespread movements against the Tsar, taking advantage of their lower opportunity costs (perhaps because of their natural ability to lead political protest), even without being as active as the revolutionaries of the earlier period.

3.2 Effect of occupier's attitude on the nature of protest

In this section I will analyze how the nature of the movement affected by the intrinsic level of pacifism of the occupier. It is assumed that a more hawkish occupier punishes the protest leader more for the same level of

[41] Though this example is not exactly in the context of occupied regions, we see that some of the results of this paper may be applied to more general settings as well. Further, it maybe argued that the tyrranical Tsarist Russia of the time displayed many of the characteristics displayed by occupied territories in later historical period. Interestingly, this situation may be contrasted with the one described in footnote 36. The similarities are striking - with the notable exception that the populace in feudal Russia had strong loyalty towards the Tsar at the time. This may have led to the underlying differences, which are captured through the contrasting conditions of propostions 1 and 2 respectively.

activity, compared to a more pacifist occupier. Further, it is assumed that it is possible to deliver this higher punishment with the given level of military or police, perhaps by instructing the existing force to act tougher. This means that for any pair (a, c) the punishment P delivered by a more hawkish occupier is greater than the punishment delivered by one more pacifist. In reality, there might be a change in the government of the occupying nation, which might bring about a change in attitude towards the protest movement.

Definition 2. (Hawkish occupier): A occupier i is defined to be more'hawkish' than a occupier j if $\phi^i > \phi^j$. Recall that ϕ is the weighting parameter of the punishment function. Note that if $\phi^i > \phi^j$, for any pair (a, c), $P^i = \phi^i p(a, c) > P^j = \phi^j p(a, c)$.

A more hawkish occupier is simply one who has the proclivity to punish more. We observe from the payoff function of the occupier, that inflicting a higher punishment involves greater costs for the occupier, as enforcement cost $E = \eta P$. Thus, a more hawkish occupier, who punishes more, will have greater punishment costs. This agrees with reality, where greater actions against insurgents may entail more military casualties, greater international condemnation, and higher operational costs. Some critics might suggest that enforcement costs are actually lower for a more hawkish occupier. We would argue against their reasoning, as it seems straightforward that enforcement costs (of the kind just mentioned) are greater for absolutely higher punishment.[42]

Lemma 3. $\frac{\partial a^*}{\partial \phi} < 0$ *always.*[43]

This implies that if punishment increases due to a rise in ϕ, ceteris paribus, the protest leader will curtail activity. Also note that when the occupier becomes more hawkish, there are two effects for the protest leader. First, for any given combination (a, c), their punishment rises. Further, a more hawkish occupier might vary the level of c as well, which would have a further effect on punishment.[44]

The following propositions consider the effect of a variation of ϕ on the equilibrium level of activity and mass participation. Equilibria where protest activity rises for a more hawkish occupier, are characterized. As before, it is possible to analyze the nature of the population and the type of punishment that need to exist, for these outcomes to occur.

Proposition 3: For a and c *being strategic complements for her (i.e.* $\frac{\partial a^*}{\partial c^*} > 0$*), a protest leader will be more active while confronting a more hawkish occupier if: (i).* $\frac{\partial^2 a^*}{\partial \phi \partial c^*} < 0$*; (ii).* $\mu \left| \frac{\partial^2 p}{\partial a^{*2}} \right| > \rho \left| \frac{\partial^2 f}{\partial a^{*2}} \right|$ at c^**; and (iii).* $\left| \frac{\partial a^*}{\partial c^*} \frac{dc^*}{d\phi} \right| > \left| \frac{\partial a^*}{\partial \phi} \right|$ *. Under these conditions, the protest movement has greater mass-support when the*

[42] In reality, a more hawkish occupier might also have a chilling effect on the population, as it would have a proclivity to punish the populace more than a dovish occupier (for any given level of permissiveness). However, there is also argument to the effect that a hawkish occupier might have an incendiary effect on the populace. As empirical literature has not addressed this issue conclusively, I have avoided controversy by not making any further assumptions in this regard, and sticking to my simple specification of the conversion function. In spite of this simplification, the results of this section provide some rather useful insights of the conflict process, involving hawkish vis-a-vis dovish controllers.

[43] As $\frac{\partial a^*}{\partial \phi} = \frac{p_{a^*}}{\omega f_{a^* a^*} - \psi g_{a^* a^*} - \phi p_{a^* a^*}}$, the result follows from the assumptions regarding the partials.

[44] In graphical terms, the iso-utility map of the occupier undergoes a change, and there is also a shift in the reaction function of the protest leaders. The combination of these two factors produces a change in the equilibrium outcome.

occupier is more hawkish.

Proof: See appendix 2. ⊟

Note that a more hawkish occupier is more permissive in this particular case. The conditions of the proposition identify the factors underlying this result:

(i). a and c are strategic complements, so a protest leader is able to raise her payoff by complementing an increase in permissiveness with greater activity. As mentioned before, strategic complementarity arises if the gain in conversion more than offsets the change in punishment, when both activity and permissiveness increase. This could happen if population becomes sufficiently more responsive to their leader's activities or propaganda in a more permissive environment.

(ii). The condition $\frac{\partial^2 a^*}{\partial \phi \partial c^*} < 0$ implies that in this case, when faced with a more hawkish occupier (a rise in ϕ), the reaction function of the protest leader will be steeper. So, a hawkish occupier makes the latter less willing to increase activity, for any given level of permissiveness.

(iii). We have $\mu \left| \frac{\partial^2 p}{\partial a^{*2}} \right| > \rho \left| \frac{\partial^2 f}{\partial a^{*2}} \right|$. Note that as $\mu = \eta\phi$, there is a greater chance of this inequality being satisfied for a hawkish occupier, with higher ϕ. As per this inequality, the occupier's enforcement costs grow at a substantial rate (greater than the growth of the conversion rate) for an increase in protest activity. So, the occupier needs to find a way to manage these costs. It does this by decreasing the level of policing (more permissiveness). This, in the end, leads to more activity. So, the more hawkish occupier actually faces greater activity, but cutting back on the level of policing saves greatly on enforcement costs. Note that if this cutback does not occur, given its natural proclivity (or maybe in case of a government, its pre-committed electoral manifesto), it will use the bigger police force or army to punish so much that there will be huge enforcement costs.

(iv). The condition $\left| \frac{\partial a^*}{\partial c^*} \frac{dc^*}{d\phi} \right| > \left| \frac{\partial a^*}{\partial \phi} \right|$ needs to hold. This is needed because a more hawkish occupier has two effects for the protest leader. First, there is a negative effect on his activity. Second, his activity level is also affected by how this type of occupier varies c, compared to a more pacifist one. In this case c increases, and combined with the strategic complementarity of a and c, there is a positive effect on activity level. This positive effect needs to outweigh the negative one, for the net amount of activity to increase. Further, as per the proposition, not only is the protest leader more active, but the protest movement has greater mass-support under these circumstances, as both permissiveness and activity level go up.

The above proposition has interesting real world implications. It seems that more pacifist occupiers might actually be able to maintain their military strength in occupied areas, and discourage protest activities. However, the inherent lack of restraint of hawkish occupiers make the cost of maintaining military strength too much for them, as due to their predisposition for harshness, they use their military to punish to an extent

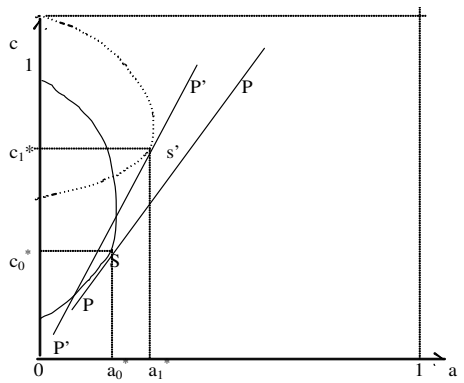


Figure 5: Case1: Shift in the iso-utility map for hawkish controller

that is very costly for them (perhaps in terms of heightened international scrutiny and sanctions).[45] Hence, in face of costly enforcement, they are forced to consider a cutback of their military from the occupied area, which leads to greater activity by the protest leaders, and the growth of the protest movement.[46] Diagrammatically representing the results from propositions 3 in figure 5, we see that a change in equilibrium occurs when the controller becomes more hawkish. This is due to a shift in its iso-utility map of in the case of a more hawkish controller, and the reaction function of the protest leadership becoming steeper.[47] Due to this shift the equilibrium point moves from S to S′.[48] A historical incident corresponding to this outcome may be seen in the climbdown of the hard-line Ariel Sharon government in 2004-05, in the Israeli-Palestinian conflict, and the pursuance of a unilateral disengagement policy by Israel.

Proposition 4: For a and c *being strategic substitutes for her (i.e.* $\frac{\partial a^*}{\partial c^*} > 0$*), a protest leader will be more active while confronting a more hawkish occupier if: (i).* $\frac{\partial^2 a^*}{\partial \phi \partial c^*} > 0$*; (ii).* $\left|\frac{\partial^2 f}{\partial a^{*2}}\right| < \frac{\mu}{\rho}\left|\frac{\partial^2 p}{\partial a^{*2}}\right|$ at c^**; (iii).* $\eta < \frac{1}{\left[\frac{\partial p}{\partial c^*}\right]}\left[(\rho f_{a^*} + \mu p_{a^*})\frac{\partial^2 a^*}{\partial \phi \partial c} + \left(\frac{\partial}{\partial \phi}\left[\rho \frac{\partial f}{\partial a^*} + \mu \frac{\partial p}{\partial a^*}\right]\frac{\partial a^*}{\partial c}\right)\right]$; and *(iv).* $\left|\frac{\partial a^*}{\partial c}\frac{dc^*}{d\phi}\right| > \left|\frac{\partial a^*}{\partial \phi}\right|$ *. Under these conditions, the protest movement has lesser mass-support when the occupier is more hawkish.*

Proof: The proof of the first part of the proposition is similar to the proof of proposition 3. In this case, observe that for an increase in ϕ, the occupier maximizes its utility by decreasing c as its best response. To prove the second part of the statement suppose that for a more pacifist occupier (i.e. when ϕ was lower), the payoff level was τ^0, for strategy pair (a^0, c^0) and conversion level f^0. Note that for an increase in ϕ, keeping c

[45] Note that we have assumed that a hawkish controller has to punish more than a dovish controller for any given military level. In real life this might arise due political or ideological pre-commitments made by the hawkish controller, either to its electorate or to political partners, in case of democratic governments (of the kind seen in Israel, for example).

[46] Though admittedly, such cutbacks by a pacifist government would have caused an even greater escalation. However, due to its restraint, a pacifist government does not have to undertake such cutbacks.

[47] Note that in this case, a hawkish controller can maintain a given payoff level, for a given value of a, compared to a dovish occupier, only through the combination of a higher c (compared to the dovish one). This causes a relative shift of the iso-utility map of the hawkish controller along the lines seen in the diagram.

[48] The reader will recognize that a change in the punishment function, making the controller more severe, will affect the reaction function of the protest leaders. In both propostions 3 and 4, it will shift the reaction function to the left. In case of propostion 3 here, the reaction function of the protest leader is steeper (less reactive), when the controller is more hawkish.

fixed at c^0, a would decline (as $\frac{\partial a^*}{\partial \phi} < 0$). In that case, let the occupier's payoff be denoted by τ^1, for strategy pair (a^1, c^0). For τ^1 let enforcement costs be E^1 and conversion level f^1. Note that given the properties of the conversion function, $f^1 < f^0$. However, the occupier chooses to decrease c, and not keep it fixed at c^0, taking it to payoff level to τ^* with strategy pair (a^*, c^*), with enforcement costs E^* and conversion level f^*. Then it must be that $\tau^* > \tau^1$. But as $c^* < c^0$ and $a^* > a^1$, it must be that $E^* > E^1$ (from the properties of the punishment function). In that case, $\tau^* > \tau^1$, only if $f^* < f^1$. Given $f^1 < f^0$, the properties of the conversion function ensure that $f^* < f^0$. Thus, the protest movement has lesser mass-support when the occupier is more hawkish.⊟

In this case, a more hawkish occupier is less permissive. The conditions of the proposition identify the factors underlying this result:

(i). a and c are strategic substitutes, so less permissiveness by the occupier brings about greater activity by the protest leader. If permissiveness declines, the only way the protest leader can maintain a level of conversion (hence maintaining their payoff somewhat) is by increasing activity. This is possible because the population is more receptive to the protest leader for a decline in permissiveness.

(ii). The condition $\frac{\partial^2 a^*}{\partial \phi \partial c^*} > 0$ implies that for a more hawkish occupier, the reaction function $(\partial a^*/\partial c^*)$ is of the protest leader is flatter. In this case, a hawkish occupier make the protest leader more willing to take advantage of permissiveness - hence, as permissiveness can cause substantial losses for it, the occupier is driven towards less permissiveness.

(iii). The condition $\left|\frac{\partial^2 f}{\partial a^{*2}}\right| < \frac{\mu}{\rho}\left|\frac{\partial^2 p}{\partial a^{*2}}\right|$ must hold. As a and c are strategic substitutes, if the occupier decreases c, the protest leader will increase a. This increase in a should not succeed in converting people to the movement, beyond a certain level. Thus, in absolute terms their rate of conversion to the protest movement due to an increase in a (or $\frac{\partial^2 f}{\partial a^{*2}}$) should not be too high.

(iv). The cost of increasing policing (again, perhaps in terms of international boycotts, casualty rates of soldiers, etc.) should not be too high. This is captured in the proposition by the fact that the scaling parameter η, which translates punishment levels into enforcement costs for the occupier, should be sufficiently low. Only then will the more hawkish occupier be in a position to raise its enforcement level.[49]

(v). The condition $\left|\frac{\partial a^*}{\partial c^*}\frac{dc^*}{d\phi}\right| > \left|\frac{\partial a^*}{\partial \phi}\right|$ should hold. As mentioned before, there is a negative effect on the activity of protest leader, for a more hawkish occupier, who punishes more (i.e.$\frac{\partial a^*}{\partial \phi} < 0$). However, in this case, a more hawkish occupier decreases c. Combined with the strategic substitutability of a and c, there is a positive effect on activity level. This positive effect needs to outweigh the negative one, for the net amount of activity to increase.

[49] Interestingly, the condition on parameter η does not appear in proposition 3, as there the controller becomes more permissive, opposite to what we have here.

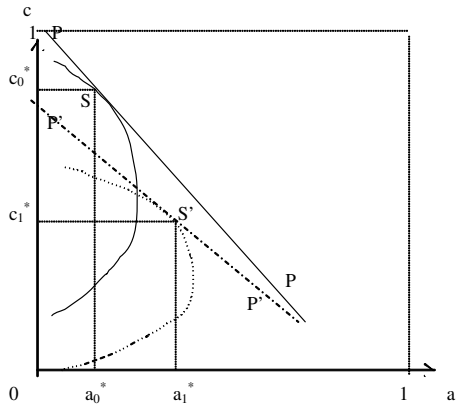


Figure 6: Case 2: Shift in the iso-utility map for a hawkish controller

This proposition is represented diagrammatically in figure 6. It is interesting to compare the shift in the iso-utility map of the controller in this case, to the case seen in proposition 3. Here, punishment costs are not that significantly high (even for a more hawkish controller). Thus, it is possible to make up for the somewhat higher punishment costs (for given permissiveness levels) if the activity level of the protest leader decreases significantly. Hence, for given permissiveness levels, lower activity level combinations would give a more hawkish controller the same successive payoff levels of a dovish controller. This causes the shift of the iso-utility map for a more hawkish controller to be like the one observed in figure 6, in this case (rather than the one observed in figure 5, earlier).

To summarize, the population becomes prone to conversion in this case, for a more hawkish controller. The enforcement costs are low enough for the occupier (perhaps due to an international community that is supportive of the controller, materially or politically) vis-a-vis the possible loss from conversion. In this situation, a hawkish occupier might become less permissive, and increase the size of the occupational force. Given this, the protest leaders have to raise their activities to win converts and preserve their movement to whatever extent possible. With a more receptive population, it is possible for the protest leaders to keep the movement alive by increasing their activity level, in the face of increased harshness. Overall, under these circumstances, there will be a reduction in the population's participation in the protest movement.

It is observed in this section that a more hawkish occupier can lead to a more active protest leaders under two circumstances. However, depending on population characteristics and punishment costs, these there are different implications for the nature of protest, depending on the particular circumstance. Thus, it is essential to closely analyze the population characteristics, punishment structure, and the details of enforcement costs, in order to reach proper conclusions regarding the effect of the occupier's pacifist tendencies on the protest

movement.[50]

4 Discussion and Policy Implications

In this section I will discuss two different aspects of my model and its results. In section 4.1, by placing the results of my model in their proper context in the conflict literature, I will attempt to discuss what my results might imply in terms of a protest movement being violent or non-violent in nature. In section 4.2, I will discuss policy implications of my model for third party intervention.

4.1 Implications for the choice of protest activity: violence or non-violence?

A summary of the results seen in the last section, omitting some of the pertinent details, gives us four interesting scenarios that might occur in case of protests in occupied regions.[51] Two of these are dependent on the type of the protest leader, and two on the type of the occupier. We see that:

(a). Scenario 1 (from proposition 1): High opportunity cost protest leaders are more likely to be successful compared to radical leaders in leading workable protest movements, though inherently they may use more moderate forms of protest. The occupier would be lenient in dealing with the protest movement, in this case, because of high punishment costs.

(b). Scenario 2 (from proposition 2): High opportunity cost protest leaders are less likely to be successful compared to lower-cost leaders in leading workable protest movements, when there are low costs to the occupier for harshly punishing these leaders. However, in order to lead a semblance of a movement, these leaders will pursue strident activities.

(c). Scenario 3 (from proposition 3): If enforcement costs are high, the hawkish controller's predisposition towards harshness makes the cost of maintaining high military strength too much for him (as he over-uses any given level of military). Hence, he is forced to consider a cutback of their military from the occupied area, which leads to greater activity by the protest leaders, and the growth of the protest movement.

(d). Scenario 4 (from proposition 4): The enforcement costs are low enough for the occupier. In this situation, a hawkish occupier might become less permissive. In this case the protest leaders try to keep the movement alive by increasing their activity level, in the face of increased harshness.

In my model, the protest leader acts to choose a level of "activity", which affects the conversion of the masses to the protest movement. There is no direct implication regarding the nature of this activity - particularly

[50] It would be interesting to study the Israeli-Palestine conflict in the context of our analysis. Once the fundamentals of the conflict are identified (population characteristics, etc.), it might be possible to analyze how the nature of successive Israeli governments (which varied in their attitudes) impacted the nature of the conflict. As part of future work, the validity of this paper's findings may be tested in that context.

[51] These scenarios are not exhaustive. An exhaustive list would have to contain all possible permutations of the respective conditions seen in the propositions of section 3. As the reader understands, the outcomes detailed in the propositions are some of the more interesting situations that might occur.

whether the activity is violent or non-violent in nature. However, placing the results of my model in the context of some other contributions within the conflict literature, some of the other assumptions of my model, and historical facts, we can arrive at some interesting conjectures. In scenarios 1 and 3 above, the occupier allows the protest leaders some leeway in conducting the protest movement. In scenario 1, the result is partially driven by the high opportunity cost of the protest leader (which might plausibly arise from moral grounds against violence, as discussed in length in section 2 above). Further, in both scenarios 1 and 3, the occupier has high punishment costs, perhaps arising out the high political and diplomatic costs of punishing the protest leaders. In a recent work, Gangopadhyay (2009) shows the link between intolerance and violent conflict.[52] Putting together these observations, it might be possible to conjecture that more "tolerance" by the occupier (leading to greater scope of expression of the protest leaders), seen in scenarios 1 and 3, might be conducive to more non-violent protest. My discussion of the historical contexts for scenarios 1 and 3 in section 3 above, provides us with real world instances where we might observe these scenarios.

Scenarios 2 and 4 present a different picture. In these scenarios, the occupier is repressive (or intolerant, using Gangopadhyay's terminology) of the protest leaders (leading to the latter's low scope of expression). Further, in scenario 2, the result is partially driven by high opportunity cost of the protest leader - which might plausibly arise from his low profile and lack of political networks. Thus, the protest leader might need a high profile "event" to carry his message to the masses. Further, in both scenarios 2 and 4, the occupier has low punishment costs, so there are low political costs of punishing the protest leaders. The conjunction of all these facts might give us the perfect recipe for strident, high-impact, violent activities (as predicted by Gangopadhyay in an atmosphere of sufficient intolerance).[53] As before, my discussion of the historical contexts for scenarios 2 and 4 in section 3 above, provides us with real world instances.

4.2 Policy implications for third party intervention

The role of international third-party interventions in mitigating conflict has been the subject of previous research. Particular note might be made of Siqueira (2003), where it was demonstrated that the interventionist third party *must not only take into account the direct impact of its efforts, but also the indirect impacts that result from the strategic interaction among the parties involved.*[54] In the spirit of Siqueira's more general

[52] Gangopadhyay's model presented in this article posits violent conflict as a form of intolerance by one social group toward another. Intolerance by one group begets intolerance by the other, and beyond a point, violent conflict perpetuates itself. It is interesting to see in Gangopadhyay's paper that for such an occurrence, potential marginal penalties should not be too high. This condition is analogous to those seen in my model, pertaining to "opportunity costs" of the protest leader and "punishment cost" of the occupier.

[53] The findings of research by Kirk (1983) and Frey and Luechinger (2003), when interpreted in the context of my paper, also seem to imply that when governments turn repressive and close down options for broader avenues of protest, disadvantaged protesters (or protest leaders, in our case) might turn to sporadic, attention-catching, violent actions (like high profile terrorist-attacks) to spread their insurgent message.

[54] The reader might notice some of the technical similarities between Siqueira (2003) and my paper. It is possible that some of the results observed in that paper might be suitably modified to address the obvious policy scenarios suggested by the results of my model. That task is left to future research.

findings, Chang and Sanders (2009) explored conditions where third-party intervention promotes peace by diminishing the strength of rebel groups. As might be guessed, my results suggest an alternate policy option to interventionist third-parties, given the particular context under consideration.

My results suggest that interventionist third parties may have two routes of intervention in occupied regions. The first would be associated with manipulating the "punishment costs" of the occupier. The second would be associated with manipulating the "opportunity costs" of the protest leaders. As observed in section 4.1, more repression and violent conflict might be associated with low punishment costs for the occupier. The international community might take suitable direct and indirect measures (political, diplomatic, and material) to keep punishment costs suitably high for the occupier, particularly in the case where the protest leaders are "moderate". On the other hand, two of the scenarios displaying repression and violent conflict, discussed in section 4.1, involve high "opportunity costs" for the protest leaders. In these particular situations, such opportunity costs are likely to arise from the leaders' low profile and lack of political networks (some historical examples of these situations were discussed in section 3). An interventionist third party, wanting to diffuse the situation, might help the protest leaders overcome these particular opportunity costs by providing them with a suitable international political platform or venue to articulate their message, and also raise their visibility and stature in the process.

As the reader will understand, the third-party intervention polices mentioned above are speculative in nature at this point, though their logic seems valid, based on my theoretical results. Policymaking in the context of conflict in occupied regions is tricky, and must take into account the nuances of the particular situation. Workable and specific policy prescriptions would require further research, which might perhaps require interdisciplinary collaboration. Policy suggestions must also be founded on the empirical validity of the theoretical results presented in this paper. Such validation presents considerable challenge, and lies in the arena of future research.

5 Concluding Remarks

A simple model has been developed in this paper to examine two important questions related to the nature of protest (or independence) movements in regions under occupation (or disputed regions). First, how is the nature of a protest movement affected by the opportunity costs of the leaders who lead these movements? Second, how is the nature of the movement affected by the intrinsic level of hawkishness of the occupiers? These questions are motivated by facts observed in historical liberation struggles (e.g. the Indian Independence Movement) and present day conflicts (e.g. the Israeli-Palestinian conflict). The answers to these questions, as identified by this paper, are relevant to truly understanding the nature of such conflicts,

and will assist in their successful management. I have discussed the results of the paper in detail in section 4 above, as well as their policy implications.

Further, a major contribution of this paper lies in identifying and characterizing the priors which lead to the outcomes of protest movements in occupied regions. These priors involve the characteristics of the population residing in the occupied region, the nature of punishment that is being meted out to the leaders of the protest movement, and enforcement costs. Differences in these priors lead to the nature of various protest movements being different in some crucial aspects, though they might be similar in other aspects. No doubt, a comprehensive characterization of these priors is essential in developing tailor-made conflict management strategies in the context of a particular protest or liberation movement.[55]

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[55] Some further ideas for future research, in the context of independence movements in occupied regions, is discussed in Gupta (2007).

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Appendices

Appendix 1: Proof of proposition 1

Proof: From the FOC of the occupier :

$$\frac{dc}{d\psi}_{|c=c^*} = -\frac{\partial F/\partial \psi}{\partial F/\partial c}_{|c=c^*} = -\frac{-\left[(\rho f_{a^*}+\mu p_{a^*})\frac{\partial^2 a^*}{\partial \psi \partial c}+\left(\frac{\partial}{\partial \psi}\left[\rho\frac{\partial f}{\partial a^*}+\mu\frac{\partial p}{\partial a^*}\right]\frac{\partial a^*}{\partial c}\right)\right]}{\partial^2\tau/\partial c^2}_{|c=c^*}$$

Now, the denominator is always negative for the payoff function of the occupier being concave at c^*.
So, if $\partial F/\partial \psi_{|c=c^*} > 0$, then $\frac{dc}{d\psi}_{|c=c^*} > 0$.

But $\partial F/\partial\psi_{|c=c^*} > 0$, only if $\left[(\rho f_{a^*} + \mu p_{a^*})\frac{\partial^2 a^*}{\partial\psi\partial c} + \left(\frac{\partial}{\partial\psi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right]\frac{\partial a^*}{\partial c}\right)\right] < 0$.
Now, f_{a^*} and p_{a^*} are positive (from the assumptions on f_a and p_a) .
And, $\frac{\partial a^*}{\partial c}_{|c=c^*} > 0$ for a and c being strategic complements.
Hence for $\frac{\partial^2 a^*}{\partial\psi\partial c}_{|c=c^*} < 0$ and $\frac{\partial}{\partial\psi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right]_{|c=c^*} < 0$, we have $\frac{dc}{d\psi}_{|c=c^*} > 0$.
(Note that $\frac{\partial}{\partial\psi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right] = \left[\rho\frac{\partial^2 f}{\partial a^{*2}} + \mu\frac{\partial^2 p}{\partial a^{*2}}\right]\frac{\partial a^*}{\partial\psi}$)
As per Lemma 1, $\frac{\partial a^*}{\partial\psi} < 0$,
So $\frac{\partial}{\partial\psi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right] < 0$ only if $\left|\frac{\partial^2 p}{\partial a^{*2}}\right| > \frac{\rho}{\mu}\left|\frac{\partial^2 f}{\partial a^{*2}}\right|$ at $c = c^*$(recalling that $f_{aa} < 0$ and $p_{aa} > 0$)]
Now, $\frac{da^*}{d\psi}_{|c=c^*} = \left(\frac{\partial a^*}{\partial c}\frac{dc^*}{d\psi} + \frac{\partial a^*}{\partial\psi}\right)_{|c=c^*}$
As $\frac{\partial a^*}{\partial\psi} < 0$, it follows that for $\frac{\partial a^*}{\partial c}_{|c=c^*} > 0$ and $\frac{dc^*}{d\psi} > 0$, we have $\frac{da^*}{d\psi} > 0$ if $\left|\frac{\partial a^*}{\partial c}\frac{dc^*}{d\psi}\right| > \left|\frac{\partial a^*}{\partial\psi}\right|$ at $c = c^*$.
The first part of proposition 1 follows from the above conditions.
Now, as $\frac{dc^*}{d\psi} > 0$ and $\frac{da^*}{d\psi} > 0$, we have $\frac{df^*}{d\psi} > 0$, given $f_a > 0$ and $f_c > 0$ (per assumption).
Hence under the conditions of the proposition the protest movement has greater mass support for a higher-cost leadership ⊟

Appendix 2: Proof of proposition 3

Proof: Applying the implicit function theorem to the FOC of the occupier:
$\frac{dc}{d\phi}_{|c=c^*} = -\frac{\partial F/\partial\phi}{\partial F/\partial c}_{|c=c^*} = -\frac{-\left[(\rho f_{a^*} + \mu p_{a^*})\frac{\partial^2 a^*}{\partial\phi\partial c} + \left(\frac{\partial}{\partial\phi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right]\frac{\partial a^*}{\partial c}\right) + \eta p_c\right]}{\partial^2\tau/\partial c^2}_{|c=c^*}$
The denominator is always negative for the payoff function of the occupier being concave at c^*.
So, if $\partial F/\partial\phi_{|c=c^*} > 0$, then $\frac{dc}{d\phi}_{|c=c^*} > 0$.
But, $\partial F/\partial\phi_{|c=c^*} > 0$ only if $\left[(\rho f_{a^*} + \mu p_{a^*})\frac{\partial^2 a^*}{\partial\phi\partial c} + \left(\frac{\partial}{\partial\phi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right]\frac{\partial a^*}{\partial c}\right) + \eta p_c\right] < 0$.
Now, f_{a^*} and p_{a^*} are positive, and p_c is negative.
And, $\frac{\partial a^*}{\partial c}_{|c=c^*} > 0$ for a and c being strategic complements.
Hence for $\frac{\partial^2 a^*}{\partial\phi\partial c}_{|c=c^*} < 0$ and $\frac{\partial}{\partial\phi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right]_{|c=c^*} < 0$, we have $\frac{dc}{d\phi}_{|c=c^*} > 0$.
(Note that $\frac{\partial}{\partial\phi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right] = \left[\rho\frac{\partial^2 f}{\partial a^{*2}} + \mu\frac{\partial^2 p}{\partial a^{*2}}\right]\frac{\partial a^*}{\partial\phi}$)
As per Lemma 3, $\frac{\partial a^*}{\partial\phi} < 0$,
So $\frac{\partial}{\partial\phi}\left[\rho\frac{\partial f}{\partial a^*} + \mu\frac{\partial p}{\partial a^*}\right] < 0$ only if $\left|\frac{\partial^2 p}{\partial a^{*2}}\right| > \frac{\rho}{\mu}\left|\frac{\partial^2 f}{\partial a^{*2}}\right|$ at $c = c^*$ (recalling that $f_{aa} < 0$ and $p_{aa} > 0$)]
Further, we have $\frac{da^*}{d\phi} = \left(\frac{\partial a^*}{\partial c}\frac{dc^*}{d\phi} + \frac{\partial a^*}{\partial\phi}\right)$
As $\frac{\partial a^*}{\partial\phi} < 0$, it follows that for $\frac{\partial a^*}{\partial c}_{|c=c^*} > 0$, and $\frac{dc}{d\phi}_{|c=c^*} > 0$, we have $\frac{da^*}{d\phi} > 0$ if $\left|\frac{\partial a^*}{\partial c}\frac{dc^*}{d\phi}\right| > \left|\frac{\partial a^*}{\partial\phi}\right|$ at $c = c^*$.
The first part of proposition 3 follows from the above conditions.
To prove the second part of the proposition, observe that as $\frac{dc^*}{d\phi} > 0$ and $\frac{da^*}{d\phi} > 0$, we have $\frac{df^*}{d\phi} > 0$, given $f_a > 0$ and $f_c > 0$ (per assumption).⊟