The Leader as Catalyst

On Leadership and the Politics of Institutional Change

Sumon Majumdar and Sharun W. Mukand[1]

May 2007
Preliminary draft.

[1]Majumdar: Dept. of Economics, Queen's University; Kingston, ON, Canada. e-mail: sumon@econ.queensu.ca, Mukand: Dept. of Economics, Tufts University. email: sharun.mukand@tufts.edu. Work in progress.

Abstract

Individual leaders have been central to the transformation of organizations, political institutions and many instances of social and economic reform. In this paper we take a first step towards analyzing the role of leadership to ask: when and how does a leader engineer change? We show that while underlying structural conditions and institutions are important, there is an independent first-order role for individual agency. We emphasize the key nature of the symbiotic relationship between followers decisions' to willingly entrust their faith in the leader and the leader's initiative at leading them. This two-way interaction can endogenously give rise to threshold effects; slight differences in the leader's ability or the underlying structural conditions can dramatically improve the prospects for successful change. Given the centrality of this leader-follower relationship, we further explore conditions under which an individual may deliberately prefer to follow an ambitious leader with divergent interests rather than a benevolent one with congruent preferences. Thus the model casts light on why 'good' as well as 'bad' leaders may both have their followers.

"Successful economic policy in developing countries is very far from being the product of pure forces of history – something that happens when it happens because its time has come. Far from it, in every case about which I have close knowledge, the policy would in all likelihood have failed (or never got started) but for the efforts of a key group of individuals, and within that group, one or two outstanding leaders.

Arnold Harberger (1993), Secrets of Success: A Handful of Heroes

"Men make history and not the other way around. In periods where there is no leadership, society stands still. Progress occurs when courageous skillful leaders seize the opportunity to change things for the better."

Harry Truman

"The ocean of individual actions which is history is too vast, too complicated, and too unpredictable for the actions of one or a few individuals to determine its course...Leaders might be able to identify the current in the ocean, thus appearing to be controlling the current, but in reality the current's direction is unaffected."

Tolstoy's argument in War and Peace (paraphrased by Ahearns)

1   Introduction

On 6 April, 1930, Mahatma Gandhi culminated his "Salt March" in the town of Dandi on the western coast of India. There, in defiance of the British monopoly on the collection of salt, he simply picked up a lump of natural sea salt and said "With this, I am shaking the foundations of the British empire". Within days, in coordinated civil disobedience across the country, not only his followers in the Congress Party, but millions throughout India did the same and demonstrations spread. It is widely agreed that this unique, collective act of non-violent protest was the first shot that eventually brought down the British Empire in India. Gandhi's leadership skill showed both in his recognition of the effectiveness of civil disobedience as well as in his choice of salt as a simple, visible and emotive symbol that communicated effectively to individuals irrespective of class, caste or religion. Similarly, throughout history individuals have had a key role to play in some of the most dramatic changes witnessed. Without Bismarck, the modern German state may never have come into being, just as in the absence of Abraham Lincoln, the contours of democracy in the U.S. may well have been very different. Moreover, just as Lenin helped orchestrate the October Revolution in Russia, no account of organizational transformation at General Electric can fail to give Jack Welch a central role. Yet, economists have not paid much attention to the role of leadership in engendering institutional or organizational change.[1]

In this paper we take a first step in this direction and ask: when and how does a leader catalyze change, be it in the economic, social or political arena? We emphasize the key nature of the leader's symbiotic relationship with potential followers in having a dramatic, transformational impact on the prospects for change. However, such transformational leadership can be for better or worse – for every leader such as Nelson Mandela there is a Robert Mugabe. Accordingly, we further examine the issue of leader selection (Besley, 2006) to ask whether and when the populace may in fact prefer to follow a leader they know to be ambitious and unscrupulous, rather than one who is benevolent and less partisan.

By virtue of their formal authority, leaders in government or business are assured that in certain domains, individuals have no choice but to follow the policies announced. However, the exercise of such formal authority through contracts, decrees and diktats is typically much less relevant when a leader urges a large scale change of the status-quo, be it of institutions, the social order or the overall economy. While a leader may initiate the process of challenging the status-quo, the success or failure of such attempted changes depends on how widespread is the popular response to the leader's initiative. Such participation in mass movements for social or political change is typically

---

[1] Hermalin (1998) is the prominent exception. In a signaling framework, the paper focuses on how a manager-leader can persuade subordinates in a team to take a desirable action. Acemoglu, Johnson and Robinson (2003) emphasize the importance of leadership in the development of good institutions in Botswana. Jones and Olken (2005) are the first to empirically examine the impact of political leaders on growth.

voluntary – be it the popular overthrow of the Shah in Iran, the participation in Martin Luther King's "March on Washington" or the response to Deng Xiaoping's Southern Tour to resuscitate economic reform. Accordingly in studying leadership, we emphasize the dynamic between a leader and potential followers in situations where successful change requires the persuasion of a large number of individuals to voluntarily undertake a coordinated (costly) set of actions. However for a complete account, any framework of change should also throw light on the full diversity of experiences of followers with their leaders. Accordingly, part of the challenge is to explain in an integrated framework, not only why individuals voluntarily follow leaders such as Gandhi and Mandela, but also leaders such as Hitler and Mugabe.

This paper attempts to address these issues in a very simple framework. We should emphasize at the outset that our framework is minimal in that we dispense with some aspects of leadership and institutional change that are not central to the points that we wish to address here. A key feature of our framework is that it is only through the coordination in actions across a large number of individuals, can the status-quo be changed. What makes coordination difficult is a lack of information as to whether the underlying conditions are appropriate for change to occur. It is in resolving this coordination problem that the leader plays a crucial role.[2] The leader plays an essential role in not only 'discovering' and seizing the right 'window of opportunity' for change, but also in communicating it to the population. However the crucial element for successful change here is how widespread is the response to the leader's call for action. Accordingly, the second key element of our framework is that it accords a central role to the mechanics of followership. People here choose to endogenously become followers by committing to follow more closely the leader under all circumstances. Of course, doing so is costly and thus individuals will only become followers if they expect gains from following the leader. As we show in the paper, this creates a demand for leadership and also in turn affects the supply of leadership by the leader. In equilibrium, these two forces together determine the probability of successful change.

We show that leaders who are successful in attracting a core group of committed followers can be particularly effective in transforming the prospects for change.[3] In part this is because such a committed group of followers,

> "....can be ordered to the polls or out onto the streets at will... to swell audiences,

---

[2] Evolutionary biologists such as Tooby and Cosmides (1992) and Krause and Ruxton (2002) have emphasized that leadership is likely to have evolved in humans to solve coordination problems. According to Van Vugt et al (2006) "leadership originally emerged to solve simple *coordination* problems in group-living species and has an ancient phylogenetic history. Among humans, leadership was co-opted to deal with specific problems associated with living in large groups. .....Group decision-making would be facilitated by the emergence of some form of leadership, whereby some individuals persuaded others to follow them in the direction of a preferred waterhole or hunting ground".

[3] For instance, though the Bolsheviks were a minority, it was the commitment of his Bolshevik supporters that helped catapult Lenin to power.

and campaign for him with extraordinary vigor and often at sacrifice to themselves. A leader can use such followers as a means of subtle or overt intimidation...He has in short, a most malleable instrument to use at will."(Willmer, 1984, pp.184)

We demonstrate that the dynamic interaction between a leader and his followers may give rise to endogenous thresholds for effective leadership; only if a combination of the leader's ability and the underlying structural conditions satisfy a certain threshold, are there positive prospects for change. Slight changes in this combination can lead to dramatic differences in the prospects for change and thus the effectiveness of leaders of very similar ability can be widely different. This is because we show that having committed followers also encourages participation in the process of change by non-followers. If the leader's ability is higher than an (endogenous) threshold, he attracts a core group of committed followers who empower their leader and enable him to even get non-followers to participate in mounting a challenge to the status-quo. Analyzing the threshold required for effective leadership, we find that when the general outlook for the prospects of change are pessimistic, only leaders of high enough ability cross this threshold. Thus effective leadership is harder to achieve under such circumstances.

Much recent research has emphasized the importance of institutions for growth and development.[4] Our framework suggests that even 'small' differences in leader ability can result in very diverse outcomes in terms of welfare-improving changes being adopted or not. Thus slight differences in the quality of leaders of two otherwise similar countries can lead to significant differences in terms of institutional change and policies adopted. In other words, there is an independent and first-order role for leadership in policymaking. This accords well with recent work by Jones and Olken (2005, 2006) who have been the first to empirically demonstrate that leaders matter.

We further show that the two-way interaction between the leader and followers gives rise to multiple equilibria. Expectations matter in that if individuals are optimistic about leadership, it encourages them to invest in followership and this in turn provides a fillip to the leader to exert initiative in bringing about change. Together with the threshold effect, the fact that the Zeitgeist affects outcomes underlies the difficulty in empirically disentangling the underpinnings of leadership. It also suggests that our framework provides a natural way to reconcile the classical debate between the 'structuralist' and the 'Great Man' schools of historical change. Structural conditions affect, but do not fully determine a leader's effectiveness at bringing about change; there remains a role for individual agency and leadership.[5]

---

[4] See for example Acemoglu, Johnson and Robinson (2001, 2005) in addition to work by Dixit (2004), Hall and Jones(1999), Rodrik, Subramaniam and Trebbi (2005) among others.

[5] The earliest proponent of the 'structural' view were perhaps Marx and Tolstoy. In recent years this view has received its most systematic exposition by Robert Gilpin in the context of international relations. The original exponent of the 'Great Man' school was Carlyle (1841). Subsequent work by Kissinger (1968) and Ionescu (1991) has also taken this view.

It is generally believed (e.g. Rotberg 2002) that in a divided society, the most effective leaders are those who are perceived to be "benevolent", in that they care about all groups, are balanced and non-partisan. Such leaders may be much more effective at carrying out reform because they are able to get support from a wide set of groups who would otherwise be wary of being misled into supporting reforms that may adversely affect them. However, we show that this intuition is incomplete in that a benevolent leader may be too conservative in his leadership initiative while a partisan and "ambitious" leader who is ruthless may be much more effective at bringing about change. Even more striking is the fact that such an "ambitious" leader may well be preferred to a "benevolent" one, even by groups that perceive themselves to be vulnerable to manipulation. So why would any individual ever prefer such a leader? We identify two effects that may work in opposite directions. On the one hand an "ambitious" leader is more likely to show initiative in finding the appropriate conditions and will thus go the extra mile to 'discover' a solution – this is the "ambition" effect. On the other hand the possible downside is that such a leader may lack credibility and may not be entirely trusted when encouraging individuals to invest in change. This "credibility effect" may work to undermine the effectiveness of the ambitious leader since followers may be wary of being manipulated into investing into institutional change that is not in their best interest. Together these effects give rise to a non-monotonic U-shaped relationship between the degree of a leader's ambition and his effectiveness.

In terms of ex-ante welfare, we show that in expected terms an ambitious leader with preferences that differ from that of followers, may often be preferred to a leader who's preferences are congruent with those of the followers. In fact, a desire to align one's interests with that of the leader may under some circumstances lead to a bigger following for such leaders, overall leading to higher chances of 'good' *as well* as 'bad' changes.

The fact that a ruthless "ambitious" leader can be a force of change for the better is perhaps best illustrated by Lyndon Johnson's time as Majority leader in the U.S. Senate. In his masterly narrative Caro (2002, pp. 862) argued that

> "During Lyndon Johnson's previous political life, compassion had constantly been in conflict with ambition, and invariably ambition had won. ....For the compassion to be released, to express itself in concrete accomplishments, it would have to be compatible with the ambition, pointing in the same direction. And now, at last, in 1957, it was.... For at last this leader of men would be leading, fighting, not only for himself but for a great cause. This man who in the pursuit of his aims could be so utterly ruthless – who would let nothing stand in his way; who, in the pursuit, deceived, and betrayed and cheated – would be deceiving and betraying and cheating on behalf of something other than himself: specifically, on behalf of the sixteen million Americans whose skins were dark."

Once Johnson realized that it would help pave the way to the Presidency, institutional change was inevitable and his ambition and energy helped push through the Voting Rights Act of 1957.

Related Literature: Leadership plays an important role in all forms of human (and primate) societies (Brown (1991) and E.O. Wilson (1975)). Indeed according to MacGregor Burns (1978), 'leadership is the most studied and least understood phenomenon in all of the social sciences'. Nevertheless, with a few prominent exceptions it leadership, (as against leaders) has been relatively understudied by economists. In the literature on organizations, an important early contribution is that of Hermalin (1998) who in a signaling framework, emphasizes the importance of a leader's example in getting a given team of individuals to follow. While his model captures well the leader's initiative in the overall process, it does not consider the decision of followers to invest in followership and thereby empower the leader. In our model, this two-way interaction is crucial to determine the effectiveness of a given leader. Rotemberg and Saloner (1993) capture leadership by analyzing in an incomplete contract framework how the degree of empathy the leader has for the subordinate can alter the latter's incentives. Besley and Ghatak (2005) do not directly address the issue of leadership, but their analysis of 'motivated' agents shares some aspects of the leader-follower relationship studied here. In our model, potential followers can invest in more closely following the leader under all circumstances; in other words, they invest in aligning their 'motivation' with that of the leader. We study the effect of such 'motivation' on other followers, the leader and most importantly on the overall chances of change. The literature on institutional change has recognized the importance of leaders in determining the trajectory of a country. For instance, Acemoglu, Johnson and Robinson (2003) acknowledge the importance of Seretse Khama in laying the foundations of growth in Botswana. In a more systematic cross-country analysis, Jones and Olken (2005) exploit the random death of political leaders to identify their impact on economic outcomes. They find that political rulers (i.e. those with formal authority) do affect growth and policy outcomes.

The study of leadership and change has been pursued in much greater depth in disciplines other than Economics. For instance, the study of leadership is a central theme in many studies of organization behavior and management (see Bass(1990) and House and Aditya (1997), Northouse (2004)). Similarly, this topic has been explored in political science (Burns, 1978), international relations (Young, 1991) and social psychology (Van Vugt and De Cremer (1999)), among other fields.

We start by describing the elements of the basic model in the next section. In Section 3.1 we analyze the equilibrium when the preferences of the leader and the populace are congruent. We relax this assumption in Section 3.2 in the case where there are two groups, with the leader-follower preferences being not perfectly aligned. Applications are discussed in Section 4 and extensions in Section 5. We conclude with a discussion in Section 6.

5

2 The Model

We develop a simple model to capture the two-way relationship between followers and a leader and the impact of this relationship on successfully engendering change. The model consists of three key elements: one, the mechanism for successful change which requires coordinated action under the right circumstances; two, leadership, which consists of identifying suitable opportunities for change and spurring individuals to take advantage of such opportunities; three, followership, which is characterized by the degree of an individual's response to a leader's call for action. A key aspect of our framework is the interdependence between the followers' demand for leadership and the leader's supply of leadership, together which help determine the probability of successful change.

Information and Coordination:
While many policy changes such as an increase or decrease of the tax rate, can be unilaterally implemented by a leader or manager through fiat, broad-based economic, institutional or organizational change is far more difficult to achieve. Such change often requires a coordinated switch in the beliefs and/or actions of a large number of agents with possibly differing preferences, costs and priors. Such coordination is typically difficult to achieve. Not only does an individual agent lack information about whether other agents also plan to switch their actions, but further may even be uncertain about whether the underlying conditions are such that change is optimal to begin with.

To capture uncertainty about whether or not the underlying conditions are appropriate for change, we assume that there are three states of nature, B, G_0 and G_1. State B is one in which change is never possible. We assume that in state B, even a coordinated change of actions will not only never succeed, but also results in *all* participants (including the leader) becoming worse off, earning a very large negative utility.[6] This is meant to capture the idea that under some conditions, any attempt at change is futile and costly and should not be undertaken.

In states G_0 and G_1, change is possible, but requires coordinated mass action. We assume that the probability of change in either of these states is given by $\frac{1}{\theta}p.m^\theta$, where m is the fraction of the populace participating in the process, $\theta > 0$, and $p \in (0,1)$ is a parameter that captures the degree of uncertainty that is inherent in the process. This formulation captures in a stylized manner two plausible aspects of the process of regime change – one, that it is stochastic and two, it is more likely to occur when there are more active participants. The parameter θ captures the impact of the degree of complementarity amongst the participants on the probability of successful change. For a smaller θ, the marginal product of increased participation m is also larger. For simplicity, in most of the analysis that follows, we assume that $\theta = 1$ and thus the probability of change equals $p.m$. In section 3.1.1, we discuss the effect of θ different from 1 on the qualitative

---

[6]For example, not only was the Shiite rebellion in Southern Iraq unsuccessful in overthrowing the Baathist regime, but it resulted in the execution of the leaders and the massacre of many of the followers.

results.

While change is possible in both states G_0 and G_1, they differ in terms of the distributional consequences of successful change. The population is assumed to belong to one of two groups – the majority (group M) or the elite (group E). State G_1 is a situation in which the gains from successful change are widely spread and accrue to any individual who is an active participant in the process, irrespective of his or her group. In contrast, in the state G_0, the gains from change accrue to a much narrower segment of the population, only to participants from the elite group E. In this state, while participants from the majority incur the cost and raise the chances of success, they enjoy none of the gains from change. Alignment (or not) of interests between the leader and each of the groups will have important consequences for his credibility and the resulting degree of followership. For simplicity, we assume that the elite group is of zero mass (while the majority is of mass 1). We will discuss below how relaxing this assumption does not qualitatively affect most of our results. We denote by $G > 0$ the gain from successful change to a participant from group M in state G_1; for non-participants, this is zero.

The (common) priors are $1 - \alpha$ on the state being B (i.e. on the situation not being conducive to change), and αa on the state being G_1 and $\alpha(1 - a)$ on it being G_0. Thus when a is higher, there is an increasing probability of the coincidence of objectives between the two groups.

While change is possible in some states and not in others, at an individual level what makes it particularly difficult is the lack of information about the underlying state of the world. In the absence of information, the large downside if the underlying state turns out to be B, makes individuals stick to the status quo, resulting in institutional persistence. This is where we introduce a role for a leader.

Leadership and Information:

While the general populace lacks information about the underlying state of the world, we assume that there is an exogenously given leader who is in a position to invest in acquiring such information. For instance, in case of political change, it could be information that the ruling regime is currently weak and vulnerable, or in the case of economic reform, it could be about the state of the global market. However, ascertaining whether there exists a suitable 'window of opportunity' is not easy for the leader to do. It requires a mixture of skill and effort. Accordingly we assume that if the leader expends resources $e(i) = li^2/2$, then with probability i he learns perfectly the state of nature, while with probability $1 - i$, he learns nothing. On learning of a right opportunity, the leader next needs to convey his information to the populace each of whom then decide on their personal course of action. To capture the ability of the leader in communication, we denote by $\tau \in (0, 1)$ the probability that any member of the population receives the leader's message. The population is assumed to be a continuum so that equivalently τ is also the fraction of the population that receives the leader's message. Thus the parameters l and τ define the ability of the

leader, the former at uncovering the right opportunities for change and latter at communicating it to the populace.

While we have ostensibly modeled the leader's action here as acquiring information about the underlying state, it is also meant to capture other aspects of leadership such as communicating and persuading others that the underlying conditions are right for attempting change. Thus one could alternately assume [with similar qualitative results] that the leader's choice variable is the amount of effort he spends at communicating information to the followers, with i being the fraction of the populace that receives his message if he expends resources $e(i)$.

A second aspect of the model also deserves comment. While the leader here is one by virtue of his position i.e. he is the only one in a position to acquire information, this does not automatically allow him to impart leadership and bring about change. As we shall see below, the leader's power at effecting action and hence leadership is crucially dependent on the responses of his followers and non-followers. Under certain circumstances, any attempt at effecting change by the leader will be met with zero response and no leadership will be possible.

In this formulation, the main role of the leader is to acquire information about the appropriate state of the world and then convey it to the populace. To capture the leader's incentives in the simplest manner, we denote by L_s the leader's payoff from successful change in state G_s, $s \in \{0, 1\}$. This payoff may involve either a monetary payoff or some 'ego' rents that accrue from successful change and the consequences thereof in terms of political office etc. We make the following restriction on gains L_s and costs l so as to ensure that the choice variable i (which is the probability that the leader acquires information about the present state) is always less than 1.

Assumption 1: $\alpha p \tau L_s < l$

Given that there are two groups in the economy, the majority and elite, the leader's interests could be aligned with one group or the other. Notice that the above formulation allows us to also capture such differences in preferences. A "benevolent" or "non-partisan" leader here is one who cares about the welfare of the majority and thus would like to see change coming about only in state G_1 where the benefits are wide-spread and accrue to all groups. Thus for such a leader we assume that $L_1 > 0$ while $L_0 = 0$. On the other hand, a leader may have preferences aligned with the narrow elite. Such a "self-interested" or "elitist" leader may have a personal agenda under which he would like to see change enacted even in state G_0, where only the elite gain while all bear the cost. Accordingly, such a leader gains from change in both the states, i.e. $L_1 > 0$ *and* $L_0 > 0$. In our analysis below, we will in turn consider each of these two types of leaders.

Here, bringing about successful change requires a coordinated participation in the process by a large number of individuals. Next we describe the costs and benefits from participation.

Followership:

There exists a unit mass of individuals, some of whom may choose to participate in the process of changing the status-quo or not. While participating holds the promise of a reward, it also involves incurring costs. The degree of an individual's response to a call for action by the leader will obviously depend on her cost of participation. To naturally introduce followership in the form of a greater degree of responsiveness to the leader's message, we assume that individuals can ex-ante invest in lowering their ex-post cost of participation. Individuals who make this investment are more likely to have a lower participation cost in the future and are thus more likely to act when called upon to do so by the leader. In other words, such individuals are followers.[7]

Depending on the context, these participation costs may take different forms. For instance, an attempt to bring about a revolution against an autocratic government requires individuals to make costly investments – from setting up the political opposition, organizing political parties and meetings, street protests to even the opportunity (and physical) cost of an arrest. Furthermore, in this case undergoing arms or ideological training, organizing one's matters and forsaking other avenues of employment so as to be able to easily participate in the revolution can be interpreted as early investment in followership. Alternatively, a country's attempt at liberalizing the economy or joining the WTO is likely to be successful if domestic firms have already made the costly investments to modernize and increase productivity. Given any convexity in adjustment costs, firms that upgrade their technology early instead of waiting till the end moment, are likely to have much lower adjustment costs, and consequently a higher payoff.

In terms of the model, we assume that with probability y, the personal cost c of participating in the process is 0, and with probability $1 - y$, this cost c is drawn from a uniform distribution with support $[0, c_H]$. We will assume that c_H is high enough so that not all people participate in the process of change even in the best possible circumstances:

Assumption 2: $p\tau G < c_H$

However, (as discussed above) individuals can make a costly early investment to lower their cost of participating and benefiting from change. Accordingly, we assume that people can invest before-hand in y i.e. in lowering their cost of participation ex-post if called upon to do so. The cost of investing y is given by $f(y) = ky^2/2$.

This formulation provides us with a simple way to distinguish between followers and other participants. We label as "committed" followers those individuals with a low cost $c = 0$ of participation in any change, as they participate whenever called upon to do so by the leader. On the other hand, individuals with costs drawn between 0 and c_H decide whether or not to participate depending on their own realized costs as well as their expectations of the movement succeeding. Thus, while a fraction of this group may participate in the process, their decision to

---

[7] All that is required is that the payoff (in expected terms) is higher, the earlier an individual makes a commitment. This payoff can be pecuniary or non-pecuniary in the form of more status and authority post-regime change.
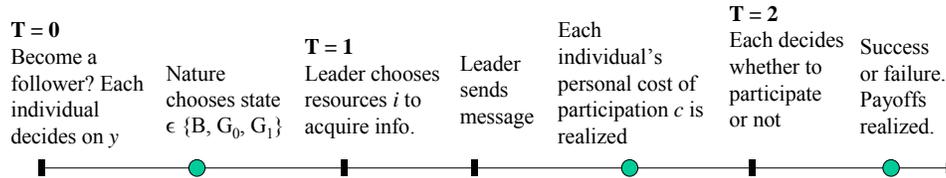
Figure 1: Timing of events

follow the leader's call for action is not automatic and is contingent on other factors.

Dramatic institutional change such as the onset of democracy, the extension of civil rights or revolution of any kind typically requires numerous participants. This distinction between committed and contingent followers is a simple way to emphasize the differences between different kinds of participants that is common to many social and political movements of change. The committed followers can be considered to be the loyal supporters who offer unconditional support to the leader and as we shall see below play an important role in spurring the leader towards action. Depending on the context this group of followers may be the members of a political party, or a core team supporting the head of any organization in his or her attempt at change.

Timing of events. The following is the timing of events. Initially, at date $T = 0$, each member of the population decides how much y to invest in reducing his or her cost of participation. A higher y at this stage denotes a greater degree of followership, as one is then more likely to respond positively to the leader's call for participation. The state of the world is subsequently realized, and at date $T = 1$ the leader invests i in acquiring information about it. If he receives information, the leader communicates this information to the populace. People's personal costs of participation are then realized, and at $T = 2$, each decides whether or not to participate in the process of bringing about change. Depending on the state of the world and the number of people participating, change occurs or not and payoffs are realized.

Figure 1 gives a diagrammatic depiction of this timing of events.

3   Leadership and Change: Equilibrium Analysis

As pointed out earlier, the framework described above seeks to capture the dynamic between a leader and his/her followers and its overall consequences for large scale change such as economic reform, institutional and organizational transformation. In determining the leader's effectiveness at catalyzing change, one has to account for not just his ability but also his preferences. An

individual or group's decision on whether or not to become a follower and/or respond to the directives of a leader may well depend on whether the leader is perceived to have objectives congruent with theirs or not. As described above, the leader may have objectives aligned with that of the majority or with those of the minority elite. In our analysis below, we consider each case separately.

3.1 Leadership and Followership under Congruent Preferences

We begin by exploring the leader-follower dynamic in the case where there is alignment of preferences of the leader with those of the majority i.e. a benevolent leader. This congruence of preferences may arise because the leader belongs to the group or because he is 'benevolent' or because the underlying political considerations force the leader to only take into account the welfare of the majority. For example, if the gains to the leader come from a longer term in office following a successful change and the institutional framework gives the majority the power to determine who is in office, this will imply a closer congruence in objectives of the leader with those of the majority.

In this case, both the leader and the majority can potentially gain if the state is G_1, but not if it is G_0 or B. To not introduce additional issues of imperfect information, we assume that the preferences of the leader are common knowledge.

Participation: In analyzing the equilibrium of the above game, let us start from second period where each individual knows his own opportunity cost of participation and decides whether or not to participate. For an individual who has not received any message from the leader, given that there is an infinite negative cost to attacking in a bad state, he will not participate irrespective of his cost.

Thus the only consideration is for individuals who have received message of a good state from the leader. Since the leader here is a benevolent one, all such individuals will infer that the state must be G_1 as a benevolent leader will never issue a call for action in states B or G_0. If this individual faces zero cost of participation, as is the case for a committed follower, he will indeed do so. For an individual with a positive cost c, he will have to weigh the costs and benefits from participation in making his decision. If his expectation about how many other people will participate is m^e, this individual will also choose to participate only if $c \leq pGm^e$. Thus the marginal participant is one whose cost of participation is given by

$$c^* = pGm^e$$

Given the leader's ability τ in communicating his message, a fraction τ of the populace receives it. Of this, a fraction y are committed followers and have zero realized cost of participation and surely do so; among the remaining, only those with costs less than c^* participate. Thus aggregating

across all individuals, the total mass of people who participate is given by:

$$m = \tau[y + (1 - y)\frac{c^*}{c_H}]$$

In equilibrium, individual expectations about aggregate participation are realized. Thus, equating the above two equations gives the equilibrium cut-off cost c^* for participation:

$$c^* = p\tau[y + (1 - y)\frac{c^*}{c_H}]G \tag{1}$$

For any given $y > 0$, this condition determines c^*. The following proposition shows that c^* is unique and analyzes some of its properties.

Proposition 1 *For any given $y > 0$, there is a unique level of participation c^*, which is determined from equation (1). Increases in y, τ, p or G or a decrease in c_H raise the probability of change in the good state.*

Proof. See Appendix. ■

Increase in the number of followers y or a better ability to communicate by the leader τ or a decrease in c_H raise the mass of participants for a given c^*, thus raising the chances of success. This encourages more marginal participants thereby raising c^*. Similarly, an increase in the probability of success p or in the gains from success G raises directly the payoff from participation and hence leads to an increase in c^*. As the overall probability of change is related to the total mass of participants in the process, variations in the underlying parameters that raise c^* also serve to increase the probability of successful change in state G_1.

It is interesting to note some additional features of this solution. As y increases, c^* increases. In other words, as the number of committed followers increase, so too does participation by the rest of the population. Thus there is complementarity between followers and mass participation. Note that when $y = 0$, the only equilibrium involves $c^* = 0$ i.e. no possibility of change[8]. Thus a core group of committed followers is always necessary to have any positive chance of successful change.

The leader's expertise at communication, τ, also plays a crucial part in this relation. As each individual expects a more communicative leader in the sense of his message reaching more people, each is more encouraged to participate and thus overall there is greater participation in bringing about change. The nature of this dynamic between the leader and the populace will also be evident in our analysis of leadership and followership below.

Leadership: Next we move back to the period $T = 1$ where the leader decides on how much effort i to devote in discovering the underlying state. If the leader uncovers no information or discovers

---

[8]This is because under Assumption 2, the equilibrium condition $p\tau G\frac{c^*}{c_H} = c^*$ cannot hold for any $c^* \in (0, c_H]$.

that the conditions are not right (i.e. in states G_0 or B), he will not send out any message urging others to invest as there is zero probability of success. On the other hand if the underlying state is good (i.e. G_1), the leader issues a call to initiate change. Of course, whether or not people will act on the leader's message depends on their own personal costs as well as their expectation about action by others (as described above).

Taking the behavior of the populace in response to a call for action as given, the leader chooses his effort i at discovering the underlying state to maximize

$$\alpha a i p m^e L_1 - e(i)$$

The first-order condition for the problem yields:

$$\alpha a p m^e L_1 = \alpha a p \tau [y + (1-y)\frac{c^*}{c_H}]L_1 = li \tag{2}$$

As the leader expects a greater degree of response m^e by the populace to his message, it encourages him to expend more resources in discovering the underlying state. In other words, the supply of leadership is increasing in the number of "committed" followers y as well as the expected participation of the general populace (given by c^*). Furthermore, the leader's effort is also increasing in the rewards from change, either for himself (a higher L_1) or for the participants (via an increase in c^*) or an increase in communication-ability of the leader (τ). The effects here can be both direct as well as indirect. For instance, a leader with a higher ability at finding the underlying state (i.e. a lower l) or at communicating the message (i.e. a higher τ) finds it directly worthwhile to expend more effort as he has a greater chance of discovering appropriate conditions for change and also communicating this to the populace. There is an indirect effect at work as well; expectations of a higher leader ability also encourages increased participation by non-followers (i.e. a higher c^*), which again feeds back to the leader investing more in i.

Followership: Finally, we move back to the initial period $T = 0$ to analyze the decision by individuals to invest resources y in becoming followers. Recall that a higher y lowers the expected cost of participation in the future, and thus by investing in y, people commit themselves to more closely following the leader when called upon to do so. Of course, this decision to invest in y depends on the expectations about the outcomes to follow in the subsequent periods.

In this game, there always exists a no-action *status-quo* equilibrium in which no one invests in y i.e. everyone chooses $y = 0$, following which (from (1)) $c^* = 0$ i.e. no one participates, and $i = 0$. Anticipating this, choosing $y = 0$ in the initial stage is a rational response. In this equilibrium, there is no probability of change and the status-quo is retained.

To investigate interior equilibria involving a non-zero degree of followership, let us first compute the expected payoff to an individual from investing y. In period 2, one will participate in the process of change only if he or she receives the leader's message (which only occurs in stage G_1, which the

13

leader uncovers with probability i) and if her cost of participation is either 0 or below c^*. Investing in followership i.e. a higher y, helps to lower the expected participation cost in the future. With probability y, this cost is 0, while with probability $1 - y$ it is distributed between 0 and c_H. Denoting by V the expected gains from participating, an individual's payoff from investing y is thus:

$$\alpha a i \tau [yV + (1-y) \int_0^{c^*} (V-c)\frac{dc}{c_H}] - f(y)$$

$$= \alpha a i \tau [yc^* + (1-y)\frac{(c^*)^2}{2c_H}] - k\frac{y^2}{2} \tag{3}$$

as $V = pm^e G = c^*$ (from (1)).

The first-order condition with respect to y in (3) gives:

$$\alpha a i \tau [c^* - \frac{(c^*)^2}{2c_H}] = ky \tag{4}$$

Note that for any given level of participation c^*, the degree of followership y is increasing in the anticipated degree of leadership i that is expected from the leader. As analyzed in equation (2), the feedback is in fact two way; a higher degree of followership y has a positive effect on the resources i that is put forth by the leader also. Secondly, as discussed before, an increased number of committed followers encourages participation by the rest of the populace. However, as the above equation shows, there is a reverse effect too: as c^* increases i.e. as general participation rises (thereby increasing the chances of success), it enhances the incentives for any individual to become a committed follower.

Incorporating from (2) that $i = \alpha a p \tau [y + (1-y)\frac{c^*}{c_H}]L_1/l = \frac{\alpha a L_1}{lG}c^*$, the above condition characterizes for a given level of c^*, the degree of investment into followership by any individual:

$$\frac{(\alpha a)^2 L_1 \tau}{lG}(c^*)^2(1 - \frac{c^*}{2c_H}) = ky \tag{5}$$

Now, given that the population is a continuum, if each individual invests y in followership, then y is also the fraction of the population with realized cost of participation $c = 0$ i.e. are committed followers. As analyzed before, for a given level of followership y, the degree of participation by the general populace is given by the equilibrium condition (1):

$$p\tau[y + (1-y)\frac{c^*}{c_H}]G = c^*$$

$$\Longrightarrow y(1 - \frac{c^*}{c_H}) = c^*(\frac{1}{p\tau G} - \frac{1}{c_H}) \tag{6}$$
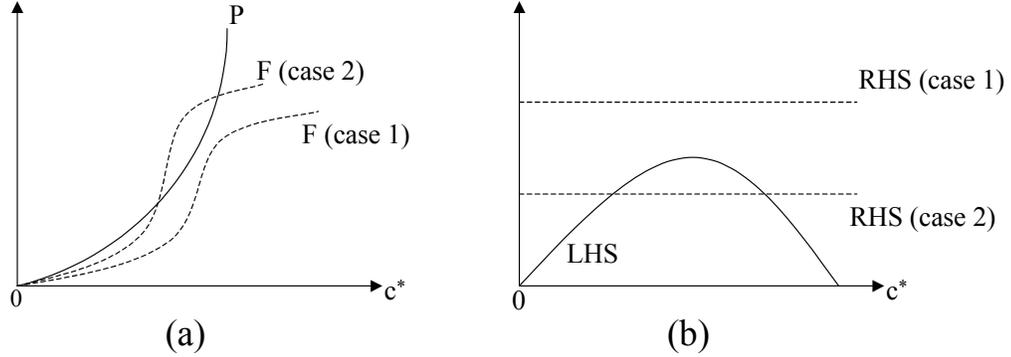
Figure 2: Overall equilibrium

Thus, together the conditions (5) and (6) determine equilibrium for the model. Using (6) to replace y in the above first-order condition (5) gives us the overall equilibrium condition for c^* (and hence also for y) :

$$\frac{(\alpha a)^2 L_1 \tau}{lGk}(c^*)^2 (1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = c^*(\frac{1}{pG\tau} - \frac{1}{c_H}) \tag{7}$$

Solution(s) to this equation (if any) determine equilibria for the overall game. Clearly $c^* = 0$ (i.e. one where no one becomes a follower, the leader expends no effort and overall there is zero probability of change), is an equilibrium. However, there can be interior equilibria too. The following proposition analyzes these.

Proposition 2 *If*

$$\frac{(\alpha a)^2 L_1 \tau c_H}{3\sqrt{3}lkG} < \frac{1}{pG\tau} - \frac{1}{c_H} \tag{8}$$

then the only equilibrium for the overall game is where no one becomes a follower i.e. $y = 0$, and $i = 0$ and there is no possibility of change. On the other hand, if this condition does not hold, then there are two interior equilibria in addition to the no action equilibrium.

Proof. See Appendix. ∎

The above proposition demonstrates that the overall equilibrium to the game can be one of two kinds. First, there always exists a degenerate *status-quo* equilibrium where there is no possibility of regime change. Under some circumstances, it is the only equilibrium. As condition (8) shows, this will be the case when the general prior α about the prospects of change is highly pessimistic, or the leader is of poor quality in terms of his ability at gathering information or communicating

15

it, or when the perceived gains from change G are relatively low. In all other circumstances, the above proposition points out the possibility of multiple interior equilibria. Typically, there are two such. One is a high probability-of-change equilibrium involving a high level of followership y, a high degree of effort by the leader i, and a good amount of participation even by the contingent followers. At the same time, there also exists a low-level equilibrium with few becoming committed followers as well as less effort by the leader. In this case there is a relatively low (but non-zero) possibility of change.

While the Appendix gives the formal proof of the proposition, its intuition can be seen from the figures above. Equation (1) gives the degree of participation c^* by non-followers expression for a given level of followership y, and is represented by the increasing curve P in figure 2(a). On the other hand, investment in followership y for a given level of participation c^* and leadership effort i is given by equation (4) and is represented by the curve F in figure 2(a). The intersection of these two curves give overall equilibrium for the model. Thus if the situation is as in case 1 of the figure, the only intersection is at $c^* = 0$ and the only equilibrium for the game involves no change. On the other hand, in case 2, there are two interior equilibria in addition to the status-quo equilibrium. To determine the precise condition for each case, one needs to take into account the relative speed of change of the two curves; this is done in (7) above. Eliminating a c^* from both sides of the equation, the left-hand side of the equation is inverse U-shaped in c^*, as depicted in figure 2(b), while the right hand side is a constant. Thus, depending on whether or not the right hand lies above or below the highest point of the inverse U, there is either no interior equilibrium or two such.

This multiple equilibria is the result of the interaction between the leader, the followers and the non-followers. As more people invest in becoming followers, thus committing themselves to taking action whenever called upon to do so by the leader, it increases the incentives for the leader as well as increases participation by non-followers. Knowing that more people will act upon getting his message, the leader puts in more effort into discovering the right conditions for change, thus raising the overall chances of success. This increased chance of success encourages more people to invest in followership in the first place. It is the two-way feedback between followership, leadership and participation that thus leads to one equilibrium involving a high degree of all three and another with low degrees of all. Among the three equilibria (in case 2), the status quo equilibrium and the equilibrium with the highest level of c^* are stable, while the middle one involving small levels of followership, participation and change is unstable.[9]

---

[9]This can be seen from figure 2(a); at the middle equilibrium, consider a slight increase in y. From (P), this translates into an increase in participation c^*, which feedsback into increased followership y through the followership curve (F). The resulting feedback is in fact greater than the initial increase in y, implying that the overall dynamics move away from this equilibrium. On the other hand, its the opposite case for the status quo equilibrium and the equilibrium with the highest level of c^* i.e. these two are stable.

A second implication of the above proposition is that it demonstrates the possibility of endogenous threshold effects for effective leadership. If the leader's ability is below an endogenous threshold (i.e. if l is large or τ is small so that condition (8) holds), the probability of the leader catalyzing change is zero. The probability of effecting change as a function of ability is depicted in figure 3 below (in the multiple equilibria case, we consider the Pareto-dominant (and stable) equilibrium i.e. the one with the higher c^*). Only a leader who is of a sufficiently high ability in discovering underlying conditions and communicating them to the population will have any chance of being successful in changing the status-quo regime. What is somewhat surprising about this result is that the threshold effect comes about in spite of all the underlying variables being continuous. To see the underlying intuition observe that there is strategic complementarity not only between the individuals in the population, but also between the individuals and the leader. If the leader's ability is low, then the expected returns from investment in followership for any individual is likely to be modest. These modest returns to change result in a collapse all throughout via two channels. Firstly, here slight increases in the number of committed followers have a negligible effect on participation by the non-followers (we discuss this channel in more detail in section 3.1.1 below) and thereby on the overall chances of success. Second is the leadership channel, where a leader of high ability requires a lower degree of followership to be spurred into action. For a leader with lower ability to exert the same level of effort requires a higher degree of expected participation, which of course does not happen. A leader of high ability helps resolve this coordination failure by making successful outcome to each individual's investment much less dependent on the actions of others. No longer hostage to the investment decisions of others, each individual responds by undertaking the costly investment to facilitate change. This direct effect is reinforced by the positive spillover that arises due to the strategic complementarity in actions resulting in a coordinated switch by individuals investing toward change.

An implication of this result is that 'small' differences in the leader's ability can have dramatic effects on the probability of regime change. Together with the multiple interior equilibrium phenomenon, it also suggests why the role of leadership in affecting any real outcomes may be quite difficult to empirically disentangle.

This result also throws light on two related debates. First, the debate regarding the role of institutions in driving economic growth. As has been pointed out by Besley (2006) among others, political institutions are important in part because they determine both the average quality of leadership as well as its variance. Our analysis here suggests that small differences in leadership quality may turn out to be of first-order importance in determining whether or not large scale changes happen. Thus, even small differences in underlying institutions leading to small differences in the quality of leaders selected can have big overall impacts. Second, there is a long-standing debate among social scientists on whether historical outcomes are driven by underlying structural conditions (Tolstoy) or by the 'Great Man' (Carlyle). While the model in this paper leans towards
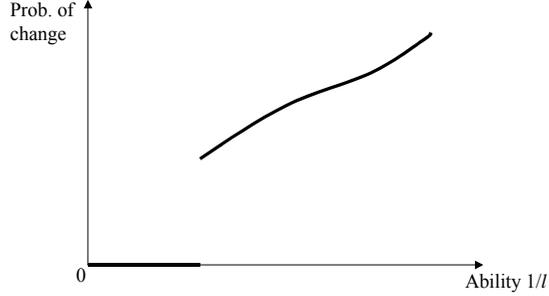
Figure 3: Effect of leader's ability on the probability of bringing about change

the 'Great Man' theory of history, it provides a caveat: the quality of leaders matter, but only under the right conditions which are characterized here by a sufficiently optimistic prior about the prospects for and gains from change to begin with.

3.1.1 *Leadership and Threshold Effects: the Role of Complementarity*

How does the degree of complementarity in individual participation decisions matter for the equilibrium and therefore for the overall probability of successful change? In addressing this question, we revert to the general formulation, where the probability of change in both states is given by $\frac{1}{\theta}pm^{\theta}$, with $\theta > 0$. Recollect that the parameter θ now captures the degree of complementarity in the process, as a smaller θ corresponds to a higher marginal product of increased participation m.

The structure of the game is the same as before except that (similar to Assumption 2), we now assume:

Assumption $2'$: $p\tau G < \theta c_H$

The analysis of the participation decision, the degree of leadership effort exerted and the investment into followership is very similar to that before and are derived in the Appendix. Together, the overall equilibrium condition for c^* is now given by the equation:

$$\frac{(\alpha a)^2 L_1 \tau}{lGk}(c^*)^2(1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = c^* \left((\frac{\theta}{pG\tau})^{\frac{1}{\theta}}(c^*)^{\frac{1}{\theta}-1} - \frac{1}{c_H} \right) \qquad (9)$$

Clearly $c^* = 0$ (i.e. one where no one becomes a follower, the leader expends no effort and overall there is zero probability of change), is an equilibrium now too. Looking for interior equilibria, the left hand side of (9) is the same as that of (7). However the right-hand side is now different and the interior equilibria in some cases will now be unique and there will be no threshold requirements for leadership to be effective. The following Corollary to Proposition 2 analyzes this in more detail.

18

Corollary 1 *For $\theta < 1$, in addition to the status-quo equilibrium, there always exists an interior equilibrium with a positive probability of change. For $\theta \geq 1$, there exists a range of parameters under which the status-quo is the only equilibrium.*

Proof. See Appendix. ∎

This proposition shows that when θ is low, there *always* exists an interior equilibrium. This is in contrast with the case studied earlier where if condition (8) holds, then the only equilibrium is the no-action one. In terms of the effectiveness of leadership, this implies that in the case where strategic complementarity θ is less than 1, there are no abrupt changes in it. In other words, over the *entire range* of leadership ability l or τ, small changes in the leader's ability or in any of the underlying parameters result only in a small change in the probability of successful change. On the other hand, when strategic complementarity is high i.e. $\theta \geq 1$, there exists thresholds similar to condition (8) that must be satisfied for a leader to be effective.

The underlying intuition for this difference stems primarily from the complementarity between the individuals in the population which translates into a strategic complementarity between the committed followers and non-followers. When $\theta < 1$, slight increases in the number of followers (at $y = 0$) results in a big increase in the participation of non-followers, thus overall leading to a substantial increase in the mass of participants. Together this implies that a small increase in followership also results in a significant improvement to the leader's incentive in light of the expected change in overall participation. On the other hand when $\theta \geq 1$, a marginal increase in y (at $y = 0$) results only in a small marginal increase in the overall number of participants and thus is not enough to spur the leader into putting in more effort. In this case only a leader of sufficiently high ability helps resolve this coordination failure by making successful outcome to each individual's investment much less dependent on the actions of others. Thus, when $\theta \geq 1$, there exist thresholds in terms of the leader's ability and the other underlying parameters for leadership to be effective, while when $\theta < 1$, even for low ability leaders, the probability of bringing about change is positive, albeit small.

3.2   Leaders and Followers under Imperfectly Congruent Preferences

The analysis above was for a leader whose preferences for change were perfectly aligned with that of the majority. While this may be true in some instances, it need not always be the case and the leader may have his or her own agenda for change separate from that desired by the majority. We now explore this possibility.

When the leader is known to have interests aligned with that of a particular group, individuals in this group do not have any reason to suspect his motives when he issues a call for action. However, in many situations this will not be the case. The leader may belong to a different class, ethnicity or religious group whose preferences for change could be different. For instance, a Shiite

leader's call to arms with the aim of overthrowing Saddam Hussein in Iraq may be viewed very differently by a Sunni than a Shiite. More generally, in many instances it is quite likely that the realized institutional change that occurred ex-post was not what was desired ex-ante by followers of Mugabe in Zimbabwe, Kabila in Zaire or even the Bolsheviks in revolutionary Russia.

Accordingly, we now analyze the case where the leader may belong to group E and thus his preferences for change need not always coincide with that of the majority group M. In particular, we assume that the leader's initial reputation for having preferences congruent with group M i.e. that the leader is 'benevolent' is given by $\lambda \in (0, 1)$.

Recall that in state G_0, while all participants gain from successful change, in state G_1, only participants from group E gain; those from group M gain nothing but incur the cost of participation c. For a leader whose interests are aligned with members of group E we assume that $L_1 > 0$ as well as $L_0 > 0$, so that it is optimal for him to issue a call for action in both states G_0 as well as G_1. Recall that the ex-ante prior on the state being B is given by $1 - \alpha$, while that on it being G_1 is αa and on it being G_0 is $\alpha(1 - a)$. As a gets higher, there is an increasing coincidence of objectives between the two groups and also between a group E leader and the majority.

Here, while a leader who belongs to group E issues a call for action both in states G_0 and G_1, benevolent non-partisan leaders do so only in state G_1. Thus upon receiving a message from the leader, people in group M are no longer sure about the credibility of it. More precisely, on receiving a message, their updated probability about the state being G_1 is given by:

$$Prob(G_1|message) = \widehat{a} = \frac{a}{a + (1 - \lambda)(1 - a)}$$

As expected this is increasing in λ, the probability that the leader is of the benevolent kind. While all committed followers participate (as their cost of doing so is 0), among the non-followers only those with low enough costs do so. This cutoff cost c^* is now given by:

$$c^* = \widehat{a} p \tau [y + (1 - y) \frac{c^*}{c_H}] G \tag{10}$$

As λ increases, $\widehat{a}$ increases, and this equation implies that as a result c^* also rises. In other words, an increase in λ raises credibility of the leader (in the sense that he is more likely to have interests aligned with that of the majority) and thus results in greater participation by the populace.

To study the effort put in by the leader, let us first look at a leader of the benevolent type. This leader issues a call for action and gains only in the state G_1; thus, taking the expected mass of participants m^e as given, a benevolent leader's optimization problem is given by:

$$\max \alpha a i_b p m^e L_1 - e(i_b)$$

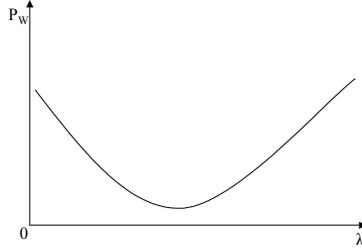with the first-order condition:

$$\alpha a p m^e L_1 = l i_b$$

20

Figure 4: Effect of λ on the probability of change in state G_M

For the self-interested leader the gains come both in states G_0 and G_1 and thus the first-order condition characterizing his effort i_s is:

$$\alpha p \tau m^e (aL_1 + (1-a)L_0) = li_s$$

Comparing the two equations we see that $i_s = (1 + \frac{1-a}{a} \frac{L_0}{L_1})i_b$. Since the self-interested leader has more opportunities for gain, he puts in more effort at gathering information. This sets up the basic trade-off here: while a benevolent leader is more credible and elicits more response to his message, a self-interested leader puts in more effort and is thus more likely to uncover suitable conditions for change such as G_1 (as well as G_0).

For simplicity in exposition, we assume $L_0 = L_1 = L$, thus implying $i_b = ai_s$. From an ex-ante perspective, the probability of successful change occurring in state G_1 (under a leader with reputation λ) is given by:

$$
\begin{aligned}
P_1 &= \lambda i_b p m^e + (1-\lambda) i_s p m^e \\
&= \frac{\alpha p^2 \tau^2 L}{l} (\lambda a + 1 - \lambda)[y + (1-y)\frac{c^*}{c_H}]^2
\end{aligned}
$$

where in equilibrium the expected mass of people participating is given by $m^e = \tau[y + (1-y)\frac{c^*}{c_H}]$. P_1 encompasses the two above-mentioned effects at work: as λ rises, the expected effort put in by the leader, $\lambda a + 1 - \lambda$, falls, while due to increased credibility, participation conditional on receiving a message, $[y + (1-y)\frac{c^*}{c_H}]$, rises. The following proposition derives the overall impact of λ on the probability of successful change in state G_1.

Proposition 3 *For* $\widehat{a} < \frac{c_H}{3(1-y)pG\tau}$, P_1 *is decreasing in* λ, *while for* $\widehat{a} > \frac{c_H}{3(1-y)pG\tau}$, P_1 *is increasing in* λ.

Proof. See Appendix. ∎

21

The above proposition establishes that the leader's type has a non-monotonic effect on the probability of bringing about change in the state G_1 where the leader and the population both benefit from change. This is depicted in figure 4. For low values of λ, the effect of an increase in λ is to lower the probability of change, while beyond a certain cutoff, this effect is positive. Recall that the leader's type λ has two possible effects on P_1: one, through its negative effect on expected effort and second, through its positive effect on credibility. While the negative effect on the leader's initiative affects followers and non-followers alike, the positive credibility effect is important only for the non-followers who are more likely to participate upon hearing a more credible leader's call for action. When λ is low, the leader's credibility is low and not many non-followers participate in any case. Thus with an increase in λ, the positive credibility effect impacts only a small group while the negative initiative effect has an impact on everyone; hence when λ is small, the overall effect of an increase in λ is to lower the probability of change.

The turning point of the above function is at $\lambda = \frac{c_H}{3(1-y)pG\tau}$ and it is interesting to note the effect of the parameters on it. As y increases, this turning point increases. In other words, as the number of followers increases, the effect of increased λ is negative over a bigger range. The reason is that credibility is not an issue for followers; since their cost of participation is 0, they always do so. For them, the main effect is due to the effort put in by the leader. An increase in λ lowers the expected effort and is thus less likely to lead to the possibility of change.

The above analysis is of course contingent on a given level of followership y and shows that a higher ex-ante probability of the leader being a benevolent type need not always translate into a higher probability of change even in the state where everyone benefits from change. Next, we consider the effect of leader type on followership and consequently on the overall chances of change. Section 3.1 dealt with the case where the leader is a benevolent type. For comparison, we now consider the diametric opposite case where the leader is known to be of the self-interested type i.e. $\lambda = 0$.

In this case, $\widehat{a} = a$ and the marginal participant is given by: $c^* = ap\tau[y + (1-y)\frac{c^*}{c_H}]G$ and the effort put in by the leader is: $i_s = \frac{\alpha}{al}\frac{L}{G}c^*$.

At date $T = 0$, to evaluate the value of followership for an individual from group M, one needs to calculate the date $T = 2$ expected gains in states G_0 and G_1. In either state, provided the leader uncovers it and one receives the leader's message, one will participate if either one's cost is 0 (which happens with probability y) or it is below c^*. In state G_0, the expected gains are:

$$i_s\tau[y.0 + (1-y)\int_0^{c^*}(0-c)\frac{dc}{c_H}] = -i_s\tau(1-y)\frac{(c^*)^2}{2c_H}$$

while in state G_1, they are given by:

$$i_s\tau[yV + (1-y)\int_0^{c^*}(V-c)\frac{dc}{c_H}]$$

where V is the expected gain to participating and is given by $V = p\tau[y^e + (1-y^e)\frac{c^*}{c_H}]G = \frac{c^*}{a}$.
Combining the two payoffs gives the overall value of followership y :

$$i_s\tau[\alpha a\{y\frac{c^*}{a} + (1-y)\frac{(c^*)^2}{c_H}(\frac{1}{a}-\frac{1}{2})\} - \alpha(1-a)(1-y)\frac{(c^*)^2}{2c_H}] \tag{11}$$

Compared to the case of a benevolent leader, there is an added incentive for followership here, namely the alignment of one's interests with those of the leader. This is apparent in the state G_1; being a follower participant incurs zero loss as one's cost of participation then is 0. Being a non-follower participant however, one incurs the positive costs of participation c, without getting any benefit. Investing in followership thus reduces the expected loss in this situation. While we have cast followership in the model in terms of a lower cost of participation, it could be similarly be modeled as investing into higher gains from change. Again, the incentive here is for a follower to align one's interests more closely to those of the leader (or his group) so as to reap greater gains under all circumstances. This could be for example by adopting a technology or an occupation that is closer in line with that of the elite group E so as to achieve gains in both states G_1 *as well as* G_0.

Weighing the marginal gain from increased investment in followership y against its marginal cost $f'(y)$, one gets the condition for the optimal degree of followership:

$$\alpha i_s\tau c^*[a\{\frac{1}{a} - \frac{c^*}{2c_H}(\frac{2}{a} - 1)\} + (1-a)\frac{c^*}{2c_H}] = ky \tag{12}$$

As before, solving for y from (10), and rearranging terms, one gets the overall equilibrium condition as:

$$\frac{\alpha^2 L\tau}{lGk}(c^*)^2(1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = c^*(\frac{1}{pG\tau} - \frac{a}{c_H}) \tag{13}$$

This expression is similar to the equilibrium condition for a benevolent leader (7). Thus in this case too there are threshold effects in the effectiveness of leadership. The following proposition compares the thresholds for a benevolent versus a self-interested leader.

Proposition 4 *If $c_H > \frac{3}{2}pG\tau$, then for all a, the threshold level of ability l that is required for a benevolent leader to be effective is higher than that for a self-interested leader. If $c_H < \frac{3}{2}pG\tau$, then there exists a cutoff level a^* such that for $a < a^*$, the threshold for effective leadership is more stringent for a benevolent leader, while for $a > a^*$, the threshold is more stringent for a self-interested leader.*

23

Proof. See Appendix. ■

The above proposition establishes that when the ex-ante expected costs of participation $c_H/2$ are high relative to the gains or when a the probability of the state G_0 relative to that for state G_1 is low, a self-interested leader finds it easier in terms of the required ability level to show effective leadership as compared to a benevolent leader of similar ability. Under both these circumstances, individuals' incentive to invest in followership is high, either to reduce the expected costs of participation or to align one's interests with those of the leader. As discussed before, when the level of followers is higher, a self-interested leader is more likely to bring about change as compared to a benevolent one. Thus in these cases, the threshold for effectiveness leadership is more stringent for a benevolent leader.

While the above proposition compares the threshold levels of ability that need to be satisfied by each type of leader to be effective at bringing about change, the next question is for a given level of ability l, what type of leader is preferred by each group? In other words, in ex-ante welfare terms can it be that a self-interested leader may be preferred by the majority to a benevolent one? The following proposition considers this issue. Of course, given multiple interior equilibria, in making welfare comparisons, the choice of equilibria is important. In all cases, we consider the Pareto-dominant one i.e. the one with the highest c^*.

Proposition 5 *If $c_H > \frac{3}{2}pG\tau$, the ex-ante welfare in the Pareto-dominant interior equilibrium (if it exists) under a self-interested leader is higher than that under a benevolent leader of the same ability. If $c_H < \frac{3}{2}pG\tau$, then the above is true for small values of a.*

Proof. See Appendix. ■

This proposition shows that in terms of ex-ante welfare, there is a broad range of parameters under which a self-interested leader would be preferred not only by the elite group E but *also* by the majority M with whom it is known that the leader's interests do not always coincide. Thus even if one were to consider the issue of leader selection at the beginning of the game, it shows that it is possible that the majority may wish to select a leader with objectives not always congruent with theirs rather than one for whom it is. Again this result is due to the basic trade-off between a benevolent and a self-interested leader in terms of credibility versus leadership effort. For a given level of participation c^*, a self-interested leader is always preferred as he puts in more effort at discovering suitable conditions for change. The level of participation c^* however is contingent on two factors: one, credibility of the leader and second, the number of committed followers. While the credibility of a self-interested leader is lower, due to the additional gain from aligning one's interest with that of the leader, the incentive to invest in followership is higher under such a leader. If this second effect is strong enough to overshadow the credibility effect, it will result in overall a higher level of participation c^* under a self-interested leader and therefore both on the participation and leadership effort counts, a self-interested leader will be preferred to a benevolent

one. When c_H is high, the costs of participation are high and therefore the incentive to invest in followership by reducing the expected participation cost is strong per se; even if c_H is not too big, but a is small, there is a strong incentive to become a follower in order to better align one's interests with that of the leader. In both these cases, the followership effect overshadows the credibility effect and as the above proposition shows, under these circumstances a self-interested leader will ex-ante be preferred to a benevolent one.

4 Leadership and Change: Applications

The framework described above applies to a variety of scenarios. Accordingly in what follows, we illustrate elements of our theory by drawing on examples from political transitions, economic policymaking, social reform movements and organizational transformation. Some examples highlight the leader's ability to perceive a 'window of opportunity' for change or communicate this opportunity. Other examples illustrate how the dynamic feedback between the leader and followers boosts the chances of change.

4.1 Political Transitions

Changes in political institutions can be of a variety of kinds. From a popular revolution that overthrows an autocracy (as in Eastern Europe) or legislative and constitutional changes that expand the scope of voting rights (as in South Africa and the United States) or even a military campaign that replaces the political status-quo (as in Cuba). We begin by describing one of the best documented cases of institutional change within a well-functioning democracy.

Change within a Democracy: Lyndon Johnson and the Voting Rights Act.[10] For eighty two years prior to 1957 there had been no civil rights bill for blacks that had successfully managed to pass through the United States Senate due to opposition by a bloc of Southern senators. Lyndon Johnson's leadership skill lay in being the first to see the prospect of a mutually advantageous deal between two key factions in the Senate: the Southern Senators who cared about civil rights legislation and the senators from the mountain states who wanted a hydro-electric project at Hells Canyon. As Caro argues "Lyndon Johnson saw a potential connection between the two realities. No one else had seen it. During the ten years that Hells Canyon had been before Congress, there had not been the slightest link between the dam and civil rights". [11] Furthermore, as Caro documents (pp. 562-65), Johnson was particularly effective because he had the committed support

---

[10] For most of what follows we extensively draw on Robert Caro's (2002) masterly biography of Lyndon Johnson; all page citations refer to that book.

[11] According to Caro (ppp. 892), Johnson "had the great lawmaker's gift of identifying amid the many proposed laws, the one that would best accomplish a larger purpose...give Negroes the vote – give them power and they could start doing the rest themselves".

of the "Big Bulls" of the Democratic Party in addition to his 'first team' of early supporters.[12] With the help of this core team of committed supporters, Johnson managed to persuade enough senators on both sides to compromise, such that on August 7, 1957 the path-breaking Voting Rights bill was finally approved.

Non-Democratic Change: from Hitler to Mao. If anything, the symbiotic relationship between a leader and his followers is perhaps even more important when we consider political change within autocratic regimes. In part this is because regime change within an autocracy is more difficult and calls for greater coordinated effort and sacrifice from a large number of individuals, groups and organizations. Some of these players will constitute the early core group of committed followers, who are involved in organizing meetings, mobilizing grass-roots support (as in members of the African National Congress in South Africa), protest rallies to perhaps even using violent means to disrupt the status-quo regime (e.g. the Nazi Party). It is argued that without the cadre of supporters from his Bolshevik Party, Lenin would never have successfully taken up the reins of power (see Service, 2000) just as under Mao's direction, the Red Army "became more than just a catalyst for revolutionary upheaval". Equally striking is the case of Hitler and his band of committed followers, the S.A. Storm troopers. Flood (1989, pp. 241) argues that "Hitler saw the advantage of a small, but fanatical band of followers...and recognized the power of his Nazi party as early as 1921". When talking about the Storm troopers, Hitler said "the young movement was to supply what the others lacked: a volkisch movement with a strictly public base, including the broadest masses, welded together by iron-hard organization, filled with blind obedience and inspired with brutal determination, a party of battle and action." For instance, Hitler's Storm troopers could be either encouraged or "restrain(ed) from action or violence if it seemed advantageous. He had, in short, a most malleable instrument to use at will" (Willner, 1984, pp. 184).

4.2 Policymaking and Economic Reform

Our framework also casts light on the role that individual leaders have had in formulating and implementing policies in the economic sphere. As pointed out by Hirschman (1970), good leadership requires an ability to perceive the emergence of a 'window of opportunity' to carry out reform.[13] In addition leadership also requires that the leader persuade firms, unions, workers and other

---

[12]Individuals who were not on LBJ's 'first team' of committed supporters, found that the price of getting in his good books was an explicit price in the form of favors to be done, before they could expect any benefits. (see Caro's discussion on 'The Johnson Rule').

[13]For instance, when discussing the example of Carols Lleras Restrepo, Colombia's 'reform-mongering' President in the sixties, Hirschman (1970) argued that good leaders have "the ability to perceive change when most of one's contemporaries are still unable to do so.... that would enable a leader to take advantage of new opportunities as soon as they arise."

groups to invest in the process. Now, depending on the precise context, the set of technologically productive firms, trained workers and other groups who are well prepared for economic reform and global integration may constitute the set of committed followers. If circumstances look propitious and support for reform is large enough then enough fence-sitters may join the process of reform. We now describe one of the classic instances when a leader's initiative at the right time played a crucial role in keeping alive the process of reform.

Resuscitating Economic Reform: Deng Xiaoping's Southern Tour. The future of economic reform in post-Tiananmen China was seriously in doubt. The abortive Soviet coup of 1991 and the collapse of the Soviet Union had strengthened the hands of Chen Yun and the leftist ideologues at the expense of Deng and the reformers. Both in the media as well as within the party there was a concerted attempt to discredit Deng's policies of reform. Deng realized that winning the political (and ideological) debate within the higher echelons of the party was difficult. He further recognized that communicating with the people directly was particularly difficult in Beijing due to the tight party control over the media. Therefore, he decided to mobilize support for his reforms by traveling to and directly addressing his bastion of supporters in the regions that had benefited most from the reform, namely the South in general and Guangdong in particular (Ash and Kueh, 1996). While Deng chose both the right time and place to take on the central party hierarchy, none of this would have been possible were it not for his confidence in the support of the direct beneficiaries of reform in the bureaucracy and the population. (Zhao, 1993). Deng emphasized the importance of economic development as a way to criticize (and isolate) the ideological hardliners (Naughton, 1993). The response to Deng Xiaoping's appeal was immediate. Deng's supporters used his Southern tour to mobilize opinion, lobby and put pressure on the party hierarchy; thousands of cables, letters poured into Beijing party headquarters expressing support for Deng's policies. Not surprisingly, Deng's Southern Tour is widely regarded as single-handedly shifting the political momentum decisively and irreversibly in favor of the continuation of economic reform in China.

4.3 Social Reform Movements

Our framework can also throw light on the role of leaders and social reformers in bringing about social change of various kinds, from the elimination of racial, gender and caste discrimination, the temperance movement to even the campaign to ban child labor. For such movements to be successful, a large scale change in the beliefs, attitudes and actions of the populace is required. We describe in some detail one instance of a leader's role at such social change, namely that of Mahatma Gandhi's attempt at eradicating the practice of untouchability.

Gandhi and Untouchability in the Indian Caste System. One of the longest surviving social institutions found anywhere is that of the caste system in India. A particularly pernicious aspect of the caste system is the practice of Untouchability. Some individuals, typically belonging to the lowest

caste, are designated as 'untouchables' and all other individuals in society are prohibited from social interaction with these 'untouchables' who are only allowed to hold scavenging jobs. Social interaction in such a society is governed by the caste code, where any individual who interacts with an 'untouchable' becomes a social outcaste and untouchable himself. Accordingly, a caste code can emerge as an equilibrium, with no individual having an incentive to unilaterally violate its precepts (Akerlof, 1976).

Starting in the 1920s, Mahatma Gandhi led a systematic assault on the practice of untouchability. Gandhi had strong convictions and viewed elimination of untouchability as a moral and religious issue. He embraced untouchables himself, welcomed them into his Ashram and relabeled them 'Harijans' (children of God). However, he realized that education and his personal example alone was not sufficient – since a caste equilibrium may persist even if no individual believes in untouchability and ostracism. Accordingly, Gandhi was patient and waited for the apposite window of opportunity to appear. During this time, through his struggle against the British and his fight against landlords and other social evils, Gandhi's hold over the masses increased as did the number of his committed followers in the Congress Party. When the British proposed to have separate electorates for the Untouchables, Gandhi immediately perceived that this was the right moment to strike – since not only did he now have a large number of committed followers, but also because he could project a fight against untouchability as a fight against the British. Accordingly, he launched a fast unto death against both the British and untouchability. According to Willmer (1984) this resulted in

> "......events that astounded all who knew of the almost automatic loathing and fear felt by caste Hindu at the very thought of being touched by or in close proximity to an Untouchable. Twelve Hindu temples were opened to Untouchables in Allahabad. The members of the seven largest temples in Bombay voted 25000 to 445 in favor of admitting Untouchable members..... Even more astonishing was the public fraternization of Hindus with Untouchables. In the streets of the cities, high caste Hindus, were seen eating together with the cobblers, street cleaners, sweepers and scavengers. In Yervada prison, where Gandhi lay, copies of resolutions and statements against discrimination from individuals, groups and whole communities across the country, rose to a pile over five feet high...Gandhi had produced a miracle. The long tradition of acceptance and approval of untouchability was shattered and the basis was laid for its ultimate disappearance."

In an era where there was almost no mass media such as radio and television and most of the population was illiterate, this quick mobilization of support for eliminating untouchability was partly possible due to the legion of Gandhi supporters (Amin, 1979).

5 Extensions

5.1 Dispersion in beliefs

In the model so far, we have assumed that all individuals share a common belief about the possibility for change α, about the congruence parameter a and know exactly the leader's ability l. One can argue that in the real world, there maybe a dispersion in beliefs about any of these parameters; some may be more optimistic than others about the prospects for change, while uncertainty and differences in perception about the leader's ability is also perhaps not uncommon. In this extension, we consider how such uncertainty and dispersion in beliefs can be incorporated into the basic model without changing the qualitative results.

Suppose the leader's ability l is not perfectly known, but is commonly believed that this ability parameter is given by a random variable $\widetilde{l}$ which is distributed over the interval $[\underline{l}, \overline{l}]$ according to the cdf $F(\widetilde{l})$, where $\overline{l} > \underline{l} > \alpha p \tau L_s$. Equivalently, one could also assume that there is a dispersion in beliefs about the leader's ability, with $F(\widetilde{l})$ being the distribution of the fraction of the population who believe the leader's ability to be $\widetilde{l}$. The rest of the game is the same as before. We will restrict our analysis to the case of the benevolent leader only, as the analysis for the case of a selfish leader is analogous.

Having this uncertainty about l does not affect the participation decision in the second period, as this decision is taken *after* the discovery of the state by the leader. Thus equation (1) still characterizes participation of non-followers. Moving back to $T = 1$, the effort decision $\widetilde{i}$ for a leader of ability $\widetilde{l}$ depends on the expected mass of participants m^e in the second period, and is given by a condition analogous to (2): $\widetilde{i} = \alpha a p m^e L_1 / \widetilde{l}$.

At the initial period $T = 0$, the followership decision of an individual is related to the expected effort that will be put in the leader $E(\widetilde{i})$ and is given by the condition[14]: $y = \alpha a \tau E(\widetilde{i})[c^* - \frac{(c^*)^2}{2c_H}]/k$, which is analogous to equation (4). Now as before, incorporating the $\widetilde{i}$ from the leader's decision and y from the participation equation gives the overall equilibrium condition for c^* as:

$$\frac{(\alpha a)^2 L_1 \tau}{Gk} E(\frac{1}{\widetilde{l}})(c^*)^2 (1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = c^*(\frac{1}{pG\tau} - \frac{1}{c_H})$$

This is almost identical to equation (7) before, and therefore as in proposition 2, the condition for whether or not the only equilibrium is the no action one is given by the condition:

$$\frac{(\alpha a)^2 L_1 \tau c_H}{3\sqrt{3}kG} E(\frac{1}{\widetilde{l}}) \lessgtr \frac{1}{pG\tau} - \frac{1}{c_H}$$

---

[14] In the case of dispersed beliefs, investment in followership by an individual who believes that the leader's ability is $\widetilde{l}$ is given by: $\widetilde{y} = \alpha a \tau \widetilde{i}[c^* - \frac{(c^*)^2}{2c_H}]/k$. Now, integrating over the whole population, the total mass of followers is given by $y = \alpha a \tau E(\widetilde{i})[c^* - \frac{(c^*)^2}{2c_H}]/k$

An interesting point to note about this condition is that the leader's actual ability does not enter this inequality. Thus the threshold for effective leadership depends solely on the public perception about the leader's ability $E(1/\widetilde{l})$. In other words, even a high ability leader who is publicly not perceived to be so will be unable to result in effective leadership. Once the threshold is crossed however, the leader's actual ability plays a positive role in increasing the chances of change. In terms of figure 3, an increase in the leader's actual ability raises the non-zero part of the graph, but has no effect on the threshold at which the probability of change jumps discretely up from zero.

Similarly, a dispersion in beliefs about the prospects for change, α, can also be accommodated into the structure of the basic model. While individual beliefs $\widetilde{\alpha}$ affect followership decisions, the leader's personal belief α_L affects his leadership initiative i. Together, these result in an analogous overall equilibrium condition to (7):

$$\frac{a^2 L_1 \tau \alpha_L E(\widetilde{\alpha})}{lGk}(c^*)^2(1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = c^*(\frac{1}{pG\tau} - \frac{1}{c_H})$$

where $E(\widetilde{\alpha})$ is the mean of the beliefs in the population. Again, as in proposition 2, if either α_L or $E(\widetilde{\alpha})$ is too small, then the only equilibrium involves no change. Thus, in either of the cases of a populace highly pessimistic about the prospects for change or that of a pessimistic leader, no change is realized even in state G_1 i.e. under circumstances that are favorable for such change to occur.

6   Conclusion

Leaders are ubiquitous across societies and organizations and have often been central to the trans-formation of organizations, political institutions and in many instances of social and economic reform. In this paper we took a first step towards analyzing the role of leadership in catalyzing change. Our analysis emphasizes that in order to understand effective leadership, it is necessary to focus on the nature of the relationship between a leader and his followers in transforming the prospects of change. The two-way interaction between followership and the supply of leadership initiative can endogenously give rise to threshold effects, with slight differences in the underlying structural conditions or in the leaders's ability resulting in dramatic differences in the prospects for change. In terms of the leader's interests, the model shows that under a broad set of conditions, the populace may deliberately prefer to follow an ambitious leader whose interests may not always be congruent with theirs over a benevolent one with congruent preferences. As a result, while such leaders are more likely to bring about change, this change may often not be in the best interests of the majority. Thus our analysis also throws light on why 'good' as well as 'bad' leaders may both have their followers.

However our analysis is but a first step. Our framework explored only the broad contours of the impact of leadership in encouraging participation to bring about change. Several other important elements of leadership are obvious directions for future study. For instance, while the mode of change (captured by parameters such as the uncertainty of the process p, the gains G and the costs to change c) is taken as given in our model, an important aspect of leadership is perhaps choosing the right instrument for change. For example, in the context of political change, violent insurgency, peaceful demonstrations or propaganda (see Glaeser, 2005) could be several possible means to achieve the same end. The leader's role would then be to determine which of these instruments would be the most appropriate under the given circumstances. A second aspect of leadership which has not been studied in our model (except in the welfare comparisons for different types of leaders) is leader selection. For example, if there were different individuals espousing different instruments for change, who gets selected as the leader and how does this depend on the underlying environment? Or if there are multiple leaders, what is the dynamics of followership across the leaders and what is the impact on the overall chances for change? Aspects of the leader-follower relationship also deserve to be explored further. As pointed out by Levi (2006), 'leaders have the power to misinform and to manipulate, but they also have the power to inspire change'. In this context it would be useful to analyze in more detail the psychological and emotional underpinnings of the leader-follower relationship.

References

Acemoglu, Daron, Simon Johnson and James Robinson (2001), "Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review*

Acemoglu, Daron, Simon Johnson and James Robinson (2003), "An African Success Story: Botswana" in Dani Rodrik(ed) *In Search of Prosperity: Analytic Growth Narratives*, Princeton

Akerlof, George (1976), "The Economics of Caste and other Woeful Tales", *Quarterly Journal of Economics*, Vol. 90(4)

Besley, Timothy (2005), "Political Selection" *Journal of Economic Perspectives*, Vol. 19(3), pp. 43-60

Besley, Timothy and Maitreesh Ghatak (2005), "Competition and Incentives with Motivated Agents". *American Economic Review*, Vol. 95, No. 3, pp. 616-636

Burns, James MacGregor (1978), *Leadership*, New York: Harper and Row

Caro, Robert (2002), *The Years of Lyndon Johnson: Master of the Senate*, Alfred Knopf, New York

Carlyle, Thomas (1841), *On Heroes, Hero-Worship, and the Heroic in History*, Dodo Press

Dewatripont, Mathias and Jean Tirole (2005); "Modes of Communication", *Journal of Political Economy* 113(6), 1217-1238.

Easterly, William and R. Levine (2002); "Tropics, Germs and Crops: How Endowments Influence Economic Development"

Glaeser, Edward (2005), "The Political Economy of Hatred", *Quarterly Journal of Economics*

Gopal, Sarvepalli (1979), *Jawaharlal Nehru: A Biography: Vol. 2, 1947-1956*, Oxford University Press

Gray, Clive and Malcolm McPherson (2001), "The Leadership Factor in African Policy Reform and Growth *Economic Development and Cultural Change*, Vol. 49, No. 4 pp. 707-740

Harberger, Arnold (1993), "Secrets of Success: A Handful of Heroes" *American Economic Review*

Hermalin, Benjamin (1998); "Towards an Economic Theory of Leadership: Leading by Example", *American Economic Review* 88, 1188-1206.

Hermalin, Benjamin, Mana Komai and Mark Stegeman (2006); "Leadership and Information", forthcoming, *American Economic Review.*

Hirschman, Albert (1970), "Underdevelopment, Obstacles to Perception of Change and Leadership" in *Philosophers and Kings: Studies in Leadership* edited by Dankwart Rustow, The Daedalus Library, New York

Ionescu, Ghita (1991), *Leadership in an Interdependent World: The Statesmanship of Adenauer, De Gaulle, Thatcher, Reagan and Gorbachev*, Boulder, CO, Westview

Jones, Benjamin and Benjamin Olken (2005); "Do Leaders Matter? National Leadership and Growth since World War II", *Quarterly Journal of Economics* 120(3), 835-64.

Jones, Benjamin and Benjamin Olken (2006); "Hit or Miss? The Effect of Assasinations on Institutions and War", Working Paper, Harvard.

Kissinger, Henry (1968), "The White Revolutionary: Reflections on Bismarck", *Daedalus* 97:919

Kotter, John (2007), "Leading Change: Why Transformation Efforts Fail", *Harvard Business Review*

Krause, J and G.D. Ruxton (2002), *Living in Groups*, Oxford, Oxford University Press

Lieberman, Robert (2002), "Ideas, Institutions and Political Order: Explaining Political Change", *American Political Science Review*, Vol. 96(4) pp.697-712

Naughton, Barry (1993), "Deng Xiaoping: The Economist" *The China Quarterly* No. 135, pp 491-514

Tolstoy, Leo (1879), *War and Peace*

Tooby, J and L. Cosmides (1992), "Psychological Foundations of Culture" in J. Barkow et al. *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (pp 19-136). New York. Oxford University Press

Van Vugt, M. (2006), "The evolutionary origins of leadership and followership", *Personality and Social Psychology Review*, 10, 354-372.

Van Vugt, Mark and R. K. Kurzban (2007). "Cognitive and social adaptations for leadership and followership: Evolutionary game theory and group dynamics" in J. Forgas, W. von Hippel, &
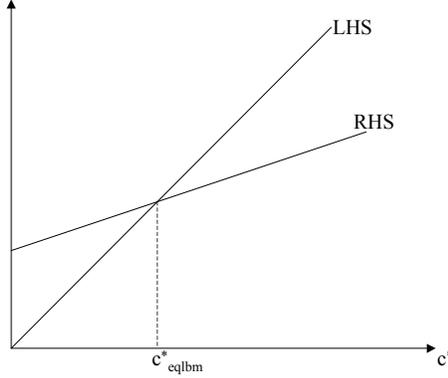
Figure 5: Equilibrium level of participation, c^*

M. Haselton, *Sydney symposium of Social Psychology, Vol. 9: The evolution of the social mind: Evolutionary psychology and social cognition.*

Willmer, Ann Ruth (1984), *The Spellbinders*, Yale University Press, New Haven

Young, Oran (1991), "Political Leadership and Regime Formation: On the Development of Institutions in International Society", *International Organization*, vol 45

Zhao Suisheng (1993), "Deng Xiaoping's Southern Tour" *Asian Survey.* Vol. 33(8) pp. 739-756.

Appendix: Proofs of Propositions

PROOF OF PROPOSTION 1: Consider equation (1) for a given level of $y > 0$. At $c^* = 0$, the LHS is less than the RHS as $y > 0$. At $c^* = c_H$, by assumption 1, the $RHS = p\tau G < c_H = LHS$. Both sides of the equation are linear in c^* (and are as depicted in figure 2); thus there is a unique solution to the equation in the range $c^* \in [0, c_H]$.

The probability of successful change in state G_1 is given by:

$$p\tau m^e = p\tau[y + (1-y)\frac{c^*}{c_H}] = \frac{c^*}{G}$$

Increases in y, p, G or τ or a decrease in c_H raise the RHS of (1) but have no effect on the LHS, and thus (from figure 2) result in an increase in c^*. Hence, these changes in the underlying parameters raise the probability of successful change in state G_1.

PROOF OF PROPOSITION 2: Consider equation (7). Clearly $c^* = 0$ is a solution. Eliminating a c^* from both sides, we see that while the RHS is independent of c^*, the LHS has three roots, at $c^* = 0, c_H$ and $2c_H$. In the relevant range i.e. between $c^* = 0$ and $c^* = c_H$, it is inverse U-shaped.

Thus, as depicted in figure 2(b), there will be either two solutions to equation (7) (case 1 in the figure) or none (case 2 in the figure, in which case there is no interior equilibrium, and the only equilibrium involves $c^* = 0, y = 0$ and $i = 0$).

Which case occurs thus depends on whether or not the RHS is greater or less than the highest point of the LHS. In the range $c^* \in [0, c_H]$, the maximum of the LHS occurs at $c^* = c_H(1 - \frac{1}{\sqrt{3}})$, and its value at that point is $\frac{(\alpha a)^2 L_1 \tau c_H}{3\sqrt{3}lGk}$. Whether or not this exceeds the RHS is given by (8) above.

PROOF OF COROLLARY 1:

Derivation of Equilibrium under complementarity:

Again starting from period 2, the cutoff cost for the marginal non-follower is given by equating the costs and expected benefits of undertaking action:

$$c^* = \frac{p\tau}{\theta}[y + (1 - y)\frac{c^*}{c_H}]^\theta G \tag{14}$$

Under assumption $2'$, (14) always has a unique interior solution for any $y > 0$.

In period 1, the leader's problem of how much to invest in acquiring information about the appropriateness of the current situation is almost identical to that before, and is characterized by the first-order condition:

$$\frac{\alpha a p\tau}{\theta}[y + (1 - y)\frac{c^*}{c_H}]^\theta L_1 = li \tag{15}$$

or using (14), $i = \alpha a L_1 c^*/(Gl)$.

Finally, the period 0 problem of deciding on followership is identical to the previous analysis, and thus the optimal choice of y is again given by:

$$\alpha a i \tau[c^* - \frac{(c^*)^2}{2c_H}] = ky$$

As before, using y from (14) and $i = \alpha a L_1 c^*/(Gl)$, we can rearrange the above first-order condition to obtain the overall equilibrium condition for c^*:

$$\frac{(\alpha a)^2 L_1 \tau}{lGk}(c^*)^2(1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = c^* \left((\frac{\theta}{pG\tau})^{\frac{1}{\theta}}(c^*)^{\frac{1}{\theta}-1} - \frac{1}{c_H} \right)$$

Solutions to this equation (if any) characterize equilibria for the overall game here.

Clearly $c^* = 0$ (i.e. one where no one becomes a follower, the leader expends no effort and overall there is zero probability of change), is an equilibrium. To look for interior equilibria, we eliminate a c^* from both sides of (9). The LHS now is the same as that of (7) and thus between $c^* = 0$ and $c^* = c_H$, it is inverse U-shaped (as in figure 2(b)). The RHS however is different and depends on θ.

For $\theta < 1$, $\frac{1}{\theta} - 1 > 0$, and thus the $RHS = (\frac{\theta}{pG\tau})^{\frac{1}{\theta}}(c^*)^{\frac{1}{\theta}-1} - \frac{1}{c_H}$ is increasing in c^*.

34

At $c^* = 0$, $LHS = 0 > -\frac{1}{c_H} = RHS$. At $c^* = c_H$, $LHS = 0$, while $RHS = \frac{1}{c_H}((\frac{\theta c_H}{pG\tau})^{\frac{1}{\theta}} - 1) > 0$ by assumption $2'$. Thus there is always at least one interior solution to (9). In other words, for $0 < \theta < 1$, in addition to the no-action equilibrium, there always exists an interior equilibrium with a positive probability of change.

For $\theta > 1$, $\frac{1}{\theta} - 1 < 0$ and hence the RHS is decreasing in c^*.

Note that the LHS is inverse U-shaped and attains its maximum value at $c^* = c_H(1 - \frac{1}{\sqrt{3}})$, where its value is $\frac{(\alpha a)^2 L_1 \tau c_H}{3\sqrt{3} lGk}$. The minimum for the RHS occurs at $c^* = c_H$ where its value is $\frac{1}{c_H}((\frac{\theta c_H}{pG\tau})^{\frac{1}{\theta}} - 1)$.

Thus if $\frac{(\alpha a)^2 L_1 \tau c_H}{3\sqrt{3} lGk} < \frac{1}{c_H}((\frac{\theta c_H}{pG\tau})^{\frac{1}{\theta}} - 1)$, there will be no interior solution for the equilibrium condition (9) which implies that in this case the only equilibrium is the no-action one.

PROOF OF PROPOSITION 3: We first use the solution of c^* from (10) to rewrite P_1 as:

$$P_1(\lambda) = \frac{\alpha a y^2 L}{lG^2} \frac{1}{\widehat{a}[\frac{1}{p\tau G} - \frac{(1-y)\widehat{a}}{c_H}]^2}$$

Taking the derivative of $f(\widehat{a}) = \widehat{a}[\frac{1}{p\tau G} - \frac{(1-y)\widehat{a}}{c_H}]^2$ with respect to $\widehat{a}$, we find that $f'(\widehat{a}) \gtrless 0$ according as $\frac{c_H}{3(1-y)p\tau G} \gtrless \widehat{a}$. Since P_1 is inversely related to $f(\widehat{a})$, and $\widehat{a}$ is increasing in λ, this establishes the result.

PROOF OF PROPOSITION 4: Eliminating a c^*, the LHS of both (7) and (13) can be written as $\frac{\alpha^2 L\tau}{lGk} c^*(1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H})$, implying that it is inverse U-shaped, as in Figure 2(b).

The RHS of (7) is then $(\frac{1}{pG\tau} - \frac{1}{c_H})/a^2$, while that for (13) is $\frac{1}{pG\tau} - \frac{a}{c_H}$. Comparing the two, the RHS of (7) is bigger or less than the RHS of (13) according as $c_H \gtrless pG\tau(1 + \frac{a^2}{1+a})$.

Now $\frac{a^2}{1+a}$ is increasing in a, and has a maximum value of $1/2$. Thus, if $c_H > \frac{3}{2}pG\tau$, then the RHS of (7) is always bigger than the RHS of (13) and therefore the threshold for a benevolent leader is more stringent.

On the other hand, if $c_H < \frac{3}{2}pG\tau$, there exists an $a^* \in (0,1)$ at which $c_H = pG\tau(1 + \frac{(a^*)^2}{1+a^*})$. Below a^*, $c_H > pG\tau(1 + \frac{a^2}{1+a})$ i.e. the RHS of (7) is bigger than the RHS of (13), meaning that the threshold for a benevolent leader is more stringent. For $a > a^*$, the reverse holds and the threshold is more stringent for a self-interested leader.

PROOF OF PROPOSITION 5: To derive the ex-ante welfare W_B under a benevolent leader, we take the period 0 payoff from (3) and plug back the optimal y from (4) together with the leader's equilibrium choice $i_B = \frac{\alpha a L_1}{lG} c^*$ to get:

$$W_B = \frac{(\alpha a)^2 L_1 \tau}{2lG} \frac{(c^*)^3}{c_H} + \frac{1}{2k} \left\{ \frac{(\alpha a)^2 L_1 \tau}{lG} (c^*)^2 (1 - \frac{c^*}{2c_H})^2 \right\}^2$$

35

Similarly the ex-ante welfare W_S under a self-interested leader is derived by plugging in the optimal y from (12) into (11) to obtain:

$$W_S = \frac{\alpha^2 L_1 \tau}{2alG} \frac{(c^*)^3}{c_H} + \frac{1}{2k} \left\{ \frac{\alpha^2 L_1 \tau}{alG} (c^*)^2 (1 - \frac{c^*}{2c_H})^2 \right\}^2$$

Note that for a given c^*, $W_B < W_S$ for all $a < 1$ and as expected are equal for $a = 1$. Also note that W_B and W_S are both increasing in c^*; thus, if c^* under a self-interested leader is bigger than that under a benevolent leader, W_S will exceed W_B.

To compare the equilibrium c^* under the two types of leaders, let us rewrite the two equilibrium conditions:

$$\frac{\alpha^2 L \tau}{lGk} c^* (1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = \frac{1}{a^2}(\frac{1}{pG\tau} - \frac{1}{c_H})$$

$$\frac{\alpha^2 L \tau}{lGk} c^* (1 - \frac{c^*}{c_H})(1 - \frac{c^*}{2c_H}) = (\frac{1}{pG\tau} - \frac{a}{c_H})$$

the former being that under a benevolent leader and the latter for a self-interested leader. The left-hand side of both are identical and represent an inverse U-shaped function of c^* as depicted in figure 2. The right hand side of both are constant and whether the Pareto-dominant equilibrium c^* under a self-interested leader exceeds that under a benevolent leader depends on if $\frac{1}{a^2}(\frac{1}{pG\tau} - \frac{1}{c_H}) > \frac{1}{pG\tau} - \frac{a}{c_H}$ i.e. if $c_H > pG\tau(1 + \frac{a^2}{1+a})$.

If $c_H > \frac{3}{2}pG\tau$, then this holds for all $a \in [0, 1]$, while if $c_H < \frac{3}{2}pG\tau$, it holds for a small enough. Thus in either of these two cases, the (Pareto-dominant) equilibrium c^* under a self-interested leader is higher than that under a benevolent leader, and consequently the ex-ante welfare under a self-interested leader W_S is greater than that under a benevolent leader W_B.