

Radicalization as a reaction to failure: an economic model of islamic extremism

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Abstract: This paper views Islamist radicals as self-interested political revolutionaries and builds on a general model of political extremism developed in a previous paper (Ferrero, 2002), where extremism is modelled as a production factor whose effect on expected revenue is initially positive and then turns negative, and whose level is optimally chosen by a revolutionary organization. The organization is bound by a free-access constraint and hence uses the degree of extremism as a means of indirectly controlling its level of membership with the aim of maximizing expected per capita income of its members, like a producer co-operative. The gist of the argument is that radicalization may be an optimal reaction to perceived failure (a widespread perception in the Muslim world) when political activists are, at the margin, relatively strongly averse to effort but not so averse to extremism, a configuration that is at odds with secular, Western-style revolutionary politics but seems to capture well the essence of Islamic revolutionary politics, embedded as it is in a doctrinal framework.

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1. Introduction

The world-shaking events of September 11, 2001 pose an unequalled challenge to the political economist committed to the paradigm of rational choice. Among the many facets of the problem, one central aspect is certainly the radicalization of Islamic politics, which reached unprecedented extremes with the Twin Towers attack but long predated it, and which underlies the recent terrorist upsurge. All commentators concur that political extremism is not inherent in Islam per se but is a relatively recent development, though they are not of one mind when it comes to pinning down its causes. On the other hand, this radicalization has been occurring in the context of an international situation which is widely described by Islamic intellectuals and militant leaders, including Al Qaeda spokesmen, as one of long-term political decline or retreat of the Islamic worldview (Lewis, 2001; Piscatori, 2002; Fuller, 2002; Doran, 2002). Throughout the Muslim world, according to this view, governments and politicians have long been selling out basic principles by yielding to Western lure or pressure, watering down the implementation of the *shari'a* (the Islamic law), fostering or at least allowing the secularization of society, engaging in self-serving deals with Western multinationals, governments, and international organizations, and otherwise corrupting what a principled Islamic political practice should be all about. Thus the September 11 episode may be seen as a revolutionary act whose intended purpose was obviously not to bring America to its knees but to gain the upper hand and outbid all competitors in the struggle for leadership among militant Islamic revolutionary organizations; it was the culmination of a rising tide of radicalization which has been sweeping the Muslim world over the last couple of decades from Palestine to Iran, from Pakistan to Sudan, from Afghanistan to Somalia, from Egypt to Algeria, and elsewhere. In short, the United States has been dragged into somebody else's civil war (Doran, 2002).

Seen this way, the real target of the terrorist act was not the Twin Towers but the corrupt Muslim governments, and the aim was either to strengthen militant opposition to those governments, to overturn them by revolution, or to push them to become more radical in the scramble to keep afloat. A view extrapolated from civil-war studies sees bin Laden as a "terrorist entrepreneur" who is trying to help his radical Islamist allies start insurgencies, and in the long run to have these insurgencies get control of the national governments of as many Muslim countries as possible (Lemann, 2001, pp. 37-38). Then, judged by this yardstick, the terrorist project has indeed been successful (Doran, 2002; Fuller, 2002). Scores of young radical activists from all corners of the Muslim world have been seen cheering at Bin Laden, emboldened and spurred to action by the demonstration that the superpower can be struck at its heart, that, to borrow a phrase from another famous revolutionary, "the imperialists are just paper tigers". True, many have been scared away by the enormity of the confrontation and the scale of the personal sacrifice required; but this may just have been the very purpose of the act, to sort out the armchair revolutionaries from those who really mean it. True, from the subsequent war on Afghanistan the terrorists must have quickly brought home the point that attacking America brings retribution and that a government that harbors and shelters terrorists cannot hope to last for long. It is hard to tell whether this had been fully anticipated by the terrorists. To a degree they might just have miscalculated and reckoned that the American reaction would have been more

restrained. But even if the upcoming response was underestimated and the complete international isolation of the Taliban regime came as a disappointment, the deep impact of the act on the breeding grounds of Islamic radicalism is probably there to stay, if only because the self-styled Muslim governments were forced to shed their mask and take sides. On the other hand, even the vast majority of Muslims who see September 11 as a crime, nevertheless also see it as a “lesson” for the United States to wake up and change its vicious policies toward the Middle East (Fuller, 2002).

Viewing the events as an extreme radical reaction to Islam’s perceived failure and decline by a (network of) Islamist revolutionary organization(s), however, raises a major puzzle. Why should a political organization react to adverse circumstances and an unfavorable environment by becoming more extreme, given that more extremism certainly turns off some potential followers? Wouldn’t it be wiser to take cover, put up a more enticing, moderate face, and wait for better times to come? This paper suggests an explanation to this puzzle by focusing on the special relationship between degree of extremism, success, and failure that is distinctive of, though not unique to, Islamic revolutionary politics.

A fresh approach is needed because what existing literature can be brought to bear on the issue does not help to explain it. Two main approaches are relevant here. One is Iannaccone’s (1992, 1997) theory of religious fundamentalism, or, as he chooses to adopt a more meaningful label for it, sectarianism. In this theory, sects demand behavior that is costly to members (sacrifice) because by so doing they increase the cost of exit and thereby increase participation and permanence within the group. By regulating the level of “sacrifice” required, sects attempt to maintain an optimal degree of distance between the members’ and the outside world’s behavior. Now it is certainly possible to view Islamic fundamentalism as religious sectarianism, one which places a high value on participatory behavior. But then Iannaccone’s model predicts, and the evidence from American sects strongly confirms, that as economic and social conditions worsen and the members’ reservation utility declines, the stringency of rules and requirements (in our terminology, the degree of extremism) should decrease as well, just the opposite of what we are observing.

Another approach is Grossman’s (1991, 1999) theory of insurgency and revolution. It views revolutionaries as kleptocrats, i.e. as selfish people engaged in a struggle for power to secure the rents from office. People choose to allocate their time between productive and appropriative (revolutionary) activities according to the relative expected costs and benefits. Now it is entirely plausible to focus on the explicitly political, as opposed to religious, component of Islamic fundamentalism, as the sketchy account given above suggests. One problem with the Grossman approach is that it leaves no room for the role of different ideologies or revolutionary platforms, so that Islamic revolutionaries become hard to distinguish from other brands, such as communists or nationalists and ethnics or fascist militaries. But more to the point, here again when the attractiveness of insurgent (here, Islamist) activity relative to productive (here, secular) activity declines, the model predicts revolutionaries should optimally reduce their level of insurgent effort (here, become more moderate). So the puzzle remains.

This paper takes a different approach, which also views Islamic radicals as self-interested political revolutionaries but, unlike Grossman’s, (a) gives a well-defined meaning to the optimal degree

of extremism as opposed to the mere intensity of effort, (b) has a key role for the intrinsically participatory, or cooperative, nature of many revolutionary organizations, including the Islamist version, and (c) takes explicitly into account the specific character of the Islamic ideology or worldview, i.e. the intertwining of politics and religious doctrine. The paper builds on a general model of political extremism developed in a previous paper (Ferrero, 2002), where extremism was modelled as a production factor whose effect on expected revenue is initially positive and then turns negative, and whose level, together with the level of the labor factor, is optimally chosen by a political firm (a revolutionary party or organization) with the aim of maximizing expected per capita income of its members (like a producer cooperative). The main focus of the previous paper was to solve what I called the paradox of the radicalization of successful revolutions, i.e. the observation that many famous instances of historical revolutions turned more radical just when they achieved victory and state power was firmly in their hands. The essence of the argument there was that the organization faces a market-clearing constraint towards its labor supply, that is, it cannot easily prevent outsiders from joining in if they want to nor can it “fire” redundant members as an investor-owned, profit-maximizing firm would. Since a more extreme policy has an ambiguous effect on expected per capita revenue while it invariably discourages labor supply, and since success implies higher revenues and therefore attracts new members who would dilute the insiders’ dividend, in an important, though not exclusive, case an increase in extremism in the wake of success solves the cooperative organization’s problem by “voluntarily” driving new members away and thereby increasing the per capita income of remaining members.

In this paper, by contrast, the focus will be on the opposite case, when parameter values are such that the optimal policy is moderation as a response to success and, symmetrically, radicalization as a response to failure. Section 2 summarizes the main hypotheses and Section 3 sets forth the basic model. Section 4 examines the model’s comparative statics specializing in the case of interest, and Section 5 shows that it fits well with the distinguishing features of Islamic fundamentalist politics. The gist of the argument is that radicalization in the face of failure may obtain when political activists are, at the margin, relatively strongly averse to effort but not so averse to extremism, a configuration that is at odds with secular, Western-style revolutionary politics but seems to capture the essence of Islamic revolutionary politics, embedded as it is in a doctrinal framework. Section 6 concludes the paper.

2. The basic model: assumptions

We give here a sketchy outline of the basic hypotheses that describe the environment and the workings of a prototype revolutionary organization based on a mass constituency. Extended discussion and justification of these hypotheses may be found in previous papers (Ferrero, 1999, 2002).

(1) The organization's goal is the maximization of expected income from the conquest or the sharing of power. The organization is tied to an ideology which frames its platform and makes it intelligible to its constituency, but this ideology has only an instrumental value; i.e. the goal is emphatically not the actuation of a good social order per se, however much members may believe in the ideology.

(2) Expected income is the rents to be gained from power times the probability of success. As more popular support possibly increases the former (through increased influence) and certainly increases the latter, more support implies higher expected revenue. In the pure form of a revolutionary organization, however, the benefits for supporters and the income for members do not materialize until and unless the organization succeeds in achieving its power goals. Hence what the organization is doing is, in essence, selling *promises* to its potential supporters (customers), and therefore also to its members (workers), as no cash is currently being passed around. It follows that the workers are volunteers, in the descriptive sense that they are not receiving any *current* wage for their labor.

(3) Production of revolutionary activity requires only labor, leadership, and ideology. Ideology, however, is a kind of public good accessible to all: an established organization can always be challenged by outsiders claiming a "truer" interpretation of the ideology and setting up a rival organization with an alternative platform competing for the public's support. Given adequate leadership, therefore, entry is easy and the market for a specific brand of revolution is potentially very competitive.

(4) An exchange of promises for current support, or for current labor effort, is naturally fraught with opportunities for mutual cheating, which must somehow be controlled if mutually beneficial exchange is to take place. Cheating, i.e. shirking, by workers toward the firm is controlled by making them share in the firm's expected revenues instead of being promised a fixed expected wage: this is about the only way to provide incentives since dismissal bears no cost in the conditions described in the previous paragraph. The organization's cheating on its customers is controlled by a self-imposed constraint (often enshrined in the ideology) that the leader be frugal in personal consumption and work side by side with the other members.¹ This constraint, coupled with revenue sharing, turns the organization into a de facto producer cooperative, owned and managed by its members, even though the shares may be very unequal. The standard model of the labor-managed firm then applies.

(5) As a producer cooperative, the organization's objective can be modelled in the standard way as maximizing expected income per member. This implies that, given the platform, there will be an optimal level of membership beyond which income per member declines. Like economic coop-

¹ The menu of signalling and monitoring options open to a revolutionary organization is in reality somewhat richer than that described here. In particular, revolutionary organizations are typically observed to engage in side activities which yield a pecuniary revenue in the short term, designed to improve both worker productivity and customer trust. This option raises, however, a dilemma of its own between revolution and reform which is analyzed elsewhere (Ferrero, 2001).

eratives, this political cooperative faces a typically intractable difficulty with reducing a redundant membership when maximization of remaining members' income would so dictate. Furthermore, in the political cooperative the redundancy problem is made worse by a kind of free access constraint. This is because by point (3) above, any "unemployed" could readily start up a competing organization, and it can be demonstrated that these organizations would typically find it advantageous to collude or merge rather than compete with one another.² The equilibrium industrial structure will then typically resemble a monopsony – a single dominant organization or a cartel of organizations; on this interpretation, such an outcome arises out of the particular kind of inefficiency in labor allocation that is unique to the competitive equilibrium of a cooperative industry. But as the political labor market must clear under the above assumptions, this "monopsony" is not really allowed to restrict entry or set its membership level but is constrained by the necessity to take in all applicants, either directly as individual members or through merger with rival organizations. This means that given the platform, the organization's membership level is in effect set by (local) labor supply, impairing the possibility of maximizing per capita income.

(6) Unlike the economic cooperative, however, the political cooperative has an additional resort: changing its platform, i.e. adjusting its degree of extremism. We assume that the organization cannot credibly precommit to a fixed platform or program, perhaps because the ideology is too vague or because it is expedient for a "democratic", participatory organization to choose policies and programs according to circumstances. The degree of extremism is thus determined endogenously to maximize expected per capita income.

(7) Extremism affects expected cooperative income in two ways. First, it makes political work harder, riskier, and more exacting, and therefore decreases political labor supply to the firm for a given wage level. A higher wage is required to compensate for the higher disutility of more extreme political work. An increase in extremism then helps to solve the cooperative's redundancy problem posed by free access by "voluntarily" driving members away. Second, extremism enters the technology of revolutionary production as an input with an ambiguous sign: up to some point increased extremism increases support and expected revenue because political action must be radical enough to yield significant results; beyond some point however extremism turns counterproductive and begins to lower support. Even in the range of negative returns, however, increasing extremism may still be useful if the cooperative wants to cut back excessive membership.

(8) Finally, an exogenous shock that parametrically increases expected per capita income has an ambiguous effect on the organization's optimal input mix. For an unchanged degree of extremism it increases labor supply and hence, given free access, employment in the firm. Therefore an increase in extremism may be required to curtail some of this additional membership, unless negative returns

² As leadership is a fixed factor in each firm, income per member and marginal revenue product of labor will be different across firms, which implies that the allocation of labor among firms will be inefficient in competitive equilibrium. The chief decentralized mechanism available to improve allocative efficiency in this system is merger. If two coops merge at an unchanged level of total employment, their marginal labor products are equalized by relocating workers from one firm to the other and total output, and therefore per capita income, increase. Since this source of efficiency gains from merger is not exhausted as long as there remain productivity differences across firms, the merger process may be expected to go on until a single firm obtains.

to extremism in production are so severe as to outweigh benefits from reduced membership. In this latter case moderation is the optimal policy. The optimal response to failure is of course symmetric.

3. The basic model: equilibrium

The above assumptions can be embodied in a standard LMF model augmented by the extremism factor and amended by the constraint of labor market clearing. Denoting by y the expected income per member, E the degree of extremism, L the membership, and S a positive shock (“success”), the technology of revolutionary activity can be written as:³

$$y = y(L, E, S) \quad \text{with } \frac{\partial y}{\partial L}, \frac{\partial y}{\partial E} \text{ first } > 0 \text{ then } < 0; \quad \frac{\partial^2 y}{\partial L^2}, \frac{\partial^2 y}{\partial E^2} < 0; \quad \frac{\partial y}{\partial S} > 0; \\ y(0, E, S) = 0 \quad (1)$$

This specification captures the assumptions that both labor and extremism initially have a positive effect on per capita income, which then turns negative beyond some level of input use. Per capita returns to labor change sign because of a fixed factor (leadership). Signs of the second-order partials denote diminishing returns to each factor.

The cooperative faces an inverse labor supply curve in which the supply price of labor, w , is an increasing and convex function of both the amount of labor (because of the monopsonistic market) and the level of extremism (because of increasing disutility of effort), as follows:

$$w = w(L, E) \quad \text{with } \frac{\partial w}{\partial L}, \frac{\partial w}{\partial E} > 0; \quad \frac{\partial^2 w}{\partial L^2}, \frac{\partial^2 w}{\partial E^2} \square 0 \quad (2)$$

Note that we neutrally assume that success (S) per se has no direct effect on the reservation wage; it has only an indirect effect via the induced changes in the degree of extremism. Note also that this formulation, together with the restriction under (1) that no production is possible without labor, implies that extremism is a production factor which cannot be separately purchased in the market. It can be regarded as a characteristic of the labor effort demanded of members whose marginal cost to the organization is indirectly measured by the induced increase in the supply price of labor (2).

Because for any given platform the organization is stuck with the level of membership set by labor supply, it uses changes in extremism to induce changes in labor supply so as to maximize per capita income. Formally, the cooperative’s problem is to maximize (1) subject to the market clearing constraint $w(L, E) = y(L, E, S)$. For a given S (a given state of the political and economic environment), the first-order conditions for this problem yield:

³ Total expected income of the cooperative can be written as $Y = Y(L, E, S)$, hence $y = Y(L, E, S)/L$. If marginal labor product $\partial Y/\partial L$ declines as L increases, because leadership is a fixed factor, it follows that $\partial y/\partial L$ is greater than, equal to, or less than zero when MPL is greater, equal, or less than per capita income Y/L ; hence the inverted U-shaped form of the $y(L)$ curve. If the marginal product of extremism $\partial Y/\partial E$ is first positive then negative as E increases for the reasons given above, then $\partial y/\partial E = \partial Y/\partial E/L$ has the same signs.

$$\frac{\frac{\partial w}{\partial L}}{\frac{\partial w}{\partial E}} = \frac{\frac{\partial y}{\partial L}}{\frac{\partial y}{\partial E}} \quad (3)$$

and

$$y(L, E, S) = w(L, E) \quad (4)$$

Condition (3) is easily interpreted: it says that the factors' marginal supply prices ratio equals their marginal per capita productivities ratio. It also shows that $\frac{\partial y}{\partial L}$ and $\frac{\partial y}{\partial E}$ must have the same sign at the equilibrium: this sign will be positive if, given its productivity, the cooperative is constrained by a tight labor supply so that positive returns to both labor and extremism cannot be fully exploited, and viceversa for a negative sign.

Of course if the cooperative were not constrained by the need to clear the labor market, it would always set L and E at the per-capita income maximizing levels ($\partial y/\partial L = \partial y/\partial E = 0$, provided this maximized income was no less than the reservation wage for the corresponding level of membership) and never enter the region of negative returns to factors. It is only the impossibility of exclusion, that is, the condition of de facto open access (like a common property resource) enforced by full employment in the political market and the consequent efficiency of merger, that may force the coop to over-use both inputs beyond their income-maximizing levels.

4. Extremist reaction to failure

We turn now to the comparative statics of the model, i.e. we want to investigate how the optimal mix of labor and extremism changes under the impact of an exogenous shock parameterized by S (success or, symmetrically, failure). Formally, we must totally differentiate equilibrium conditions (3) and (4) and examine the signs of the total derivatives dE/dS and dL/dS .

To sharpen our focus, let us concentrate on a simplified version of the model in which, in addition to a number of straightforward simplifications,⁴ we make the worst-case assumption that success impacts only total product per capita but not the marginal product of labor.⁵ Then it can be demonstrated that dL/dS has the same sign as the following expression, called A :

$$A = \frac{\partial^2 w}{\partial E^2} \frac{\partial y}{\partial L} - \frac{\partial^2 y}{\partial E^2} \frac{\partial w}{\partial L} \quad (5)$$

while dE/dS has the same sign as the following expression, called B :

$$B = \frac{\partial^2 w}{\partial L^2} \frac{\partial y}{\partial E} - \frac{\partial^2 y}{\partial L^2} \frac{\partial w}{\partial E} \quad (6)$$

The second-order conditions for constrained income maximization (not reported here) show that at most one, but not both, of these expressions can be negative, which implies that dL/dS and dE/dS cannot both be negative. This is logical enough: absent direct effects of success on marginal factor productivities, a parametric increase in output cannot reduce usage of both inputs.

We are interested in the conditions under which success optimally induces moderation and, symmetrically, failure induces radicalization; that is, $dL/dS > 0$ and $dE/dS < 0$, which implies $A > 0$ and $B < 0$. First of all, given the signs of the second-order partials specified for functions (1) and (2) and

⁴ For simplicity we set the second-order cross partials of both the income and the labor supply functions equal to zero, i.e. $\frac{\partial^2 y}{\partial L \partial E} = \frac{\partial^2 y}{\partial E \partial L} = 0$ and $\frac{\partial^2 w}{\partial L \partial E} = \frac{\partial^2 w}{\partial E \partial L} = 0$. Also, for want of a strong intuition to the contrary, we neutrally assume that success has no direct effect on the marginal productivity of extremism, i.e. $\frac{\partial^2 y}{\partial E \partial S} = 0$. Mathematical proof of what follows is available from the author upon request.

⁵ If $\frac{\partial^2 y}{\partial L \partial S} > 0$ it would more likely be the case, *ceteris paribus*, that $dE/dS < 0$ and $dL/dS > 0$. The conditions for an extremist reaction to failure, which are our focus in the text, would then be more likely to occur. Specifically, $A > 0$ and $B < 0$ together are sufficient conditions for $dE/dS < 0$ and $dL/dS > 0$; in this case the sign of $\frac{\partial^2 y}{\partial L \partial S}$ is irrelevant and its magnitude affects only the magnitude of total derivatives, not their sign. That is, if $\frac{\partial^2 y}{\partial L \partial S} > 0$ the specified signs of total derivatives are confirmed if and only if $A > 0$ and $B < 0$ but contradicted otherwise, with results uncertain. If $\frac{\partial^2 y}{\partial L \partial S} > 0$ is sufficiently large it could make $dE/dS < 0$ even when $B > 0$; in turn $B > 0$ may even imply $\partial y / \partial E > 0$, i.e. extremism still yielding positive returns at the margin.

given that $\frac{\partial y}{\partial L}$ and $\frac{\partial y}{\partial E}$ must have the same sign at the equilibrium, inspection of equations (5) and (6) shows that this case can obtain only if the wage function is strictly convex in labor ($\frac{\partial^2 w}{\partial L^2} > 0$) and $\frac{\partial y}{\partial L}$ and $\frac{\partial y}{\partial E}$ are both negative at the equilibrium, i.e. if we are in the range of negative returns to both inputs. Then, setting expression (5) greater than zero and using condition (3) yields:

$$\frac{\frac{\partial^2 y}{\partial E^2}}{\frac{\partial y}{\partial E}} > \frac{\frac{\partial^2 w}{\partial E^2}}{\frac{\partial w}{\partial E}} \quad (7)$$

Similarly, setting expression (6) less than zero and using (3) yields:

$$\frac{\frac{\partial^2 y}{\partial L^2}}{\frac{\partial y}{\partial L}} < \frac{\frac{\partial^2 w}{\partial L^2}}{\frac{\partial w}{\partial L}} \quad (8)$$

By combining (3), (7), and (8) and rearranging terms the overall picture of our case looks as follows:

$$\frac{\frac{\partial^2 y}{\partial L^2}}{\frac{\partial^2 w}{\partial L^2}} > \frac{\frac{\partial y}{\partial L}}{\frac{\partial w}{\partial L}} = \frac{\frac{\partial y}{\partial E}}{\frac{\partial w}{\partial E}} > \frac{\frac{\partial^2 y}{\partial E^2}}{\frac{\partial^2 w}{\partial E^2}} \quad (9)$$

Recalling that we are in the range of negative returns to both factors, these are all negative numbers. The equality in the middle of (9) is another way of expressing first-order condition (3). Thus in this equilibrium, the ratio of the rate of change in per capita income to the rate of change in the reservation wage as employment changes is equal to the ratio of the rate of change in income to the rate of change in wage as extremism changes, implying that there are no gains to be made from changing the input mix as long as the environment is unchanged. But these ratios of the *first* derivatives are lower (in absolute value, higher) than the ratios of the *second* derivatives of the functions with respect to labor *and* at the same time higher (in absolute value, lower) than the ratios of the *second* derivatives with respect to extremism. This implies that a parametric shift in the production function will drive the optimal input mix to change in opposite directions. Specifically, as increases in labor are relatively less damaging to marginal product and more costly in terms of marginal wage (first term of 9) than increases in extremism (last term), an exogenous increase in revenue will call forth only a relatively modest increase in labor supply which will not have to be counteracted by further production-depressing increases in extremism, whose discouraging effect on membership would only be tenuous; hence the coop will turn more moderate and broaden its mem-

bership. Conversely, a parametric fall in revenue will prompt only a modest spontaneous outflow of members which can be magnified by increases in extremism which are so relatively cheap to the firm, even though they depress production even further. So the coop will turn more radical and shrink in size.⁶

We can gain further insight by expressing our results in terms of elasticities and specifying the functions. By cross-multiplying (7) by E and (8) by L one obtains the elasticities of the *marginal* income function and of the *marginal* wage function with respect to E and L respectively. Therefore inequalities (7) and (8) can be written as:

$$\eta_{y'E} > \eta_{w'E} \quad (7')$$

$$\eta_{y'L} < \eta_{w'L} \quad (8')$$

Let us now specify the income per member function (1) as additively separable and quadratic in both labor and extremism:

$$y = aL - \frac{1}{2}bL^2 + cE - \frac{1}{2}dE^2 \quad \text{with } a, b, c, d > 0 \quad (10)$$

and the labor supply price function (2) as additively separable and constant-elasticity in each argument:

$$w = L^\alpha + E^\beta \quad \text{with } \alpha, \beta > 1 \quad (11)$$

where α and β are the elasticities of the wage to labor and extremism respectively.

Then inequalities (7') and (8') become respectively:

$$\frac{-dE}{c - dE} > \beta - 1 \quad (12)$$

$$\frac{-bL}{a - bL} < \alpha - 1 \quad (13)$$

The terms in these expressions are the elasticities of the *marginal* income and wage functions derived from (10) and (11). The left-hand sides of (12) and (13) – the marginal income elasticities – increase with c and a and decrease with d, E, b, L, as appropriate. Given the right-hand sides and the income function parameters, these conditions are the more likely to be satisfied the smaller is E

⁶ For the sake of comparison, such a divergent reaction of the input mix to changes in the environment would also be a possibility if the revolutionary organization were not a cooperative but a profit-maximizing firm with monopsony power on the political labor market, paying a fixed expected wage and optimally choosing levels of employment and extremism, unconstrained by free access. Such a firm would always locate itself at an equilibrium where the marginal products of extremism and labor are both positive, but an exogenous fall in income would shift down both MP curves. The fall in MP_L induces a fall in L, which in turn reduces the marginal cost of extremism to the firm, $L(\partial w/\partial E)$ (the lukewarm leave and the hard-liners remain). If this marginal cost reduction is greater than the fall in MP_E , E must be increased to restore equilibrium. Given such a possibility, the argument for the validity of our cooperative-free access model vis-à-vis the profit-maximizing model cannot turn on comparative statics results but must rely on the plausibility of the assumptions, as discussed in the next section. Unless direct evidence can be found on the implication that in equilibrium the membership is “too large”, i.e. its MP is negative – a difficult empirical task.

and the larger is L ; but they can also be satisfied with a large E and a small L if per capita income has a relatively high maximum and declines slowly as E is increased and if it has a low maximum and declines steeply as L is increased. On the other hand, given the left-hand sides, conditions (12) and (13) are more likely to be met the lower is β and the higher is α .⁷

So our results typically picture a situation where a relatively inexpensive supply of extremism drives the coop to an equilibrium where both factors' marginal products are negative, and where income increases more rapidly when employment falls than when extremism is reduced. Given free entry into and exit from membership, however, an exogenous fall in income has little discouraging effect on labor supply (because α is high) and a strong discouraging effect on the supply of extremism (because β is low). This makes it possible, and profitable, for the coop to reinforce this limited fall in employment by an endogenous increase in extremism which drives out surplus workers at little direct productivity cost to the firm and at greater indirect productivity gain from reduced employment, thereby partially counteracting the exogenous shock and achieving higher incomes for the remaining members.

What seems puzzling in this result is that starting from a position where extremism was already carried beyond the income-maximizing level and into the region of negative returns, the organization reacts to an adverse income shock by further increasing extremism and hence further depressing income. Why? The answer lies in the logic of maximization of income per member that drives the cooperative, unlike a standard profit-maximizing firm. It is true that reducing both employment and extremism would at least partially offset the adverse shock's effect on *total* income; but to efficiently counteract the adverse effect on *per capita* income requires that membership be curtailed by more than total income. If as assumed, labor is expensive to procure at the margin whereas extremism is not, the spontaneous fall in membership will not come about in sufficient numbers but will have to be supplemented by an endogenously engineered push in the form of heightened extremism, by which more members will "voluntarily" be turned away to the benefit of the remainder. Radicalization is thus, in these circumstances, a relatively inexpensive device to get rid of redundant fellow members when the organization is in dire straits.

(Figures 1 and 2 about here)

The case is illustrated in the figures, where income and wage curves are drawn as functions of extremism (Figure 1) and labor (Figure 2). In both pictures A is the initial equilibrium, B the new position brought about by the exogenous fall in income with policy unchanged, sliding down an unchanged wage curve. C is the new optimal solution brought about by an endogenous increase in extremism, which shifts $w(L)$ upward and $y(L)$ further down (Figure 2), while the fall in membership shifts $w(E)$ down and $y(E)$ up (Figure 1). C is optimal in that it yields higher per capita income than

⁷ Inequality (12) is in fact always satisfied, irrespective of the income elasticity, if $\beta < 2$, while (13) can never be satisfied for $\alpha < 2$. A numerical example that fulfills our conditions is $a=9$, $b=6$, $c=10$, $d=1$, $\alpha=3$, $\beta=2$. Then the last term of (9) is $-1/2$. Setting e.g. $E=20$ yields $-1/4$ for the two middle terms and $L=6$ (as required by (8)), and $-1/6$ for the first term. Inequalities (12) and (13) are of course also satisfied. Thus we have a relatively large E ($=20$) with a relatively high marginal product (-10) and a relatively small L ($=6$) with a very low marginal product (-27).

the laissez-faire position B and, as drawn, it implies lower employment than in B (Figure 2) and higher extremism than the starting point A (Figure 1). We start at an equilibrium where $w(L)$ is steep and close to the income peak, yielding a relatively low level of employment, while $w(E)$ is flat and located far down on the income curve, yielding a large dose of extremism. This configuration obtains because, in Figure 1, the downward shift of $w(E)$ is small whereas the upward shift of $y(E)$ is big; in turn, this is due to the fact that $\frac{\partial w}{\partial L}$ is small (because L itself is small to begin with) whereas $\frac{\partial y}{\partial L}$ is large in absolute value (because $y(L)$ is steep). In Figure 2, the upward shift of $w(L)$ is big because $\frac{\partial w}{\partial E}$ is large as E itself is large to begin with, whereas the downward shift of $y(L)$ is small because $\frac{\partial y}{\partial E}$ is small in absolute value as $y(E)$ is flat. Thus the figures, though drawn in terms of the original functions, embody the range of different parameter values which, in marginal elasticities terms, generate the solution described by conditions (12) and (13) (or 7, 8, and 9).

5. The Islamic case

How do we go back from the model developed above to Islamic extremism? There is ample evidence that supports our basic assumptions on the working of the revolutionary organization. Islamist organizations do appear to be highly participatory and cooperative ventures, no less, and perhaps more, than their likes of different ideological brands (Stern, 2000; Shikaki, 2002; Boroumand and Boroumand, 2002). As with these, the cooperative nature of the Islamist enterprise is not contradicted but enhanced by the organization's strong charismatic leadership and hierarchical structure. And Islamist organizations too, like their non-Islamic counterparts, must find it exceedingly difficult to keep out, let alone lay off, applicants who are willing to volunteer for the cause, as God's commands are there for all to follow. Consequently they exhibit a strong tendency to collude or make alliances, overcoming their doctrinal or political differences (Boroumand and Boroumand, 2002).⁸ It follows that changing policies or platforms – choosing the degree of extremism – is in practice the only way to indirectly control membership levels. And indeed, this process of convergence and cooperation among formerly rival organizations under an Islamist flag has been concomitant with the adoption of ever more extreme platforms, including more extreme tactics such as large-scale resort to suicide bombings and other overtly terrorist actions (Stern, 2000; Hassan, 2001; Doran, 2002; Boroumand and Boroumand, 2002).

If so, then our model can claim to provide the beginning of an explanation to the puzzle of radicalization as a reaction to perceived failure if Islamist movements can be shown to broadly fit in the relevant characterization of the model's parameters. There are two key features here. The first is a pool of potential members who are, at the margin, relatively prone to extremism and relatively averse to effort, so that labor is an expensive factor while extremism is cheaply obtained by the organization. The second is a "production function" in which returns to labor are steeply decreasing whereas returns to extremism are not; in the negative range of marginal returns, this translates into the fact that increasing membership entails heavy losses but increasing extremism brings little additional damage.

Explaining a steeply increasing supply price of labor is easy as the pool of potential participants in revolutionary activities is bound quickly to dry up. On the other hand, given the policy platform, there are bound to be fairly tight limits to what can be accomplished by multiplying effort as such, explaining the steeply decreasing returns to labor. The intriguing part is the attitude to extremism, both on the part of the activists (which determines its supply price) and on the part of the public (which determines its effect on popularity, support and, ultimately, power). I would argue

⁸ In Palestine, since the start of the second Intifada in September 2000, the nationalist "young guard" has formed an alliance with the Islamists (Shikaki, 2002), and the two Islamist organizations themselves, Hamas and Islamic Jihad, closely cooperate with each other (Hassan, 2001). The early ideologues of Islamism already advocated solidarity across the different schools and sects of Islam, and the Iranian revolution sparked a self-conscious effort to overcome the Sunni-Shi'a divide for the sake of building a pan-Muslim international movement to seize control of the Muslim world. This effort resulted in the creation of Iran-backed Hezbollah, based in Lebanon but branching out into many countries, and containing both Shi'ite and Sunni groups (Boroumand and Boroumand, 2002). Al Qaeda itself, with its reported efforts to downplay the divisions between Sunni and Shi'a Muslims, is one product of this drive to put together an "Islamist International", whose parallel with the problems faced and the solutions contrived by the Communist International of the 20th century has been noted (Boroumand and Boroumand, 2002; Doran, 2002).

that both sides of extremism are jointly explained by the unique intertwining of religion and politics in the *umma*, the international Muslim community, emphasized by all strands of Western scholarship (Rodinson, 1967; Lewis, 2001; Armstrong, 2001; Doran, 2002; Fuller, 2002).

Because to an observant Muslim the only rightful politics is the implementation of the *shari'a*, being radical means only going back to the sources of truth; it is not perceived as straying from mainstream Islam but, on the contrary, as being more truly and deeply Muslim. Rodinson (1967) notes that the revolutionary movements in the Muslim world, of which there has always been no shortage, have always been, and could only be, of one of two kinds: either “revisionists”, aiming at correction or softening of particular precepts so as to modernize the doctrine at the margin, or “reformers”, who want to restore the original message which is currently being diluted, corrupted, or betrayed. The latter are likely to regard the former as lukewarm Muslims or, worse, hypocrites: the “reformers” (i.e., the fundamentalists) can always claim for themselves a loyalty to principle and established doctrine that shuts down all criticism. Therefore, even if many ordinary Muslims may well think an organization’s current degree of extremism is excessive, they are likely to be forgiving as if these were “mistakes made for a good purpose”. Doran (2002) stresses the importance of the theme of the struggle against the Hypocrites, dating back to the Prophet Muhammad himself, and now identified with the fight against the corrupt, apostate regimes which rule much of the Muslim world. This theme was advanced by Bin Laden as a defence of his actions, one that resonated deeply among large sections of Muslim opinion and the press, far beyond the radical Salafis who are the breeding ground of Al Qaeda, among others.

Western scholarship is divided on the subject of the relationship of radical Islamism, or fundamentalism, to the essential nature of the Muslim faith and its historical development. One view, championed by Bernard Lewis, argues that its deep roots in Muslim history guarantee its staying power: its underlying source is the inherent fusion of religion and politics in the *umma*, enshrined in the doctrinal tradition, while its relatively recent upsurge is explained by the “failure of modernization” experienced by Muslim states on all fronts (economic, political, and military). At the opposite end, other scholars see Islamic fundamentalism as a distinctly modern phenomenon, thoroughly at odds with either Koranic doctrine or traditional practice, and explain its recent rise either as a self-conscious ideological borrowing from European fascism and communism put in the service of the Islamic revolution and then bolstered by the Iranian success story (Boroumand and Boroumand, 2002), or as the result of the decline of other political doctrines and the emergence of an intellectual and political vacuum waiting to be filled. This is vividly illustrated by the widespread conversion to Islamism of once-Marxist Arab intellectuals, spurred by frustration and resentment at the stagnation and misery of their own countries (Laqueur, 2001). One scholar in this vein pushes her defense of Islam so far as to claim that the September 11 terrorists “hijacked” the religion itself (Armstrong, 2001, p. 70).

While taking note of this scholarly dispute, we can for our purposes settle on the more balanced position taken by Fuller (2002). In his view, the scholars who search Islamic writings to decide on whether Islam is or is not compatible with democracy and Western values “have the question wrong. The real issue is not what Islam is, but what Muslims want. People of all sorts of faiths

can rapidly develop interpretations of their religion that justify practically any political quest. This process (.....) is already under way among Muslims” (*ibid.*, p. 50). He then goes on to note that living under harsh local conditions and feeling as besieged by the West, most of the Muslim community is now heading toward less tolerant and modernist interpretations of Islam, and is thus increasingly inclined to listen to extremist discourse (*ibid.*, p.56). This implies that the rise, or resurgence, of fundamentalism is made possible by the completely decentralized nature of the religion, which houses many rival schools of interpretation of the holy books none of which, however, can claim a right of primacy unless by force of doctrinal argument (Boroumand and Boroumand, 2002; Lemann, 2001). Hence even the wildest extremists can claim, with reason, that they have the backing of (some of) the doctors. One instance is Pakistan’s *madrasahs* (Koranic schools), which unlike other countries’, are unsupervised by the government and free to embrace whatever version of the religion they choose; a good number of them engage in radical Islamist teaching, training an international army of volunteers devoted to *jihad* (Stern, 2000).

Furthermore, in an important sense doctrinal fundamentalism is not a legacy from an archaic past but a very modern development, as it is the product of enhanced competition in religious interpretation. Modern mass education “has contributed to a fragmentation of religious authority whereby (....) the meaning of scripture no longer needs to be interpreted by a religious establishment but rather, lies in the eye of the beholder”. Centuries-long development of Islamic jurisprudence and Koranic exegesis “now confronts the proliferation of modern-educated individuals, who have direct access to the basic religious texts and question why they should automatically defer to the religious class”. This has allowed bin Laden to claim to speak on behalf of Islam (Piscatori, 2002, p. 146).

Summing up, whether ancient or modern, extremism seems to be endemic in today’s Islam because of the unique tangle of church, polity, economy, and society embedded in the *umma*. Becoming more radical, extreme, or fundamentalist means not pulling out of Islam but going deeper back into it, down to its essential roots.⁹ That explains why extremist activists sell for cheap and their actions are received with a degree of indulgence, not to say sympathy, that has no parallel outside the Muslim world. If this line of argument makes sense, we can come full circle and ask why most revolutionaries, like communists, nazis, jacobins, and others, displayed an extremist reaction to success such as the conquest of power (see Ferrero 2002) – the opposite of the Islamists’ extremist reaction to failure. The logic of our model points to the supply price of extremism as one key factor. So why should those otherwise ruthless revolutionaries have been more restrained or averse to extreme militancy than their Islamic counterparts? Simply because in the world of secular politics, even when shaped by ideologies, turning more extreme implies leaving established principle and practice behind and asking people to follow you in a venture without precedent, and therefore highly risky; and people rightly demand adequate compensation for it, which can be paid out only

⁹ It could be countered that extremism in this sense is endemic not just in Islam but in all religions: almost by definition, it is in the nature of religious belief that being radical means going back to the undiluted tenets of the faith. This is potentially true, but at least in the case of Christianity it was the work of the Protestant Reformation to ultimately enforce separation of church and state, while the Roman Catholic church has a supreme head who can suppress doctrinal pluralism and competition and centrally enforce orthodox doctrine and policy on all members.

when the prospects of success, and hence its expected dividend, improve. In Islam, by contrast, turning more extreme “only” implies, or can pretend to imply, going back to precedent and certainty, blessed by some sacred authorities; and this is a resource that can be put to use when all else fails, as an easy response to decline.¹⁰

¹⁰ My previous paper (Ferrero 2002) briefly discusses Ayatollah Khomeini’s Islamic revolution in Iran as yet another example of broadly based revolution which turned radical after the conquest of power, like its secular counterparts. There, however, the revolution did not seek to make a purportedly Islamic, apostate regime more true to its principles; on the contrary it rose against a Westernized, secularized, non-Islamic state. Furthermore, when Khomeini decreed that a cleric should lead the *umma* and began advocating an Islamic revolution and state, he was breaking with centuries of the most holy Shi’a tradition, which had regarded all government as illegitimate and corrupt and had enjoined the faithful to withdraw from political life until the coming of the Shi’a messiah, known as the “Hidden Imam” (Armstrong, 2001, p. 66). Thus he and his students recaptured for the Islamist movement a whole generation influenced by Marxism-Leninism, and the Iranian revolution had strong Leninist features (Boroumand and Boroumand, 2002). Militancy against the Shah therefore involved treading on an uncharted, risky territory, which by our argument implied a strong aversion to extremism and hence the need to reward it.

6. Conclusions

This paper has argued the view that the long-term trend towards radicalization of Islamic politics can be understood as a rational choice by a self-interested revolutionary organization which seeks to maximize expected income per member from the conquest of power. We have modelled this revolutionary organization as a political cooperative constrained by the imperative of taking in all applicants, and therefore using the degree of extremism of its policies as a way of indirectly controlling membership levels. The fact that radicalization occurs as a response to perceived failure and retreat of Islamic values and practices poses a puzzle. Our model shows that radicalization is indeed the optimal response to an adverse shock, which requires curtailing membership to partly offset the decline in expected per capita income, when activists are relatively less averse to extremism than to labor effort. Such a preference structure seems typical of Islamic revolutionaries due to the special intertwining of religion and politics in the Muslim community.

Needless to say, political extremism, Islamic or otherwise, is not coterminous with terrorism. But making sense of Islamic extremism as something that is not inherent in religious dogma at all times, but is the outcome of rational choices made under specific circumstances and for mundane, political purposes, may hopefully help us towards a better understanding of an important factor in the new world (dis)order.

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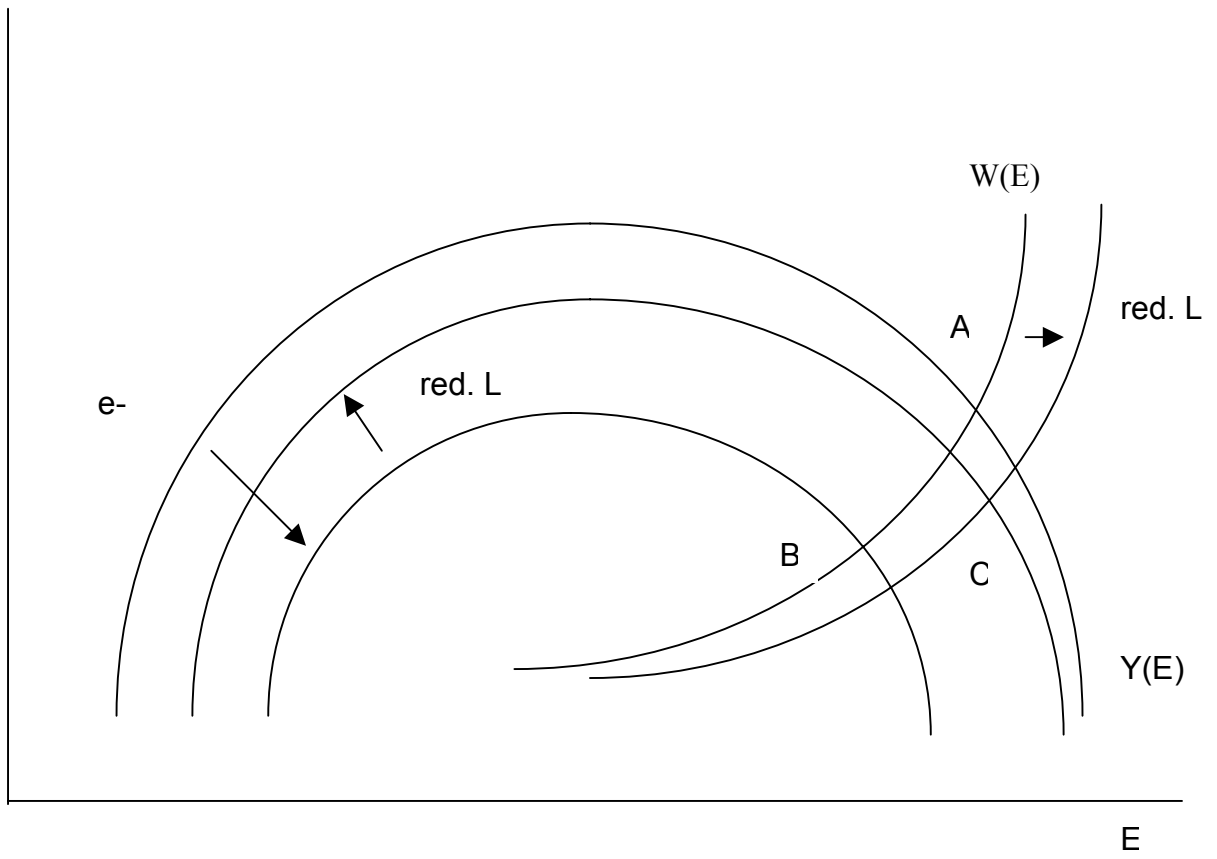


Figure 1

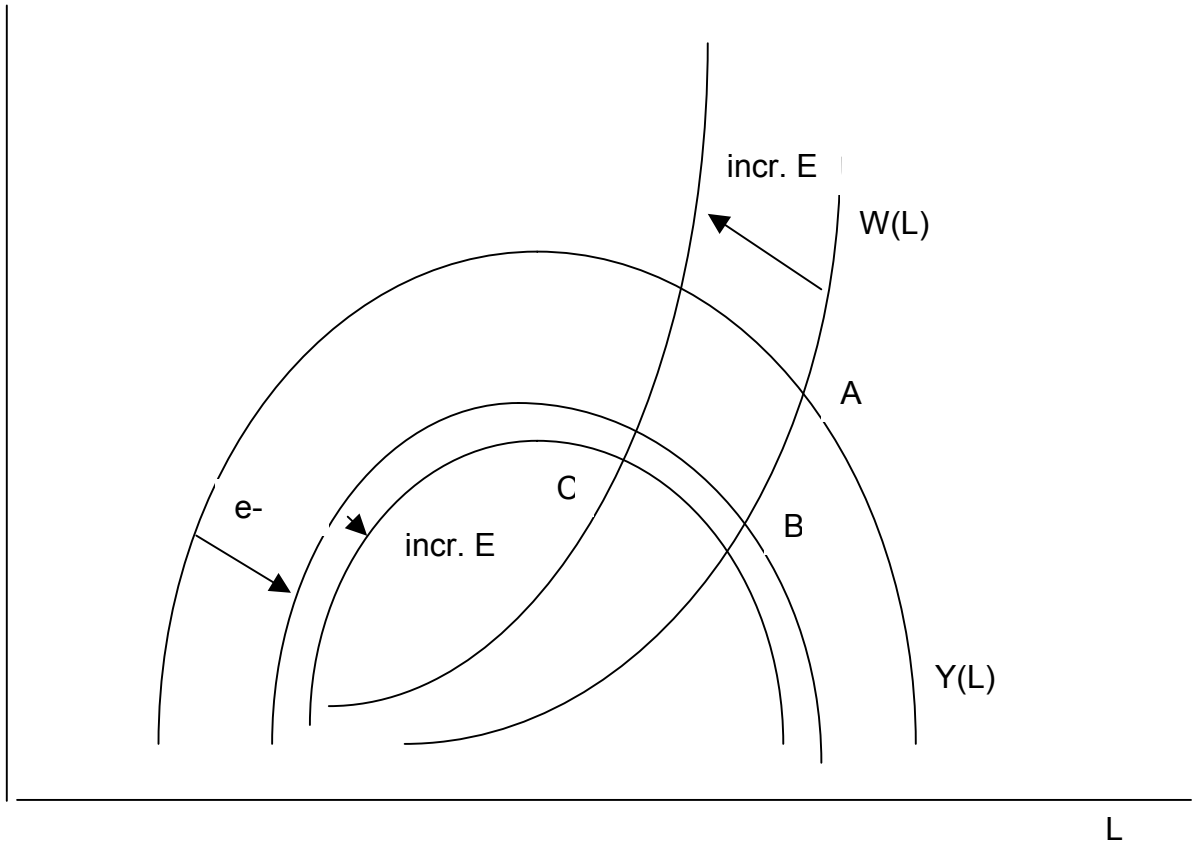


Figure 2

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