



NEPS WORKING PAPERS SERIES

Working paper 3/2013

Seduction of Religious Clerics and Violence in Autocratic Regimes -with special emphasis on Islam

> Jean-Philippe Platteau, University of Namur Petros G. Sekeris, University of Namur

Abstract: In establishing and consolidating strong centralized states absolute monarchs do not rely on sheer force alone but they also resort to the tactic of seduction whereby they buy the loyalty of potential rivals or dissenters. We argue with special reference to the lands of Islam that seduction is not confined to political or military rivals or enemies but may be extended to religious clerics whose legitimizing helps sheltering the absolute ruler from open opposition and defusing potential rebellion. Our model which features three actors, the ruler, the religious authorities, and the common people allows us to identify the conditions under which the ruler is more or less likely to grant substantial material privileges to the official clerics. By positing (1) that official clerics respond not only to material privileges but also to ideological factors, and (2) that their potential contribution to mass protest or revolutionary movements (in the event that the ruler does not choose to treat them well enough) depends on technological/motivational factors encapsulating the influence of the state of communication technologies or the level of inspiration or emulation gained from successful rebellions in other countries, we are able to make useful predictions and, in particular, to shed new light on the Arab Spring.

Seduction of Religious Clerics and Violence in Autocratic Regimes -with special emphasis on Islam

Jean-Philippe Platteau*and Petros G. Sekeris[†]

June 2013

Abstract

In establishing and consolidating strong centralized states absolute monarchs do not rely on sheer force alone but they also resort to the tactic of seduction whereby they buy the loyalty of potential rivals or dissenters. We argue with special reference to the lands of Islam that seduction is not confined to political or military rivals or enemies but may be extended to religious clerics whose legitimizing helps sheltering the absolute ruler from open opposition and defusing potential rebellion. Our model which features three actors, the ruler, the religious authorities, and the common people allows us to identify the conditions under which the ruler is more or less likely to grant substantial material privileges to the official clerics. By positing (1) that official clerics respond not only to material privileges but also to ideological factors, and (2) that their potential contribution to mass protest or revolutionary movements (in the event that the ruler does not choose to treat them well enough) depends on technological/motivational factors encapsulating the influence of the state of communication technologies or the level of inspiration or emulation gained from successful rebellions in other countries, we are able to make useful predictions and, in particular, to shed new light on the Arab Spring.

1 Introduction

A central message from the political science literature on state formation is that in establishing and consolidating strong centralized states absolute monarchs do not rely on sheer force alone. To a varying extent, they also resort to the tactic of seduction whereby they buy the loyalty of potential rivals or

^{*}Centre of Research in the Economics of Development (CRED), Department of economics, University of Namur, Rempart de la Vierge, 8 B-5000 Namur, Belgium. E-mail: jean-philippe.platteau@fundp.ac.be

[†]Belgian National Research Fund (FNRS) post-doctoral researcher at the University of Namur, Belgium. E-mail: psekeris@fundp.ac.be

dissenters. Such a purpose is mainly achieved by showering upon the elites exemptions and advantages large enough to make the cost of rebellion very high. Political power thus becomes "a fountain of privilege", and by judiciously targetting her favours the monarch can make or break the fortunes of a clan head or a warlord suspected of coveting the crown (Bates, 2001: Chap. 3; North et al., 2009: Chap. 3).

A much less acknowledged fact is that seduction is not necessarily confined to political or military rivals or enemies but may also be extended to religious clerics. Insofar as the latter wield considerable prestige in the eyes of the population, such as is the case in traditional societies, their legitimizing of the ruling sovereign helps sheltering him from open opposition and defusing potential rebellion. Like seduction of the political elite, seducing religious clerics may therefore be a cost-effective strategy to use in combination with bullying.

When thinking of religious seduction, two examples spring to mind. The first one is the Caesaropapism of Eastern Christianity, a regime in which the political ruler succeeded in subduing the high clergy of the Orthodox Church in Byzantium. This tradition has continued till the present times in Russia, the core of post-Byzantium Orthodox Christianity. Before the rise of Communism, the influence of the Russian Orthodox Church on people's behaviour, especially among the peasants, was enormous because of the two following features. First, Orthodoxy was not merely a component part of the culture of the Russian people, its influence on the life of the people was all-encompassing. Second, the Orthodox Church made use of a very extensive institutional network of facilities and 'cadres' which even exceeded the reach of the secular bureaucracy (Heretz, 2008: 22-23).

The second characteristic does not appropriately describe the world of Islam which does not actually possess a Church structure. Yet, in Islam there does exist a sort of ecclesiastical elite represented by the jurists-cum-theologists known as the ulama, and a ruler can try to seduce them. As a matter of fact, the history of Islam testifies that rulers have often turned to the ulama in order to obtain religious legitimacy and effective intermediation between rulers and the people. The general pattern was thus one of a largely cooperative relationship between the scholars and the sultans: the ulama were patronized through a system of rewards and privileges and, in return, the sultans benefited from the relatively unconstrained space to govern (Lapidus, 1984; An-Naim, 2008; Hallaq, 2010; Malik, 2012). If such cooperation was neglected by the ruler, as attested by the experience of Iran in the 19th century, there was a serious risk to see religious leaders (the ayatollahs) take the lead of popular uprisings.

In this paper we write a model in which an autocratic ruler can use a seduction tactic in addition to repression in order to maximize his revenue. Since what we have in mind is the seduction of religious clerics (and not the seduction of potential rivals or enemies), we specify a loyalty or legitimization function to capture the extent to which the seduced or co-opted clerics shore up the prevailing autocratic rule. We thus depart from political economy models in which a dictator makes transfer payments directly to the population or to a subgroup (say, a ethnic group) of it in order to stay in power and generate personal rents (Acemoglu and Robinson, 2001; 2006; Padro i Miquel, 2007; Sekeris, 2011; Hodler, 2012). We also depart from Acemoglu et al. (2011) whose model focuses on the cooptation of the military since we propose a more detailed analysis of the cooptation determinants that takes into account the strategic reaction of the popular masses, as well as the sensitivity of religious clerics to the central tenets of their religion. A second fundamental difference distinguishing our respective papers is that we allow for the players to endogenously determine their likelihood of prevailing in case of revolutionary attempts where Acemoglu et al. (2011) take this probability as exogenous. As will become obvious, this endogenous feature lies behind all the paper's findings. Finally, we also depart from theocracy models (see e.g. Wintrobe 1998) since clerics are not conceived as rulers in our setting, but rather as an institution that can be instrumented by autocrats. In our setting the influence of the ruler's largesse runs through an intermediary group acting as an elite. Our main interest in following this original approach lies in showing that instrumentalization of religion may increase the stability of autocratic regimes. This question is especially relevant for pre-Communist Russia, and also for Arab or Muslim-dominated countries in which stable despotism has been a hallmark of political life until quite recently.

Abundant empirical evidence indeed attests that whether democracy is measured by the Polity IV index, the index of Liberal Democracy, or the Freedom House index, it appears to be significantly less developed in Muslim-dominated countries. It bears emphasis that scores of democracy are not only lower in Muslim than in non-Muslim countries, but also in Arab than in non-Arab countries. The so-called MENA Development Report of the World Bank (2003) has concluded in the same way: there exists a significant governance gap between the Middle East and North Africa region and the rest of the world, meaning that countries belonging to the former region display consistently lower levels of governance quality than would be expected for their incomes. In particular, all countries belonging to MENA, whatever their income, score well below the world trend with respect to external accountabilities and access to basic political and civil rights. On the other hand, since the Arab Spring has recently shaken the some Arab countries, we are interested in using our theoretical framework to attempt to understand the factors behind the sudden disruption of the prevailing despotic equilibrium.

Among the reasons mentioned to explain the governance deficit of MENA countries, oil wealth (which gives rise to the resource curse), geopolitics (foreign powers have generally found it convenient to

work with authoritarian regimes, especially in countries possessing critical mineral resources), interstate conflicts (which tend to concentrate power in the hands of the executive, and encourage coercive organizations), institutional legacies, and Islamic cultural influence stand foremost (Barro, 1999; Ross, 2001; Smith, 2004; Kuran, 2004: 80-83; 2006: 819-23; 2011; Weiffen, 2008; Elbadawi and Makdisi, 2011; Tsui, 2011; Crespo Cuaresma et al., 2011; Blaydes and Chaney, 2011; Chaney, 2012; Hodler, 2012). Oil wealth, however, cannot provide a complete explanation of the democratic deficit in Arab countries, since scores of democracy appear to be lower in Arab oil-rich countries than in non-Arab oil-rich countries, and lower in Arab oil-poor countries than in non-Arab oil-poor countries. Furthermore, within the MENA region no clear relationship emerges between conflict or the threat of it and the weakness of political contestability (World Bank, 2003: 68). More directly relevant to our project is the fact that when tested the role of Islamic cultural influence is not really elucidated. We are not told what is the precise mechanism whereby Islam influences politics, and Islamic influence is defined poorly and without a well-specified link to the exact theory put to the test. Since our paper is about establishing a relationship between persistent autocracies and Islam, it purports to highlight what such a mechanism can be, on the assumption that Islam, indeed, separately explains low democracy scores.

The structure of the paper is as follows. In Section 2, we document the instrumentalization of religion by absolute monarchs in the lands of Islam. In Section 3, the model is presented in three successive steps. After detailing the setup, we proceed by examining the simple case in which the people's collective capacity, itself determined by the extent of support of the religious clerics, is exogenous. We make the crucial distinction between the Opposition Suppression Strategy and the Opposition Confrontation Strategy. The groundwork will thus be laid for the analysis of the more complex case in which the amount of material privileges awarded to the clerics and, therefore, their political positioning are endogenously chosen. The comparative-static results are derived and commented in Section 4. In Section 5, which provides an extended conclusion, the results are further discussed in the context of the available literature.

2 Seduction of religious clerics in the lands of Islam

The examples of the Mamluk, Ottoman and Mugal empires as well as those of Safavid Persia and pre-colonial Morocco offer perfect illustrations of the cooperation that has always existed between the high scholars of Islam and the monarchs. At their head lay a strong and centralised state but, at the same time, the moral authority of Islamic religious leaders served both as a support of, and a check on,

¹This applies to Weiffen (2008), for example, who concludes that there is a significant interaction effect between possession of oil wealth and Islam.

the authoritarian rule of the sultan or the shah. For example, we learn that, in the Ottoman empire, "the entire religious establishment held office at the pleasure of the sultan" (Cleveland, 2004: 48). The "cozy relationship" between the religious clerics (meaning not only the ulama but also the Sufi orders) and the sultan "translated into significant economic and political privileges" for the former (Malik, 2012: 8). Offices typically involved lucrative functions which included revenue generation and the administration of religious endowments that controlled vast tracts of land. Religious appointments were all the more coveted as the associated incomes were exempt from taxes. It is therefore not surprising that religious families possessing long-standing honourable ancestries competed for religious offices, titles and tax farms and, when successful, became a core component of the Ottoman nobility (or the Mamluk state apparatus) and a linchpin of provincial administration (Hourani, 1991: 224-25; 1993; Malik, 2012: 8; Coulson, 1964). The following excerpt from the monumental work of Lapidus speaks of itself:

"The biographies of scholars show that, with the elaboration of a bureaucratic hierarchy, interest in careers outweighed genuine piety and learning. The influence of entrenched families enabled them to promote their children into the higher grades of the educational and judicial hierarchies without having reached the proper preliminary levels, while theological students who could not find patronage were excluded. In the course of the eighteenth century the ulama became a powerful conservative pressure group. As servants of the state the ulama no longer represented the interests of the people, nor protected them from the abuses of political power. No longer did they represent a trancendental Islamic ideal opposed to worldly corruption. Their integration into the Ottoman empire made them simply the spokesmen of Ottoman legitimacy" (Lapidus, 2002: 268).

The same observation applies to the Mamluk state in which many ulama served not only as religious functionaries but also as administrators and full-fledged members of the state bureaucracy. In particular, the qadis (Islamic judges) were commonly employed by the Sultan in his private secretarial service, in his private treasury, and in the military bureaus. Some even became viziers and, in many cases, "the post of qadi was itself the culmination of an official rather than a religious career" (Lapidus, 1984: 137-8). In pre-colonial Morocco, to add another interesting example, it is in times of political crisis when the power of the sultan was contested and the use of sheer force was rather ineffective in curbing rebellious movements that he chose to co-opt the local religious elite and grant it privileges in the form of donations, tax exemptions, decrees of distinction, land grants and the right of sanctuary. On the contrary, when the rule of the sultan was well-established and strong, he used to curtail the

prerogatives of the religious groups by limiting their sanctuary privileges (el Mansour, 1979).

We can sum up the situation by citing Zubeida (2011) for whom the ulama "as figures of power and influence... acted like other politicians, participating in patronage, control of resources and factional struggles, but with the advantage of being able to invoke religious sanction" (p. 15). Since they were thus subservient to the interests of the ruler and his clique, their religious autonomy was seriously compromised and they would always be able to formulate legal justifications for whatever decision the ruler wished to make (Zubeida, 2003). As pointed out by Roy (1990): "Public order, which is a prerequisite of all what is socially desirable in society (maslahat), has always seemed to the ulama preferable to the demands that politics should be completely open to the promptings of religion" (p. 49). All these statements are remarkably close to the conclusion reached by an authority in Islamic law: "Might, in fact, was right, and this was eventually recognised by the scholars in their denunciation of civil disobedience even when the political authority was in no sense properly constituted" (Coulson, 1964: 83; see also Hourani, 1991: 144; Lapidus, 2002: 260).²

The social prestige of the ulama is so high that dissenter or rebel groups also want to have their actions sanctioned religiously. This creates a competition for their support between the ruling elite and the contenders, and it is precisely this competition that drives the ruling elite to try to recruit prominent ulama into their circle of power. To quote Lapidus' (1984) reference to civil wars under the Mamluk regime, "the support of the ulama, and with it massive popular backing, was often of decisive importance. Rebels and pretenders vied for recognition of the legitimacy of their claims, and sought fatwas or judicial opinions justifying rebellion" (p. 134). The support of the ulama was especially important in matters of tax collection. Thus, for example, in the later decades of Mamluk rule, the qadis were "invaluable intermediaries for the collection of taxes from a recalcitrant populace", and since many of them were officials in the bureaucracy they could lend "the prestige which inhered in them as representatives of Islam to the purposes of the state" (p. 135).

The support given by the ulama to the Mamluk ruler was not fully guaranteed, however. There exist notable instances in which they decided to shift their loyalty to the common people owing to an excessively rapacious behaviour of Mamluk functionaries (specially tax inspectors). When conflicts between the demands of the Mamluks and the common people thus strained the whole system of Mamluk-ulama cooperation to the breaking point, "outright rebellions of the town populace [in cities such as Cairo, Damascus, Aleppo or Tripoli] were usually led by the ulama" who not only sanctioned but also actually led the protest or revolutionary movements (pp. 150-2). In point of fact, ulama

²Lapidus (1984) thus wrote that "a government that seized power by military force was regarded as legitimate as long as it recognized the sovereignty of the shari'a and respected the basic interests of the Muslim community" (p. 260). Denouncing a ruler who claimed to be a good Muslim was therefore unjustified.

leadership was vital because it helped coordinate communal risings and overcome weaknesses in the organization of the popular masses which were typically fragmented and tended to rely on emotional appeals, clamours, and spontaneous demonstrations (p. 153). If the state-appointed, official ulama chose to remain deaf to the suffering of the people in extreme circumstances, they became vulnerable to the counter-leadership pressures and outright condemnation of self-appointed clerics operating outside of the state establishment. We shall return to the role of these marginal clerics in Section 5.

3 The Model

3.1 The setting

We consider a setting featuring three actors, the elites, the religious authorities, and the common people. The government is controlled by the elites that may face a revolutionary attempt by the common people movement. If a revolution is attempted, the people's efficiency in opposing the government's forces depends on their cooperation capacity, which is itself influenced by the legitimacy and leadership given by the religious authorities to the rebellion. In this framework we do not consider the possibility that the official clerics act as informants of the ruler as in Egorov and Sonin (2011).

The government under the control of the elites manages the country's wealth, Y assumed to be exogenous. This wealth can be used to enhance the state's repressive forces, r, to coopt the religious authorities by paying them wages w, and to enrich the ruling elites (Y-r-w). The loyalty of religious authorities or official clerics to the regime, or the inverse of their support of rebels, is captured by the function $\lambda(w;\beta)$ where β is a measure of their ideological purity understood as their adherence to the Islamic principles of fairness and social justice and to the idea that a political ruler ought to consult with his subjects (meshverret). The stronger this adherence the less loyal the religious authorities are to the regime for any given level of material privileges received from the ruler. Ideological purity is likely to be strong (β is high) when official clerics are in competition with non-official clerics who clamour for a change of policy or the regime itself and to organize popular protests toward that purpose. In other words, competition from clerics acting from outside the establishment induces (or compels) the official clerics to feel more sensitive to the people's predicament, or wakes them up to their sense of duty to help the poor and the oppressed. As a consequence, their loyalty to the tyrannical regime diminishes.

In accordance with this interpretative framework we posit that $\lambda_w > 0$ and $\lambda_{\beta} < 0$, with lower cases designating partial derivatives. Moreover, we impose that $\lambda_{ww} < 0$ and $\lambda_{w\beta} \leq 0$. The negative sign of the first of these two second derivatives means that the loyalty of religious authorities is increasingly

costly to purchase: the marginal impact of additional material privileges on their loyalty decreases as the extent of these privileges is raised. On the other hand, we are agnostic about the sign of the cross derivative.

If a revolution is attempted by the people, they decide their revolutionary effort, x, which maps into effective strength $l(\lambda(w;\beta);\alpha)x$. The function $l(\lambda(w;\beta);\alpha)$ therefore describes the effectiveness of a nominal amount of revolutionary effort, which depends on the capacity of the people to organize collectively toward the purpose of contesting the regime. In turn, such capacity hinges upon the loyalty of the official clerics to the regime, $\lambda(.)$, and a parameter α , that denotes any factor affecting the people's collective strength or capacity that has nothing to do with the leadership and support provided by the official clerics. This parameter may be interpreted, in particular, as a technological/motivational factor encapsulating the influence of the state of communication technologies or the level of inspiration or emulation, both organizational and emotional, gained from successful rebellions in other countries. These forces have an effect on the effectiveness of any level of support provided by official clerics to popular mobilization. We assume that the more loyal the clerics to the government, the smaller their support for any popular dissident movement and, therefore, the lower the collective action capacity of the people, so that $l_{\lambda}(\lambda;\alpha) < 0$. It is also natural to assume that this effect is decreasingly important: $l_{\lambda\lambda}(\lambda;\alpha) > 0$. To make the problem tractable, these two assumptions are not sufficient, though. We thus need to impose an additional assumption that bears upon the shape of the relationship expressing l as a function of w:

Assumption 1.
$$l\left(l_{\lambda\lambda}\lambda_w^2 + l_{\lambda}\lambda_{ww}\right) > \left(l_{\lambda}\lambda_w\right)^2 \Leftrightarrow l_{ww}l \geq \left(l_w\right)^2$$

We are therefore imposing that the collective action capacity of the potential revolutionaries is a decreasing and sufficiently convex function of the wage paid to the official clerics. In other words, the dampening effect of the seduction tactic used by the regime on the people's ability to revolt must be sufficiently strong at the margin.

Regarding the α parameter, we assume:

Assumption 2.
$$l_{\alpha}(\lambda; \alpha) > 0$$
, $l_{\lambda,\alpha}(\lambda; \alpha) \geq 0$

In the first part of Assumption 2, we just express the condition that, by definition, any increase in α has the effect of enhancing the collective action capacity of the people, thanks to more effective organization or stronger motivation. In the second part, we impose the more restrictive requirement that this effect is either monotonically increasing in the level of loyalty of the official clerics, or independent of it. This indirectly implies that for high wages a favourable change in the technology of revolutionary organization or in the motivation drawn from similar experiences elsewhere may not have a smaller

marginal impact on people's collective action capacity. The underlying idea is that these two exogenous changes act as substitutes for the leadership provided by the official clerics. When such leadership is more lacking (official clerics, being better paid, are more loyal to the regime), external factors play a more important role in helping revolutionaries to organize and strengthening their resolve to protest. Unless otherwise specified, for the remaining of the paper we make use of the reduced form l(w) instead of carrying the heavier notation $l(\lambda(w))$.

Lastly, we assume that a revolution may be destructive so that a share $(1 - \phi)$ of the economy's wealth gets destroyed if a revolution is attempted.

If no revolution is attempted, the utility of the elites is given by the following expression:

$$U = Y - w - r \tag{1}$$

And the utility of the people then equals:

$$u = -x \tag{2}$$

Under a revolutionary attempt, the utility of the elites and of the people respectively reads as:

$$V = \frac{r}{r + l(w)x}\phi(Y - w - r) \tag{3}$$

$$v = \frac{l(w)x}{r + l(w)x}\phi(Y - w - r) - x \tag{4}$$

Note that we use the standard contest success functions as adapted from Hirshleifer (2000) to express the probability of winning the contest, respectively by the regime and the revolutionaries.

The timing of the game is sequential. The government first sets the values of r and w, and then the people decide whether or not to revolt, and how much effort to invest in the revolution. We solve for the game's subgame perfect Nash equilibria.

We first treat the simplified version in which w, and hence l(w), are assumed exogenous so that w is not a decision variable in the hands of the ruling elite. This will help us to lay the ground for the resolution of the complete problem in which w is endogenized.

3.2 Exogenous collective capacity l

In the game's last stage, the people maximize (4) w.r.t. x subject to $v(x) \ge 0$, which yields:

$$\frac{lr}{(r+lx)^2}\phi(Y-w-r) = 1$$

The people's reaction function is therefore given by:

$$x(r) = \left(\frac{r\phi(Y-w-r)}{l}\right)^{1/2} - r/l \qquad \text{if} \quad \frac{l\phi}{1+l\phi}(Y-w) > r \Leftrightarrow v(x(r)) > 0$$

$$= \qquad 0 \qquad \text{otherwise}$$
(5)

Replacing (5) in (4), simplifying and collecting terms, we deduce that the people's utility of fighting is given by:

$$v(r) = \phi \left[\phi \left(Y - w - r \right)^{1/2} - \left(\frac{r}{l} \right)^{1/2} \right]^2 \quad \text{if } r < \frac{l\phi}{1 + l\phi} (Y - w)$$

$$= 0 \quad \text{otherwise}$$
(6)

In the first stage of the game, the government decides the amount of repression, given the following two potential strategies:³

- 1. The Opposition Suppression Strategy (OSS) which consists in repressing the revolutionary attempts by deploying a sufficiently large force so that the people will not find it optimal to contest the government. We denote the corresponding suppression-repression effort by r^s , which is a deterrence effort.
- 2. The Opposition Confrontation Strategy (OCS) which consists in opting for violent confrontation, where power may be lost with a positive probability. We denote the corresponding repression effort by r^c .

The deterrence level is set in such a way that people are indifferent between contesting the government, and taking their exit option which in our basic framework is equivalent to receiving zero income or utility. We thus have that r^s should set (6) to zero, and this is verified when r equals:

$$r^{s} = \frac{l\phi}{1 + l\phi}(Y - w) \tag{7}$$

Bearing (1) in mind, the utility obtained by the ruling elite under the OSS therefore equals:

³Recall that w, and therefore l(w), are taken as constants in this section.

$$U^* = \frac{Y - w}{1 + l\phi} \tag{8}$$

Using (3) and (5), the ruler's utility under the alternative OCS comes out as:

$$V = \left(\frac{r\phi(Y-w-r)}{l}\right)^{1/2} \qquad \text{if } r < \frac{l\phi}{1+l\phi}(Y-w) \tag{9}$$

$$= \phi(Y - w - r) \qquad \text{otherwise} \tag{10}$$

The second possibility obviously corresponds to the OSS since, to put the people at their reservation utility (=0), the ruler will set the repression effort, r^s , at the minimum level compatible with v(.) = 0, which is identical to that given by (7). We also easily verify that $V = \phi(Y - w - r)$ is equal to $U^* = \frac{Y - w}{1 + l\phi}$ when $r^s = \frac{l\phi}{1 + l\phi}(Y - w)$.

Bearing the above in mind, optimizing under the OCS simply yields:

$$r^c = \frac{Y - w}{2} \tag{11}$$

The associated condition can now be written as $l\phi > 1$, instead of $r < \frac{l\phi}{1+l\phi}(Y-w)$.

It is noticeable that the equilibrium level of repressive forces under the OCS is independent of both l and φ , a property that will prove very helpful when we analyze the more complex case discussed in the next subsection. It is easy to show that this property follows from the specification of the probability of success (the standard contest success function) combined with our particular setting.⁴

The corresponding utility equals:

$$V^* = \frac{1}{2} \left(\frac{\phi}{l} \right)^{1/2} (Y - w) \tag{12}$$

Since we know that, when $l\phi \leq 1$, the optimal strategy for the ruler is always the OSS (the radical strategy aimed at suppressing any risk of revolt), it remains to verify whether the alternative strategy, the less radical OCS, can be optimal when $l\phi > 1$. To answer that question, we must compare V^* with U^* when $l\phi > 1$. We have that:

⁴Denoting this probability by $p=\frac{r}{r+lx}$, we find that the derivative of p with respect to r is equal to: $p_r=\frac{1}{2}p\left[\frac{r}{l\varphi(Y-w-r)}\right]^{-1}\left[\frac{Y-w}{l\varphi(Y-w-r)^2}\right]$. After substituting for x in p, we have that $p/p_r=2r\left(\frac{Y-w-r}{Y-w}\right)$, an expression from which all terms in l and φ have vanished. Since the equilibrium value of r^c must equalize the marginal benefit and the marginal cost of a change in r, the following equality must be satisfied: $p_r\varphi(Y-w-r)=p\varphi$. This implies $p/p_r=Y-w-r$, again an expression in which no term in either l or φ is found. Bearing in mind the expression obtained for p/p_r , we immediately get (11).

$$U^* \ge V^* \Leftrightarrow 2\left(\frac{l}{\phi}\right)^{1/2} \ge 1 + l\phi \tag{13}$$

Some basic algebra shows that Inequality (13) is verified for $l \in [\underline{l}(\phi); \overline{l}(\phi)]$, where $\underline{l}(\phi) = \frac{\left(1-(1-\phi)^{1/2}\right)}{\phi^{3/2}}$, and $\overline{l}(\phi) = \frac{\left(1+(1-\phi)^{1/2}\right)}{\phi^{3/2}}$. Because $\phi^{3/2}$ is necessarily smaller than 1 (bear in mind that $\phi < 1$ by definition), it is evident that $\overline{l}(\phi) > 1$. And since the case where $l\phi > 1$ implies l > 1, two possibilities arise: either $l < \overline{l}(\phi)$ and the OSS is optimal, or $l > \overline{l}(\phi)$ and it is the OCS that is optimal. On the other hand, it is easy to check that $\underline{l}(\phi)\phi < 1$ for any value of ϕ , which implies that the OSS is always optimal when l is smaller than the lower bound of the interval $[\underline{l}(\phi); \overline{l}(\phi)]$. The following proposition summarizes these findings:

Proposition 1. When people's collective capacity is exogenous, the Opposition Suppression Strategy (OSS) is the preferred option of the ruler whenever $l\phi \leq 1$. When $l\phi > 1$, the alternative Opposition Confrontation Strategy (OCS) is optimal but only if $l > \frac{1+(1-\phi)^{1/2}}{\phi^{3/2}}$.

Proposition 1 states that the government is more likely to suppress potential dissent when people face large collective action problems and when a revolution is more destructive. Figure 1 helps visualizing the content of the proposition. On the x-axis we measure the level of (non)destructiveness of conflict, while on the y-axis we represent the collective action ability of the people in case of a revolutionary attempt. The downward sloping curve $\bar{l}(\phi)$ divides the parameter space in two regions, with repression being the outcome below the curve, and revolution above. The rectangular hyperbola $l\phi=1$ is another downward sloping curve shown in the figure, and we know that the OSS is always obtained below it while the OCS may occur above it. For high levels of destruction (i.e. low values of ϕ), deterring people from attempting a revolution is cheap since, irrespective of the revolution's outcome, much of the contested wealth will be destroyed. Moreover, destruction of wealth reduces the incentives for the government to confront the dissenters, thus further incentivizing it to repress the people. Reducing the destructiveness of conflict therefore has the double revolution-promoting effect of making the OSS strategy costlier, and increasing the payoff from revolution for both the ruling clique and the people.

On the other hand, when the people are ill-organized and face serious collective action problems, while repression is cheap, the odds of quelling the revolutionary attempt are high, therefore making both options attractive. When the collective action capacity is sufficiently low $(l \leq 1/\phi)$, if a revolution is attempted the small security forces deployed by the government under the OSS will be sufficient to prompt the dissenters to reduce their revolutionary effort to nothing. As a consequence, they are effectively deterred or suppressed as an opposition movement. For higher collective action abilities,

the cost of deterrence becomes proportionally higher than the optimal expenditures required to face a revolutionary attempt. Hence, while the probability that the ruling elite remain in control of the government gradually declines as l becomes higher, they prefer to put their political survival at risk to spending a significant part of the budget to deter the revolutionaries.

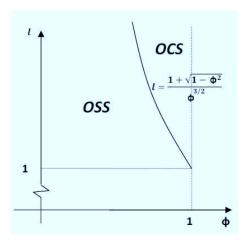


Figure 1: Equilibrium outcomes with exogenous l

3.3 Endogenous collective capacity l(w)

We now allow that the people's collective action ability varies with the material privileges granted by the ruler to the official clerics, w.

Under the OCS, the optimal wage is denoted by W^* . This wage is obtained by optimizing the ruler's utility given by (9) with respect to w, conditional on $l(W^*) > \bar{l}(\phi)$ (otherwise the outcome of the game is repression). The unconstrained optimization yields:

$$-\frac{\phi^{1/2}}{2l^{1/2}} \left(\frac{l'(w)(Y-w)}{2l(w)} + 1 \right) = 0 \tag{14}$$

In Appendix A.1, we verify that the problem is quasi-concave in w when Assumption 1 is satisfied. As a consequence, the optimal cooptation wage under the OCS, W^* , is such that:

$$W^*: -\frac{l'(W^*)(Y - W^*)}{2l(W^*)} = 1 \qquad \text{if} \qquad l(W^*) > \bar{l}(\phi)$$
 (15)

$$W^*: l(W^*) = \bar{l}(\phi)$$
 otherwise (16)

To distinguish between the optimal wage under the OCS, and the interior solution of the problem,

we denote by \hat{W} the wage level satisfying (15) when disregarding the constraint. A useful lemma regarding this variable is worth underlining:

Lemma 1. \hat{W} (and therefore $l(\hat{W})$) is independent of ϕ

This follows from a property uncovered in the previous subsection, according to which, under the OCS, r is independent of φ and l. This property ensures that when ϕ is higher the cost decreases for both the ruling elite and the revolutionaries. To be more specific, $V(r, x, w; \phi)$ as given by (3) can be expressed jas $p(r, x, w; \phi)\phi(Y - w - r)$. Since the best response of the people is always to set x such that the aggregate strength involved in combat, r + lx, is a multiplicative expression of ϕ , $r + lx = \varphi^{1/2} \left[rl \left(Y - w - r \right) \right]^{1/2}$, it follows that ϕ also enters in a multiplicative manner in $V(r, x, w; \phi)$: $V = \left[\frac{r(Y - w - r)}{l} \right]^{1/2} \varphi^{1/2}$. Using the short notation $\nu(r(x), w)$ to designate all the elements that are independent from ϕ , we write $V(r(x), w; \phi) = \nu(r(x), w) \cdot \phi^{1/2}$, which implies that ϕ impacts on the utility level of the agents but not on the optimal values of either r or w.

Under repression by the government, differentiating U^* w.r.t. w yields the following expression:

$$-\frac{1}{(1+l(w)\phi)^{2}}\left((Y-w)l'(w)\phi+1+l(w)\phi\right)$$
 (17)

This problem admits an interior optimum. In Appendix A.2, we show indeed that the function is quasi concave, so that when (17) is satisfied with equality, the second-order derivative is negative.

Because of the additional constraint that $l(w^*) \leq \bar{l}$, the optimal wage level under the OSS, w^* , should satisfy:

$$w^*: -\frac{(Y - w^*)l'(w^*)\phi}{1 + l(w^*)\phi} = 1 \qquad \text{if} \qquad l(w^*) < \bar{l}(\phi)$$
(18)

$$w^*: l(w^*) = \bar{l}(\phi)$$
 otherwise (19)

As above, we designate by \hat{w} the unconstrained solution to (18).

To determine the equilibrium outcome of the game, in Appendix A.3, we consider two different scenarios according to the values which $l(\hat{W})$ may take: $l(\hat{W}) \leq 1$, or $l(\hat{W}) > 1$.

When the parameter configuration is such that $l(\hat{W}) \leq 1$, the unique equilibrium outcome for any parameter configuration compatible with this condition is repression. When the parameter configuration is such that $l(\hat{W}) > 1$, then for high destruction levels (i.e. low ϕ) the outcome is opposition suppression, while for low destruction levels the outcome is confrontation. For some parameter configurations, there may exist an intermediate range of ϕ values such that the government is indifferent

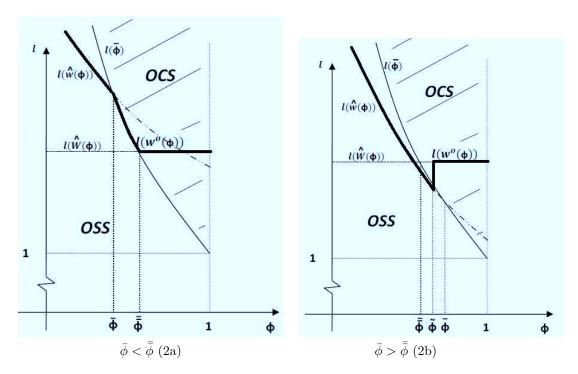


Figure 2: Equilibrium outcomes with endogenous $l: l(W^*) > 1$.

between the two strategies.

We can therefore state the following proposition:

Proposition 2. If a potential revolution is highly destructive, revolutionary movements are always suppressed (the ruler uses the OSS). If not, the ruler may choose to use the way of confrontation (the OCS)

In Figures 2a and 2b, we revisit Figure \$1\$ by allowing the wage to be endogenous, and assuming that $l(W^*) > 1$. Three curves are represented: $l(\hat{w})$, $l(\hat{W})$, and $\bar{l}(\phi)$. Remember that the latter corresponds to the frontier between the domains of repression and revolution, whereas the former two curves describe how people's collective action capacity evolves when the optimal wage is chosen by the ruling elite under the OSS and the OCS, respectively. Following Lemma 1, $l(\hat{W})$ is a horizontal line. Two intersection points matter for the analysis: one corresponding to the crossing of $l(\hat{w})$ and $\bar{l}(\phi)$, and the other to the crossing of $l(\hat{W})$ and $\bar{l}(\phi)$. The former intersection defines a first threshold, $\bar{\phi}$, and the latter intersection defines a second threshold, $\bar{\phi}$. These elements, as explained below, allow us to depict the equilibrium locus $l(w^o(\phi))$ which indicates how the people's collective action capacity changes as we vary the parameter ϕ , via the effect of the optimal cooptation wage w^o . This function is represented by the bold kinked curve.

In Figure 2a, we have $\bar{\phi} < \bar{\phi}$, as a consequence of which - as shown in Appendix A.3 - for high levels

of destruction (low ϕ) the outcome is opposition suppression, while for low levels of destruction (high ϕ), the outcome is confrontation. Indeed, the incentives to mount a revolution when the level of destruction is high are contained, thus implying that the ruler can deter such movements at reduced cost. On the other hand, when revolutions do not affect the country's wealth much, deterring revolutionaries becomes a costly option if the latter are sufficiently organized (i.e. $l(W(1)) \geq 1$). Lastly, there is an intermediate range of values of the parameter ϕ for which the optimal cooptation wage under the OCS would have deterred the revolution from occurring, while the optimal wage under the OSS would have been too low to effectively deter willing dissenters. As a consequence, the wage paid to the official clerics is such that the ruler is exactly indifferent between deterring a revolution and not deterring it.

In Figure 2b we have the same pattern of deterrence for destructive revolutions and non-deterrence for weakly destructive revolutions. Unlike Figure 2a, however, we now have $\bar{\phi} > \bar{\phi}$, which implies the disappearance of a ϕ -parameter region where both opposition suppression and confrontation are possible. The above strategy of choosing wage cooptation levels that would leave the ruler indifferent between the two outcomes of the game is therefore ruled out, and there will be a switching level of destruction $\tilde{\phi}$ below (above) which the outcome is opposition suppression (confrontation) for the same reasons as those previously described. As is evident from the two graphs, the optimal cooptation wage increases (and, therefore, the people's collective capacity decreases) as ϕ increases (or as the level of the economy's destruction decreases) up to a point above which this wage experiences a downward jump and then remains constant.

4 Results

In this section we explore the effect of modifying the country's wealth Y, the ideological purity of the official clerics, β , and the effectiveness of the support provided by them to popular dissent, α , on the game's equilibria.

4.1 Wealth

Changing the wealth level has no influence on the locus separating the opposition confrontation region from the suppression region (bear in mind that \bar{l} is independent of Y). Indeed, if the prize at stake, Y - w, experiences an exogenous change, the incentives to suppress or to confront dissenters remain unchanged since in both cases the ruler's equilibrium utility is linear in the prize. On the other hand, the optimal cooptation wage under both regimes is affected by a change in Y. Rearranging (15) and applying the implicit function theorem yields:

$$\frac{\partial \hat{W}}{\partial Y} = -\frac{l'}{l''(Y-w)+l'} > 0 \tag{20}$$

The sign follows from the denominator of the expression being positive, as proven in Appendix A.1.

Proceeding likewise with (18) gives:

$$\frac{\partial \hat{w}}{\partial Y} = -\frac{l'\phi}{l''(Y - \bar{W})\phi + l'\phi} > 0 \tag{21}$$

The sign follows from the denominator of the expression being positive, as proven in Appendix A.2.

We can therefore deduce that $\partial l(\hat{W})/\partial Y < 0$, and $\partial l(\hat{w})/\partial Y < 0$. These two results imply, respectively, that $\partial \bar{\phi}/\partial Y > 0$ and $\partial \bar{\phi}/\partial Y > 0$. This is evident from Figure 2a in which an increase in Y is reflected in the curves $l(\hat{w}(\phi))$ and $l(\hat{W}(\phi))$ shifting downwards. The locus of equilibria $l(w^o(\phi))$ is thus affected in such a way that the suppression region is enlarged (see Appendix A.4 for a formal proof of the case in which $\bar{\phi} > \bar{\phi}$). Hence the following proposition:

Proposition 3. As the economy is wealthier, the ruler is more likely to opt for opposition suppression rather than for opposition confrontation.

The proof of Proposition 3 can be found in Appendix A.4.

The intuition behind this result is of particular interest since it sheds new light on an old debate about the wealth-conflict nexus. When the country's wealth, Y, is more important, the incentives of the dissenters to mount a revolution increase, implying a greater willingness to invest in revolutionary efforts. Under both opposition suppression and confrontation, the ruler's own military effort will have to be larger since the opposition forces are emboldened by the increase in the value of the prize. Nevertheless, the OSS becomes comparatively more attractive and the reason is as follows. When the value of the prize is larger, the additional governmental forces required to match the enhanced rebellious efforts are increasingly smaller because of the deterring forces already deployed. The same reasoning applies to the scenario where a revolutionary attempt is being faced: when the prize at stake is larger, the additional governmental forces needed to counter the rebels' enhanced effort are increasingly smaller because of the coercion apparatus already deployed. Yet, although the same mechanism applies under both scenarii, a crucial distinction is that while in the former scenario the ruling elite retain control over the whole prize increase, in the latter this is true only in a probabilistic sense. Therefore, even though the marginal cost of the two moves tend to equal each other, the marginal benefit of opposition suppression outmatches the marginal benefit of confrontation.

This is an important point because it invites us to revisit the resources-conflict nexus. Scholars

have underlined the greed channel whereby the presence of a larger booty induces more conflict. The greed mechanism is at play in our setting since the opposition's incentives for launching a revolution are increasing in the country's wealth. To explain the potentially pacifying effect of resources, scholars have proposed alternative theories. Indeed, part of the literature (Fearon and Laitin 2003, Besley and Persson, 2011) has pointed to the increased *capacity* of the state to oppose revolutionary movements in the presence of higher wealth as a central force counterbalancing the rebels' incentives to attempt to wrest power from the prevailing political elite. Combined with the opportunity cost argument that wealth disincentivizes agents from taking up arms (Dal B and Dal B, 2011; Dube and Vargas, 2013)⁵, poor countries have been defined as weakly institutionalized entities especially vulnerable to internal conflict. However, our analysis shows that whether a revolution is attempted or not may hinge on something else than capabilities since the government may be able to quell rebellions vet be unwilling to do so. A similar result is derived in Hodler (2012), whose analysis of the political economy of the Arab Spring shows that, provided rulers are able to coopt the opposition, but also able to mobilize popular support in case of a violent uprising, the equilibrium outcome will be context-specific. Hodler (2012) shows that consitional on resources being sufficiently important, if the ethnic group of the leader is weak cooptation is more likely to be implemented. By endogenizing the respective strengths of the leader and the opposition, Proposition 3 above sheds light on the novel mechanism that, in wealthier polities, the government has stronger incentives to deploy a deterrent force so as to avoid damages to the economy. In other words, when the country is richer, the government is not only more able but also more willing to adopt the OSS rather than the OCS.

4.2 Ideological purity of official clerics

We may now address the issue that lies at the heart of this paper: how does the equilibrium strategy of the ruler possibly change when the official clerics - for some reason - become more sensitive to the central message of Islamic doctrine, i.e. the quest for social justice and equity and the fight against corruption of rulers. This increased sensitiveness may be a response to the more active presence of radical clerics who stand outside the official establishment and are ready to engage with ruling circles and their religious supporters. To model the impact of such a change, we consider how $l(\lambda(w^o; \beta); \alpha)$ is affected when the value of the sensitivity parameter β is increased.

To capture the effect of β on the equilibrium outcome, we proceed as above and analyze therefore how the loci $l(\bar{w})$, $l(\bar{w})$, and $\bar{l}(\phi)$ are affected under the two possible scenarii, $l(\bar{w}) > l(\bar{w})$ and $l(\bar{w}) < l(\bar{w})$

 $^{^5}$ Notice that we do not model the occupational choices of citizens, thus implying that our model excludes this channel by construction.

 $l(\bar{w})$. The results of this comparative statics are contained in the next proposition:

Proposition 4. The higher the sensitivity of official clerics to the central tenets of Islamic doctrine, the lower the cooptation wages, the higher the military expenditures, and the more likely that the ruler will use the OCS when the following conditions are satisfied: (i) loyalty is rather strong in the sense that it is not much affected by changes in ideological purity or in the wage (low λ_{β} and low λ_{w}), (ii) loyalty becomes increasingly inelastic with respect to wage as ideological purity increases (high $\lambda_{\beta,w}$), and (iii) the people's collective action capacity is highly sensitive to loyalty (i.e. high l_{λ} and low $l_{\lambda,\lambda}$).

The proof is presented in Appendix A.5.

Increasing the sensitivity of official clerics to ideological purity has two opposing effects. Keeping in mind that the ruler has available two instruments to counter popular discontent, investing in military strength and cooptation of these clerics, it is natural that the increase in the cost of either instrument gives rise to a substitution effect. Hence, as the loyalty of the religious clerics becomes harder to secure because of the latter's stronger ideological purity, the ruler reduces the cooptation wage and simultaneously increases the degree of militarization.

The second effect is more subtle since it captures the manner in which the people's collective action capacity responds to changes in the seduction wage for higher levels of sensitivity of official clerics to the central message of Islam. Thus, if the responsiveness of this capacity to a change in the cleric's wage is stronger for higher levels of ideological purity of the official clerics (i.e. highly negative $l_{w,\beta}$), the fall of the seduction wage induced by the substitution effect of a higher β will significantly enhance the collective strength of the people. As a consequence, the ruler will be prompted to better seduce the official clerics by raising their wage, and to economize on military expenditures. In these conditions, the net effect of a higher β on w is not clear and we cannot rule out the possibility that the ruler will increase w when his religious entourage has become more doctrinally pure.

Consider now the opposite case in which the cross-derivative $l_{w,\beta}$ is positive, implying that, for higher levels of β , people's collective action capacity is less responsive to the fall in w caused by the substitution effect. This itself is caused by the fact that the loyalty of the official clerics to the regime is less sensitive to the change in w for a higher level of β . The ruler may then accept that the seduction wage is smaller at equilibrium than it was before the rise in β . And the military expenditures will be larger as a result. Since military expenditures have diminishing returns in terms of effectiveness of repression, the OSS becomes more costly and the OCS more attractive. In other words, the ruler accepts open confrontation and the risk of losing power because this outcome is obtained at a much smaller cost than the more secure suppression strategy.

4.3 Effectiveness of official religious support

Our last comparative statics exercise concerns the effect on people's mobilization capacity, l, of modifying the degree of effectiveness of the support provided by official clerics to popular dissent. Increases in such effectiveness may result from the use of more effective communication technologies or from the occurrence of successful revolutions elsewhere which have the effect of boosting the morale and enhancing the motivation of the dissenters. We are therefore considering how $l(w^o; \alpha)$ is affected when the value of the sensitivity parameter α is increased.

Reproducing the reasoning of the previous comparative statics, our findings are summarized in the next proposition:

Proposition 5. The greater the effectiveness of the support provided by official clerics to popular dissent, the lower the seduction wage, the higher the military expenditures, and the more likely the OCS.

The proof is presented in Appendix A.6.

As above, the result may be decomposed as the consequence of two effects which, in this case, unambiguously point in the same direction. When there is an exogenous increase in the effectiveness of the support provided by official clerics to popular dissent, for any given seduction wage the opposition movement becomes stronger, therefore prompting the ruler to substitute military effort for cooptation of clerics. In other words, the ruler chooses to lower w. If, as we have assumed, the negative impact of this substitution effect on people's collective capacity is reduced for higher levels of α (i.e., $l_{w,\alpha} > 0$), the negative consequence of the fall in w for the ruler is rather contained, hence further favouring the military option. As explained in relation to the previous comparative-static effect, the twin movements of increasing military effort and diminishing cooptation of official clerics have the effect of making the OSS quite costly. The ruler then prefers to face open confrontation with the opposition and to incur the risk of defeat.

4.4 Summing up

We are now in a position to specify the circumstances under which the ruler is going to pay very low wages to the state-appointed clerics, that is, there is minimal recourse to the tactic of seduction of these clerics. These are the following: (i) a poor economy; (ii) highly destructive conflicts if they occur, (iii) the high ideological commitment or 'purity' of the official religious clerics, and (iv) a highly effective impact of the clerics' support on the fighting capacity of the people. If the effects (i), (iii) and (iv) are directly inferred from various propositions stated above, effect (ii) is immediately evident from an

inspection of Figures 2a and 2b. Regarding this last effect, the idea is that when the masses perceive that a violent encounter with the regime's forces will cause huge material losses, their motivation to rebel is bound to be very low so that the ruler does not need to rely significantly on the support of state-appointed clerics.

5 Discussion and conclusion

Our theory brings forth a new mechanism for why resource-rich muslim countries at the image of middle-eastern monarchies have adopted a radical view of Islam and the same time have kept opposition voices at bay. Such wealthy government have been granting a central role to religious clerics whose loyalty has constituted one of the central pillars of stability. The countries where the Arab uprising has taken place tend to be poor in natural wealth and the pre-revolutionary governments' policies have been to adopt a secular stance while developping a strong security apparatus. The predictions of our model are that the it is the latter group of countries that are more rebellion-prone.

The theory's prediction regarding the effect of a change in the technological/motivational parameter matches a widespread explanation for the sudden outburst of street demonstrations that were recently observed in many Arab countries and known as the Arab Uprising. This explanation stresses the role of the new information communication technologies that enable frustrated and angry citizens to inform each other and coordinate their protest moves (Hofheinz, 2005; Allagui and Kuebler, 2011; Ellis and Fender, 2011; Khondker, 2011; Stepanova, 2011). Moreover, thanks to the advent of satellite news networks (Al Jazeera especially), sudden expressions of anger in countries considered to be close generate strong spillover effects that lend added force to the opposition movements. In the first instance, new communication technologies help solve an internal coordination problem while in the latter they facilitate local rebellions through a globalization or contagion process.⁶ According to the mechanism implied by our theory, when such exogenous changes occur the allegiance of religious clerics to the autocratic ruler becomes less effective in shoring up the regime so that the seduction tactic becomes more costly. The autocrat responds by diminishing their material privileges, which has the effect of reducing the extent of religion-based allegiance and increasing the clerics' leadership and support for the rebellion. Owing to the decreasing effectiveness of military expenditures, the autocrat may no more be able to avoid the risk of open confrontation.

Another interpretation of a rise in the technological/motivational parameter is that the people's hardship has increased with the effect of making the regime more unpopular and the Islamist message

 $^{^6}$ Thus, we learn that the 1979 Islamic revolution in Iran "brought excitement, hope, and bigger political aspiration for Islamists across the Middle East" (Kaboub, 2013: 16).

about social and economic justice more appealing. A given amount of religious leadership and support thus becomes more effective. As attested by the experiences of Egypt and Tunisia, the aggressive economic liberalization policies and austerity measures followed by the government in response to the economic crisis of the 1980s caused a breach of the long-standing social contract between the regime and the population (not only the poor but also the middle class). As a consequence, the Islamist discourse resonated much more than before with the people who grew more fearless of political repression (see, e.g., Kaboub, 2013).

The theory's prediction regarding the effect of a change in the ideological purity parameter states that, under reasonable conditions, the possibility of an open confrontation of an autocratic regime may increase as a result of any circumstance which has the effect of enhancing the ideological commitment of the official clerics. In the lands of Islam, this effect has typically been sparked off by the growing assertion of clerics operating outside the official establishment. Their voice puts strong pressure on the official clerics who are readily accused of being 'bad Muslims' because being the accomplices of an oppressive regime they have betrayed their faith.

A peculiar feature of Islam (especially Sunni Islam), the absence of any vertical chain of command to derect the believers, creates considerable room for such competition between official or state-appointed clerics and non-official clerics susceptible of radicalization. Thus, fatwas are opinions or judgements which just carry the legitimacy of the ulama, or the group of ulamas, issuing them, so that their influence depends on the number and prestige of those ulamas involved (Filiu, 2008). Moreover, any judge can issue a fatwa against an individual, a group or a political regime considered to be impious or infidel: the decision to oppose the state on the grounds that it is insufficiently Islamic belongs to anyone who wishes to exercise it (Zakaria, 2003: 124-25, 144). Since Muslims can turn to preachers of their own choice, and these preachers are not subject to the rigid rulings of a priestly caste acting as the representative of God, the possibility of both anarchy and manipulation of religion by despotic rulers is distinctly wide in these lands. Such a possibility is all the more serious as preachers can always accuse imams or ulama to have unduly interposed themselves between God and the believers, and/or to have sold themselves to worldly power-holders (Platteau, 2008, 2011). This is precisely the sort of situation mentioned by Lapidus (1984) when he writes of the possibility of religious feeling among the masses to get out of the control of the authorities and become dangerously rebellious. Such strong feelings "could be turned against the ulama who were compromised by association with the state" (p. 104). To avoid such a situation, the ulama could decide to shift loyalty and back up the rebels.

The rise of Islamist preachers who do not belong to the official establishment (think of al-Azhar mosque and university in Egypt) constitutes a radical and puritan reaction against an elite and regime

considered to be deeply unjust and corrupt. Their growing assertion may therefore be caused by the increasing hardship of the common people which then give rise to two simultaneous effects: the effect running to a rise in the technological/motivational parameter and another effect reflected in the rise of the ideological purity parameter and caused by the enhanced competition between official and non-official clerics. On the other hand, there is no doubt that, like in the case of communication technologies, an internationalization effect is also at work here. As a matter of fact, the propagation of puritan and messianistic interpretations of Islam, born in Saudi Arabia (under the influence of al-Wahhab), Egypt (under that of Qutb), and Pakistan (under that of Mawdudi), has played a major role in the radicalization of many non-official clerics all throughout the Muslim world, including Indonesia and the Caucasus (Hourani, 1991: 442-46). The victimization of the Muslim world as a result of humiliating military setbacks (the successive defeats of Arab armies at the hands of Isral), the double standards applied by Western countries and the United States in particular, and a series of traumatic events duly reported by Al Jazeera (the 2003 invasion of Iraq, the second Palestinian intifada during the years 2000-2005, the 2006 Israeli attack on Lebanon, the 2009 attack on Gaza, and the 2010 Gaza Flotilla raid) have added fuel to this explosive situation (Platteau, 2011; Kaboub, 2013: 17).

Finally, as has been documented by Nielsen (2012), Muslim clerics may strategically adopt or reject Jihadi ideology because of career incentives. Thus, most clerics do not support militant Jihad and extreme forms of the faith because doing so would hurt their career prospects within state-run religious institutions. By contrast, a minority of clerics who have relatively few connections with the religious establishment and do not have access to prestigious training or prominent teachers may be tempted to make careers outside of the state system by appealing to lay audiences directly. These clerics can credibly signal independence from state elites by openly espousing Jihadi ideology, making it a risky but potentially high-payoff way to advance ones clerical career.

References

- Acemoglu, D., and J.A. Robinson, 2001. "A Theory of Political Transitions", American Economic Review, Vol. 91, N 4, pp. 938-963.
- [2] Acemoglu, D., and J.A. Robinson, 2006. Economic Origins of Dictatorhip and Democracy.New York: Cambridge University Press.
- [3] Acemoglu, D., Ticchi, D., and Vindigni, A., 2011, "Emergence and Persistence of Inefficient States", *Journal of the European Economic Association*, 9(2), pp.177-208.
- [4] Allagui, I., and J. Kuebler, 2011. "The Arab Spring and the Role of ICTs", International Journal of Communication, Vol. 5, pp. 1435-1442.
- [5] An-Naim, A.A.. 2008. Islam and the Secular State. Negotiating the Future of Sharia. Cambridge, Msstts & London: Harvard University Press.
- [6] Barro, R.J., 1999. "Determinants of Democracy", Journal of Political Economy, Vol. 107, N 6, pp. 158-183.
- [7] Bates, R., 2001. Prosperity and Violence, New York: W.W. Norton.
- [8] Besley, T., and T. Persson, 2011. Pillars of Prosperity: the Political Economics of Development Clusters, Princeton University Press.
- [9] Blaydes, L., and E. Chaney, 2011. The Feudal Revolution and Europes Rise: Political Divergence of the Christian and Muslim Worlds before 1500 CE, Department of Economics, Harvard University.
- [10] Chaney, E., 2012. Democratic Change in the Arab World, Past and Present, Department of Economics, Harvard University.
- [11] Coulson, N.J., 1964. A History of Islamic Law, Edinburgh: Edinburgh University Press.
- [12] Crespo Cuaresma, J., H. Oberhofer, and P.A. Raschky, 2011. "Oil and the Duration of Dictatorships", Public Choice, Vol. 148, N 3-4, pp. 505-530.
- [13] Dal B, E, and P. Dal B, 2011, "Workers, Warriors and Criminals: Social Conflict in General Equilibrium, Vol. 9, N4, pp.646-677.

- [14] Egorov, G., and Sonin, K., 2011, "Dictators and Their Viziers: Endogenizing the Loyalty-Competence Trade-Off", Journal of the European Economic Association, 9(5), pp.903-930.
- [15] Elbadawi, I., and S. Makdisi, 2011. Democracy in the Arab World -Explaining the Deficit, London: Routledge.
- [16] Ellis, C.J., and Fender, J., 2011, "Information Cascades and Revolutionary Regime Transitions", Economic Journal, 121 (553), pp.763-792.
- [17] El Mansour, M., 1979. "The Sanctuary (hurm) in pre-colonial Morocco". In: Bourqia, R., Gilson Miller, S. (Eds.), In the Shadow of the Sultan Culture, Power, and Politics in Morocco, Cambridge, Mass.: Harvard University Press, pp. 49-73.
- [18] Filiu, J.-P., 2008. Lapocalypse dans Uslam. Paris: Fayard.
- [19] Hallaq, W.B., 2010. Islamic Law: History and Transformation. In: Irwin, R. (Ed.), The New Cambridge History of Islam, Vol. 4, Cambridge: Cambridge University Press, pp. 142-183.
- [20] Heretz, L., 2008. Russia on the Eve of Modernity -Popular Religion and Traditional Culture under the Last Tsars. Cambridge: Cambridge University Press.
- [21] Hirshleifer, J., 2000, "The Macrotechnology of Conflict", *Journal of Conflict Resolution*, 44(6), pp. 773-792.
- [22] Hodler, R., 2012. "The Political Economics of the Arab Spring", CESifo Working Paper N 4023.
- [23] Hofheinz, A., 2005. "The Internet in the Arab World: Playground for Political Liberalization", *IPG*, Issue 3.
- [24] Hourani, A., 1991. A History of the Arab Peoples. Cambridge, Mass: The Belknap Press of the Harvard University Press.
- [25] Hourani, A., 1993. Ottoman Reform and the Politics of Notables. In: Hourani, A., Khoury, and M. Wilson (Eds), The Modern Middle East: A Reader, Berkeley: University of California Press.
- [26] Kaboub, F., 2013. "The Making of the Tunisian Revolution", Middle East Development Journal, Vol. 5, N 1, pp. 1-21.

- [27] Khondker, H.H., 2011. "Role of the New Media in the Arab Spring", Globalizations, Vol. 8, Issue 5, pp. 675-679.
- [28] Kuran, T., 2004, "Why the Middle East is Economically Underdeveloped: Historical Mechanisms of Institutional Stagnation", Journal of Economic Perspectives, Vol. 18, N..., pp. 71-90.
- [29] Kuran, T., 2006. The Absence of the Corporation in Islamic Law: Origins and Persistence, The American Journal of Comparative Law, Vol. LIII, pp. 785-834.
- [30] Kuran, T., 2011. The Long Divergence -How Islamic Law Held Back the Middle East, Princeton and Oxford: Princeton University Press.
- [31] Lapidus, I., 1984. Muslim Cities in the Later Middle Age, Cambridge: Cambridge University Press (second edition).
- [32] Lapidus, I., 2002. A History of Islamic Societies, Cambridge: Cambridge University Press (second edition).
- [33] Malik, A., 2012. "Was the Middle East's Economic Descent a Legal or a Political Failure? Debating the Islamic Law Matters Thesis", CSAE Working Paper WPS/2012-08, Centre for the Study of African Economies, University of Oxford.
- [34] Nielsen, R., 2012. Adoption of Jihadi Ideology by Islamic Clerics, Department of Government, Harvard University.
- [35] North, D.C., J.J. Wallis, and B.R. Weingast, 2009. Violence and Social Orders -A Conceptual Framework for Interpreting Recorded Human History, Cambridge: Cambridge University Press.
- [36] Padro i Miquel, G., 2007. "The Control of Politicians in Divided Societies: The Politics of Fear", Review of Economic Studies, Vol. 74, n 4, pp. 1259-1274.
- [37] Platteau, J.P., 2008., Religion, Politics, and Development: Lessons from the Lands of Islam, Journal of Economic Behavior and Organization, Vol. 68, Issue 2, pp. 329-351.
- [38] Platteau J.P., 2011. Political Instrumentalization of Islam and the Risk of Obscurantist Deadlock, World Development, Vol. 39, N 2, pp. 243-260.
- [39] Ross, M.L., 2001. "Does Oil Hinder Democracy?", World Politics, Vol. 53, pp. 325-361.

- [40] Roy, O., 1990. "De IIslam rvolutionnaire au no-fondamentalisme", Esprit, juillet-aot.
- [41] Sekeris, P., 2011, "Endogenous Elites: Power Structure and Patron-Client Relationships", Economics of Governance, Vol. 12, pp. 237-258.
- [42] Smith, B., 2004. "Oil Wealth and Regime Survival in the Developing World, 1960-1999", American Journal of Political Science, Vol. 48, N 2, pp. 232-246.
- [43] Stepanova, E., 2011. "The Role of Information Communication Technologies in the 'Arab Spring"' -Implications Beyond the Region", *PONARS Eurasia Policy Memo N 159*.
- [44] Weiffen, B., 2008. "Liberalizing Autocracies in the Gulf Region? Reform Strategies in the face of a Cultural-E conomic Syndrome", World Development, Vol. 36, N 12, pp. 2586-2604.
- [45] World Bank, 2003. Better Governance for Development in the Middle East and North Africa -Enhancing Inclusiveness and Accountability. MENA Development Report. Washington, DC.
- [46] Zakaria, F., 2003. The Future of Freedom. New York & London: W.W. Norton & Company.
- [47] Zubeida, S., 2003. Law and Power in the Islamic World. London: I.B. Tauris.
- [48] Zubeida, S., 2011. Beyond Islam: A New Understanding of the Middle East. London: I.B. Tauris.

A Appendix

A.1 Second order condition under revolution

Differentiating (14) w.r.t. w yields:

$$\frac{\phi^{1/2}}{4l^{3/2}} \left(\frac{l'(w)(Y-w)}{2l(w)} + 1 \right) - \frac{\phi^{1/2}}{2l^{1/2}} \frac{(l''(Y-w)-l')2l - 2l'l'(Y-w)}{4l^2}$$

The first term of this expression equals zero when the FOC is satisfied, thus implying that the objective function is quasi-concave in w if:

$$\frac{(l''(Y-w)-l')2l-2l'l'(Y-w)}{4l^2} > 0 (22)$$

Using the fact that the bracketed term in expression (14) is equal to zero, and substituting in (22) enables us to re-write the condition as:

$$l^{''}(Y-w)+l^{'}>0$$

Yet, if the FOC is satisfied, the above condition becomes:

$$2l^{''}l > l^{'}l^{'}$$

And this last condition is verified because of Assumption 1.

A.2 Second order condition under repression

Differentiating (17) w.r.t. w yields:

$$\frac{2l'(w)\phi}{(1+l(w)\phi)^3} \left((Y-w)l'(w)\phi + 1 + l(w)\phi \right) - \frac{1}{(1+l(w)\phi)^2} \left(l'(w)\phi - l'(w)\phi + l''(w)\phi(Y-w) \right) \tag{23}$$

Whenever (17) equals zero, the first term of (23) equals zero as well, thus implying that (23) is negative if the last expression between brackets is positive. This is necessarily true since by Assumption 1 we must have l''(w) > 0.

A.3 Optimal wages

Case 1: $l(\hat{W}) \leq 1$ in $\varphi = 1$

We proceed in three steps. We first show that, over the whole range of admissible ϕ values, the optimal cooptation wage under the OCS is such that $l(W^*) = \bar{l}(\phi)$. We next show that, in the same parameter space, the optimal cooptation wage under the OSS is strictly larger than W^* , and this allows us to conclude that given $w^* \geq W^*$, and since W^* is feasible under OSS, it is necessarily the case that $U(w^*) > V(W^*)$.

For the first step, from (17) we know that the interior value \hat{W} is independent of ϕ . Since $\bar{l}(\phi) \geq 1$, $\forall \phi \in [0,1]$, with strict equality in $\phi = 1$, and since $l(\hat{W}) \leq 1$ by assumption, it follows that the condition in (15) is violated so that W^* is given by (16).

For the second step, we demonstrate using lemmatas 2 to 4 that (i) if $\phi = 1$, then $l(\hat{W}) \leq 1 \Rightarrow l(\hat{W}) \leq l(\hat{w}(1)) \leq 1$, (ii) if $\phi = 0$, $\bar{l}(0) > l(\hat{w}(0))$, and (iii) there exists a single crossing point between $l(\hat{w}(\phi))$ and $\bar{l}(\phi)$. Combining these elements enables us to conclude that for $\phi \in [0, 1]$, $l(\hat{w}(\phi)) \leq \bar{l}(\phi)$ with equality in $\phi = 1$ and $l(\hat{W}) = 1$.

Lemma 2.
$$l(\hat{W}(1)) \geq 1 \Rightarrow l(\hat{W}(1)) \geq l(\hat{w}(1)) \geq 1 \Leftrightarrow \hat{w}(1) \geq \hat{W}(1)$$

Proof. If we set $\phi = 1$ in (18) and drop the ϕ arguments to save on notation, the expression becomes:

$$-l'(\hat{w})(Y - \hat{w}) = 1 + l(\hat{w}) \tag{24}$$

Re-arranging (15) we obtain:

$$-l'(\hat{W})(Y - \hat{W}) = 2l(\hat{W}) \tag{25}$$

As the shape of the expression (24) will be used in what follows, we rewrite the expression as $\Xi(\hat{w}) = -l'(\hat{w})(Y - \hat{w}) - (1 + l(\hat{w}))$, and making use of (17) and the problem's concavity, we therefore know that $\Xi(\hat{w})_{\hat{w}\hat{w}} \leq 0$, with $\Xi(0)_{\hat{w}} > 0$ if an interior solution exists.

Take first the case where $l(\hat{W}) = 1$, so that the RHS of (25) is equal to 2. By comparing (24) and (25), it is immediate that if we substitute \hat{w} by \hat{W} in (24), (24) holds true. We therefore have that if $l(\hat{W}) = 1$, $\hat{w} = \hat{W}$ is the unique solution to the problem, since \hat{w} is unique.

Consider next the wage \hat{W} such that $l(\hat{W}) < 1$. Replacing \hat{W} in (24), the RHS of (24) is necessarily larger than the RHS of (25), thus implying that $\Xi(\hat{W})_{\hat{w}} < 0$. Because of the problem's concavity, we deduce that $\hat{w} < \hat{W} \Rightarrow l(\hat{w}) > l(\hat{W})$. Lastly, to show that $1 > l(\hat{w}) > l(\hat{W})$, we proceed by contradiction. We know that $l(\hat{w}) \neq 1$, otherwise we would have $l(\hat{w}) = l(\hat{W}) = 1$. Assume that

 $l(\hat{w}) > 1 > l(\hat{W})$. Substituting the value of \hat{w} into (25) would make the RHS of the expression larger than the LHS. Applying the same reasoning as above, this would eventually imply that $\hat{W} < \hat{w}$, hence $l(\hat{W}) > l(\hat{w})$, which constitutes a contradiction.

Proceeding likewise, we can show that $l(\hat{W}) > 1 \Rightarrow 1 < l(\hat{w}) < l(\hat{W}) \Leftrightarrow \hat{w} > \hat{W}$.

Lemma 3. $\bar{l}(0) > l(\hat{w}(0))$

Proof. This result follows directly from the assumption that l(0) is finite, while $\lim_{\phi \to 0} \bar{l}(\phi) = \infty$.

Lemma 4. There exists at most one ϕ such that $l(\hat{w}(\phi)) = \bar{l}(\phi)$

Proof. To establish Lemma (4), it is sufficient to show that, whenever $l(\hat{w}) = \bar{l}$, the slope of \bar{l} is smaller (i.e. more negative) than the slope of $l(\hat{w})$. This implies that at the crossing point, the difference between the slope of \bar{l} and the slope of $l(\hat{w})$ is negative. Since the functions are continuous on the interval $\phi \in [0,1]$, this is a sufficient condition for proving that there can be at most one crossing between the two functions. Dropping the ϕ arguments to save on notation, we therefore begin by re-writing the difference between \bar{l} and l(w) at the crossing point as:

$$\frac{\overline{(1+(1-\phi)^{1/2})}}{\phi^{3/2}} - l(\hat{w}) = 0$$

$$\Leftrightarrow (1 + (1 - \phi)^{1/2}) - l(\hat{w})\phi^{3/2} = 0$$

$$\Leftrightarrow (1 - \phi) = \left[l(\hat{w})\phi^{3/2} - 1 \right]^2 \tag{26}$$

$$\Leftrightarrow -\phi \left(1 + \phi^2 l(\hat{w})^2 - 2\phi^{1/2} l(\hat{w})\right) = 0 \tag{27}$$

Differentiating w.r.t. ϕ gives:

$$\frac{\partial \left[-\phi \left(1 + \phi^2 l(\hat{w})^2 - 2\phi^{1/2} l(\hat{w}) \right) \right]}{\partial \phi}$$

$$= -\underbrace{\left(1 + \phi^2 l(\hat{w})^2 - 2\phi^{1/2} l(\hat{w})\right)}_{=0} - \phi \left(2\phi l(\hat{w})^2 + 2\phi^2 l(\hat{w}) l^{'}(\hat{w}) \hat{w}^{'}(\phi) - l/\phi^{1/2} - 2\phi^{1/2} l^{'} \hat{w}^{'}(\phi)\right) < 0$$

The first term of the above expression is equal to zero because condition (27) must be satisfied when \bar{l} and $l(\hat{w})$ cross. We therefore need to show that:

$$2\phi l(\hat{w})^{2} + 2\phi^{2}l(\hat{w})l^{'}(\hat{w})\hat{w}^{'}(\phi) - l/\phi^{1/2} - 2\phi^{1/2}l^{'}\hat{w}^{'}(\phi) > 0$$

Factoring this expression out, we get:

$$2\phi^{1/2}l^{'}(\hat{w})\hat{w}^{'}(\phi)(\phi^{3/2}l(\hat{w})-1) + \frac{l(\hat{w})}{\phi^{1/2}}(2l(\hat{w})\phi^{3/2}-1) > 0$$

By equation (26) we know that $l(\hat{w})\phi^{3/2} - 1 = (1 - \phi)^{1/2} > 0$. As a consequence, the above inequality holds if the following inequality is satisfied:

$$\left(l(\hat{w})\phi^{1/2}-1\right)\left(2l(\hat{w})/\phi^{1/2}+2\phi^{1/2}l^{'}(\hat{w})\hat{w}^{'}(\phi)\right)+l/\phi^{1/2}>0$$

Because of $\phi \in [0,1]$ it follows that $l(\hat{w})\phi^{1/2} > l(\hat{w})\phi > 1$, and the above condition will therefore necessarily hold if

$$2l(\hat{w})/\phi^{1/2} + 2\phi^{1/2}l'(\hat{w})\hat{w}'(\phi) > 0$$

$$\Leftrightarrow \frac{2}{\phi^{1/2}} \left(l(\hat{w}) + \phi l^{'}(\hat{w}) \hat{w}^{'}(\phi) \right) > 0$$

It is therefore sufficient to have:

$$l(\hat{w}) > -\phi l'(\hat{w})\hat{w}'(\phi) \tag{28}$$

Computing $\hat{w}'(\phi)$ by applying the IFT on (18) yields:

$$\frac{\partial w^*}{\partial \phi} = -\frac{(Y - w^*)l'(w^*) + l(w^*)}{(Y - w^*)l''(w^*)\phi}$$
(29)

Substituting in (28) gives us:

$$l(\hat{w}) > \frac{l'(\hat{w})\phi\left(l'(\hat{w})(Y - \hat{w}) + l(\hat{w})\right)}{(Y - \hat{w})l''(\hat{w})}$$

Using the implicit definition of \hat{w} as given by (18) so that the term between brackets in the numerator of the RHS is equal to $-1/\phi$, the condition can be written thus:

$$l(\hat{w}) > -\frac{l'(\hat{w})}{(Y - \hat{w})l''(\hat{w})}$$

Using the fact that $(Y - \hat{w}) = -\frac{(1 + l(\hat{w})\phi)}{l'(\hat{w})\phi}$, the above inequality is satisfied if:

$$l(\hat{w})^2 \phi + l(\hat{w})l''(\hat{w}) > (l'(\hat{w}))^2 \phi$$

Since, $l(\hat{w})^2 \phi > 0$, and $\phi \leq 1$, this inequality is necessarily satisfied if:

$$l(\hat{w})l^{''}(\hat{w}) > (l^{'}(\hat{w}))^{2}$$

a condition which has been assumed in Assumption 1.

Combining Lemmatas 2 to 4 implies that, for $\phi \in [0, 1[$, there can be no crossing between $\bar{l}(\phi)$ and $l(\hat{w}(\phi))$, while in $\phi = 1$, $\bar{l}(\phi) \geq l(\hat{w}(\phi))$ with strict equality for $l(\bar{w}) = 1$. We therefore have that $l(\hat{w}(\phi))$ lies beneath $\bar{l}(\phi)$ over the whole interval $\phi \in [0, 1]$. As a consequence, $w^o = \hat{w}$ and $l(\hat{w}) \leq l(W^*)$, hence $\hat{w} \geq W^*$. Since, however, W^* is feasible under OSS (while \hat{w} is not feasible under the OCS), it must be the case that $U(\hat{w}) > V(W^*)$, and that $w^o = w^*$. The OSS is thus always preferred when $l(\hat{w}) \leq 1$.

Case 2:
$$l(\hat{W}) > 1$$
 in $\phi = 1$

By Lemma 3, the fact that $l(\hat{W}) > 1 = \bar{l}(1)$, and $\partial \hat{W}(\phi)/\partial \phi = 0$, there exists a unique $\bar{\phi}$ such that $l(W^*) = \bar{l}$ for $\phi \leq \bar{\phi}$, and $l(W^*) = l(\hat{W})$ for $\phi > \bar{\phi}$.

By Lemma 2, we know that $l(\hat{W}(1)) > l(\hat{w}(1)) > 1$. Combining this with Lemmatas 3 and 4 implies that there exists a unique $\bar{\phi}$ such that $w^* = \hat{w}$ for $\phi < \bar{\phi}$, and $w^* = \bar{l}(w(\phi))^{-1}$ for $\phi \geq \bar{\phi}$.

Combining these findings, we conclude that if $\bar{\phi} < \bar{\bar{\phi}}$, then for $\phi < \bar{\phi}$, $w^o = w^* = \hat{w}$, for $\phi \in [\bar{\phi}, \bar{\bar{\phi}}[w^o = \bar{l}(w(\phi))^{-1}]$, and if $\phi \in [\bar{\phi}, 1]$, $w^o = W^* = \hat{W}$.

If, however, $\bar{\phi} > \bar{\bar{\phi}}$, then there exists a $\tilde{\phi} \in]\bar{\phi}$, $\bar{\bar{\phi}}[$ such that for $\phi < \tilde{\phi}$, $w^o = w^* = \hat{w}$, while for $\phi > \tilde{\phi}$, $w^o = W^* = \hat{W}$.

A.4 Proof of Proposition 3

Proof. The proof of Proposition 3 is decomposed in two parts.

a) If $\bar{\phi} < \bar{\phi}$, from a simple look at Figure 2a it is evident that (i) the range of ϕ parameters for which OSS is used is enlarged when Y increases, and the curves $l(\hat{w})$ and $l(\hat{W})$ shift downwards as a consequence, and that (ii) the range of ϕ parameters for which a revolutionary attempt is not deterred is correspondingly narrowing.

b) If $\bar{\phi} > \bar{\phi}$, we need to show that the threshold value $\tilde{\phi}$ is monotonically increasing in Y. To that end, it is sufficient to show that in $\phi = \tilde{\phi}$, $\partial \tilde{\phi}/\partial Y > 0$, which will necessarily be true if in that point $\partial (U(\hat{w}) - V(\hat{W}))/\partial Y > 0$. The difference in utilities in $\tilde{\phi}$ is, by definition, equal to zero and, therefore, is given by:

$$\frac{Y - \hat{w}}{1 + l(\hat{w})\phi} - \frac{\phi^{1/2}(Y - \hat{W})}{2l(\hat{W})^{1/2}} = 0$$
(30)

Rearranging, we get:

$$(Y - \hat{w}) 2l(\hat{W})^{1/2} - \phi^{1/2}(Y - \hat{W}) (1 + l(\hat{w})\phi) = 0$$
(31)

Differentiating w.r.t. Y yields the required condition

$$2l(\hat{W}) - \partial \hat{w} / \partial Y \left[2l(\hat{w})^{1/2} + l^{'} \hat{w} \phi^{3/2} (Y - \hat{W}) \right] - \phi^{1/2} (1 + l(\hat{w}) \phi) + \partial \hat{W} / \partial Y \left[\frac{l^{'} \hat{W}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \phi^{1/2} \left(1 + l(\hat{w}) \phi \right) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{W}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{W}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{W}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}) \right] + \frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} \left[\frac{l^{2} \hat{w}}{l(\hat{w})^{1/2}} (Y - \hat{w}$$

Replacing (31) in the two squared-bracketed terms allows us to re-write the above condition as:

$$2l(\hat{W}) - \partial \hat{w} / \partial Y \frac{(Y - \hat{W}))\phi^{1/2}}{Y - (\hat{w})} \underbrace{\left[1 + l(\hat{w})\phi + l'(\hat{w})\phi(Y - w)\right]}_{=0} - \phi^{1/2} (1 + l(\hat{w})\phi)$$

$$+\partial \hat{W}/\partial Y \frac{(Y-\hat{w})}{l(\hat{W})^{1/2}(Y-\hat{W})} \underbrace{\left[l'\hat{W}(Y-\bar{W})+2l(\hat{W})\right]}_{=0}$$

in which the two terms set equal to zero are, respectively, (18) and (15).

What remains to be shown therefore:

$$2l(\hat{W}) - \phi^{1/2}(1 + l(\hat{w})\phi) > 0 \tag{32}$$

Since $\bar{\phi} > \bar{\bar{\phi}}$, it is necessary that in $\phi = \tilde{\phi}$, $\hat{w} > \hat{W}$, which implies that $Y - \hat{w} < Y - \hat{W}$. Combining this last inequality with (31) enables us to infer that (32) is satisfied.

A.5 Proof of Proposition 4

Proof. For establishing Proposition 4, we analyse how $l(\hat{w})$ and $l(\hat{W})$ are influenced by β , and we then turn to the effect of β on the threshold value $\tilde{\phi}$

Rearranging (15) and applying the IFT gives:

$$\frac{\partial \hat{W}}{\partial \beta} = -\frac{(l_{\lambda} \lambda_{w,\beta} + l_{\lambda,\lambda} \lambda_{w} \lambda_{\beta}) (Y - \hat{W}) + 2l_{\lambda} \lambda_{\beta}}{l_{w,w}(\hat{W}) (Y - \hat{W}) + l_{w}(\hat{W})}$$
(33)

The denominator of (33) has been shown to be positive in Appendix A.1. Therefore, the sign of this expression will necessarily be negative if:

$$l_{w,\beta} = l_{\lambda} \lambda_{w,\beta} + l_{\lambda,\lambda} \lambda_w \lambda_{\beta} > 0 \tag{34}$$

This is a sufficient condition for obtaining $\partial l(\hat{W})/\partial \beta > 0$

Proceeding likewise on (18) we obtain:

$$\frac{\partial \hat{w}}{\partial \beta} = -\phi \frac{(l_{\lambda} \lambda_{w,\beta} + l_{\lambda,\lambda} \lambda_{w} \lambda_{\beta}) (Y - \hat{w}) + 2l_{\lambda} \lambda_{\beta}}{l_{w,w}(\hat{w}) (Y - \hat{w}) + l_{w}(\hat{w})}$$
(35)

Through an analogous reasoning, we deduce that condition (34) is sufficient to deduce that (35) is negative, and therefore that $\partial l(\hat{W})/\partial \beta > 0$.

Combining the above findings implies that when $\bar{\phi} < \bar{\phi}$, increases in β have the effect of narrowing (enlarging) the OSS (OCS) region if Condition (34) is satisfied. Otherwise, for sufficiently negative values of $l_{w,\beta}$, the effect may be opposite.

To deal with the scenario where $\bar{\phi} > \bar{\phi}$, we demonstrate that in the neighbourhood of $\tilde{\phi}$, increases in β always lead to larger increases in V^* than in U^* when Condition (34) is satisfied, thus implying that $\partial \tilde{\phi}/\partial \beta < 0$. If, however, $l_{w,\beta}$ is sufficiently negative the opposite holds true. Assume first that Condition (34) is satisfied.

We differentiate expression (30) w.r.t. β , which yields:

$$\underbrace{\frac{\partial U(\hat{w}, \beta)}{\partial \hat{w}} \frac{\partial \hat{w}}{\partial \beta}}_{=0} + \underbrace{\frac{\partial U(\hat{w}, \beta)}{\partial \beta}}_{=0} - \underbrace{\frac{\partial V(\hat{W}, \beta)}{\partial \hat{W}} \frac{\partial \hat{W}}{\partial \beta}}_{=0} - \underbrace{\frac{\partial V(\hat{W}, \beta)}{\partial \beta}}_{=0}$$
(36)

in which two terms (as indicated) are equal to zero by application of the enveloppe theorem. Computing the derivatives yields:

$$-\frac{(Y-\hat{w})l_{\beta}(\hat{w})\phi}{(1+l(\hat{w})\phi)^{2}} + \frac{(Y-\hat{W})\phi^{1/2}l_{\beta}(\hat{W})}{4l(\hat{W})^{3/2}}$$

Substituting (30) in this expression and factoring out, we obtain:

$$\frac{(Y - \hat{W})\phi^{1/2}}{2l(\hat{W})^{1/2}} \left[\frac{l_{\beta}(\hat{W})}{2l(\hat{W})} - \frac{l_{\beta}(\hat{w})\phi}{1 + l(\hat{w})\phi} \right]$$
(37)

Since $\hat{w} > \hat{W} \Leftrightarrow l(\hat{w}) < l(\hat{W})$, and since $l_{w,\beta} > 0$, it follows that $l_{\beta}(\hat{w}) > l_{\beta}(\hat{W})$. To show that (37) is negative, it is then sufficient to show that:

$$\frac{1}{2l(\hat{W})} < \frac{\phi}{1 + l(\hat{w})\phi} \Leftrightarrow 1 + l(\hat{w})\phi < 2l(\hat{W})\phi$$

This last inequality is necessarily satisfied since $l(\hat{W})\phi > l(\hat{w})\phi > 1$.

Having thus shown that, in $\tilde{\phi}$, the difference between the utility under the OSS and under the OCS decreases in β , it follows that $\partial \tilde{\phi}/\partial \beta < 0$.

When Condition (34) is violated and $l_{w,\beta}$ is sufficiently negative, it is immediate to show that the above results are inverted.

A.6 Proof of Proposition 5

Proof. For establishing Proposition 5, we can replicate the steps of Appendix A.5 to show that both $l(\hat{w})$ and $l(\hat{W})$ increase in α , and that $\partial l(\tilde{\phi})/\partial \alpha < 0$. By analogy to Appendix A.5, this will be true if $l_{w,\alpha} > 0$, which is always verified because of Assumption 2.