

WORKING PAPERS

N° 1381

November 2022

“The Quran and the Sword”

Emmanuelle Auriol, Jean-Philippe Platteau and Thierry Verdier

The Quran and the Sword*

Emmanuelle Auriol[†] Jean-Philippe Platteau[‡] Thierry Verdier[§]

November 2022

Abstract

This paper elucidates the willingness of an autocrat to push through institutional reforms in a context where traditional authorities represented by religious clerics are averse to them and where the military control the means of repression and can potentially stage a coup. We show that although the autocrat always wants to co-opt the military, this is not necessarily true of the clerics. Exclusive co-optation of the military obtains where the loyalty of the autocrat's army is strong while the organizational strength of religious movements is rather low. Radical institutional reforms can then be implemented. Empirically, the dominant regime in contemporary Muslim countries is the regime of double co-optation where the autocrat resorts to a double-edged tactic: pleasing the official clerics by slowing the pace of reforms, and ensuring the loyalty of the military so as to put down clerics-led rebellions.

JEL Classification: D02, D72, N40, O57, P48, Z12

Keywords: Autocracy, army, instrumentalization of religion, Islam, reforms

*We thank participants at seminars or conferences in Venice, Paris School of Economics, Toulouse School of Economics, Namur, Boston and Harvard universities for their valuable feedback. Special thanks are owed to Jean-Marie Baland, Robert Barro, Alberto Bisin, Maristella Botticini, Maxim Boycko, Jean Paul Carvalho, Nathan Nunn, Rachel Kranton, Patrick François and Debraj Ray, as well to the participants of the 2020 ThRed Zoom conference. We thank Eva Penelope Valentine Davoine for her research assistance. Support is gratefully acknowledged for the DFID Grant received under the EDI (Economic Development and Institutions) program. Emmanuelle Auriol acknowledges TSE-IASST funding from the French National Research Agency (ANR) under the Investments for the Future (Investissements d'Avenir) program, grant ANR-17-EURE-0010. Finally we thank the editor and four anonymous referees for their suggestions and comments on early versions of the paper. They helped us greatly improve the paper's content and organization. All remaining errors are ours.

[†]Toulouse School of Economics and IASST, emmanuelle.auriol@tse-fr.eu

[‡]University of Namur and CRED jean-philippe.platteau@unamur.be

[§]Paris School of Economics, Ecole Ponts Paris-Tech, PUC-Rio, thierry.verdier@psemail.eu

1 Introduction

That democracy is not necessarily a precondition of development is attested by the historical experience of many European countries as well as the present-day situation in several societies of Asia and Latin America. What seems indisputable, however, is the need for a "modern" state that has sufficient capacity and political determination to carry out a number of key institutional reforms that necessarily disturb the old social and economic order.

The question then arises as to why some countries do better than others. For instance, in the Muslim world, why is it that Bourguiba's Tunisia or Atatürk's Turkey were able to carry out important such reforms while Boumedienne's Algeria and, worse still, Saudi Arabia, fell short on that ground?

We suggest that these differences can be traced back to the prevailing political regime. Focusing on authoritarian states, we emphasize that a directly relevant distinction is between those states whose strength is mainly derived from the exercise of repression and those whose viability is based on extended co-option of religious leaders. Because the latter tend to be averse to institutional reforms, exclusive co-option of the military (including the police and intelligence services) is more conducive to reforms than double co-option involving the clerics. The main purpose of this paper is to investigate the conditions guiding the choice of an autocrat between these two strategies.

Intriguingly, an autocracy can change its form depending upon pivotal circumstances that can be explored analytically and documented empirically. For instance, after independence, many Muslim countries embraced secularization and passed laws to "modernize" their economic system. Yet, over the last decades rolling back of significant reforms has been observed in several countries. In others, a move in the opposite direction has taken place. How can such turnabouts be explained?¹ What is the role of inter-

¹This question can be raised with regard to the non-Muslim world, too. In Asia, authoritarian rulers in Myanmar (largely Buddhist) and India (largely Hinduist) have recently called for the support of radical monks to buttress their power. Brazil and Central America, have witnessed the rapid rise of evangelical Protestantism with the

national factors, such as the diffusion of Islamist ideologies, the world war against terrorism, or the revolution of the ayatollahs in Iran?

To investigate the formal logic of an autocrat's choice between a repressive and a co-optive state, we follow the line of mainstream political economy of autocracy by assuming that repression and co-option are key instruments of power (see, e.g., [Gandhi and Przeworski, 2007](#); [Svolik 2012](#); [Boix and Svolik 2013](#); [Gerschewski 2013](#); [Gehlbach et al. 2016](#)). Yet the army is featured as a full-fledged actor rather than as a hidden hand behind the ruler's repressive arm.² Our endeavour thus adds to a recent economic literature that pays attention to the specific role of the military in actual or potential dictatorships ([Egorov and Sonin, 2014](#); [Besley and Robinson, 2010](#); [Acemoglu et al., 2009](#); [Leon, 2014](#); [Aney and Ko, 2015](#)).

Where we differ from the literature is in considering a triangular game between an autocratic ruler, a centralized army, and a decentralized set of religious clerics. Very few papers have ever attempted to analyse triangular games (a noticeable exception is [Acemoglu et al., 2010](#)).³ While the military are important because they own the means of repression, the critical role of the clerics lays in legitimizing the autocratic regime ([Coulson, 1964](#); [Hourani, 1991](#); [Lee, 2014](#); [Kepel, 2005](#); [Platteau, 2008](#); [Coşgel et al., 2012](#); [Rubin, 2017](#)). The latter's status and prestige is high in societies where most people are poorly educated. Clerics therefore have the capacity to stir popular rebellions and to organize mass demonstrations thanks to their leadership qualities, their spiritual authority and organizational structures.⁴

As testified by the Arab Spring events, even when rebellion is sparked by outraged citizens, led in this case by educated youths with no decent job

reversal of previous achievements, particularly in civil and educational matters.

²While in many political economy models only two actors (the ruler and the opposition) are playing, a growing literature considers two types of opposition: the citizens and the elites with the latter being defined either generically or specifically ([Bove et al., 2017](#)). In the present work, the people are followers of the clerics acting as their leaders.

³[Acemoglu et al. \(2010\)](#) study a triangular game between a rich elite, popular masses and the military where the latter can be a double-edge sword for the regime. The analysis does not consider the role of religious authorities as it focuses on military dictatorship.

⁴In the Muslim world, the mosque is typically "the traditional focal point for social interaction and Islam the common basis of reference in shaping beliefs" ([Binzel and Carvalho, 2017](#): 2574; see also [Chaney, 2011](#)).

prospects, a strong religious organization (the Muslim Brothers in Egypt and Sudan, Ennah'da in Tunisia) turns out to be the key factor of success in transforming a spontaneous popular outcry into a serious challenge to autocratic power.⁵ This observation motivates why in our model people are somehow hidden behind the actions of the clerics, although an alternative setup, in which the clerics are hidden behind the people's actions, is also proposed (as suggested in [Binzel and Carvalho, 2017](#)).

A key feature of our scheme is that religious clerics and the military are not uniquely driven by a sense of their mission: their loyalty can be bought off by the autocrat. Evidence abounds of egregious economic privileges, such as tax exemptions, customs duty exemptions, land grants, and monopoly rights, received by both religious officials and military officers (for the Muslim world, see [Lapidus, 2002](#) and [Platteau, 2017](#) in regard to clerics; and [Siddiqa, 2017](#) and [Sayigh, 2019](#) in regard to the military).⁶

To model the behavior of religious authorities, we stick to the approach of [Auriol and Platteau \(2017a,b\)](#) who study the influence of a decentralized body of clerics evoking Islam, Hinduism and Buddhism. In particular, clerics have heterogeneous income-ethics preferences. They are unequally co-optable by the autocrat, and express their support to the ruler through a decentralized coordination support game.⁷ The magnitude of the clerics' threat then depends positively on the fraction of dissident members. As for the army, it operates as a hierarchy, which may not only put down a revolution but also stage a coup against any ruler, whether civilian or religious. The problem of the autocrat is how best to maintain himself in power and simultaneously achieve as high a rent as possible, through the optimal use of a rich set of policy instruments. He can decide how to allocate the available aggregate income between himself, the clerics and the military (through the payment of perks and the awarding of a defence

⁵This is illustrated, a contrario, by the ephemeral character of popular rebellions in Syria and Turkey where coordination and organization were clearly lacking.

⁶In countries such as Syria, Egypt, and Pakistan, the army even operates as a genuine business mafia whose blatant flouting of market competition is condoned by the ruler.

⁷This is much in the spirit of [Granovetter \(1978\)](#) early work on collective behavior in sociology. See, for instance, [Kuran \(1995\)](#) for an application to the context of revolutions.

budget),⁸ and, in contrast to existing theories, he also sets the level of institutional reforms, which influence the magnitude of this income.

The reforms we have in mind are aimed at removing land access rules which hamper efficiency or maintain many people under feudal shackles; emancipating individuals from the sway of communal or collective prescriptions; replacing rules emphasizing status or loyalty by merit-based selection; or combating forms of social discrimination, against women and low caste members in particular. In the same line and with special attention to the Middle East, [Kuran \(2011\)](#) emphasizes the need to expand the scope of contract law and develop the concept of legal personhood, as well as to remove obstacles to private corporate organizations, the pooling of resources, and enterprise intergenerational continuity. The religious clerics are generally averse to these reforms, which have the effect of shaking the traditional social order and infringing upon their erstwhile prerogatives and domains of influence. The autocrat then faces difficult trade-offs: moderating reforms versus paying high wages to co-opted clerics or military, cajoling clerics versus cajoling the military, building a strong military to beat back clerics versus limiting the army's strength to avoid a coup.

Our analysis highlights the conditions under which only the military are co-opted, the so-called repressive state. This regime is more likely to be established when the army is efficient and religious clerics are rather weak. A fairly large army is then chosen, and new reforms are enacted. Otherwise, political economy equilibria emerge in which the clerics and the military are both co-opted, the so-called double co-optive state. Few reforms are then adopted and the autocrat can rely on an army of moderate size. This strategy is particularly appropriate when the indirect cost of co-opting conservative clerics is not too high, that is, institutional reforms must not be an important prerequisite of economic growth, such as is the case in a rent economy based on rich natural endowments. Equilibria in which only clerics are co-opted never arise.

Our theoretical framework also provides useful comparative statics on

⁸Since both are empirically relevant, we explore the cases of exogenous and endogenous military size. In the latter case, the autocrat may be driven by strictly internal political order considerations, or he may also pay attention to external security threats.

the intensity of reforms, the distribution of rents between the autocrat, the clerics and the military, and the degree of militarization of society. For instance, when the autocrat's hold on power, as measured by the repressive power of his army, declines compared to the influence of the religious leaders, the theory predicts a shift towards policies favoured by Islamist movements. A sudden discontinuation of foreign military assistance or the international diffusion of Islamist ideologies such as Deobandism or Wahhabism, are circumstances producing this effect. The war against terrorism, which enhances state repressive capacity, has the opposite effect.

In a nutshell, we show that both the enactment and rolling back of critical reforms are the product of the balance of political power defined in terms of the strength and loyalty of the military and the strength of the clerics. This framework is a powerful tool for understanding institutional change. It has the merit of taking us beyond the idea of institutional persistence and change based on the familiar examples from 19th-century Europe and Latin America. Equipped with our model, we hence look at empirical material related to political regimes in the Muslim world. We succinctly discuss a number of important regime cases corresponding to different types of politico-military-religious equilibrium derived in the theory. While at the time of independence and during the Cold War period, several autocracies opted for a repressive regime, we find that the regime of double co-optation is empirically dominant in the contemporary Muslim world. Thereafter, we present two examples of within-country regime changes drawn from Saudi Arabia and Iraq. These analytical narratives testify to the critical role of theory in helping to sort out a diverse and thick empirical material. They highlight the possibility of rather abrupt changes of tactics toward the clerics and consecutive reform reversals (progress or backtracking).

The outline of the paper is as follows. Section 2 describes our three-agents model and time structure before depicting the behaviour of the military and the clerics. Section 3 proceeds by analyzing the autocrat's optimal choice of reforms and perks, first when the army size is fixed, and next when it is endogenous. In Section 4, empirical evidence is discussed. Section 5 concludes. The proofs are relegated to the online appendix.

2 The model

We consider an economy with an autocratic ruler, an army and a clerical body. We first describe in section 2.1 the time structure of the game and we next discuss the way the army (in section 2.2) and the clerics (in section 2.3) behave, successively. Before embarking on those tasks, however, we want to stress that nothing precludes tribal or clan leaders (for example) from plausibly performing the role of decentralized religious clerics. Not only do they represent localized polities and therefore have heterogeneous preferences, but they also dislike institutional reforms (in land relations, political governance, education and justice) that would encroach upon their erstwhile prerogatives. In this broader perspective, tribal and religious leaders are thus seen as interchangeable actors, not as separate ones.⁹

2.1 Time structure of the game

Consider the following static game and time structure:

Step 1: The Ruler, a collective agent standing for the autocrat and his surrounding clique, chooses the magnitude of the reforms, α , the wage paid to the supporting clerics, w_c , the wage paid to the members of the army, w_m , and the amount of the defence budget corresponding to the size of the army, M . The level of reforms, α , provides net economic gains to the prevailing regime, denoted by $R(\alpha)$.

Assumption 1 $R(\alpha)$ is a twice differentiable concave function on \mathbb{R}^+ with a unique maximum at $\alpha^{**} \in (0, +\infty)$.

Step 2: There is a continuum of religious clerics identified by a parameter $\theta \geq 0$, reflecting their aversion to reforms. In a decentralized religion,

⁹On the condition that they are not directly appointed by the executive, which is often the case under autocratic regimes, provincial governors are another plausible candidate for the category of decentralized actors. This is particularly evident if one enlarges our interpretation of α , the level of reforms, so as to include anything that the ruler wants and the decentralized actors oppose. Under this wider understanding, provincial governors may easily be heterogeneous. See for instance [Auriol and Platteau, 2017b](#), which develops a two-agent model in which the ruler and his clique indulge in corruption. In this alternative setting, the extent of corruption under an autocratic regime has the same strategic effect as the depth of institutional reforms.

each cleric needs to decide whether to support or not the regime. For a cleric, supporting the Ruler entails the risk of losing his office, which decreases with the percentage of other subordinated clerics and with the repressive capacity of the regime. The fraction of supporting clerics, which is endogenous, is γ , and they receive from the ruling regime a wage w_c , when they are able to maintain themselves in office.

Step 3: In front of the opposition stirred by $1 - \gamma$ clerics, the Military decides whether to put it down or not. The men in uniform form a centralized organization with a strict hierarchy. They are sensitive to the appeal of material advantages so that by offering them sufficient perks, the Ruler can buy their allegiance. To ease the exposition the army is supposed to have no bias against the modernization reforms: $\theta^m = 0$. In the appendix, however, the proofs are made with the inclusion of a bias $\theta^m \geq 0$, enabling us to explore its role in the army's actions.

- When the army chooses to fight the rebels, the revolution fails if the opposition's strength is smaller than the regime's strength. For convenience, we assume that the former is a linear increasing function of the fraction of clerics $1 - \gamma$ confronting the regime: $s(1 - \gamma)$, with $s > 0$ measuring the relative effectiveness of the clerics in organizing the rebellion compared to the repressive capacity of the military.¹⁰ Hence, a revolution fails and the Ruler stays in power when the following condition is satisfied:

$$s(1 - \gamma) \leq M. \tag{1}$$

- If the army refrains from intervening, the clerics-led revolution succeeds and the new religious regime (i.e., theocracy) then implements a reform program normalized to 0.¹¹ It pays to the military a wage w_m^c , provided that they do not attempt a coup.

Step 4 : The Military decide to carry out a coup or not. In the succeeding military regime, the army takes control of the economy and implements

¹⁰That is, $s = \frac{S}{\lambda}$ where $\lambda > 0$ is the Military efficiency at violence and $S > 0$ the clerics efficiency at rebellion. In the main text, we set $\lambda = 1$ to ease the exposition.

¹¹We assume that in the case of a successful religious revolution, radical clerics are in power with the relevant value θ^c very high. This is a consequence of the decentralized structure of the religion: the marginal cleric, who is more radical than the average one, is the pivotal cleric with a decentralized religion (see [Auriol and Platteau, 2017a,b](#)).

its own reform program. When it stages a coup, it incurs a cost $C(M)$.¹²

Assumption 2 $C(M)$ is a twice differentiable decreasing and concave function on \mathbb{R}^+ with $C(0) \gg 0$.

2.2 The military: analysis of coups

When the Military stages a coup, the benefit from seizing power is $\delta R(\alpha)$, the national revenue generated by the military regime when it implements a reform program of magnitude α . We assume that δ (≤ 1) measures the relative inefficiency of the Military when carrying out reforms, compared to the civilian autocrat.¹³ Maximizing $\delta R(\alpha)$, the military chooses to implement a level of reforms $\alpha^m = \alpha^{**} > 0$ defined in Assumption 1. The equilibrium payoff of the Military when in power is:

$$R_\delta = \delta R(\alpha^{**}) \quad (2)$$

By contrast, the income of the M army men when they have successfully put down a clerics-led rebellion and refrained from carrying out a coup afterwards is Mw_m , where w_m is the per capita wage paid by the Ruler while staying in power. To avoid a coup following successful containment of a rebellion, the Ruler must offer the military a wage large enough:

Lemma 1 (*no-military-coup constraint*) *Assuming that (1) holds, the Ruler will stay in power if and only if*

$$w_m M \geq R_\delta - C(M) \quad (3)$$

Proof. See Appendix A.2. ■

Condition (3) ensures that the Military has the proper incentive to repress a religious revolution and has simultaneously no interest in staging a coup against the autocrat. On the one hand, if the clerics are allowed to take control of the country, their theocratic government will be unable to provide greater rents to the army than the civilian autocrat (since they

¹²Assumption 2 implies that there is M^{\max} such that $C(M) = 0$ for all $M \geq M^{\max}$.

¹³Sayigh (2019) thus writes that in Egypt the military economy is "considerably less productive than commonly believed, and certainly far less cost-effective than the military itself portrays" (p. 8).

will not undertake any reform). On the other hand, if it stages a coup and runs the economy directly, the army will be unable to obtain incomes exceeding the perks awarded by the Ruler in (3). The condition (1), which guarantees that the army has the means to suppress a religious revolution, and the condition (3), which guarantees that it has the will to do so, are thus the two key constraints the autocrat faces to ensure his regime's stability.

In the above, we have assumed that carrying out a coup entails an additional cost $C(M)$ compared to the task of fighting a popular rebellion. The idea is that while the organization of a coup requires a great capacity for coordination and the control of state institutions, crushing street demonstrators is a more routine operation for which the army is well prepared. Let

$$M_\delta = C^{-1}(R_\delta) \quad (4)$$

Under assumption 2, M_δ is decreasing with R_δ , and thus with δ , the efficiency of the military to manage the economy. When $M < M_\delta$ (i.e., when $C(M) > R_\delta$), the right-hand side of (3) is negative, so that (3) is always satisfied. Intuitively, when M and/or δ are small, the army is too weak to stage a coup against the autocrat.

2.3 The clerical body

Depending on their sensitivity to the proclaimed ideals of their faith, the clerics may have different attitudes toward political power and progressive reforms. In line with this idea, the clerical body is composed of a continuum of individuals identified by a parameter θ : the higher θ the more conservative the cleric. The θ 's are independently and identically distributed on \mathbb{R}^+ according to a law characterized by a density function $g(\theta)$ and cumulative distribution $G(\theta)$. The law $G(\theta)$ is common knowledge but the individual value of θ is a private information of each cleric.¹⁴

In our setup, being decentralized, clerics act on their own: each cleric has to choose whether to support the autocrat, and hence compromise

¹⁴Alternatively there is a continuum of clerics of equal mass but some clerics carry more weight than others. In this interpretation $g(\theta)$ measures the influence that cleric θ wields over the faithful.

himself with the current political regime, or to oppose the Ruler's policies by refusing to endorse them. In the latter instance, he does not get paid and he does not suffer the ideological cost of compromising his principles so that, compared to a compliant cleric, the change of utility is 0. In the former instance, his utility is

$$U(\theta, w_c, \alpha, p) = pw_c - \theta V(\alpha). \quad (5)$$

It depends on $p \in [0, 1]$, the probability that the cleric will maintain his standing or keep his ministry by supporting the Ruler; on his type $\theta \in [0, \infty)$, which reflects his degree of aversion towards reforms; and on $V(\alpha)$, the ideological cost of endorsing the Ruler's reforms $\alpha \geq 0$.

Assumption 3 $V(\alpha)$ is a twice differentiable increasing convex function on \mathbb{R}^+ with $V(0) = V'(0) = 0$.

An important feature of specification (5) is that, while the psychological or ideological cost, $\theta V(\alpha)$, incurred when supporting the regime is certain and paid upfront, the material benefit, w_c , is uncertain. The probability for a cleric i to keep his religious office is $p_i(\gamma^e) = P(s(1 - \gamma^e) + \epsilon_i \leq M)$. It increases with γ^e , the fraction of the clerics supporting the Ruler, and with M , the size of the army. It also depends on ϵ_i , a random shock, independently and identically distributed on \mathbb{R} according to a symmetric density function $f(\epsilon_i)$ and a cumulative distribution function $F(\epsilon_i)$ with a mean value of 0. The shock ϵ_i , which is realized after the cleric has officially endorsed the Ruler's policies, represents the individual risk of supporting the regime.¹⁵ Integrating on ϵ_i the probability $p_i(\gamma^e)$ becomes:

$$p(\gamma^e) = F(M - s(1 - \gamma^e)). \quad (6)$$

A cleric θ supports the Ruler if and only if $\theta V(\alpha) \leq p(\gamma^e)w_c$. Let $\theta^*(\gamma^e) = p(\gamma^e)\frac{w_c}{V(\alpha)}$. The proportion of clerics who support the Ruler then writes:

$$\gamma^* = \int_0^{\theta^*(\gamma^e)} g(\theta) d\theta = G(\theta^*(\gamma^e))$$

¹⁵Intuitively, the clerics are scattered over different networks and territories between which economic conditions, the local effectiveness of the Military and the regime's propaganda vary. Thus, the clerics' legitimacy when supporting the regime is locally affected by several random social, geographic and climatic factors captured by ϵ_i .

Under rational expectations, we should have that $\gamma^e = \gamma^*$ and the equilibrium fraction, γ^* , of clerics supporting the regime satisfies

$$\gamma^* = G(\theta^*(\gamma^*)) \quad (7)$$

Since the RHS of (7) is an increasing, continuous function varying between $G(\theta^*(0)) > 0$ and $G(\theta^*(1)) \leq 1$, there always exists at least one value $\gamma^* \in [0, 1]$ satisfying (7). Such fixed point is an equilibrium of the clerics coordination game (see Figure B.1 in Appendix B.1 for an illustration). The following proposition provides additional conditions for its uniqueness.

Proposition 1 *Assume that the continuous function $F(M - s + sG(y))$ is concave in $y \geq 0$. There exists a unique equilibrium fraction $\gamma^* \in [0, 1]$ of clerics supporting the regime in the Perfect Nash Equilibrium so that:*

$$\gamma^* = G\left(F(M - s(1 - \gamma^*))\frac{w_c}{V(\alpha)}\right) \quad (8)$$

Proof. See Appendix B.1. ■

Individual decisions to support the Ruler by the clerics are strategic complements, and they therefore entail a coordination issue. As is well-known in this kind of situation, multiple Nash equilibria may emerge with different levels of clerical support for the regime, confirmed by self-fulfilling rational beliefs. In order to best highlight the political economy trade-offs that the Ruler faces, we neutralize this possibility by assuming that the preference distribution across the clerics and random local conditions are such that $F(M - s + sG(y))$ is concave. Appendix B.1 provides examples of distribution functions G and F that ensure the unicity of the equilibrium.¹⁶

Under our assumptions, it is evident from (8) that support of the Ruler by the clerical mass, γ^* , increases with $\frac{w_c}{V(\alpha)}$, that is, as the perks paid to a religious cleric in exchange for his support, w_c , increases, and as the level of reforms implemented by the Ruler, α , decreases. Support also increases when the repressive power of the army, M , increases and when the relative effectiveness of the clerics at organizing rebellions, s , falls. Finally

¹⁶Our results hold as long as G is sufficiently concave and F is Gaussian and sufficiently diffuse, or if G is concave and F is uniform. They also hold if both G and F are uniforms.

and intuitively, radicalization of the clerics, in the sense of a shift in the distribution $G(\cdot)$ towards a first-order stochastic dominant distribution, leads to decreased support to the Ruler (see Appendix B.2).

A limitation of our framework is the absence of any active role for ordinary people. To add them to the list of our three players (Ruler, Military, and clerics) would make the model extremely tricky. What can be possibly done, however, is to substitute people for religious leaders as full actors in the game. In particular, we may assume that each cleric can issue an opinion (fatwa) that either supports or opposes the Ruler, and people are randomly matched with one of these fatwas. Depending on the utility they derive from opposition to the Ruler when exposed to a particular fatwa, they decide whether to actually rebel against him or refrain from doing so. Then, the model becomes interpretable in terms of a story featuring rebellion movements led by the people rather than by the clerics. The latter, however, wield an indirect influence through the fatwas they issue. In this alternative framework, the result of proposition 1 is preserved. When people play an active role in the way just explained, the Nash equilibrium level γ^* of supporting clerics (8) holds (see Appendix C.1). The Arab Spring, which we discuss in the Appendix C.2, provides an interesting case study of this interaction between frustrated masses and religious organizations.

3 Optimal choice of the ruler

We may now consider the first stage of the game, which consists of the optimal policy choices of the Ruler. His problem is defined as:

$$\begin{aligned}
 & \max_{\alpha, w_c, w_m, M} R(\alpha) - \gamma^* w_c - w_m M & (9) \\
 \text{s.c.} & \quad M \geq s(1 - \gamma^*) \text{ defined in (1)} \\
 & \quad w_m M \geq R_\delta - C(M) \text{ defined in (3)} \\
 & \quad \gamma^* = \gamma^*(M, \alpha, w_c) \text{ solution to (8)}
 \end{aligned}$$

The Ruler maximizes his net rents under the threat of a revolution and a subsequent military coup. Since there are no other sources of uncertainty, and there is full information between the Ruler and the Military, at the

optimum, (1) insures that a theocratic revolution cannot succeed and (3) that no military coup is undertaken by the Military. However, even if in equilibrium the Ruler stays in power, the above constraints have the effect of restraining his actions and, in particular, of moderating the level of reforms. To establish this result, it is useful to introduce the following definition:

Definition 1 *The level of reforms $\alpha^*(\theta)$, decreasing in θ ,¹⁷ is such that:*

$$R'(\alpha) = \theta V'(\alpha). \quad (10)$$

The optimal reform program of the Military when staging a coup is $\alpha^m = \alpha^*(0) = \alpha^{**}$ defined in assumption 1. To solve the problem (9) we proceed in two steps. First we consider the army size M as exogenous in section 3.1 and compute the optimal wages and level of reform for a given M . Second, in section 3.2, we explore the case where M is endogenous.

3.1 Exogenous military size M

Choosing the size of the army may not be possible for the Ruler because of a strong legacy from the past or because of its funding by foreign governments motivated by their own geopolitics, as observed during the Cold War or, more recently, in the fight against global terrorism

3.1.1 Analysis of the Ruler's problem

When the size of the army, M , is exogenous, the Ruler has three instruments, α, w_c, w_m , on which he can play. In order to solve the Ruler's optimization problem (9), two sub-cases need to be distinguished depending on whether (1), re-written as $\gamma^* \geq 1 - \frac{M}{s}$, is binding or not. It is useful to denote

$$M_s = s. \quad (11)$$

M_s is the rebellion-proof threshold, that is, the minimum size of the army ensuring that it will always successfully repress a religious rebellion. The

¹⁷Differentiating (10) under assumptions 1 and 3 yields $\frac{d\alpha^*(\theta)}{d\theta} = \frac{-V'(\alpha)}{-R''(\alpha) + \theta V''(\alpha)} \leq 0$.

larger s , the more serious the threat posed by the clerics and the weaker the Ruler's hold on power. We show that the solution of (9), when M is fixed, is then given by the following proposition:

Proposition 2 Denote $\bar{\theta}(M) = G^{-1} \left(1 - \frac{M}{s}\right)$ and $\Theta = 2 \left(1 - \frac{M}{s}\right) \bar{\theta}(M)$. The optimal policy vector $(\alpha^{op}, w_c^{op}, w_m^{op})$ of the Ruler's optimization problem at any level of military size M is :

- (a) $\left(\alpha^*(\Theta), 2V(\alpha^*(\Theta))\bar{\theta}(M), \frac{\max\{R_\delta - C(M), 0\}}{M}\right)$ if $M < M_s$
- (b) $\left(\alpha^{**}, 0, \frac{\max\{R_\delta - C(M), 0\}}{M}\right)$ if $M \geq M_s$

Proof. See Appendix D. ■

Typically, the Ruler has two ways to promote his reforms: carrot (i.e., material privileges) and stick (i.e., military repression). When the Military is strong so that $M \geq M_s$, (1) is not binding and regimes of type (b) prevail. The stick is sufficient to keep religious leaders in line (i.e., $w_c^{op} = 0$). When the Military is weak so that $M < M_s$, however, the carrot is needed. Clerics need to be seduced with some perks, $w_c^{op} > 0$, since (1) is now binding and regimes of type (a) prevail.

Moreover, there is one variant for each regime, A and A' in the double co-option regimes (a), and B and B' in the exclusive military co-option regimes (b), depending on the army's ability to stage a coup. Regimes A and B occur whenever $M \leq M_\delta$, with M_δ defined in (4). In this case, because the army is a relatively poor economic manager, it has little incentive to carry out a coup, and receives moderate benefits. By contrast, regimes A' and B' occur whenever $M > M_\delta$. The army being strong and more efficient at managing the economy, the main threat to the autocrat comes from the possibility of a military coup. To keep this risk at bay, he extends important privileges to the army, and the higher M the greater these privileges.

One implication of the model deserves to be emphasized: while the Ruler can never ignore the Military as shown in Appendix D, he may sometimes ignore the religious clerics, i.e., in regimes (b). This asymmetry in the typology of regimes is caused by the fact that the former have the ability to beat back the latter while the opposite is not true.

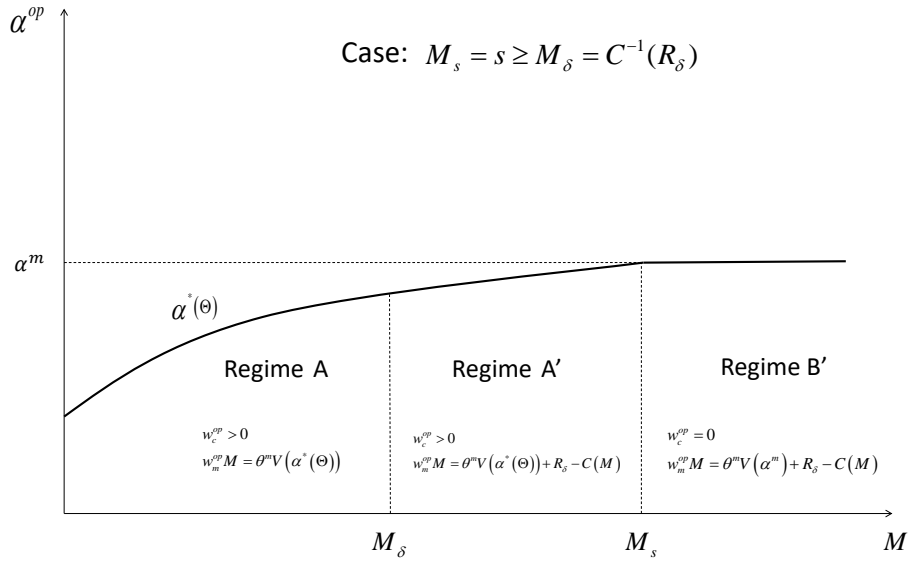
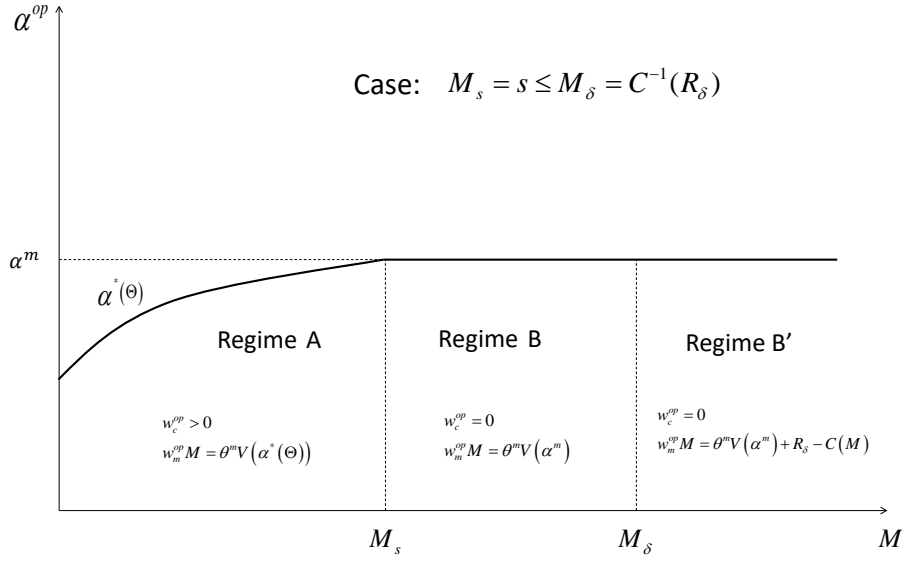


Figure 1: Optimal reform level as a function of military size for $\theta^m \geq 0$

3.1.2 Modernization reforms

The optimal level of reforms, α^{op} , is represented in Figure 1. Monotonic in the military size, M , it reaches its maximum α^m at the rebellion-proof threshold M_s , thus separating the regimes with double co-option (a), from those with exclusive military co-option (b).

(a) *Reforms under the double co-option regimes: $M < M_s$*

Under regime A and A' , the military are weak. They cannot deter a full rebellion (i.e., one that would be supported by the entire clerical body). In this situation, the clerics wield greatest bargaining power. The autocrat has to offer them positive wages, $w_c^{op} > 0$, so as to mitigate their resistance by co-opting some of them. The marginal cleric is $\bar{\theta}(M) = G^{-1}(1 - \frac{M}{s})$ and the equilibrium fraction of supporting clerics is $\gamma^* = 1 - \frac{M}{s}$ (see Appendix D.2). In order to minimize the cost of enlisting these religious leaders, the Ruler also cares for their preference by undertaking limited reforms. The optimal reform level, $\alpha^*(\Theta)$, decreases with Θ , which is a measure of the degree of opposition to reforms in the society. Any change in Θ affects the pace of reforms and the distribution of rents between the three agents.

Radicalization: It is intuitive that an increase in the aversion to reforms of either the clerics or the army leads to a decrease in their pace. This is straightforward for the army as Θ increases linearly in θ^m (i.e., from $\Theta = 2(1 - \frac{M}{s})\bar{\theta}(M)$ when $\theta^m = 0$ to $\Theta = \theta^m + 2(1 - \frac{M}{s})\bar{\theta}(M)$ when $\theta^m > 0$ see appendix D). As for the clerics, we show in Appendix D.1 that a shift of their distribution towards a greater aversion to reforms in the sense of first-order stochastic dominance, leads to an increase in social aversion to reform, Θ , and therefore, by virtue of (10), a decrease in $\alpha^*(\Theta)$. Interestingly, when the military (respectively the clerics) become more conservative, the salary of the clerics (respectively the military) decreases because fewer reforms are implemented and therefore there is less need to compensate for them.¹⁸

Strengthening the army's repressive capacity: Under regime A' , a variant of regime A which occurs when $M_\delta < M < M_s$, the military are still

¹⁸By contrast, the effect of an increase in the reform aversion of the clerics or of the Military on their own wage is ambiguous as shown in Appendix D.1 and D.2.

too weak to prevent a full rebellion ($M < M_s$), but they are strong enough to credibly stage a coup ($M > M_\delta$). In this case, the autocrat must pay attention not only to the threat of regime change by a clerics-led revolution, but also to the risk of a subsequent coup by the military. A double co-option regime still prevails but a more powerful army now extracts a greater wage bill from the autocrat. Because the former is stronger, $\frac{M}{s}$ is larger and aggregate aversion to reforms, Θ , is weaker. It implies that the equilibrium reform level, $\alpha^*(\Theta)$, is greater under A' than under A . An increase of the military strength, by reducing the global opposition to reforms Θ , has the effect of encouraging their adoption. In turn, this upsets the most conservative clerics who withdraw their support to the Ruler. Indeed, the fraction of supporting clerics being $\gamma^* = 1 - \frac{M}{s}$, at the limit, when $M \rightarrow M_s$, the preferences of the clerics are simply ignored. We then switch from regimes (a) to regimes (b).

(b) *Reforms under the exclusive military co-option regimes: $M \geq M_s$*

Under regimes B ($M_s \leq M < M_\delta$), and B' ($M \geq \max\{M_\delta, M_s\}$), military repression is effective enough to tame any popular rebellion instigated by the clerics. Hence, the religious leaders are weak: they cannot threaten a regime change. As a result, they do not get any rent and their aversion to reforms is ignored. The clerics refuse to endorse the autocrat's policies and their opposition is maximal: $\gamma^* = 0$. The chosen level of reforms reflects the preferences of the military: $\alpha^m = \alpha^*(0) = \alpha^{**}$. The pace of reforms is insensitive to marginal changes in the strength of the opposition or the radicalization of the religious leaders (i.e., it is unaffected by changes in s or in the distribution $G(\theta)$). It only goes down when the military become more conservative (i.e., when θ^m increases from zero to a positive value), since $\alpha^*(\theta^m)$, as defined in (10), is decreasing in $\theta^m \geq 0$. By contrast, the effect of a radicalization of the military on their own wage is ambiguous as shown in Appendix D.1.

(c) *Policy reversal*

Across the different equilibrium regimes, the wage of the clerics, w_c^{op} , may be a non-monotonic function of their relative strength. Indeed, in regimes

of double co-option (a), the effect of an increase in $\frac{M}{s}$ on their wage is ambiguous due to the action of two opposite forces. First, when $\frac{M}{s} < 1$ increases, the equilibrium level of reforms $\alpha^*(\Theta)$ increases. This positive reform effect leads to an increase in the clerics' disutility of reform, implying that the Ruler must pay them more to obtain their support. At the same time, an increase in $\frac{M}{s}$ lowers the probability of a successful rebellion, which reduces the need to buy off the clerics. This negative deterrent effect on the clerics' ability to rebel is captured by the term $\bar{\theta}(M) = G^{-1}\left(1 - \frac{M}{s}\right)$: when $\frac{M}{s}$ increases the marginal cleric becomes more moderate. As long as for some value of $\frac{M}{s} < 1$, the positive reform effect overcomes the negative deterrent effect, w_c^{op} is increasing in $\frac{M}{s}$.¹⁹ On the other hand, when $\frac{M}{s} \geq 1$, the clerics do not receive any wage ($w_c^{op} = 0$). This implies a discontinuity and a non-monotonicity in the Ruler's policy between the regimes A/A' and B/B' . In the vicinity of $M = M_s$, small changes in the military efficiency or the clerics' influence, s , may lead to sharp changes in the way the regime deals with religious leaders (see Appendix D.2 for a parametric example).

3.2 Endogenous military size M

So far, we have focused on situations where the size of the military was fixed by exogenous forces and where the army's preference was aligned with the preference of the Ruler. We now consider the general case in which the latter decides the army size, M , taking into account that $\theta^m \geq 0$.

3.2.1 Equilibrium analysis

To stay in power, the Ruler needs to avert a popular revolution and to prevent a military coup. Paying high wages to the military helps to refrain them from meddling in politics while pushing them to crush a clerics-led revolution. At the same time, since resources are limited, a better-paid army may necessitate a reduction of its size, which would not be an effective strategy to protect the regime. Appendix D shows that the optimal army

¹⁹Appendix D.2 provides a necessary and sufficient condition for the positive reform effect to dominate the negative deterrent effect (i.e., for w_c^{op} to be increasing in $\frac{M}{s}$).

size, which is the outcome of a trade-off between these forces, solves:

$$\max_M W(M) = R(\alpha^*(\Theta)) - \Theta V(\alpha^*(\Theta)) - \max\{R_\delta - C(M), 0\} \quad (12)$$

where $\Theta = \theta^m + \max\{2(1 - \frac{M}{s})\bar{\theta}(M), 0\}$ is the social aversion to reform.²⁰

When an interior solution of (12), denoted $M^*(s)$, exists it solves:

$$C'(M) - \frac{d\Theta}{dM}V(\alpha^*(\Theta)) = 0 \quad (13)$$

Recall that $M_s = s$ and $M_\delta = C^{-1}(R_\delta)$. We show the next proposition.²¹

Proposition 3 *The optimal army size M^{op} is as follows:*

$$(a) \text{ If } M_\delta \leq M_s, \text{ then } M^{op} = \begin{cases} M_\delta & \text{if } W'_+(M_\delta) \leq 0 \text{ (regime A)} \\ M^*(s) & \text{if } W'_+(M_\delta) > 0 \text{ (regime A')} \end{cases}$$

$$(b) \text{ If } M_\delta > M_s, \text{ then } M^{op} = \{M \in [M_s, M_\delta]\} \quad (\text{regime B})$$

Proof. See Appendix E ■

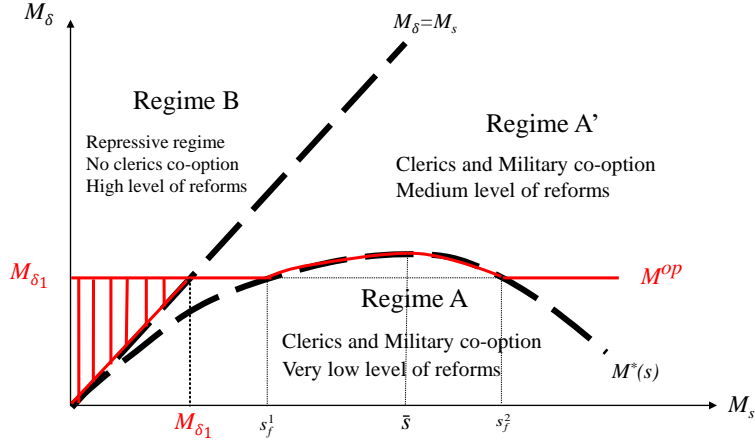


Figure 2: Equilibrium regimes and optimal army size

²⁰That is, $\Theta = \theta^m$ when $M > M_s$ under regimes (b) and $\Theta = \theta^m + 2(1 - \frac{M}{s})\bar{\theta}(M)$, where $\bar{\theta}(M) = G^{-1}(1 - \frac{M}{s})$ is the marginal cleric under regimes (a), when $M \leq M_s$.

²¹ $W'_+(M)$ denotes the right-hand side derivative of $W(\cdot)$ at point M , and $W'_-(M)$ the left-hand side derivative of the same.

The different equilibrium regimes (in black), as well as the optimal army size (in red for a given M_{δ_1}), are illustrated by Figure 2 in the space of the parameters $M_s = s$ and $M_\delta = C^{-1}(R_\delta)$ (see Appendix E.1). The locus $M_\delta = M_s$ separates regimes (a) and (b).

(a) *Strong clerics: $M_s > M_\delta$*

When the opposition is strong (or, alternatively, when the army is not very efficient), in the region below the locus $M_\delta = M_s$ the autocrat needs a large army to defeat any popular rebellion. The problem is that a large army is a serious threat to his own regime, thus justifying the payment of large perks to the Military. In such circumstances, the Ruler always opts for a double co-option regime, either A or A' , in which both the Military and the clerics are offered perks. The condition that differentiates the two regimes is described by the locus $M^*(s)$ solution of (13). Regime A' with $M^{op} = M^*(s)$ prevails in the region located between the bisector and $M^*(s)$ while regime A with $M^{op} = M_\delta$ prevails in the region below $M^*(s)$.

(b) *Weak clerics: $M_s < M_\delta$*

In the region above the locus $M_\delta = M_s$, the Ruler's best choice is Regime B with no co-option of clerics, a moderately-sized army, and a reform mix essentially driven by the preference of the Military. Once the threat of a religious rebellion is under control (i.e., $M \geq M_s$), the autocrat is indifferent to the size of the army as long as it remains below M_δ , which is the critical level at which the military become powerful enough to extract large perks because of their capacity to stage a coup. The optimal army size belongs to an interval illustrated by the red dashed triangle in Figure 2: $M^{op} \in [M_s, M_{\delta_1}]$. In this range, the total wage bill paid to the Military and the optimal level of reforms –and, hence, the autocrat's rent– do not vary with the size of the army.

(c) *Comparative statics*

Subsidising political Islam. Foreign states and transnational organizations interested in funding the training and deployment of religious activists to advance the cause of political Islam have two main channels to choose from.

First they can directly subsidize the clerics. This possibility is explored in Appendix B.3. It shows that unless support to the clerics is massive, in which case the autocrat is overthrown by a theocracy, this strategy is ineffective in influencing the nature of the regime and the level of reform. Second they can subsidize the coordination capacity of the decentralized clerics (i.e, boost s) by promoting the emergence of a structured religious network. When s increases for a given value of M_δ , the likelihood of a regime of double co-optation increases, since it becomes relatively less efficient for the Ruler to prevent rebellions through repression rather than through co-optation. In the vicinity of $s = M_\delta$, an increase in the relative strength of the opposition led by the clerics (compared to the military) prompts the regime to change its strategy in their favour and take their preferences into account. Upon this reading, the worldwide promotion of Islamist organizations by foreign powers eager to expand their influence, such as Saudi Arabia, is efficient in spreading their vision of political Islam: policies abroad pay more attention to puritan religious values.

Business-adept military. A better ability of the military to run the economy is translated into a positive shift of δ , yielding a smaller value of M_δ . This, in turn, causes the likelihood of a double co-optation regime to increase. Intuitively, the military has now a stronger incentive to stage a coup, which prompts the autocrat to decrease M . To make up for the reduced capacity of the army, the latter needs to mitigate the risk of popular uprisings by buying off the clerics. An environment in which the military can easily run the economy is a rent economy based on abundant oil resources. Little income is then lost when few reforms are enacted.²² The autocrat chooses regime A and the optimal army size is at M_δ , which is very low since δ is large. The intuition is simple: when conservative clerics are easy to buy off in the sense that giving in to their pressure against reforms does not much harm the Ruler's rental income, a strong army is not required to crush a rebellion.

²²In this case $R'(\alpha)$ is low in (10), and the value of α^{op} is very small.

3.2.2 Optimal army size in the absence of international threat

There are two major lessons to be learned from proposition 3. First, even if the autocrat can freely choose the size of the army, both repressive and double co-option regimes can still occur in equilibrium. Second, when the Ruler chooses the army size on the basis of internal law and order considerations only, he will never choose a regime in which it is either too small or too large. If it is too weak so that $M < \min \{M_\delta, M_s\}$, it would be unable to intimidate the opposition. If it is too strong so that $M > \max \{M_\delta, M_s\}$, it would be a threat, not only to dissident clerics, but also to the autocrat. In short, the army must be both willing and able to crush a clerics-led rebellion, yet it must not be tempted to stage a military coup: its optimal size, M^{op} , necessarily lies between $\min \{M_\delta, M_s\}$ and $\max \{M_\delta, M_s\}$.

Interestingly, variations in s do not always have a monotonic effect on M^{op} . Appendix E.1 shows that $M^*(s)$ is first increasing and then decreasing in s , as illustrated in the example $M_\delta = M_{\delta_1}$ in Figure 2. For small values of s , the minimum army size M_s , such that clerics can be ignored (regime B), is increasing in s . However, when s reaches the threshold M_{δ_1} , the Ruler needs to trade-off the risk of a coup if the size of the army increases, and the risk of a rebellion, if it does not. When s is less than s_f^1 (reforms remain steady) or greater than s_f^2 (reforms are shunned), increasing the army size above M_{δ_1} and spoiling the men in uniform are not worth the gain (regime A). In between, raising the size of the army above M_{δ_1} in order to allow more reforms is a profitable strategy (regime A').

3.2.3 External security concerns

Our basic framework can be easily extended to incorporate external security considerations. We simply posit that in addition to their net incomes, the Ruler and the Military also care about how well the country is guarded against foreign military threats measured by E . We describe the external security level by a function $\Sigma(M, E)$, increasing concave in M , decreasing in E , and with a positive cross derivative between M and E .

According to intuition, Appendix F shows that the optimal army size is larger when, in addition to internal stability, the Ruler also pays attention

to external threats. The likelihood of a double co-option regime is then smaller. Proposition 6 in Appendix F shows that the autocrat chooses to co-opt the clerics only when $M_\delta \leq M_s$ and the level of external threats is relatively low (i.e., E is below a critical level). In other cases, support of the clerics can be dispensed with, and the repressive regime B is chosen.

When external security pressure, E , is alleviated, the optimal army size is reduced. A direct consequence is that the domestic military capacity available for repression of internal rebellion is reduced, and co-option of clerics (regimes A or A') is more likely to be observed at equilibrium. Fewer reforms are therefore implemented. Concomitantly, because the prospect of a military coup is smaller, perks to the army are decreased.

This result helps understand the contribution of two international shocks on the role of Muslim clerics in Middle Eastern politics. The first shock is the decrease in external security tensions as well as the discontinuation of military support resulting from the end of the Cold War. The predicted effect was the rising influence of Islamist ideology, and its adverse effect on reforms. The second shock occurred not long after the first one. Heralded by the Resolution 1267 of the Security Council of the United Nations, it consisted of a declaration of war against (Islamist) terrorism worldwide. Countries exposed to violent jihadism could suddenly benefit from external assistance, whether in the form of intelligence support or greater international tolerance for the excessive and indiscriminate use of brutal methods of repression. This had the effect of increasing the effectiveness of the deep state in fighting any political dissent (see [Auriol et al., 2021](#)).

3.2.4 Coup-proofing

So far, we have assumed that the autocrat can choose the size of the army but not its structure. A larger army then causes a greater threat to regime survival. However, an alternative option to minimize the risk of a coup would consist of dividing the military budget between different repressive branches (regular military, and paramilitary or parallel security forces).²³

²³This strategy called "coup-proofing" or "counter balancing" ([Geddes 2009](#); [Böhmelt and Pilster 2016](#): 158-182; [Powell 2019](#): 27-44; [De Bruin 2018](#): 1433-1458; [Escribà-Folch et al. 2020](#): 559-579) has been discussed in several Middle East and North African

A trade-off arises because, with such coup-proofing strategy, if the threat of a military coup is reduced (the intended, favourable outcome), the military capacity for internal repression is simultaneously decreased as a result of poor coordination inside the army (an unfavourable outcome).

We show in Appendix G that, when dividing the army into two factions is very effective, - meaning that not only the probability of success of a coup run by a segment of the army is low, but also the loss of internal repression capacity is small-, the autocrat chooses coup-proofing.²⁴ In this case, the size of the army is larger than its size under unitary military command with the effect that co-option of clerics is unlikely and the Ruler is encouraged to undertake reforms. When coup-proofing is less effective in the sense that it implies a non-negligible loss of repression capacity (but its effectiveness for coup prevention remains high), it still prevails in equilibrium, but the size of the army is now smaller than the corresponding size under unitary military command. Co-option of clerics then occurs, and reforms are consequently moderated. In the empirical part of the paper, this latter possibility will be illustrated by reference to the Islamist regime of Iran and al-Bashir's regime in Sudan. Finally when coup-proofing weakens the army repressive capacity and is not very effective at preventing a coup, the autocrat chooses an unitary army.

4 Regime case studies

To summarize, Proposition 2 predicts that, depending on the strength of the army, the autocrat will be able to ignore the clerics and push a lot of reforms (case b with regime B and B' in case of a strong army), or he will accommodate the preference of the clerics and adopt a double co-option regime with fewer reforms (case a with regime A and A' in case of a weak army). Refining on previous works (see [Platteau, 2008, 2011, 2017](#); [Auriol](#) contexts ([Quinlivan 1999](#): 131-165; [Menaldo 2012](#): 707-722; [Makara 2013](#): 334-359; [Lutterbeck 2021](#)).

²⁴Coup-proofing is obtained when a dual military body is chosen by the Ruler. The types of army segments, whether loyal or opportunistic, are private information of their military leaders. Appendix G derives the Bayesian Nash equilibria of a coordination game between two opportunistic officers and selects the risk-dominant one.

and Platteau, 2017a,b), we illustrate such implications with the construction of a reasoned typology of post-World War I Muslim autocratic regimes regrouped in three types of regimes defined by the theory, and presented successively in Sections 4.1, 4.2 and 4.3. Proposition 2 also implies that in the vicinity of $M = M_s$, small changes in the army size/efficiency may lead to sharp policy reversal. We illustrate this possibility with two cases of within-country regime change in section 4.4.

4.1 Exclusive co-option of the repression forces

Turkey under Mustapha Kemal *Ataturk* (1923-1938) and *Tunisia* under Habib *Bourguiba* (1957-1987) fall into a first category of regimes characterized by the strong popular legitimacy of the autocratic leader and the strong loyalty of the military, police, and intelligence services. While Ataturk gained a lot of prestige thanks to his military victory against Greek troops in the battle of the Dardanelles, Bourguiba came out of the anti-colonial struggle with a wide aura and his highly charismatic character helped him win much support in the population. The strong loyalty of the state defence establishment is reflected in very low values of $\theta^m \simeq 0$ (weak aversion to progressive reforms) and low values of s (low strength of an opposition confronted with highly motivated army commanders).

The relevant regime is thus *regime B*: since they do not constitute a threat, the clerics are not co-opted, and reforms of intensity $\alpha^*(\theta^m)$ are adopted by the Ruler. These reforms are quite radical because θ^m is extremely low. To the extent that the Ruler is able to choose the size of the army, the theory predicts that it will be anywhere between M_s and M_δ (the latter denoting the coup-proof threshold), which corresponds to a rather narrow interval insofar as the two bounds are low. The prediction that the optimal army is of moderate size is borne out only for Tunisia, however. In Kemalist Turkey, external security considerations born of a delicate geopolitical situation determined a rather large army size, which made co-option of religious clerics even less necessary. The large army was no serious threat to the president, who himself was a military and whose secular-nationalist values were widely shared among the men in uniform,

to whom he granted many benefits and privileges.

The two autocratic leaders were in a position to push through important institutional reforms, particularly secular and progressive reforms that encroached upon the erstwhile privileges and prerogatives of traditional agencies such as religious authorities. In Tunisia, this is amply attested by Bourguiba's promulgation of the Personal Status Code (in 1956, when he was Prime Minister), which aimed at strengthening the nuclear family and reducing existing inequalities between men and women.²⁵ A few years later (1961), he absorbed the two existing sharia courts into the state judicial system and the main mosque-university complex (al-Nahda) into the state education system (Platteau 2017: 382-8). While in Tunisia Bourguiba was keen to vindicate his reforms in the name of a new interpretation of the sharia, Atatürk justified his by the need to modernize and Westernize the country. He succeeded in suppressing autonomous Islamic institutions and excluding religion from the public sphere, confining the role of the ulama to the realm of family law (Zürcher, 2004). His approach to Islam has thus been characterized as one of "assertive secularism", inspired by the French Jacobite model (Kuru, 2009).

4.2 Double co-option with strong clerics

Saudi Arabia lies at the opposite end of our regime spectrum. Initially, the country was a set of different tribes and heterogeneous regions. The challenge of building a national identity was complicated by the fact that the founding family of Abd al Aziz Ibn Saud (1902-1953) lacked any strong connection with tribal confederations, so that its legitimacy was low. Ibn Saud chose Wahhabism, an ultra-conservative brand of Islam,²⁶ as the ideology of the new nation, and he struck a military-religious alliance with Wahhabi religious leaders (the mutawwa) and their powerful militia known as the Ikhwan (the Brothers). This is a case where initially M_s was very

²⁵The Code prohibited polygamy, granted women the right of divorce and to approve arranged marriages, expanded women's existing rights in matters of inheritance and child custody, set minimum ages for marriage, and ended the male right of repudiation.

²⁶Founded much earlier by Muhammad Ibn Abd al-Wahhab (1703-1792), and anchored in the deep-rooted patriarchal values of the Bedouin society, the Wahhabi doctrine is puritanical and allergic to all sorts of innovations.

high (so that $M_\delta < M_s$), and the prevailing regime, A' , corresponded to double co-option.

In such a context, the king must pay a lot of attention to the preferences of the clerics, implying the sacrificing of (secular) reforms. This tactic is especially attractive since Saudi Arabia is endowed with abundant oil resources. Hence, its economic growth does not depend much on the institutional environment. The result is a very conservative regime in which many clerics exert a powerful influence on the monarch's policies.

Like in Turkey, the army size is quite large owing to foreign policy considerations. After World War II, the unflinching political support and significant military assistance provided by the United States²⁷ contributed to make Saudi Arabia one of the most militarized countries in the world.²⁸ To counter the threat of a coup, the king has had to pay ample dividends to the military (especially so because R_δ is high). The large and well-paid army has fueled the Saud family's strong ambition of gaining a leadership position in the Arabian peninsula and the wider Arab world. In this perspective, Wahhabism came in handy: not only does its doctrine pretend to be the true herald of pure Islam, but it also supplies a concept of jihadism justifying the use of violence for an expansion inside the Arab world itself (Platteau 2017 : 434).

The double co-option tactic proved quite effective, as attested at critical moments of the Saudi rule. In particular, the loyalty of the clerics was manifested on the occasion of the occupation of the Grand Mosque in 1979, when hundreds of armed tribesmen denounced the Saudi monarchy for corruption and for promoting Westernisation, and again in the 1990s, when the regime was threatened by Islamist protests and jihadist attacks. In both cases, the state sought and obtained authorization of the Council of Senior Ulama to use force to put down the rebellion, and the military duly followed suit (Ayubi 1991: 100-103; Lee 2014: 228, 233).

²⁷US interests were guided by two main objectives: to secure access to the oil resources of the kingdom and to make it a bastion of anti-communism in a highly disputed region.

²⁸In terms of military expenditures, expressed as a proportion of Gross Domestic Product, and per capita, Saudi Arabia occupies the second and first top world position, respectively (see <https://www.sipri.org/databases>).

4.3 Double co-option with moderately strong clerics

In between the above two polar cases lay the great majority of postwar Muslim regimes under which the military can credibly threaten to stage a coup and the clerics can trigger a change of regime. If, based on a variety of indicators, many countries such as Egypt, Sudan, Algeria, and Pakistan, appear to be strongly militarized, it is because of the importance of external security pressures as analysed in Section 3.2.3.²⁹ However, although sizeable, the army is not so large or effective that it can eliminate the risk of a clerics-led rebellion, even when due account is taken of the existence of strong intelligence and internal security services. This is largely because dissident clerics tend to be regrouped into powerful organizations: the Muslim Brothers in Egypt and Sudan, the Front of Islamic Salvation (FIS) in Algeria, and the Jamaat-e-Islami and other Islamic outfits in Pakistan and Bangladesh. Because of the strong organizational strength s of the clerics, it is expected that $M_\delta < M_s$ and that in equilibrium the A or A' regime prevails.

For lack of space, the presentation of the regime cases selected for illustration, i.e., Zia's rule in Pakistan, the regimes of al-Sadat and Mubarak in Egypt, those of Boumedienne and Chadli in Algeria, those of al-Nimeiri and al-Bashir in Sudan, and those of Ziaur Rahman and Ershad in Bangladesh, are deferred to Appendix H. In accordance with theory, the fraction of official clerics supporting these regimes is smaller than in Saudi Arabia, yet higher than in Ataturk's Turkey and Bourguiba's Tunisia. In addition, fewer reforms have been implemented if compared to the latter two regimes, yet more reforms if compared to Saudi Arabia. The optimal level of reforms is predicted to be rather low in the specific case, well illustrated by Pakistan, where the army holds conservative values (θ^m is high).

The case of Iran since Khomeini's revolution is worth mentioning here. Contrary to appearances, the regime born of the 1978-79 Islamist revolution is not a pure theocracy led by the whole religious class of the country.

²⁹The enmity with Israel in Egypt, the threat from India in Pakistan, and the legacy of the war against France in Algeria, were the central factors behind the emergence of a powerful army. Nurturing these efforts in the context of the cold war was the strong military support provided by the US for the former and by the USSR for the latter.

Regimes	Exogenous Parameters			Endogenous Var	
	θ^m	$E(\theta)$	s	α^*	γ^*
Exclusive co-option of the military (I) (Ataturk in Turkey, Bourguiba in Tunisia)	low	irrelevant	low	high	nil
Double co-option with strong clerics (II) (Saud in Saudi Arabia)	high	very high	very high	very low	very high
Double co-option with moderately strong clerics (III) (Algeria, Bangladesh, Egypt, Iran, Pakistan, Sudan)	medium or low ¹	medium	high	medium or low ²	medium

(1) Medium under Zia (Pakistan), Nimeiri and al-Bashir (Sudan), Islamist regime (Iran). Low under Sadat and Mubarak (Egypt), Boumedienne and Chadli (Algeria), Ziaur Rahman and Ershad (Bangladesh).
(2) Medium under Sadat and Mubarak (Egypt), Boumedienne and Chadli (Algeria), Ziaur Rahman and Ershad (Bangladesh). Low under Zia (Pakistan), Nimeiri and al-Bashir (Sudan), Islamist regime (Iran).

Table 1: A schematic characterization of a set of case study regimes

Ayatollah Khomeini’s doctrine of the ”velayat-e faqih”, which claims that Iran must be governed by the leading jurist of Islam, was actually rejected by a number of prominent clerics, including those of the sacred city of Qom.³⁰ This resistance was confirmed during the succession of ayatollah al-Sistani. When government of Iran pushed ayatollah Shahroudi, one of the country’s wealthiest men, to the front stage of politics, the clerics of Qom and Najaf (now in Iraq) were not pleased (see [Platteau 2017](#): 182-4).

The strongly autocratic government of Iran enlists the support of only a fraction of the clerics and is backed by a repressive force, the ”Pasdaran”, distinct from the mainstream army. Its members are so well remunerated for their support that the enterprises under their control represent one-fourth of the Iranian economy ([Lee, 2014](#): 204). Since the repressive forces are fragmented and some clerics are co-opted, we may infer from our theory that the probability of success of a military coup by a segment of these forces is rather low.

Table 1, shows in a glance how these regimes differ from each other in terms of three key exogenous parameters (the aversion of the military to reforms, the average aversion of the clerics towards the same, and the relative strength of religious movements or organizations) and how these differences translate into varying values of two critical endogenous variables (the intensity of reforms and the fraction of clerics supporting the ruler).

³⁰Like in Iraq, there is a tradition that clerics ought to keep distance from political power and, if a crisis arises that justifies their meddling in politics, this role should end as soon as social peace and political order are restored. This stance is in keeping with Twelver Shi’ism whose cardinal principle provides that no temporal authority can earn legitimacy until the Mahdi (who vanished from sight in 874) has returned to earth.

Given the empirical material available, these variables remain categorical (very low/low/medium/high/very high), as our discussion provides only a qualitative assessment of the strength with which the underlying factors operate. We hope that this first approach will stimulate further research aimed at testing our predictions more directly and rigorously.

4.4 Within-country regime changes

The advantage of looking at within-country changes of regimes is that we control for time-invariant country-specific variables. In Table 1, a regime change is reflected in a shift from one row to another as caused by a variation of one of the parameters of the model. We explore a progressive change from type (II) to (III), illustrated by the rise to power of *Muhammad bin Salman* (known as MBS) in Saudi Arabia, and a regressive change from type (I) to (II), illustrated by the turnaround that happened during the second part of the rule of *Saddam Hussein* in Iraq.

Saudi Arabia: the turnaround under MBS

We have earlier characterized the regime of Saudi Arabia as a reactionary equilibrium driven by the ruler's choice to placate ultra-conservative clerics, an outcome made possible by the availability of oil rents. An important change, triggered by the declaration of the war against terrorism at world level, shook that equilibrium. The military build-up, aided by Saudi Arabia's vast wealth (and the unremitting support of the US), translated in the progressive fall of s and the rise of M .³¹

As a result, the initially strong dependence of a weak Saudi regime on the support of Wahhabite clerics could be reduced and it became possible for MBS to start implementing reforms required for the diversification and sophistication of the country's economy. Among the reforms causing the hostility of the clerics are all measures taken, generally by decree, to increase the mobility and the autonomy of women, improve the status

³¹Another way to explain the shift of regime, which is outside the remit of our model yet is compatible with the present account, would emphasize the change in the ruler's preference. Because he is especially forward-looking compared to his predecessors, MBS wants to break the dependence of the Saudi economy on natural resource rents.

of Shia subjects,³² curb the powers of the religious police (which enforces Sunni supremacy), and liberalize cultural events and leisurely activities. By contrast, measures aimed at rooting out high-level corruption do not arouse opposition among the clerics.³³ In Appendix I, we explain why the rise of MBS corresponds to a shift from (II) to (III) rather than to (I), owing to his inability to get rid of the clerics' support completely.

Iraq: the about-face of Saddam Hussein

Post-independent Iraq quickly adopted an authoritarian model of governance justified by a romantic view of pan-Arabic unity and a sort of socialist approach to development (Makiya 1998 : 208-9). During the first part of Saddam Hussein's effective rule, a period initiated by the brutal 1968 coup, a regime based on the exclusive co-option of the military was established. Behind the veil of public gestures and token concessions, Iraq's clerics were tightly controlled by Saddam and his military associates. Yet, a major change of tactic was adopted by the ruler toward the end of the 1970s when a number of events profoundly disturbed the international environment of the country: the rise of Ayatollah Khomeini to power in Iran in 1979, and the subsequent stirrings of a Shi'i revolt in southern Iraq, followed by Saddam's catastrophic miscalculation in the war with Iran and the invasion of Kuwait.

In terms of our theory, the regime's strength was abruptly dented for a number of reasons. First, there was a decrease in the capacity of the army, which came to be depleted by the dramatic losses incurred during the war with Iran, demoralized by defeats, and plagued by the tensions between Sunni officers and Shi'a footsoldiers. Second, Saddam himself suffered a considerable loss of legitimacy and prestige, resulting in a further decline of the motivation and effectiveness of military officers (so that *s* rose). Consistent with our analysis, the response of Saddam consisted of "a revised, 'Shi'ified' version of his earlier blood-and-soil nationalism adapted to the political necessity of the time" (Baram, 2014: 63). Behind

³²Improving the status of Shia subjects involves, among other things, the removal from school textbooks and television networks of anti-Shia statements or pronouncements.

³³MBS took a daring step when he extracted repayments of "stolen" revenues from dozens of prominent princes entrapped in the Ritz Carlton in November 2017.

this metamorphosis lay a strategic and cynical calculation aimed at regaining lost legitimacy through continuous appeals to religion. A major step in Saddam's about-face coincided with the 9th Congress of the Regional Command of the Bath (1982) on the occasion of which the significance of religion, together with the primacy of Iraq, was stressed with special vigour (Tripp 2000: 228). His fear of the allegiances of the Shi'a footsoldiers who formed the bulk of Iraq's conscript army prompted him, through various symbolic acts, to stress the Arab identity of the Iraqi Shi'a and the Islamic credentials of his regime.

More ominously, new repressive and regressive laws were enacted: crack-down on nightclubs and prostitution (punishable by death), ban on public alcohol consumption, imposition of Ramadan fasting, and enforcement of barbaric penalties. Drastic steps were taken to Islamize the legal and educational systems, which included separation of boys and girls at school, the study of sacred texts and the imposed knowledge of the Quran in the general matriculation examination. Finally, women's status, which had improved remarkably during the first decades of the Ba'ath revolution (especially under Quasim), suffered a frontal attack at the height of the so-called "Campaign for the Faith" (1993-2003). Saddam's radical backtracking on his previous commitment to the ideology of Baathism with its emphasis on secularism and Arabism involved obvious economic costs. Yet this tactic has been effective in keeping him in power despite a dramatic loss of legitimacy and repressive capacity.

5 Conclusion

This paper is an attempt to understand variations in the willingness of an autocrat to push through institutional reforms in a context where traditional authorities represented by decentralized religious clerics are averse to them and where the military control the means of repression and can potentially make a coup. This is a complex political economy game in which three key players interact strategically. A central result is the fact that, while the autocrat always has an interest in co-opting the military, a

double co-option regime prevails only when the efficiency of the army and the cost of seducing the clerics are rather low.

When enough economic growth can be achieved with few reforms, or when the relative capacity of the army to repress an internal rebellion is not worth the threat of coup, the autocrat chooses to co-opt clerics, undertake little reforms and equip himself with an army of moderate size. Conversely, when economic growth requires a progressive institutional environment and the military sufficiently agrees to the desirability of the change involved, the ruler chooses a larger army size and takes less into account the clerics' resistance to reforms. Finally, when it is relatively easy to tame the clerics' opposition without risking a significant threat of coup, the regime with exclusive co-option of the military prevails. Reforms are then always more important than under double co-option, as they are determined by the military's preferences only.

Empirically, exclusive co-option of the military has characterized only a few regimes in which the autocrat's legitimacy and the loyalty of his army were very strong while religious movements were weak. Radical institutional reforms could then be implemented. A polar case arises when abundant oil resources create the conditions of a rent economy. Because the autocrat does not need to carry out reforms to obtain rents, he is in a position to please all the clerics, including the ultra-conservative ones. In other cases, only a fraction of the clerics (the most pliable ones) endorses the regime's policies, and there is polarization between official clerics loyal to the regime, and non-official clerics standing in opposition to it. This double co-option regime is dominant in contemporary Muslim countries. Finally, within-country regime shifts are observed when significant changes happen in the environment of the country, as attested by the implementation of institutional reforms (think of bin Salman's rule in Saudi Arabia) or the backtracking on past progressive moves (think of the latter part of Husayn's rule in Iraq).

Our analysis has focused on authoritarian regimes in the land of Islam, which typically built their coercive capacity on a hierarchically structured army and derived their legitimacy from decentralized religious authorities.

But the idea that the political economy of reforms is structured around the two pillars of coercion and legitimacy goes well beyond the context of contemporary Muslim countries. For instance, a promising line of research would be to extend the triangular structure of our analysis to the history of state-church relations in the western Christian world, where coercion was associated to the military power of the nobility, and legitimacy was derived from a centralized source of religious authority. We leave that interesting issue, which is beyond the scope of the present paper, for future research. Also left for future research is the task of putting up more solid bridges between empirical data and the theoretical framework we propose here.

References

- Abbas, H. (2005). *Pakistan's drift into extremism: Allah, the army, and America's war on terror*. M.E. Sharpe Inc, New York, NY.
- Ablan, G. J. L. and T. Aidt (2017). *The coup: competition for office in authoritarian regimes*. Oxford University Press; Oxford.
- Acemoglu, D., G. Egorov, and K. Sonin (2009). Do juntas lead to personal rule? *American Economic Review* 99(2), 298–303.
- Acemoglu, D., D. Ticchi, and A. Vindigni (2010). A theory of military dictatorships. *American Economic Journal: Macroeconomics* 2(1), 1–42.
- Aney, M. S. and G. Ko (2015). Expropriation risk and competition within the military. *European Journal of Political Economy* 39, 125–149.
- Auriol, E. and J.-P. Platteau (2017a). The explosive combination of religious decentralization and autocracy: the case of Islam. *Economics of Transition* 25(2), 313–350.
- Auriol, E. and J.-P. Platteau (2017b). Religious co-option in autocracy: a theory inspired by history. *Journal of development Economics* 127, 395–412.
- Auriol, E., J.-P. Platteau, and T. Verdier (2021). The triangular game between autocrats, clerics, and the military: An application to muslim countries. *Journal of Economics, Theology and Religion* 1(2), 159–191.
- Ayubi, N. (1991). *Political Islam: religion and politics in the Arab world*. Routledge, London and New York.

- Baram, A. (2014). *Saddam Husayn and Islam, 1968–2003: Ba’thi Iraq from secularism to faith*. Middle East Institute, Washington DC.
- Besley, T. and J. A. Robinson (2010). Quis custodiet ipsos custodes? civilian control over the military. *Journal of the European Economic Association* 8(2-3), 655–663.
- Binzel, C. and J.-P. Carvalho (2017). Education, social mobility and religious movements: The islamic revival in egypt. *The Economic Journal* 127(607), 2553–2580.
- Blaydes, L. and E. Chaney (2013). The feudal revolution and Europe’s rise: Political divergence of the christian west and the muslim world before 1500 ce. *American Political Science Review* 107(1), 16–34.
- Böhmelt, T. and U. Pilster (2016). The impact of institutional coup-proofing on coup attempts and coup outcomes. *International Interactions* 41(1), 158–182.
- Boix, C. and M. W. Svolik (2013). The foundations of limited authoritarian government: Institutions, commitment, and power-sharing in dictatorships. *The Journal of Politics* 75(2), 300–316.
- Bouamama, S. (2000). *Algérie: les racines de l’intégrisme*. Editions Aden, Bruxelles.
- Bove, V., J.-P. Platteau, and P. Sekeris (2017). Political repression in autocratic regimes. *Journal of Comparative Economics* 45(2), 410–428.
- Brooks, R. A. (2019). Integrating the civil–military relations subfield. *Annual Review of Political Science* 22, 379–398.
- Casper, B. A. and S. A. Tyson (2014). Popular protest and elite coordination in a coup d’état. *The Journal of Politics* 76(2), 548–564.
- Chachoua, K. (2001). *L’islam kabyle. Religion, Etat et société en Algérie*. Maisonneuve & Larose, Paris.
- Chaney, E. (2011). *Islam and Human Capital Formation: Evidence from Premodern Muslim Science*. The Oxford Handbook of the Economics of Religion (Edited by Rachel M. McCleary) pp. 81-92.
- Cohen, S. P. (2004). *The idea of Pakistan*. Brookings Institution Press, Washington DC.
- Cook, S. A. (2012). *The struggle for Egypt: from Nasser to Tahrir square*. Oxford University Press, Oxford.

- Cosgel, M. M., T. J. Miceli, and J. Rubin (2012). The political economy of mass printing: legitimacy and technological change in the Ottoman Empire. *Journal of Comparative Economics* 40(3), 357–371.
- Coulson, N. (1964). *A history of Islamic law*. Edinburgh University Press, Edinburgh.
- De Bruin, E. (2018). Preventing coups d’etat: How counterbalancing works. *Journal of Conflict Resolution* 62(7), 1433–1458.
- De Waal, A. (1997). *Famine crimes: politics & the disaster relief industry in Africa*. Indiana University Press, Bloomington IN.
- De Waal, A. (2015). *The real politics of the Horn of Africa: money, war and the business of power*. Polity Press, Cambridge.
- Dreyfuss, R. (2005). *Devil’s game: how the United States helped unleash fundamentalist Islam*. Macmillan, London.
- Egorov, G. and K. Sonin (2011). Dictators and their viziers: Endogenizing the loyalty–competence trade-off. *Journal of the European Economic Association* 9(5), 903–930.
- Egorov, G. and K. Sonin (2014). Incumbency advantage in non-democracies. *National Bureau of Economic Research*.
- Escribà-Folch, A., T. Böhmelt, and U. Pilster (2020). Authoritarian regimes and civil–military relations: Explaining counterbalancing in autocracies. *Conflict Management and Peace Science* 37(5), 559–579.
- Feaver, P. D. (1999). Civil-military relations. *Annual Review of Political Science* 2(1), 211–241.
- Fourati, M., G. Gratton, and P. Grosjean (2019). Render unto caesar: Taxes, charity, and political islam. *European Economic Review* 119, 114–146.
- Gandhi, J. and A. Przeworski (2007). Authoritarian institutions and the survival of autocrats. *Comparative political studies* 40(11), 1279–1301.
- Garçon, J. (2020). *Un régime opaque et corrompu, habité d’un profond mépris du peuple*. In: Benderra, O. (Ed), HIRAK en Algérie: l’intervention d’un soulèvement, Editions La Fabrique, Paris, pp. 33-48.
- Geddes, B. (2009). How autocrats defend themselves against armed rivals. *APSA 2009 Toronto Meeting Paper*.

- Gehlbach, S., K. Sonin, and M. W. Svolik (2016). Formal models of non-democratic politics. *Annual Review of Political Science* 19, 565–584.
- Gerschewski, J. (2013). The three pillars of stability: Legitimation, repression, and co-optation in autocratic regimes. *Democratization* 20(1), 13–38.
- Granovetter, M. (1978). Threshold models of collective behavior. *American Journal of Sociology* 83(6), 1420–1443.
- Haqqani, H. (2005). *Pakistan: between mosque and military*. Carnegie Endowment for International Peace, Washington DC.
- Hourani, A. (1991). *A history of the Arab peoples*. Harvard University Press, Cambridge MA.
- Hubbard, B. (2020). *MBS: the rise to power of Mohammed Bin Salman*. William Collins.
- Jok, M. J. (2007). *Sudan: race, religion, and violence*. Oneworld, Oxford.
- Kepel, G. (2005). *The roots of radical Islam*. Saqi Books, London.
- Kirkpatrick, D. (2018). *Into the hands of the soldiers: freedom and chaos in Egypt and the Middle East*. Bloomsbury, London.
- Kuran, T. (1995). *Private truths, public lies: The social consequences of preference falsification*. Harvard University Press.
- Kuran, T. (2011). *The Long Divergence: How Islamic Law Held Back the Middle East*. Princeton University Press.
- Kuru, A. T. (2009). *Secularism and state policies toward religion: the United States, France, and Turkey*. Cambridge University Press, Cambridge.
- Lapidus, I. (1988). *A History of Islamic societies*. Cambridge University Press (first edition), Cambridge.
- Lapidus, I. (2002). *A history of Islamic societies*. Cambridge University Press (second edition), Cambridge.
- Laribi, L. (2007). *L'Algérie des généraux*. Max Milo, Paris.
- Lee, R. D. (2014). *Religion and politics in the Middle East: identity, ideology, institutions, and attitudes*. Westview Press, Boulder CO.
- Leon, G. (2014). Loyalty for sale? Military spending and coups d'Etat. *Public Choice* 159(3-4), 363–383.

- Little, A. T. (2017). Coordination, learning, and coups. *Journal of Conflict Resolution* 61(1), 204–234.
- Lutterbeck, D. (2021). *Coup-Proofing in the Middle Eastern and North African (MENA) Region*. Oxford Research Encyclopedia of Politics.
- Makara, M. (2013). Coup-proofing, military defection, and the arab spring. *Democracy and Security* 9(4), 334–359.
- Makiya, K. (1998). *Republic of fear: the politics of modern Iraq*. Univ of California Press, Berkeley CA.
- Malik, A. and T. Malik (2017). Pirs and politics in punjab, 1937–2013. *Modern Asian Studies* 51(6), 1818–1861.
- Malti, H. (2020). *La spectaculaire et ambivalente offensive anticorruption, une grande victoire en Hirak*. In: Benderra, O. (Ed), *Hirak en Algérie: l'intervention d'un soulèvement*, Editions La Fabrique, Paris, pp. 185–205.
- Martin, N. (2016). *Politics, landlords and Islam in Pakistan*. Routledge, London.
- Menaldo, V. (2012). The Middle East and North Africa's resilient monarchs. *The Journal of Politics* 74(3), 707–722.
- Mohmand, S. K. (2019). *Crafty oligarchs, savvy voters: democracy under inequality in rural Pakistan*. Cambridge University Press, Cambridge.
- Platteau, J.-P. (2008). Religion, politics, and development: lessons from the lands of Islam. *Journal of Economic Behavior & Organization* 68(2), 329–351.
- Platteau, J.-P. (2011). Political instrumentalization of Islam and the risk of obscurantist deadlock. *World Development* 39(2), 243–260.
- Platteau, J.-P. (2017). *Islam instrumentalized: religion and politics in historical perspective*. Cambridge University Press, Cambridge.
- Powell, J. (2019). Leader survival strategies and the onset of civil conflict: A coup-proofing paradox. *Armed Forces & Society* 45(1), 27–44.
- Quinlivan, J. T. (1999). Coup-proofing: Its practice and consequences in the middle east. *International Security* 24(2), 131–165.
- Ramadan, A. A. (1993). *Fundamentalist influence in Egypt: the strategies of the Muslim Brotherhood and the Takfir groups*. University of Chicago, Chicago.

- Rubin, J. (2017). *Rulers, religion, and riches: why the West got rich and the Middle East did not*. Cambridge University Press, Cambridge.
- Sayigh, Y. (2019). *Owners of the Republic: an anatomy of Egypt's military economy*. Carnegie Middle East Center, Beirut, and Carnegie Endowment for International Peace, Washington DC.
- Shah, A. (2014). *The army and democracy*. Harvard University Press.
- Sheikh, M. Z. H. and Z. S. Ahmed (2020). Military, authoritarianism and islam: A comparative analysis of bangladesh and pakistan. *Politics and Religion* 13(2), 333–360.
- Siddiqua, A. (2017). *Military Inc.: inside Pakistan's military economy*. Pluto Press (second edition), London.
- Sutter, D. (2000). A game-theoretic model of the coup d'état. *Economics & Politics* 12(2), 205–223.
- Svolik, M. W. (2012). *The politics of authoritarian rule*. Cambridge University Press.
- Tamzali, W. (2007). *Une éducation algérienne: de la révolution à la décennie noire*. Gallimard, Paris.
- Tripp, C. (2000). *A history of Iraq*. Cambridge University Press, Cambridge.
- Zaman, M. Q. (2007). *Tradition and authority in Deobandi madrasas of South Asia*. Princeton University Press Princeton, Princeton NJ.
- Zürcher, E. (2004). *Turkey: a modern history*. I.B Tauris (first edition 1993), London.

Appendix

A The military analysis of coups: the general case

The men in uniform might hold patriotic values which may be more or less progressive depending on the extent to which their concept of the nation is rooted in modernity rather than in tradition. The bias of the army against reforms in the general case is $\theta^m \geq 0$. In other words, both the religious clerics and the Military have an ideological bias against reforms.

However, this bias is on average smaller for the latter than for the former, i.e., $\theta^m < E(\theta) = \int_0^\infty \theta g(\theta) d\theta$, and one distinct possibility is that θ^m is very small, reflecting near agreement with the Ruler. Indeed θ^m and $E(\theta)$ are the distance between the measure of the values held by the military and the (average) religious clerics, respectively, and the values of the autocrat (see [Auriol and Platteau, 2017b](#)). The results in the main text are simply obtained by setting $\theta^m = 0$.

A.1 The military payoff of making a coup

When the Military carries out a coup, the benefit from seizing power is:

$$R_\delta = \max_\alpha \{ \delta R(\alpha) - \theta^m V(\alpha) \} \quad (\text{A.1})$$

where $\delta R(\alpha)$ is the national revenue generated by the military regime when it implements a reform program of magnitude α . The function $V(\alpha)$ stands for the ideological cost of undertaking these reforms as defined in assumption 3. The optimal reform program of the Military, α_m^δ , is given by the necessary and sufficient first-order condition $\delta R'(\alpha) = \theta^m V'(\alpha)$. From definition 1, we deduce that $\alpha_m^\delta = \alpha^* \left(\frac{\theta^m}{\delta} \right)$ is decreasing with θ^m and increasing with $\delta \in [0, 1]$. The equilibrium payoff of the Military when in power can be written as:

$$R_\delta = \delta R(\alpha_m^\delta) - \theta^m V(\alpha_m^\delta). \quad (\text{A.2})$$

We deduce that to avoid a coup following a successful military containment of a rebellion, the Ruler must offer the military a wage such that:

$$Mw_m - \theta^m V(\alpha) \geq R_\delta - C(M) \quad (\text{A.3})$$

If, on the other hand, the Military chooses to let the rebellion follow its course, and the religious government does not want the Military to dislodge it from power, it should ensure that:

$$Mw_m^c \geq R_\delta - C(M). \quad (\text{A.4})$$

It is worth noting that the incentive compatibility constraint (A.4), which faces a religious government willing to avoid an army coup, is less constraining than the incentive compatibility constraint (A.3) facing the incumbent,

as long as the latter wants to implement a reform mix $\alpha > 0$.³⁴ Specifically, the constraint facing the religious government is binding if and only if the latter needs to pay a positive wage to the Military (beyond the reservation wage normalized to 0) to prevent an army's coup. This will be the case if and only if $C(M) < R_\delta$, that is, condition (A.4) is binding iff $M \geq M_\delta$, where M_δ denotes the coup-proof threshold for a theocratic regime given by:

$$M_\delta = C^{-1}(R_\delta). \quad (\text{A.5})$$

We establish the following preliminary result.

Lemma 2 (*no-military-coup constraint*) *Assuming that (1) holds, the Ruler will stay in power if and only if*

$$w_m M \geq \theta^m V(\alpha) + \max \{R_\delta - C(M), 0\} \quad (\text{A.6})$$

Condition (A.6) in Lemma 2, which is the generalization of condition (3) in Lemma 1, ensures that the Military has no interest in staging a coup against the autocrat. Clearly, as long as $\theta^m > 0$ the wage paid to the Military can never be nil.

A.2 Proof of Lemma 2

We prove Lemma 2. The proof of Lemma 1 is obtained by setting $\theta^m = 0$. Recall from (A.5) that $M_\delta = C^{-1}(R_\delta)$. Two cases can be discussed.

i) $M \geq M_\delta$: When the Military are indifferent between repression and passivity against a rebellion, we assume that the Ruler is ready to pay a small wage premium to the Military so as to tilt the decision in favor of repression. In such a case, as long as the revolution is anticipated to fail when the Military chooses to put it down, the Military will always choose to prevent the clerics from acceding to power. Indeed under an alternative religious regime, the army will receive their reservation payoff $R_\delta - C(M) \geq 0$. The secular incumbent is ready to give them at least that same utility (in the presence or absence of a coup) in order to avoid a clerics-led revolution. The wage bill paid by the Ruler to the Military is then such that: $w_m M \geq$

³⁴We thus have $Mw_m > Mw_m^c \geq 0$.

$\max \{\theta^m V(\alpha) + R_\delta - C(M); 0\}$. Since by definition $C(M_\delta) = R_\delta$, $C(M)$ is decreasing, and $M_\delta \leq M$, we deduce that $C(M) \leq C(M_\delta) < \theta^m V(\alpha) + R_\delta$ as long as $\alpha > 0$. Then the military coup's constraint is always binding so that the wage bill is simply satisfying:

$$w_m M \geq \theta^m V(\alpha) + R_\delta - C(M)$$

ii) $M < M_\delta$: the Military, who never attempts a coup against any ruling religious government, receives a reservation payoff, normalized to 0. As a consequence, the Military accepts to put down the rebellion and to support the Ruler (as long as such repressed revolution is anticipated to fail) if and only if $w_m M - \theta^m V(\alpha) \geq 0$. The wage bill that the Ruler needs to pay to the Military is then given by:

$$w_m M \geq \theta^m V(\alpha). \tag{A.7}$$

We deduce Lemma 2, which implies Lemma 1. QED

B The clerics coordination game: the general case

A popular revolution stirred by the religious clerics opposing the regime ends in failure when it is repressed by the army if and only if: $S(1 - \gamma) \leq \lambda M$, where $S > 0$ is the efficiency of the clerics at stirring popular rebellion and $\lambda > 0$ the efficiency of the army at repression. Let

$$s = \frac{S}{\lambda}, \tag{B.1}$$

which is one of our key static comparative variable. Dividing left and right by λ yields (1). To ease on the exposition, in the main text all the results are presented under the assumption that $\lambda = 1$.

The choice to support the regime depends on the chance for a cleric to keep his religious office: $P(\text{cleric } i \text{ stays in office}) = p_i(\gamma^e) = P(S(1 - \gamma^e) + \epsilon_i \leq \lambda M)$. This is equivalent to: $p_i(\gamma^e) = P(s(1 - \gamma^e) + \frac{\epsilon_i}{\lambda} \leq M)$. This probability depends positively on s , the relative capacity of the clerics at stirring popular rebellion compared to the repressive capacity of the regime,

γ^e , the fraction of the clerics that supports the autocrat, and on M , the army size. The probability depends on ϵ_i , a random shock that affects cleric i 's hold on power, which is independently and identically distributed on \mathbb{R} according to a symmetric density function $f(\epsilon)$ and a cumulative distribution function $F(\epsilon)$ with a mean value of 0. Integrating on ϵ_i the probability $p_i(\gamma^e)$ becomes:

$$p(\gamma^e) = F(\lambda(M - s(1 - \gamma^e))) \quad (\text{B.2})$$

A cleric θ supports the ruler if and only if $\theta V(\alpha) \leq p(\gamma^e)w_c$, that is: $\theta \leq \theta^*(\gamma^e) = p(\gamma^e) \frac{w_c}{V(\alpha)}$. We established Proposition 4, the generalization of Proposition 1.

Proposition 4 *Assume that the continuous function $F(\lambda(M - s + sG(y)))$ is concave in $y \geq 0$. There exists a unique equilibrium fraction $\gamma^* \in [0, 1]$ of clerics supporting the regime in the Perfect Nash Equilibrium solution. It is equal to*

$$\gamma^* = G\left(F(\lambda(M - s(1 - \gamma^*))) \frac{w_c}{V(\alpha)}\right) \quad (\text{B.3})$$

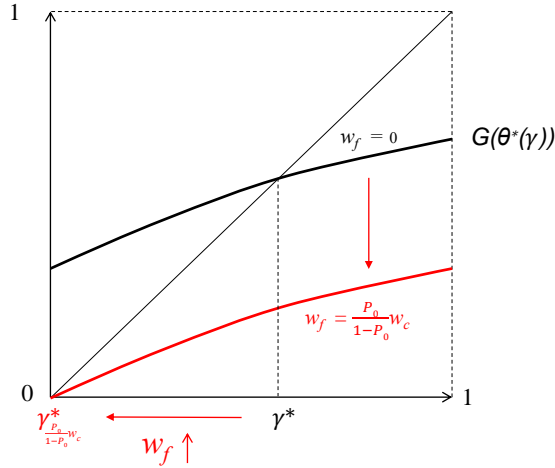


Figure B.1: Equilibrium fraction of supporting clerics

B.1 Proof of Proposition 1

We prove here Proposition 4. The proof of Proposition 1 is simply obtained by setting $\lambda = 1$. Let $x = \frac{w_c}{V(\alpha)}$. Since, under rational expectations, $\gamma^e = \gamma^*$, the equilibrium fraction γ^* of the clerics supporting the regime, and the associated threshold $\theta^* = \theta^*(\gamma^*)$, satisfy the following conditions:

$$\begin{aligned}\gamma^* &= G(\theta^*(\gamma^*)) \\ \theta^*(\gamma^*) &= p(\gamma^*)x\end{aligned}$$

where $p(\gamma) = F(\lambda(M - s(1 - \gamma)))$ is defined in (B.2).

Existence: Consider the function $D(\gamma) = \gamma - G(p(\gamma)x)$. A equilibrium fraction γ^* is obtained by $D(\gamma^*) = 0$. $D(\gamma)$ is a continuous function in γ with $D(0) = -G(p(0)x) < 0$ and $D(1) = 1 - G(p(1)x) \geq 0$. From this and the continuity of $D(\gamma)$, there exists $\gamma^* \in (0, 1]$ satisfying $D(\gamma^*) = 0$. This ensures the existence of a rational expectation equilibrium fraction of clerics supporting the regime.

Uniqueness: Let assume then that γ_1^* and γ_2^* are the first two values with $0 < \gamma_1^* < \gamma_2^*$ satisfying $D(\gamma_1^*) = D(\gamma_2^*) = 0$. Then for all $\gamma = \beta\gamma_1^* + (1 - \beta)\gamma_2^*$ with $\beta \in (0, 1)$, by continuity of $D(\cdot)$, we should have $D(\gamma) > 0$. This would imply:

$$\beta G(p(\gamma_1^*)x) + (1 - \beta)G(p(\gamma_2^*)x) > G(p(\beta\gamma_1^* + (1 - \beta)\gamma_2^*)x)$$

which is impossible if $G(p(\gamma)x)$ is concave in γ . From this we conclude that if $G(p(\gamma)x)$ is concave in γ there is a unique value γ^* such that $D(\gamma^*) = 0$, and consequently a unique rational expectation fraction of clerics supporting the ruler. **QED.**

Showing the uniqueness with a Gaussian distribution F : Let $x = \frac{w_c}{V(\alpha)}$. The fixed point equation writes as

$$\gamma^* = G[F(\lambda(M - s + s\gamma^*))x]$$

or, posing $y^* = G^{-1}(\gamma^*)$:

$$y^* = F(\lambda(M - s + sG(y^*)))x$$

Denote the following functions $H(y) = y/x - F(\lambda(M - s + sG(y)))$ and $Q(y) = F(\lambda(M - s + sG(y)))$. First, note that $H(0) = -F(\lambda(M - s)) < 0$ and $H(\infty) = \infty$ as $G(\infty) = 1$. Therefore, by continuity there exists at least a point $y^* > 0$ such that $H(y^*) = 0$. Note that $y^* < x$.

Next, a sufficient condition for unicity is that the function $Q(y) = F(\lambda(M - s + sG(y)))$ is concave in y . Intuitively, this will be the case when $G(\cdot)$ is sufficiently concave and $F(\cdot)$ sufficiently diffuse. To illustrate this point assume ϵ to be normally distributed around 0. One should then have $F'(z) = e^{-\frac{z^2}{2\sigma^2}} > 0$ and $F''(z) = -\frac{z}{\sigma^2}e^{-\frac{z^2}{2\sigma^2}}$. It follows that :

$$\begin{aligned} Q'(y) &= \lambda s F'(\lambda(M - s + sG(y))) G'(y) \\ Q''(y) &= (\lambda s)^2 F''(\lambda(M - s + sG(y))) [G'(y)]^2 + \lambda s F'(\lambda(M - s + sG(y))) G''(y) \end{aligned}$$

With $G(\cdot)$ concave, a sufficient condition for $Q(y)$ to be also concave is

$$-\frac{M - s + sG(y)}{\sigma^2} \lambda s [G'(y)]^2 + G''(y) < 0$$

or

$$[s - M - sG(y)] \frac{\lambda s}{\sigma^2} < -\frac{G''(y)}{[G'(y)]^2}$$

which is satisfied when:

$$\frac{\lambda s^2}{\sigma^2} < -\frac{G''(y)}{[G'(y)]^2}$$

Robustness to uniform distributions We obtain a parametric example with an explicit analytical characterization of γ^* when we posit that the clerics' aversion to reforms is uniformly distributed on an interval $[0, 2\theta^e]$, where $\theta_c = E(\theta)$ is the mean aversion of the clerics to reforms, so that $G(\theta) = \min\{\frac{\theta}{2\theta^e}, 1\}$, and when ϵ_i is independently and uniformly distributed in $[-\epsilon, \epsilon]$. This yields in (B.2):

$p(\gamma^e) = \max\{\min\{\frac{1}{2\epsilon} [\lambda(M - s(1 - \gamma^e))] + \frac{1}{2}, 1\}, 0\}$. Assuming $\epsilon > S$, this simplifies to³⁵

$$p(\gamma^e) = \min\left\{\frac{1}{2\epsilon} [\lambda(M - s(1 - \gamma^e))] + \frac{1}{2}, 1\right\} \quad (\text{B.4})$$

³⁵In such a case, indeed, we have $\frac{1}{2\epsilon} [\lambda(M - s(1 - \gamma^e))] + \frac{1}{2} = \frac{\lambda}{2\epsilon} [M - s(1 - \gamma^e)] + \frac{1}{2} > \frac{\lambda}{2\epsilon} [M - s] + \frac{1}{2} = \frac{1}{\epsilon} \frac{\lambda M}{2} + \frac{1}{2} (1 - \frac{S}{\epsilon}) > 0$.

We thus obtain a closed-form solution, and the unique equilibrium fraction $\gamma^* \in [0, 1]$ of the clerics supporting the regime in the Perfect Nash Equilibrium is:

$$\gamma^*(M, \alpha, w_c) = \min \left\{ 1, \frac{w_c}{2\theta^c V(\alpha)}, \frac{1 + \lambda \left(\frac{M}{\epsilon} - \frac{s}{\epsilon} \right)}{4\theta^c \frac{V(\alpha)}{w_c} - \frac{s}{\epsilon}} \right\} \quad (\text{B.5})$$

B.2 Static comparative of the fraction of supporting clerics

As can be seen from (8), opposition to the autocrat by the clerical mass, $1 - \gamma^*$, decreases with $x = \frac{w_c}{V(\alpha)}$. Intuitively, opposition to the autocrat decreases when the rent the religious clerics get in exchange for their support, w^c , increases, and when the level of reforms implemented by the autocrat, α , decreases. The opposition also decreases when the repressive power of the army, λM , increases and when the effectiveness of the clerics at organizing rebellions, S , falls.

Finally, radicalization of the clerics, in the sense of a shift in the distribution $G(\cdot)$ towards a first-order stochastic dominant distribution, leads to increased opposition to the Ruler. Indeed consider the unique equilibrium fraction $\gamma^* \in [0, 1]$ of clerics under the conditions of proposition 1. It is the solution of the following equation:

$$\gamma^* = G \left(F(\lambda(M - s(1 - \gamma^*))) \frac{w_c}{V(\alpha)} \right) \quad (\text{B.6})$$

For the impact of the distribution of clerics' aversion, parameterize the cumulative $G(\theta, \rho)$ such that an increase in ρ leads a stochastic dominant cumulative distribution (i.e., $G_\rho(\theta, \rho) < 0$). Differentiation of (B.6) provides:

$$\frac{\partial \gamma^*}{\partial \rho} = \frac{G_\rho \left(F(\lambda(M - s(1 - \gamma^*))) \frac{w_c}{V(\alpha)}, \rho \right)}{1 - \lambda s \frac{w_c}{V(\alpha)} g \left(F(\lambda(M - s(1 - \gamma^*))) \frac{w_c}{V(\alpha)}, \rho \right) f(\lambda(M - s(1 - \gamma^*)))}$$

At the unique equilibrium point γ^* , the denominator of $\frac{\partial \gamma^*}{\partial \rho}$ is necessarily positive, while the numerator is negative. Hence $\frac{\partial \gamma^*}{\partial \rho} < 0$.

B.3 External support to the clerics by foreign power

In this extension we assume that the clerics receive a wage w_f from an external source, such as for instance a foreign power. Assuming the subsidies are distributed uniformly to all clerics, the cleric θ supports the regime if and only if: $(1 - p(\gamma^e))w_f \leq p(\gamma^e)w_c - \theta V(\alpha)$. This is equivalent to : $\theta \leq \theta^*(\gamma^e) = \frac{p(\gamma^e)(w_c + w_f) - w_f}{V(\alpha)}$. If the RHS is negative at $p(0) = F(\lambda(M - s))$ then no cleric support the autocrat and $\gamma^* = 0$. If the RHS is positive then the proportion of supporting clerics is such that:

$$\gamma^* = G(\theta^*(\gamma^*)) = G\left(\frac{F(\lambda(M - s(1 - \gamma^*)))(w_c + w_f) - w_f}{V(\alpha)}\right) \quad (\text{B.7})$$

The red curve in Figure B.1 represents the limit case where $w_f = \frac{P(0)}{1-P(0)}w_c$ so that $\gamma^* = 0$, while the black curve represents the case where $w_f = 0$ so that $\gamma^* > 0$. These represent the two bounds of the clerics coordination game in presence of external subsidies. It is intuitive that, everything else equal, the external subsidies has the effect to reduce the percentage of clerics willing to support the autocrat. This is illustrated with the horizontal red arrow in Figure B.1.

In Proposition 2, if the equilibrium is one of the (b) regimes, then the autocrat does not wish to co-opt the clerics and chooses a repressive regime. The fact that the clerics are externally subsidized does not change this result. Now, if at the optimum the autocrat wants to promote one of the (a) regimes, then the fraction of clerics he wishes to enlist is unchanged, $\gamma^* = 50\%$, which means that the marginal cleric is the same and so is the level of reform. However, he must offer greater benefits to the religious leaders to keep them on board. He must increase their salary by w_f exactly as they will only keep it with a probability $p(\gamma^*) = 0.5$. Unless the external financial support w_f is so massive that the autocrat cannot cover it, the level of reforms is the same, the army's salary is the same. The only difference is that the autocrat keeps less rent for himself and gives more to the clerics. If the external salary w_f is very large and the autocrat cannot finance this additional cost with his rents, then the regime is overthrown and replaced by a theocracy.

C Spontaneous popular rebellions

In the paper, the people are hidden behind the clerics whom they blindly follow. In practice, the people are influenced by the clerics, but they also have some autonomy to rebel, as many episodes of popular unrest attest. We explore this possibility theoretically in section C.1 and discuss its implication in the case of the Arab Spring in section C.2.

C.1 Micro-foundations for local revolts with people in the lead

Consider that each cleric i has locally a group of potential followers of mass 1. Followers in the neighborhood of cleric i can be indoctrinated by fatwas issued by clerics from all the country. Such fatwas enjoin them either to go in the streets and demonstrate, or to support the Ruler. More precisely, each follower j is matched randomly with one particular fatwa, which can be in two possible states: a fatwa in favor of the Ruler (state $\sigma = 0$) or a fatwa opposed to the ruler (state $\sigma = 1$). The probabilities of these events are, respectively, γ^e and $1 - \gamma^e$ (proportional to the fraction of clerics supporting or opposing the Ruler). Each follower then decides whether to oppose (action $a = A$) or to back up the Ruler (action $a = B$). The utility of a follower j exposed to a fatwa σ writes as

$$u(a, \sigma) + \zeta_j(a) \quad \text{for } a \in \{A, B\} \text{ and } \sigma = 0, 1$$

There is a direct component conditional on the type of fatwa received ($\sigma = 0, 1$) and a idiosyncratic stochastic component $\zeta_j(a)$. We assume that $u(A, 1) - u(B, 1) = A > 0$ (meaning that a follower responding to a fatwa against the Ruler has a higher direct utility to join a protest against him, while on the contrary, $u(B, 0) - u(A, 0) = B > 0$ (i.e., responding to a fatwa in favor of the Ruler generates a higher utility of supporting the Ruler). Moreover assume that for a follower $\zeta_j(B) - \zeta_j(A) = \zeta_j$ follows a uniform distribution on $[-\zeta_{\max}, \zeta_{\max}]$.

From this, a given follower j in contact with a fatwa $\sigma \in \{0, 1\}$ in the neighborhood of cleric i opposes the ruler if and only if:

$$u(A, \sigma) - u(B, \sigma) > \zeta_j(B) - \zeta_j(A) = \zeta_j$$

The fraction, A_i , of followers who locally oppose the Ruler is thus:

$$A_i = \underbrace{(1 - \gamma^e) \int_{-\zeta_{\max}}^{u(A,1)-u(B,1)} \frac{d\zeta}{2\zeta_{\max}}}_{\text{followers receiving fatwa opposed to Ruler}} + \underbrace{\gamma^e \int_{-\zeta_{\max}}^{u(A,0)-u(B,0)} \frac{d\zeta}{2\zeta_{\max}}}_{\text{followers receiving fatwa supporting Ruler}}$$

Note that those receiving a fatwa supporting the Ruler may still rebel against him. This happens when their idiosyncratic utility is negative. We get :

$$\begin{aligned} A_i(\gamma^e) &= (1 - \gamma^e) \frac{A}{2\zeta_{\max}} - \gamma^e \frac{B}{2\zeta_{\max}} + \frac{1}{2} \\ &= \frac{A(1 - \gamma^e) - \gamma^e B}{2\zeta_{\max}} + \frac{1}{2} \end{aligned}$$

and the number of local supporters backing up the Ruler is

$$B_i(\gamma^e) = 1 - A_i(\gamma^e)$$

We assume that a cleric i supporting the regime loses his status when the local number of opposers $A_i(\gamma^e)$ to his supporting fatwa is larger than the local number of supporters $B_i(\gamma^e)$ plus a bias that depends on the local effectiveness $\lambda M + \epsilon_i$ of the Military to intervene to maintain his status. Therefore a cleric i will lose his status when

$$A_i(\gamma^e) > B_i(\gamma^e) + \lambda M + \epsilon_i$$

or substituting $B_i(\gamma^e) = 1 - A_i(\gamma^e)$

$$A_i(\gamma^e) > \frac{1}{2} + \frac{\lambda M + \epsilon_i}{2}$$

Consequently, the probability of the cleric to lose his status is given by:

$$\begin{aligned} 1 - p_i(\gamma^e) &= \Pr \left[\epsilon_i < 2 \left(A_i(\gamma^e) - \frac{1}{2} \right) - \lambda M \right] \\ &= \Pr \left[\epsilon_i < \frac{A(1 - \gamma^e) - \gamma^e B}{\zeta_{\max}} - \lambda M \right] \end{aligned}$$

which, for ϵ_i independently and identically distributed on R according to a symmetric density function $f(\cdot)$ and a cumulative distribution function

$F(\cdot)$ with a mean value of 0 yields:

$$\begin{aligned} p(\gamma^e) &= 1 - F\left(\frac{A(1 - \gamma^e) - \gamma^e B}{\zeta_{\max}} - \lambda M\right) \\ &= F\left(\lambda M - \frac{A(1 - \gamma^e) - \gamma^e B}{\zeta_{\max}}\right) \end{aligned}$$

which is equivalent to the equation (6) if we posit that $\lambda = 1$, $B = 0$ and $A/\zeta_{\max} = s$. The latter condition contains an interesting lesson: when the focus is put on the people rather than the clerics, the logic of our model implies that the unit efficiency of the opposition, s , is measured by the strength of people's interest in rebelling against the Ruler when the clerics encourage them to do so (by issuing the appropriate opinions), rather than by the efficiency of religious organizations in mobilizing and organizing the frustrated masses.

C.2 The Arab Spring

The Arab Spring started in Tunisia (2010-2011) and seems to have taken many Arab autocrats by surprise. In all the countries where it erupted, whether in Tunisia, Turkey, Syria, Algeria or Sudan, people's movements against autocratic power have suddenly burst into the open. This illustrates that coups and regime changes can happen in reality. Yet, in our setup they can only happen as a result of mistakes, which take the form of a wrong appreciation of some key parameter by the ruler. For example, he may have ignored the possibility of the sort of cascade effects suggested by [Kuran \(1995\)](#). The surprise caused in the ruling circles by the eruption of Arab Spring demonstrations reveals that, hidden behind the clerics, a fourth actor, the people, play a role.

Yet, the Arab Spring events have also shown that, without the support of strong organizations, which in most cases turned out to be religious organizations, spontaneous and rather disorganized street agitations cannot lead to a structured rebellion seriously threatening the regime. Revealingly, deep divisions have marred the popular protest movements, and they often resulted from personal antagonisms between leaders and diverse views about the desirable reforms and the type of regime to put in place of the

existing one. This explains why, when a structured opposition movement with a strong popular base eventually arose, it was generally under the helm of one or several strong religious organizations.

Thus, [Binzel and Carvalho \(2017\)](#) have argued that, for Egypt, a key factor behind the rise of Islamism has been the anger of the educated middle class whose social mobility and life prospects suddenly declined after official programs of guaranteed public sector employment were terminated because of their non-sustainability. Combined with other factors, relative deprivation has been at work in other Arab Spring countries, too. In Tunisia, for instance, support for the Islamic party in the first post-Arab Spring election came mainly from wealthier individuals and districts ([Fourati et al., 2019](#)). The main point is that, in the absence of effective alternative channels through which popular frustrations could be vented out, religion came to play a major role in organizing and articulating the grievances of the masses. In other words, if a rebellion is sparked off by the people, or by certain categories of the population, its transformation into a strong opposition movement is generally the work of experienced religious organizations.

The following question then arises: do the Arab Spring events invalidate the prediction of the model proposed according to which a rational autocrat should be able to avoid regime change (that is, a successful revolution)? If these events succeeded in laying the ground for a radical discontinuation of the deep-rooted system of autocracy in the Muslim world (see [Blaydes and Chaney, 2013](#)), the answer would be positive. Yet, the experiences of most countries concerned (Egypt, Algeria, Syria, and Sudan) throw serious doubt on this possibility.

As a matter of fact, the same clique has remained in power, made of a cabal of business oligarchs allied with top military, intelligence and police officers. These people often belong to different factions or family clans among which accounts may be settled on the occasion of an insurrection. Yet, despite the removal of some figureheads, including presidents, aimed at appeasing popular anger, the logic of the autocratic system and the co-opted nature of its narrow elite are essentially unchanged. Even the co-

option of official clerics is pursued, as illustrated by the unflinching support of the al-Azhar clerics for the al-Sisi regime in Egypt. If the military may come to the forefront of politics to put an end to the mayhem which they have themselves contributed to create, several experiences show that they tend to return to the back seat as soon as they have found the right front figure to stabilize the country and preserve the status quo. In short, a return is made to the initial pre-Spring situation in which an autocratic power must contend with dissenting clerics but can simultaneously rely on the support of more pliable clerics and the military. Nowhere is this more patent than in Egypt where under the authoritarian rule of president al-Sisi, a number of prominent businessmen have been thrown into jail because they refused to hand over to army men a controlling stake in their successful firms. That in all these respects Tunisia seems to be an exception to the rule has much to do with the weak role the military have played in that country since its independence, and the rapid dissolution of the Ministry of Interior's forces after the eruption of mass protests.

D Proof of Proposition 2

Let $s = \frac{\underline{s}}{\lambda}$ and $\theta^m \geq 0$. In the general case the optimization program of the Ruler's problem is as follow:

$$\max_{\alpha, w_c, w_m, M} R(\alpha) - \gamma^* w_c - w_m M \quad (\text{D.1})$$

$$s.c. \quad \gamma^* = \gamma^*(M, \alpha, w_c) \text{ solution to (B.3)}$$

$$w_m M \geq \theta^m V(\alpha) + \max \{R_\delta - C(M), 0\} \quad (\text{D.2})$$

$$M \geq s(1 - \gamma^*) \quad (\text{D.3})$$

Note first that the no-military coup constraint (D.2) will always be binding since, everything else given, the Ruler wants to minimize the wage bill, $w_m M$, paid to the Military, and $w_m M$ only enters into the constraint (D.2):

$$w_m M = \theta^m V(\alpha) + \max [R_\delta - C(M), 0]. \quad (\text{D.4})$$

Second, simple inspection reveals that $\gamma^*(x)$ defined in (B.3) is an increasing function of $x = \frac{w_c}{V(\alpha)}$. Intuitively, the higher x the larger the pecuniary

benefit received by religious leaders when they support the reform level α compared to the disutility cost of such support and, hence, the stronger their allegiance to the regime as denoted by γ^* . Let

$$S(M) = 1 - \frac{\lambda M}{S}. \quad (\text{D.5})$$

$S(M)$ describes a measure of the relative strength of the religious leaders' opposition compared to the repressive capacity of the autocratic regime. It decreases with λM and increases with S . The larger $S(M)$, the more serious the threat posed by the clerics and the weaker the autocrat's hold on power. In order to solve the Ruler's optimization problem (D.1), two sub-cases need to be distinguished depending on whether the constraint (D.3), re-written as $\gamma^*(x) \geq S(M)$, is binding or not.

- 1) $S(M) \leq 0$, which is equivalent to $M \geq \frac{S}{\lambda} = M_s$. In this case, (D.5) is never binding. The religious clerics are not a threat to the regime since, even if all clerics enter into opposition (i.e., $\gamma^* = 0$), they are unable to defeat the Ruler. In this instance, given that the Ruler wants to minimize the wage bill paid to the clerics, he sets $w_c = 0$, which implies $\gamma^* = 0$. The Ruler's objective function in (D.1) then rewrites as $R(\alpha) - w_m M$. Since the no-military coup constraint (D.2) is binding, the optimal reform policy solves:

$$\max_{\alpha} R(\alpha) - \theta^m V(\alpha) - \max\{R_{\delta} - C(M), 0\}$$

Under our assumptions the FOC is sufficient. The optimal interior level of reform is such that $R'(\alpha) = \theta^m V'(\alpha)$. By virtue of (10), it is given by

$$\alpha^m = \alpha^*(\theta^m). \quad (\text{D.6})$$

According to (D.4) the per capita wage paid to the Military is then

$$w_m^{op} = \frac{\theta^m V(\alpha^m) + \max\{R_{\delta} - C(M), 0\}}{M} > 0 \quad (\text{D.7})$$

and the equilibrium payoff of the Ruler is

$$W(M) = R(\alpha^m) - \theta^m V(\alpha^m) - \max\{R_{\delta} - C(M), 0\} \quad (\text{D.8})$$

As a conclusion, when $S(M) \leq 0$ (or equivalently $M \geq M_s$), the optimal policy vector is:

$$(\alpha^{op}, w_c^{op}, w_m^{op}) = \left(\alpha^*(\theta^m), 0, \frac{\theta^m V(\alpha^m) + \max\{R_\delta - C(M), 0\}}{M} \right)$$

- 2) $S(M) > 0$, which is equivalent to $M < M_s$. In this case, the clerics are strong and the Military is relatively weak. The no-regime-change constraint (D.3) is binding. That is, were all the clerics to oppose the regime (i.e., $\gamma^* = 0$), (D.3) would be violated and the Ruler would be overthrown. When (D.3) is binding, $\lambda M - S(1 - \gamma) = M - s(1 - \gamma) = 0$ so that $F(M - s(1 - \gamma)) = F(0) = \frac{1}{2}$ since f is symmetric around 0. We deduce that in this case:

$$G(F(M - s(1 - \gamma))x) = G\left(\frac{x}{2}\right) \quad (\text{D.9})$$

From (B.2), it is also evident that $p(\gamma^*) = \frac{1}{2}$. Bearing in mind the definition of $x = \frac{w_c}{V(\alpha)}$, we deduce that the marginal cleric is such that: $\bar{\theta}(x) = p(\gamma^*)x = \frac{x}{2}$. Finally under (D.9), the no-regime-change constraint (1), equivalent to $\gamma^*(x) = G\left(\frac{x}{2}\right) \geq S(M) \iff x \geq 2G^{-1}(S(M))$, indicates that in order to ensure regime stability, the "benefit-cost ratio" of supporting the regime must be twice as large as $G^{-1}(S(M))$. At the optimum, this constraint is binding so that $\gamma^*(x) = S(M)$ and $x = \frac{w_c}{V(\alpha)} = 2G^{-1}(S(M))$ so that the marginal cleric is:

$$\bar{\theta}(M) = G^{-1}(S(M)). \quad (\text{D.10})$$

We deduce that $\gamma^*(x)V(\alpha)x = 2S(M)\bar{\theta}(M)V(\alpha)$ so that the problem of the Ruler writes as:

$$\begin{aligned} \max W(\alpha) &= R(\alpha) - 2S(M)\bar{\theta}(M)V(\alpha) - w_m M \\ \text{s.t.} \quad w_m M &= \theta^m V(\alpha) + \max\{R_\delta - C(M), 0\} \end{aligned}$$

Substituting the constraint in the objective function, the Ruler solves:

$$\max_{\alpha} R(\alpha) - 2S(M)\bar{\theta}(M)V(\alpha) - \theta^m V(\alpha) - \max\{R_\delta - C(M), 0\}$$

Let

$$\Theta(M) = 2S(M)\bar{\theta}(M) + \theta^m. \quad (\text{D.11})$$

The Ruler finally solves:

$$\max_{\alpha} R(\alpha) - \Theta(M)V(\alpha) - \max\{R_{\delta} - C(M), 0\}$$

The optimal interior level of reform in this double co-option regime is then given by:

$$\alpha^{op}(M) = \alpha^*(\Theta(M))$$

where the function $\alpha^*(\Theta)$ defined in (10) is decreasing in Θ . Since $S(M) = 1 - \frac{\lambda M}{S}$ is decreasing in M , $\Theta(M)$ is increasing in M . We deduce that $\frac{d\alpha^{op}(M)}{dM} = \frac{d\alpha^*(\Theta)}{d\Theta} \frac{d\Theta}{dM} \geq 0$. Moreover, we have that $\alpha^{op}(M) = \alpha^*(\Theta(M)) \leq \alpha^*(\theta^m)$. Finally, since Θ is increasing in θ^m , we deduce that $\alpha^*(\Theta)$ is decreasing with θ^m .

The equilibrium wage paid by the Ruler to the clerics and the wage bill paid to the Military are then given by, respectively:

$$\begin{aligned} w_c^{op} &= 2V(\alpha^{op}(M))\bar{\theta}(M) \\ w_m^{op} &= \frac{\theta^m V(\alpha^{op}(M)) + \max\{R_m^{\delta} - C(M), 0\}}{M} \end{aligned}$$

and the equilibrium payoff of the Ruler writes as :

$$W^{op}(M) = R(\alpha^*(\Theta)) - \Theta V(\alpha^*(\Theta)) - \max\{R_{\delta} - C(M), 0\}$$

Summarizing, the optimal policy vector when $S(M) > 0$ (or equivalently $M < M_s$) is :

$$(\alpha^{op}, w_c^{op}, w_m^{op}) = \left(\alpha^*(\Theta), 2\bar{\theta}(M)V(\alpha^*(\Theta)), \frac{\theta^m V(\alpha^*(\Theta)) + \max\{R_{\delta} - C(M), 0\}}{M} \right)$$

Finally, bearing in mind that by definition $R_{\delta} = C(M_{\delta})$, and that $C(M)$ is decreasing in M , we deduce that regime A (resp. regime B) occurs in the case $M < M_s$ (resp. $M \geq M_s$) if and only if $C^{-1}(R_{\delta}) = M_{\delta} \geq M$. In this situation, the military being unable to stage a coup, its wage is smaller since $\max\{R_{\delta} - C(M), 0\} = 0$. We deduce the following proposition:

Proposition 5 *Denote $\bar{\theta}(M) = G^{-1}(S(M))$ and $\Theta = \theta^m + 2S(M)\bar{\theta}(M)$. The optimal policy vector $(\alpha^{op}, w_c^{op}, w_m^{op})$ of the Ruler's optimization problem at any level of military size M is :*

- (a) $\left(\alpha^*(\Theta), 2V(\alpha^*(\Theta))\bar{\theta}(M), \frac{\theta^m V(\alpha^*(\Theta)) + \max\{R_\delta - C(M), 0\}}{M} \right)$ if $M < M_s$
- (b) $\left(\alpha^*(\theta^m), 0, \frac{\theta^m V(\alpha^*(\theta^m)) + \max\{R_\delta - C(M), 0\}}{M} \right)$ if $M \geq M_s$

Finally it is easy to check that under regimes A' and B' the wage of the military is larger by a factor $\{R_\delta - C(M)\} > 0$, which increases in M by virtue of Assumption 3: the larger the army, the bigger its rents. **QED.**

D.1 Comparative statics on the wage of the Military

- $M \geq M_s$ (or $S(M) \leq 0$): **regimes B and B'**. Under these regimes, the clerics are weak and the autocrat does take their preferences into account. The level of reforms depends on $\theta^m \geq 0$ only while w_m^{op} defined in (D.7) is independent of the clerics' aversion to reform and of $S(M)$. However, it depends on θ^m . We study how w_m^{op} defined in (D.7) changes when θ^m increases. The result is ambiguous because two forces play in opposite direction. On the one hand, for a given reform level α , a higher wage w_m needs to be paid to the Military to make up for the higher disutility of reforms. On the other hand, the equilibrium reform level chosen by the Ruler $\alpha^m = \alpha^*(\theta^m)$ is itself moderated by the stronger aversion to reforms of the Military and, on this count, the wage should be reduced. Depending on the values of the different parameters, one effect dominates the other.³⁶

Let us first consider the case where $R_\delta < C(M)$. We have $w_m^{op} = \frac{\theta^m V(\alpha^m)}{M}$ so that:

$$\begin{aligned} \frac{dw_m^{op}}{d\theta^m} &= \frac{1}{M} \left\{ V(\alpha^m) + \frac{\theta^m (V'(\alpha^m))^2}{R''(\alpha^m) - \theta^m V''(\alpha^m)} \right\} \\ &= \frac{1}{M} \left\{ \frac{R''(\alpha^m)V(\alpha^m) + \theta^m (V'(\alpha^m))^2 - V''(\alpha^m)V(\alpha^m)}{R''(\alpha^m) - \theta^m V''(\alpha^m)} \right\} \end{aligned} \quad (\text{D.12})$$

Since $R(\alpha)$ is concave and $V(\alpha)$ is convex, the denominator in (D.12) is negative. A necessary and sufficient condition for $\frac{dw_m^{op}}{d\theta^m} > 0$ is that

³⁶It can be easily checked that a decrease in $S(M)$ has no impact on the total wage bill accrued to the Military unless this decrease is caused by a rise in M and $M > M_\delta$. In this case, the Ruler raises the wage bill.

$R''(\alpha^m)V(\alpha^m) + \theta^m ((V'(\alpha^m))^2 - V''(\alpha^m)V(\alpha^m)) < 0$. This is always true as soon as $V(\alpha)$ is log convex. Conversely if $V(\alpha)$ is log concave and $R''(x) \simeq 0$, then $\frac{dw_m^{op}}{d\theta^m} < 0$. The next case to consider is when $R_\delta \geq C(M)$, so that $w_m^{op} = \frac{\theta^m V(\alpha^m) + R_m^\delta - C(M)}{M}$. We then have:

$$\frac{dw_m^{op}}{d\theta^m} = \frac{1}{M} \left\{ V(\alpha^m) - V(\alpha_m^\delta) + \frac{\theta^m (V'(\alpha^m))^2}{R''(\alpha^m) - \theta^m V''(\alpha^m)} \right\}. \quad (\text{D.13})$$

If δ is close to 0 then the preceding results hold as $V(\alpha_m^\delta) \simeq 0$. However, if δ is close to 1 (i.e., the Military is able to manage the economy relatively efficiently), then $V(\alpha_m^\delta) \simeq V(\alpha^m)$ so that $\frac{dw_m^{op}}{d\theta^m} < 0$.

- $M < M_s$ (or $S(M) > 0$) : **regimes A and A'**. Under these regimes, the autocrat aims to co-opt both the army and a fraction of the religious leaders so that the equilibrium reform level is $\alpha^*(\Theta)$. We have that $w_m^{op} = \frac{\theta^m V(\alpha^*(\Theta)) + \max[R_\delta - C(M), 0]}{M}$. Since $\Theta = 2S(M)\bar{\theta}(M) + \theta^m$, any change in $S(M)$, θ^m and $G(\cdot)$ (i.e., $\bar{\theta}(M) = G^{-1}(S(M))$), affects the share of rents received by the Military.

Let us first consider the case where $R_\delta < C(M)$. We have:

$$\frac{dw_m^{op}}{d\theta^m} = \frac{1}{M} \left\{ V(\alpha^*(\Theta)) + \frac{\theta^m (V'(\alpha^*(\Theta)))^2}{R''(\alpha^*(\Theta)) - \theta^m V''(\alpha^*(\Theta))} \right\}$$

The reasoning applied to (D.12) still holds here. Similarly in the case where $R_\delta \geq C(M)$, we have:

$$\frac{dw_m^{op}}{d\theta^m} = \frac{1}{M} \left\{ V(\alpha^*(\Theta)) - V(\alpha_m^\delta) + \frac{\theta^m (V'(\alpha^*(\Theta)))^2}{R''(\alpha^*(\Theta)) - \theta^m V''(\alpha^*(\Theta))} \right\}$$

so that the reasoning in (D.13) also applies.

It is now easy to look at the effect of the strength of the opposition, $S(M)$, on the wage of the Military. Indeed, since $\frac{\partial \Theta}{\partial S(M)} \geq 0$, it is straightforward to check that

$$\frac{dw_m^{op}}{dS(M)} = \frac{\partial \Theta}{\partial S(M)} \left\{ \frac{\theta^m (V'(\alpha^*(\Theta)))^2}{R''(\alpha^*(\Theta)) - \theta^m V''(\alpha^*(\Theta))} \right\} \leq 0.$$

Greater strength of the opposition therefore causes an unambiguous fall in the wage of the Military. Finally, we can examine how the wage of the Military is affected by a change in the distribution of the clerics' aversion to reforms on the wage of the Military. To do this, we parameterize the cumulative $G(\theta, \rho)$ in such a way that an increase in ρ leads to a stochastic dominant cumulative distribution (i.e. $G_\rho(\theta, \rho) < 0$). Then it is easy to see that $\frac{\partial \Theta}{\partial \rho} > 0$ and

$$\frac{dw_m^{op}}{d\rho} = \frac{\partial \Theta}{\partial \rho} \left\{ \frac{\theta^m (V'(\alpha^*(\Theta)))^2}{R''(\alpha^*(\Theta)) - \theta^m V''(\alpha^*(\Theta))} \right\} \leq 0$$

When the clerics become more radical as reflected in the shift of their distribution towards higher values of θ , the parameter measuring the social aversion to reforms, Θ , increases. In this case, the level of reforms decreases and with it the need to compensate the Military. The latter's wage is therefore smaller at the new equilibrium. We can thus conclude that when the clerics influence politics ($S(M) > 0$), an increase in their organizational strength or a radicalization of their beliefs both lead to a fall in the Military's wage.

D.2 Comparative statics on the clerics' wage and support to the autocrat under regimes A and A'

In this section we focus on the double co-option regimes A and A' . That is, we focus on the parameters range such that $M < M_s$ or $S(M) > 0$.

- **Effect of $S(M)$ on clerics' support γ^***

An increase in $S(M) > 0$ has two contradictory effects on γ^* . To see this, recall that by virtue of (D.10) $x = 2G^{-1}[S(M)]$ where $x = \frac{w_c}{V(\alpha)}$. We write $\gamma^* = G(F(\lambda M - s(1 - \gamma^*)))x = G(F(s(\gamma^* - S(M))))2G^{-1}[S(M)]$. On the one hand, a stronger ability to stir a rebellion by the clerics implies a less powerful deterrent to rebellion, thereby inducing a lower proportion of supporting clerics γ^* : this is the effect of $S(M)$ related to the component bracket term $\gamma^* - S(M)$. On the other hand, a stronger opposition by the clerics leads to a decrease of the pace of reforms so as to avoid

antagonizing too many of them. This causes an increase in γ^* (the term $2G^{-1}[S(M)]$). As it turns out, the "reform effect" outweighs the "deterrent effect", implying that at equilibrium the level of religious support increases with $S(M)$:

$$\gamma^* = S(M) \quad (\text{D.14})$$

and $\frac{\partial \gamma^*}{\partial S(M)} = 1 > 0$.

- **Effect of $S(M)$ on clerics' wage w_c^{op} :**

Corollary 1 *The wage of the clerics, w_c^{op} , increases with the clerics' strength $S(M) \geq 0$ if and only if*

$$\epsilon_\alpha^V \cdot \epsilon_\Theta^{\alpha^*} < \frac{\frac{\theta^m}{2G^{-1}(S(M))} + S(M)}{\frac{G^{-1}(S(M))}{G^{-1'}(S(M))} + S(M)} \quad (\text{D.15})$$

where $\epsilon_\alpha^V = \frac{V'(\alpha)}{V(\alpha)}\alpha$ is the elasticity of the clerics' disutility with respect to reforms, and $\epsilon_\Theta^{\alpha^*} = \left[\frac{-R''(\alpha)\alpha}{R'(\alpha)} + \frac{V''(\alpha)\alpha}{V'(\alpha)} \right]^{-1}$ is (the absolute value of) the elasticity of optimal reform, $\alpha^*(\Theta)$, with respect to Θ .

Proof of corollary 1: The equilibrium wage of the clerics writes as:

$$w_c^{op} = 2V(\alpha^*(\Theta(M)))G^{-1}[S(M)] \quad (\text{D.16})$$

Recall that $\Theta(M) = 2S(M)G^{-1}[S(M)] + \theta^m$ then

$$\frac{d\Theta}{dS} = 2G^{-1}[S(M)] + 2S(M)G^{-1'}[S(M)] > 0$$

and

$$\frac{d\Theta}{dS} \frac{1}{\Theta} = \frac{2G^{-1}(S) + 2FG^{-1'}(S)}{\Theta} > 0$$

Bearing in mind that $\alpha^*(\Theta)$ defined in (10), is such that $R'(\alpha^*) = \Theta V'(\alpha^*)$, we get

$$\begin{aligned} \frac{d\alpha^*}{d\Theta} \frac{\Theta}{\alpha^*} &= \frac{V'(\alpha^*)\Theta}{R''(\alpha^*)\alpha^* - \Theta V''(\alpha^*)\alpha^*} = \frac{R'(\alpha^*)}{R''(\alpha^*)\alpha^* - \Theta V''(\alpha^*)\alpha^*} \\ &= \frac{1}{\frac{R''(\alpha^*)\alpha^*}{R'(\alpha^*)} - \Theta \frac{V''(\alpha^*)\alpha^*}{R'(\alpha^*)}} = \frac{1}{\frac{R''(\alpha^*)\alpha^*}{R'(\alpha^*)} - \frac{V''(\alpha^*)\alpha^*}{V'(\alpha^*)}} < 0 \end{aligned}$$

In absolute terms, the elasticity of the magnitude of reforms with respect to social (aggregate) aversion to them is written as:

$$\epsilon_{\Theta}^{\alpha^*} = -\frac{d\alpha^*}{d\Theta} \frac{\Theta}{\alpha^*} = \frac{1}{\frac{-R''(\alpha^*)\alpha^*}{R'(\alpha^*)} + \frac{V''(\alpha^*)\alpha^*}{V'(\alpha^*)}} > 0$$

Note that this elasticity, $\epsilon_{\Theta}^{\alpha^*}$, depends on the shapes of the revenue function $R(\alpha)$ and the cost function $V(\alpha)$. In particular, it is inversely related to the concavity of $R(\alpha)$ and the convexity of $V(\alpha)$. More specifically, $\epsilon_{\Theta}^{\alpha^*}$ is expected to be quite low in a resource-rich economy ($R(\alpha)$ is very concave) and in the presence of radical clerics intensely opposed to modernization ($V(\alpha)$ is very convex).

Log differentiation of (D.16) yields:

$$\begin{aligned} \frac{dw_c^{op}}{dS} \frac{1}{w_c^{op}} &= \left(\frac{V'(\alpha^*)}{V(\alpha^*)} \right) \cdot \left(-\frac{d\alpha^*}{d\Theta} \frac{\Theta}{\alpha^*} \right) \cdot \left(-\frac{d\Theta}{dS} \frac{1}{\Theta} \right) + \frac{G^{-1'}(S)}{G^{-1}(S)} \\ &= \epsilon_{\alpha}^V \cdot \epsilon_{\Theta}^{\alpha^*} \cdot 2 \frac{G^{-1}(S) + SG^{-1'}(S)}{-\Theta} + \frac{G^{-1'}(S)}{G^{-1}(S)} \end{aligned}$$

where $\epsilon_{\alpha}^V = \frac{V'(\alpha)}{V(\alpha)}\alpha$ is the cost elasticity of reform for the clerics (more precisely, the elasticity of the clerics' disutility with respect to reform level). Substituting the value of $\Theta = 2SG^{-1}(S) + \theta^m$, one gets

$$\frac{dw_c^{op}}{dS} \frac{1}{w_c^{op}} = \epsilon_{\alpha}^V \cdot \epsilon_{\Theta}^{\alpha^*} \cdot \frac{2G^{-1}(S) + 2SG^{-1'}(S)}{-2SG^{-1}(S) - \theta^m} + \frac{G^{-1'}(S)}{G^{-1}(S)}$$

Thus, w_c^{op} is increasing in $S(M)$ if and only if

$$\epsilon_{\alpha}^V \cdot \epsilon_{\Theta}^{\alpha^*} < \frac{\frac{\theta^m}{2G^{-1}(S)} + S(M)}{\frac{G^{-1}(S)}{G^{-1'}(S)} + S(M)} \quad \text{QED}$$

- **Discussion of corollary 1:** Let us focus on the range of parameters such that $S(M) > 0$ (double co-option regime). Since $S(M) = 1 - \frac{\lambda M}{S}$, corollary 1 implies that w_c^{op} is decreasing in M and λ , and increasing in S , if and only if condition (D.15) is satisfied. In the equilibrium regime with double co-option, the wage of the seduced clerics should then decrease as a result of any change of structural parameters that induces the Ruler to implement more reforms (i.e., an increase in military efficiency or a reduction in the influence or strength of the

clerics). When condition (D.15) holds, the equilibrium level of reform $\alpha^*(\Theta)$ is rather insensitive to a decrease in social aversion (the value of $\epsilon_{\Theta}^{\alpha}$ is low enough), and this also translates into a small effect on the clerics' disutility of reforms (the value of ϵ_{α}^V is low enough). This is likely to be the case in a resource-rich economy ($R(\alpha)$ is very concave) and in the presence of radical clerics intensely opposed to modernization ($V(\alpha)$ is very convex). In such a case, the positive deterrent effect dominates the negative reform effect associated to an increase in $S(M)$, and hence the equilibrium clerics' wage, w_c^{op} , increases with $S(M)$.

Conversely, when condition (D.15) is violated, the reform effect is stronger than the deterrent effect, and the opposite result obtains. An increase in the repressive power of the army λM , or a decrease in the clerics' strength S (i.e., a decrease in $S(M)$), imply that the autocrat will need to increase the clerics' wage to buy their support after enacting more reforms.

- **Non monotonicity of w_c^{op} with respect to $S(M)$ across regimes:**

Across the different equilibrium regimes, the clerics' wage, w_c^{op} , may be a non monotonic function of the clerics' strength. On the one hand, when $S(M) > 0$, the society is in a double co-option regime A or A' and $w_c^{op} = V(\alpha^*(\Theta(M)))2G^{-1}(S(M)) > 0$. As long as the elasticity condition (D.15) is satisfied for some value of $S(M) > 0$, Corollary 1 indicates that w_c^{op} is increasing in $S(M)$.

On the other hand, once $S(M) \leq 0$, the relevant regime becomes B or B' and the clerics do not receive any wage ($w_c^{op} = 0$). This implies a discontinuity in the Ruler's policy. In the vicinity of $S(M) = 0$, small changes in λ , the military efficiency at repression, or in s , the effectiveness of the clerics at stirring popular unrest, will lead to a sharp change in the way the regime deals with religious leaders.

- **Constant elasticity and uniform distribution: an example:**

We provide an example of non monotonicity with constant cost and revenue elasticities. Let $V(\alpha) = v \cdot \frac{\alpha^{\eta+1}}{\eta+1}$ and $R(\alpha) = R_0 + R_1 \cdot \frac{\alpha^r}{r}$ with

$\eta > 0$ and $r \in (0, 1)$. Assume also that the distribution of clerics' aversion to reform is uniform and given by: $G(\theta) = \min \left\{ \frac{\theta}{2\theta_c}, 1 \right\}$. It is easy to see that $\epsilon_\alpha^V = 1 + \eta$, $\epsilon_\Theta^{\alpha^*} = \frac{1}{1+\eta-r}$, and $2G^{-1}(Y) = 4\theta_c Y$ for $Y \in [0, 1]$. Condition (D.15) is then satisfied in the double co-option regimes iff:

$$\frac{1 + \eta}{1 + \eta - r} > \frac{1}{2} + \frac{\theta^m}{8\theta_c [S(M)]^2}$$

As a consequence, w_c^{op} is increasing in $S(M) \in (0, 1)$ if and only if $S(M) > \sqrt{\frac{\theta^m}{4\theta_c} \frac{1+\eta-r}{1+\eta+r}}$, and equal to 0 if $S(M) \leq 0$. This illustrates the possibility of non-monotonic patterns when $\frac{\theta^m}{4\theta_c} < \frac{1+\eta+r}{1+\eta-r}$, or $\sqrt{\frac{\theta^m}{4\theta_c} \frac{1+\eta-r}{1+\eta+r}} < 1$.

- **Effect of the clerics radicalization on their own wage, w_c^{op}**

Corollary 2 *Let $S(M) \in (0, 1)$. Suppose that the distribution of clerics' aversion to reforms, $G(\theta, \rho)$, is submitted to a first-order stochastic dominant shift through an increase in parameter ρ . Then, the clerics' wage, w_c^{op} , increases with ρ if and only if*

$$\epsilon_\alpha^V \cdot \epsilon_\Theta^{\alpha^*} < 1 + \frac{\theta^m}{2S(M)G^{-1}(S(M), \rho)}. \quad (\text{D.17})$$

Proof of corollary 2: Let us parameterize the distribution of clerics' aversion to reforms, $G(\theta, \rho)$, where an increase in ρ leads to a first-order stochastic dominant shift in the distribution $G(\cdot)$ (i.e., $G(\theta, \rho)$ is decreasing in ρ or alternatively $G^{-1}(Y, \rho)$ is increasing in ρ). Let $\Theta(M, \rho) = \theta^m + 2S(M)G^{-1}(S(M), \rho)$. The clerics' wage writes:

$$w_c^{op}(\rho) = 2V(\alpha^*(\Theta(M, \rho)))G^{-1}(S(M), \rho)$$

Log differentiation with respect to ρ yields

$$\begin{aligned} \frac{dw_c^{op}}{d\rho} \frac{1}{w_c^{op}} &= \frac{G_\rho^{-1'}}{G^{-1}} - \epsilon_\alpha^V \cdot \epsilon_\Theta^{\alpha^*} \cdot \frac{2}{\Theta} SG_\rho^{-1'} \\ &= \frac{G_\rho^{-1'}}{G^{-1}} \left[1 - \epsilon_\alpha^V \cdot \epsilon_\Theta^{\alpha^*} \frac{2SG^{-1}}{\theta^m + 2SG^{-1}} \right] \end{aligned}$$

and, consequently, w_c^{op} is increasing in ρ if and only if

$$1 > \epsilon_\alpha^V \cdot \epsilon_\Theta^{\alpha^*} \frac{2SG^{-1}}{\theta^m + 2SG^{-1}}$$

which is equivalent to (D.17) **QED**.

- **Discussion of corollary 2:** Condition (D.17) is more likely to be satisfied when ρ is relatively small, and therefore $G^{-1}(S(M), \rho)$ is relatively low compared to θ^m . Conversely, it is more likely to be violated if ρ is high. As usual, we have two conflicting effects. The direct, positive effect follows from the fact that more reform-averse clerics need a higher compensation to support any given level of reforms. The indirect, negative effect results from the induced increase in the social (aggregate) aversion to reforms, Θ , which prompts the Ruler to put the brake on reforms. This reduces the clerics' disutility and hence the level of the wage needed to compensate them.

When the clerics are initially moderate (ρ small), it is not profitable for the Ruler to respond to a rise in clerics' aversion to reforms by backtracking much on them, hence the domination of the direct over the indirect effect. When the clerics are initially very conservative (ρ high), the reverse result is obtained.

- **Constant elasticity and uniform distribution: an example (continued):** We have $G(\theta, \rho) = \min\{\frac{\theta}{\rho\bar{\theta}}, 1\}$. Computing condition (D.17) in such a case yields:

$$\frac{1 + \eta}{1 + \eta - r} < 1 + \frac{\theta^m}{2\bar{\theta}(S(M))^2 \rho}$$

or, after rearranging terms:

$$S(M) < \sqrt{\frac{\theta^m}{\rho\bar{\theta}} \frac{1 + \eta - r}{2r}}$$

This condition is automatically satisfied, for example, if r is very small or η very large.

E Proof of Proposition 3

Recall that M_s is such that $S(M) = 1 - \frac{\lambda M}{s} = 0$, which yields: $M_s = s = \frac{s}{\lambda}$. Then, $\Theta(M) = \theta^m + 2S(M)G^{-1}[S(M)]$ and we deduce that

$$\frac{d\Theta(M)}{dM} = -\frac{\lambda}{s} 2 [G^{-1}[S(M)] + S(M)G^{-1'}[S(M)]] < 0 \quad (\text{E.1})$$

Note also that the derivative evaluated at M_s is:

$$\left(\frac{d\Theta(M)}{dM} \right) \Big|_{M=M_s} = 0$$

as $G^{-1}(0) = 0$. Moreover

$$\frac{d^2\Theta(M)}{dM^2} = 2 \left(\frac{\lambda}{s} \right)^2 [2G^{-1'}[S(M)] + S(M)G^{-1''}[S(M)]] > 0$$

as $G^{-1}(\cdot)$ is increasing convex when $G(\cdot)$ is increasing concave. Moreover $\Theta(M_s) = \theta^m$ so that $\alpha^*(\Theta(M_s)) = \alpha^*(\theta^m) = \alpha^m$.

From (2) and (D.8), and from Appendix D, the payoff function of the Ruler is

$$W(M) = \begin{cases} R(\alpha^*(\Theta)) - \Theta V(\alpha^*(\Theta)) - \max\{R_\delta - C(M), 0\} & \text{if } M < M_s \\ R(\alpha^m) - \theta^m V(\alpha^m) - \max\{R_\delta - C(M), 0\} & \text{if } M \geq M_s \end{cases}$$

Re-writing:

$$\Theta = \begin{cases} \theta^m + 2S(M)G^{-1}[S(M)] & \text{if } S(M) > 0 \\ \theta^m & \text{if } S(M) \leq 0 \end{cases}$$

we get:

$$W(M) = R(\alpha^*(\Theta)) - \Theta V(\alpha^*(\Theta)) - \max\{R_\delta - C(M), 0\}$$

Similarly, M_δ is such that $C(M) = R_\delta$, which yields: $M_\delta = C^{-1}(R_\delta)$.

Taking the derivatives of the autocrat's payoff functions $W(M)$ and applying the envelope theorem yields:

- For $M_s \leq M_\delta$ (i.e., for $R_\delta \leq C(M_s)$, since $C(M)$ is decreasing):

$$W'(M) = \begin{cases} -\frac{d\Theta(M)}{dM} V(\alpha^*(\Theta)) & \text{if } M < M_s \\ 0 & \text{if } M \in [M_s, M_\delta[\\ C'(M) & \text{if } M \geq M_\delta \end{cases} \quad (\text{E.2})$$

The function $W(M)$ is increasing in the range $M < M_s$, flat in the interval $M \in [M_s, M_\delta[$ and, since $C'(M) < 0$, decreasing for $M_\delta \leq M$. Hence the optimal size of the Military is any $M^{op} \in [M_s, M_\delta[$ and regime B prevails.

- For $M_s > M_\delta$ (i.e., for $R_\delta > C(M_s)$):

$$W'(M) = \begin{cases} -\frac{d\Theta(M)}{dM}V(\alpha^*(\Theta)) & \text{if } M < M_\delta \\ -\frac{d\Theta(M)}{dM}V(\alpha^*(\Theta)) + C'(M) & \text{if } M \in [M_\delta, M_s[\\ C'(M) & \text{if } M \geq M_s \end{cases} \quad (\text{E.3})$$

The function $W(M)$ is increasing in the range $M < M_\delta$ and it is decreasing when $M \geq M_s$. The optimal solution therefore belongs to $[M_\delta, M_s[$.

- Since $\frac{d\Theta(M_s)}{dM} = 0$, it follows that $W'(M_s) = 0$ when $M_s \leq M_\delta$, and $W'(M_s) < 0$ when $M_\delta < M_s$.
- SOC: Differentiation of $W'(M)$ in this range of the parameters yields:

$$\begin{aligned} W''(M) &= -V(\alpha^*(\Theta))\frac{d^2\Theta(M)}{dM^2} - V'(\alpha^*(\Theta))\alpha'^*(\Theta) \left[\frac{d\Theta(M)}{dM} \right]^2 + C''(M) \\ &= -V(\alpha^*(\Theta))\frac{d^2\Theta(M)}{dM^2} + \frac{\left[V'(\alpha^*(\Theta))\frac{d\Theta(M)}{dM} \right]^2}{\Theta V''(\alpha^*(\Theta)) - R''(\alpha^*(\Theta))} + C''(M) \end{aligned}$$

We deduce that $W''(M) \leq 0$ when

$$\frac{\left[V'(\alpha^*(\Theta))\frac{d\Theta(M)}{dM} \right]^2}{\Theta V''(\alpha^*(\Theta)) - R''(\alpha^*(\Theta))} \leq \frac{d^2\Theta(M)}{dM^2}V(\alpha^*(\Theta)) - C''(M)$$

This will be satisfied when the functions $R(\cdot), C(\cdot)$ are concave enough, and $V(\cdot)$ is convex enough. In these conditions, $W''(M)$ is negative for all $M > 0$: the objective function $W(M)$ is concave in the Military size M and the FOC are sufficient.

- First, since $W'_-(M_\delta) > 0$ (i.e., the LHS derivative of $W(M)$ at M_δ is positive), if $W'_+(M_\delta) < 0$ (i.e., the RHS derivative of $W(M)$ at M_δ is negative), the concavity of $W(M)$ implies that $M^{op} = M_\delta$ and regime A' prevails.
- Finally, when $W'_+(M_\delta) > 0 \geq W'_-(M_s)$, we obtain that M^{op} is given by the interior solution $M^* \in]M_\delta, M_s[$, such that $W'(M) = 0$:

$$C'(M) - V(\alpha^*(\Theta))\frac{d\Theta(M)}{dM} = 0.$$

Substituting $\frac{d\Theta(M)}{dM}$ from (E.1) yields the result.

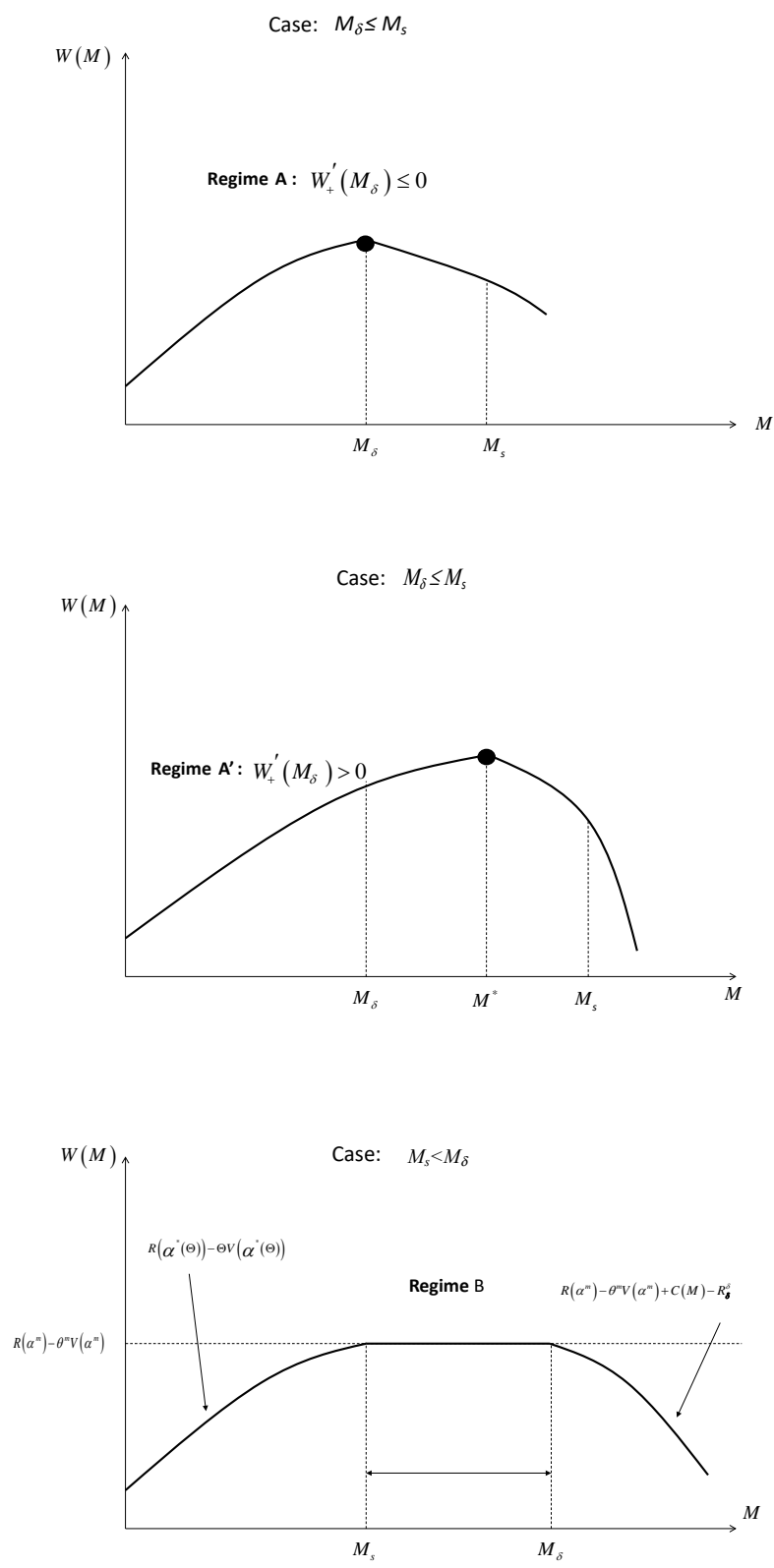


Figure E.1: Optimal military size

Figure E.1 illustrates the three possible optimal cases depicted in Proposition 3. **QED**

E.1 Derivation of Figure 2 in the space (M_s, M_δ)

i) Condition $R_\delta = C(\frac{S}{\lambda})$, which delimits regime B in Proposition 3, is defined by the locus $S = \lambda M_\delta$: regime B prevails when $M_\delta \geq \frac{S}{\lambda} = s = M_s$. In the space (M_s, M_δ) , regime B in which no cleric is co-opted, prevails in the region above the locus $M_\delta = M_s$.

ii) regimes A (i.e., $M^{op} = M_\delta$) and A' (i.e., $M^{op} = M^* > M_\delta$) obtain when $M_\delta \leq M_s$. The locus $M^*(s)$ that delimits regime A from regime A' is obtained under the condition $M^*(M_s) < M_\delta$ where $M^*(M_s)$ is given by $W'_M(M^*, M_s) = 0$. In this way, the dependence of the welfare function on the parameter $\frac{\lambda}{S} = \frac{1}{M_s}$ is made explicit. We can thus rewrite

$$W'_M(M^*, M_s) = C'(M^*) + \frac{1}{M_s} \Omega\left(\frac{M^*}{M_s}\right) = 0 \quad (\text{E.4})$$

where the function Ω is given by

$$\Omega(v) = [\Phi'(1-v)(1-v) + \Phi(1-v)]V(\alpha^*(\Theta(v)))$$

with $\Theta(v) = \theta^m + [1-v] \cdot \Phi[1-v]$ and $\Phi(1-v) = 2G^{-1}(1-v)$. Note first that $M^*(\infty) = 0$, and because $\Omega(1) = 0$, $M^*(M_s) < M_s$. As before, we assume that $R(\cdot)$ and $G(\cdot)$ are concave enough and $V(\cdot)$ is convex so that $\Omega'(v) < 0$ for all $v \in [0, 1]$ and $\Omega(0) = \Phi'(1)V(\alpha^*(\Theta(1)))$. Hence, $\Omega\left(\frac{M^*}{M_s}\right)$ is bounded for $M^* < M_s$. The concavity of $W(M, M_s)$ in M ensures that the sign of $\frac{dM^*}{dM_s}$ is the same as the sign of

$$\begin{aligned} \frac{\partial^2 W}{\partial M \partial M_s} &= -\frac{1}{M_s^2} \left[\Omega\left(\frac{M^*}{M_s}\right) + \frac{M^*}{M_s} \Omega'\left(\frac{M^*}{M_s}\right) \right] \\ &= -\frac{1}{M_s^2} \left[-M_s C'(M^*) + \frac{M^*}{M_s} \Omega'\left(\frac{M^*}{M_s}\right) \right] \end{aligned}$$

It follows that at $M_s \rightarrow \infty$, $\frac{M^*}{M_s} \rightarrow 0$ and the sign of $M^{*'}(\infty)$ is the same as the sign of $-\Omega(0) < 0$. Conversely, the fact that $M^*(M_s) < M_s$ implies $\lim_{M_s \rightarrow 0} M^*(M_s) = 0$. Thus, the sign of $M^{*'}(M_s)$ for M_s small enough is the same as the sign of $-\frac{M^*}{M_s} \Omega'\left(\frac{M^*}{M_s}\right) > 0$. This implies that

the locus $M^*(M_s)$ is non monotonic in M_s , first increasing and then necessarily decreasing. From this discussion, the region in the space (M_s, M_δ) where regime A' prevails rather than regime A is obtained by the condition $M^*(M_s) > M_\delta$. This defines the locus that delimits regime A from regime A' (i.e., the curve $M^*(M_s) = M_\delta$). Because $M^*(M_s) < M_s$ is always located below the locus $M_\delta = M_s$, the domain of regime B is delimited. **QED.**

F External security concerns, reforms and the army

Our basic framework can be easily extended to see how external security concerns affect the incentives of authoritarian rulers to promote institutional reforms and accommodate or not clerics' resistance to these reforms. In addition to their net rent/income, the Ruler and the Military also care about the external security level of the country. This security level is described by a function $\Sigma(M, E)$ that depends on the size of the domestic military M , and an index E capturing the intensity of external pressure. It is natural to make the following assumptions:

$$\Sigma'_M(M, E) > 0, \Sigma''_{MM}(M, E) < 0, \Sigma'_E(M, M_F) < 0, \Sigma''_{ME}(M, E) > 0$$

External security is an increasing concave function of domestic military size M ; it is decreasing in external pressure E , and importantly the marginal security gain of domestic military M is increasing when external pressure increases. An example of a security function inspired is a contest function: $\Sigma(M, E) = \frac{f(M)}{f(M)+E}$ with $f(\cdot)$ an increasing concave function of M . When $E < f(M_\delta)$, then $\Sigma''_{ME}(M, E) > 0$ for all $M \geq M_\delta$ (which is the relevant range of domestic military size to be chosen by the Ruler).

The no-coup constraint writes as

$$w_m M + a_m \Sigma(M, E) \geq \theta^m V(\alpha) + a_m \Sigma(M, E) + \max\{R_\delta - C(M), 0\}$$

where a_m is the weight that the military attach to external security and $R_\delta = \max_\alpha\{\delta R(\alpha) - \theta^m V(\alpha)\}$. The no-coup constraint is unchanged com-

pared to (3) as the external security concern is always present for the military and therefore appears on both side of the inequality.

Similarly, the Ruler takes into account his external security concerns $a_R \Sigma(M, M_F)$ in addition to his net rents. He solves the following problem:

$$\begin{aligned}
& \max_{\alpha, w_c, w_m, M} R(\alpha) - \gamma^* w_c - w_m M + a_R \Sigma(M, E) & (F.1) \\
s.c. & \quad \gamma^* = \gamma^*(M, \alpha, w_c) \text{ solution to (8)} \\
& \quad \lambda M \geq S(1 - \gamma^*) \text{ defined in (1)} \\
& \quad w_m M \geq \max \{R_\delta - C(M), 0\} \text{ defined in (3)}
\end{aligned}$$

For an exogenous military size M , the solution of the ruler's problem (F.1) is exactly as in the main text.

When M is endogenous we can denote the equilibrium payoff function of the Ruler at any given value M :

$$\Delta(M) = W(M) + a_R \Sigma(M, E) \quad (F.2)$$

with

$$W(M) = R(\alpha^*(\Theta)) - \Theta V(\alpha^*(\Theta)) - \max\{R_\delta - C(M), 0\}$$

and

$$\Theta = \begin{cases} \theta^m + 2S(M)\bar{\theta}(M) & \text{if } S(M) > 0 \\ \theta^m & \text{if } S(M) \leq 0 \end{cases}$$

When the functions $R(\cdot), C(\cdot), \Sigma(\cdot, E)$ are concave enough and $V(\cdot)$ is convex enough, the value function $\Delta(M)$ is concave in the size of the army, M . Recall that, as $C(M)$ is a decreasing concave function, there exists a point M^{\max} such that $C(M^{\max}) = 0$. We also assume that M^{\max} is large enough that $M^{\max} > s$.

For convenience and for all $M \in [0, M^{\max}]$, we denote $\tilde{E}(M) \geq 0$ the external pressure intensity E such that $C'(M) = -a_R \Sigma'_M(M, E)$. $\tilde{E}(M)$ is the intensity of foreign pressure such that the marginal cost $-C'(M)$ for the Ruler of expanding domestic army size M from the viewpoint of an interior coup threat is just equal to the marginal external security gain $a_R \Sigma'_M(M, E)$.

We restrict ourselves to foreign pressure levels that are not too large³⁷

Assumption 4 $E < \tilde{E}(M^{\max})$

Taking the derivative of (F.2) with respect to M and applying the envelope theorem yields then the following results:

Proposition 6 *Under assumption 4, we have the following result:*

1. For $M_\delta \leq s$:

- i) If $E \leq \tilde{E}(s)$ then $M^{\text{opt}} \in [M_\delta, s[$ with clerics co-option (regime A)
- ii) If $E \in \left(\tilde{E}(s), \tilde{E}(M^{\max}) \right]$, then $M^{\text{opt}} > s$ with no clerics co-option (regime B).

2. For $M_\delta > s$:

- i) If $E \leq \tilde{E}(s)$ then $M^{\text{opt}} = M_\delta$ with no clerics co-option (regime B)
- ii) If $E \in \left(\tilde{E}(M_\delta), \tilde{E}(M^{\max}) \right]$ then $M^{\text{opt}} > M_\delta$ with no clerics co-option (regime B)

3. M^{opt} is a non decreasing function of E .

F.1 proof of Proposition 6

1) Consider $M_\delta \leq s$ (i.e., $R_\delta > C(s)$). Then the derivative of $\Delta(M)$ writes as:

$$\Delta'(M) = \begin{cases} -V(\alpha^*(\Theta)) \frac{d\Theta(M)}{dM} + a_R \Sigma'_M(M, E) & \text{if } M < M_\delta \\ -V(\alpha^*(\Theta)) \frac{d\Theta(M)}{dM} + C'(M) + a_R \Sigma'_M(M, E) & \text{if } M \in [M_\delta, s[\\ C'(M) + a_R \Sigma'_M(M, E) & \text{if } s \leq M \end{cases}$$

It follows that $\Delta(M)$ is increasing in the range $M < M_\delta$. Moreover with $s < M^{\max}$ and assumption 4, $\lim_{M \rightarrow M^{\max}} \Delta'(M) < 0$. Consequently

³⁷In the case of very intense external military threat $M_F > \tilde{M}_F(M^{\max})$, the cost of a threat of military coup is overcome by the gain of external security and the ruler would always choose the maximum possible military size M independently from domestic considerations.

the function $\Delta(M)$ is decreasing in M when M is close to M^{\max} . The optimal solution M^{opt} therefore belongs to $[M_\delta, M^{\max}[$.

i) When $\lim_{M \rightarrow s} \Delta'(M) \leq 0$, $M^{opt} \in [M_\delta, s[$ and determined by the FOC:

$$-V(\alpha^*(\Theta)) \frac{d\Theta(M)}{dM} + C'(M) + a_R \Sigma'_M(M, E) = 0 \quad (\text{F.3})$$

ii) When $\lim_{M \rightarrow S} \Delta'(M) > 0$, $M^{opt} \in [s, M^{\max}[$ and determined by the FOC:

$$C'(M) + a_R \Sigma'_M(M, E) = 0 \quad (\text{F.4})$$

Case i) occurs when $C'(s) + a_R \Sigma'_M(s, E) \leq 0$ or equivalently $E \leq \tilde{E}(s)$, and case ii) occurs when $C'(s) + a_R \Sigma'_M(s, E) > 0$ or equivalently $E > \tilde{E}(s)$.

2) Consider then $M_\delta > s$ (i.e., for $R_\delta \leq C(s)$). Then the derivative of $\Delta(M)$ writes as:

$$\Delta'(M) = \begin{cases} -V(\alpha^*(\Theta)) \frac{d\Theta(M)}{dM} + a_R \Sigma'_M(M, E) & \text{if } M < s \\ a_R \Sigma'_M(M, E) & \text{if } M \in [s, M_\delta[\\ C'(M) + a_R \Sigma'_M(M, E) & \text{if } M \in [M_\delta, M^{\max}] \end{cases}$$

$\Delta(M)$ is increasing in the range $M \in [0, M_\delta[$. Moreover under assumption 4, $\Delta(M)$ is decreasing in M when M is close to M^{\max} . The optimal solution M^{opt} therefore belongs to $[M_\delta, M^{\max}[$. Specifically

i) When $\Delta'_+(M_\delta) = C'(M_\delta) + a_R \Sigma'_M(M_\delta, E) \leq 0$ (i.e. $E \leq \tilde{E}(M_\delta)$), then $M^{opt} = M_\delta$

ii) When $\Delta'_+(M_\delta) = C'(M_\delta) + a_R \Sigma'_M(M_\delta, E) > 0$ (ie. $E > \tilde{E}(M_\delta)$) then $M^{opt} \in [M_\delta, M^{\max}[$ and is determined by the FOC:

$$C'(M) + a_R \Sigma'_M(M, E) = 0 \quad (\text{F.5})$$

3) Differentiation of the FOC provides easily that the solution M^{opt} (given by (F.3), (F.4) or (F.5)) is increasing in E . **QED**

F.2 Discussion

When $M_\delta \leq s$, a threat of internal military coup always exists. However, at weak foreign pressure levels when $E \leq \tilde{E}(s)$, the optimal size of the military, M^* , remains below s and the Ruler faces an effective threat of

internal revolution. Consequently, the equilibrium regime involves clerics co-option. Conversely, at high foreign pressure levels when $E > \tilde{E}(s)$, the external security motive is strong enough to cause the optimal size of the domestic military to be above s . Therefore, the Ruler does not fear the possibility of internal revolution anymore. Consequently, the prevailing equilibrium regime involves no clerics co-option and high rents are awarded to the military.

When $M_\delta > s$, the equilibrium regime is always characterized by the absence of clerics' co-option. At weak levels of foreign pressure, there is a regime with no coup threat (i.e., $M^* = M_\delta$) and low military rents. At higher foreign pressure levels, there is a regime with a larger military size associated with a coup threat and consequently a distribution of large military rents to prevent this coup.

What happens when the level of foreign pressure E is reduced? In such a case the optimal level M^* chosen by the Ruler is reduced. In turn, this leads to a reduced domestic military capacity for internal repression and coup. Consequently, one is more likely to observe a regime with clerics co-option, reduced military rents and a reduced implementation of progressive reforms. The end of the Cold War episode, if interpreted as reduced foreign pressures may then have contributed to the increasing orientation of Muslim regimes to co-opt religious clerics and moderate the pace of institutional progressive reforms in those countries.

G Coordination in the military and coup-proofing

So far we considered the Military as a unitary agent. In reality, the military includes various elements (Navy, Air Force, Land Force, Special Forces, Militias), that need substantial coordination to produce effective military actions. As highlighted by an abundant political science literature on civil-military relations,³⁸ the problem of coordination is particularly important

³⁸See for instance [Feaver 1999](#): 211-241; [Sutter 2000](#): 205-223; [Svolik 2012](#); [Casper and Tyson 2014](#): 548-564; [Little 2017](#): 204-234. Good surveys on the recent literature on Civil-Military Relations and Coups are provided by [Ablan and Aidt 2017](#) and [Brooks](#)

for successful military coup. This dimension in turn may create a new strategy for an authoritarian leader to stay in power. As a matter of fact, to protect himself from a coup, a ruler may frame his security forces to enhance these coordination issues, even if this actually comes at the cost of reduced overall military effectiveness.³⁹ In our set-up, this new margin of adjustment has implications for the ruler capacity's of reform and cooperation or not of clerics. To illustrate the point, consider that the military is made of two groups A and B symmetric in their military capacity. Each group is run by an officer who has full command of his unit. The officers can be of two types : loyal to the ruler or opportunist. A loyal officer does not stage a coup against the Ruler. The opportunistic type decides strategically whether or not to take part in a coup (given what the other officer decides). Types are private information of officers. The ex-ante common knowledge probabilities to be loyal and opportunist are σ and $1 - \sigma$.

A coup succeeds with proba 1 when two opportunistic officers take part in the coup, in which case they share the rents of running the country equally, and each receives $\max\left[\frac{R_\delta - C(M)}{2}, 0\right]$. When only one opportunist stages the coup, the coup has a probability $\pi < 1/2$ to succeed where π is an (inverse) measure of the degree of cohesiveness needed by the military force to run a successful coup. The lower π the less likely one military force is to seize power by itself. When the coup succeeds, the opportunist carrying out the coup takes the full military rents from the coup $\max[R_\delta - C(M), 0]$, and the other one gets 0. If the coup fails, the former gets 0 while the latter gets the full military income, $w_m M$, promised by the Ruler. We assume that the loyal officer type have a very high intrinsic disutility to betray the Ruler, so that its dominant strategy is always no to participate in the coup. Finally, if there is no coup, each military receives $w_m M/2$.

The incentives for a coup within the military are analyzed as a simple coordination game under asymmetric information. We consider Bayesian

2019: 379-398.

³⁹This strategy called "coup-proofing" or "counter balancing" (Geddes 2009; Böhmelt and Pilster 2016: 158-182; Powell 2019: 27-44; De Bruin 2018: 1433-1458; Escribà-Folch et al. 2020: 559-579) has been much discussed in several Middle East and North African contexts (Quinlivan 1999: 131-165; Menaldo 2012: 707-722; Makara 2013: 334-359; Lutterbeck 2021).

Nash equilibria (which are symmetric) and, when there are multiple equilibria, we select the stable equilibrium which is risk-dominant.

The payoff matrix for two opportunistic officers is the following, where the first component is the payoff of the row player

$$\begin{array}{cc}
& C & NC \\
C & \max\left[\frac{R_\delta - C(M)}{2}, 0\right]; \max\left[\frac{R_\delta - C(M)}{2}, 0\right] & (1-\pi)w_m M; \pi \max[R_\delta - C(M), 0] \\
NC & \pi \max[R_\delta - C(M), 0]; (1-\pi)w_m M & w_m M/2; w_m M/2
\end{array}$$

Consider the case where the coup is feasible, implying $R_\delta - C(M) > 0$. By definition, officers of the loyal type do not take part in a coup and, therefore, they always play NC .

Consider next an opportunistic officer A (the problem is symmetric for officer B). Denote by μ_B the probability that an officer B of the opportunistic type chooses to take part in the coup (i.e., play C). Then the expected payoff of officer A taking part in the coup is

$$\begin{aligned}
V_A(C) &= \sigma \pi [R_\delta - C(M)] + (1 - \sigma) \left[\mu_B \frac{R_\delta - C(M)}{2} + (1 - \mu_B) \pi (R_\delta - C(M)) \right] \\
&= [R_\delta - C(M)] \left[\pi + (1 - \sigma) \mu_B \left(\frac{1}{2} - \pi \right) \right]
\end{aligned}$$

Conversely, the expected payoff of officer A not taking part in the coup is:

$$\begin{aligned}
V_A(NC) &= \sigma \frac{w_m M}{2} + (1 - \sigma) \left[\mu_B (1 - \pi) w_m M + (1 - \mu_B) \frac{w_m M}{2} \right] \\
&= w_m M \left[\frac{1}{2} + (1 - \sigma) \mu_B \left(\frac{1}{2} - \pi \right) \right]
\end{aligned}$$

Therefore, officer A chooses the following mixed strategy $\mu_A \in [0, 1]$ to play C , as given by:

$$\begin{aligned}
\mu_A &= 1 \text{ when } [R_\delta - C(M)] \Phi(\mu_B, \sigma, \pi) > w_m M \\
&= 0 \text{ when } [R_\delta - C(M)] \Phi(\mu_B, \sigma, \pi) < w_m M \\
&\in [0, 1] \text{ when } [R_\delta - C(M)] \Phi(\mu_B, \sigma, \pi) = w_m M
\end{aligned}$$

where

$$\Phi(\mu_B, \sigma, \pi) = \frac{\pi + (1 - \sigma) \mu_B \left(\frac{1}{2} - \pi \right)}{\frac{1}{2} + (1 - \sigma) \mu_B \left(\frac{1}{2} - \pi \right)}$$

$\Phi(\mu_B, \sigma, \pi)$ is a function increasing in μ_B (as $\pi < 1/2$), decreasing in σ and increasing in π with $\Phi(0, \sigma, \pi) = 2\pi < 1$ and $\Phi(1, \sigma, \pi) = \frac{\pi + (1 - \sigma) \left(\frac{1}{2} - \pi \right)}{\frac{1}{2} + (1 - \sigma) \left(\frac{1}{2} - \pi \right)} < 1$.

From this, it follows immediately that the Bayesian Nash equilibria of the game are the followings:

i) for $[R_\delta - C(M)] \in \left[0, \frac{w_m M}{\Phi(1, \sigma, \pi)}\right)$, there is a unique Bayesian Nash equilibrium : all officers choose NC with proba $\mu^* = 1$ and there is no coup attempt.

ii) for $R_\delta - C(M) \geq \frac{w_m M}{\Phi(1, \sigma, \pi)}$, there are multiple Bayesian Nash equilibria:
- all opportunistic officers choose C with proba $\mu^* = 0$ and there is no coup attempt.

- all opportunistic officers choose C with proba $\mu^* = 1$ and there is coup succeeding with certainty.

- all opportunistic officers choose C with proba $\mu^* = \Phi^{-1}\left(\frac{w_m M}{R_\delta - C(M)}\right) \in (0, 1)$ and there is coup succeeding with proba $2\pi\mu^*(1 - \mu^*) + \mu^{*2}$.

Clearly, the latter interior mixed strategy equilibrium is not stable in the sense that a small perturbation of an opportunistic officer playing slightly away from μ^* induces a larger deviation of the other officer with regard to his decision to take part or not in the coup with probability 1.

We use the risk dominant strategy criterion to select between the two other equilibria. It is easy to see that the "no coup attempt" equilibrium (i.e., choose C with probability $\mu^* = 0$) is risk dominant if and only if

$$w_m M \geq \varphi(\sigma, \pi) [R_\delta - C(M)]$$

with $\varphi(\sigma, \pi) = \Phi(1/2, \sigma, \pi) < 1$.

Given this, the optimal policy choices of the Ruler rewrite as:

$$\begin{aligned} & \max_{\alpha, w_c, w_m, M} R(\alpha) - \gamma^* w_c - w_m M & (G.1) \\ \text{s.c.} \quad & \gamma^* = \gamma^*(M, \alpha, w_c) \text{ solution to (B.3)} \\ & \lambda M \geq S(1 - \gamma^*) \text{ defined in (1)} \\ & w_m M \geq \varphi(\sigma, \pi) \max\{R_\delta - C(M), 0\} \text{ defined in (3)} \end{aligned}$$

The analysis of this problem is then the same as in the main text with simply $R_\delta - C(M)$ multiplied by a "coup proofing" factor $\varphi(\sigma, \pi) < 1$. Hence military fragmentation and ill-coordination (in terms of internal communication) make it more likely to have regimes with clerics co-option of clerics and reduced perks for the military.

As noticed by the literature (Geddes 2009; Powell 2019; Quinlivan 1999; Lutterbeck 2021), coup-proofing also involves costs. Given the lack of coordination capacity, the army may be less effective at internal repression. Also military royalty may come at the cost of lack of competency of the military officers (Egorov and Sonin 2011). One simple way to capture these inefficiency features is to assume that under coup-proofing the effectiveness of the Military is reduced by a factor $\lambda < 1$. The situation without "coup-proofing" is obtained with a unitary military which has an internal repression efficiency normalized to 1 and where the "coup proofing" factor φ is constrained to be equal to 1 (as in the main text). The situation with "coup proofing" is obtained when there is a dual military body (regular military, and paramilitary or parallel security force) with one of them loyal to the ruler (because of ethnic or religious or other types of connections). A trade-off arises from the fact that the internal repression efficiency is reduced to $\lambda < 1$ as a result of poor coordination inside the military, while the threat of a military coup is simultaneously lowered, as reflected in the "coup proofing" factor $\varphi(1, \pi) = 2\pi < 1$.

In such a case, the value of the Ruler with coup-proofing writes as

$$W^{proof}(M, \lambda, \pi) = V(\lambda M) - 2\pi \max\{R_\delta - C(M), 0\}$$

with

$$V(\lambda M) = R(\alpha^*(\Theta(\lambda M))) - \Theta(\lambda M) V(\alpha^*(\Theta(\lambda M)))$$

$$\Theta(\lambda M) = \begin{cases} \theta^m + 2S(\lambda M)G^{-1}(S(\lambda M)) & \text{if } S(\lambda M) > 0 \\ \theta^m & \text{if } S(\lambda M) \leq 0 \end{cases}$$

and $S(\lambda M) = 1 - \frac{\lambda M}{S}$.

While the value of the Ruler without coup-proofing writes as:

$$W^{Nproof}(M) = V(M) - \max\{R_\delta - C(M), 0\}$$

$$= W^{proof}(M, 1, 1/2)$$

Denote $W^{proof}(\lambda, \pi) = \max_M W^{proof}(M, \lambda, \pi)$ and $W^{Nproof} = \max_M W^{Nproof}(M) = W^{proof}(1, 1/2)$, Then coup-proofing will occur if and only if $W^{proof}(\lambda, \pi) \geq W^{proof}(1, 1/2)$.

If $M^*(\lambda, \pi) = \arg \max_M W^{proof}(M)$, then

$$\begin{aligned} W^{proof}(\lambda, \pi) &= V(\lambda M^*(\lambda, \pi)) - 2\pi [R_\delta - C(M^*(\lambda, \pi))] \\ W^{Nproof} &= V(M^*(1, 1/2)) - [R_\delta - C(M^*(1, 1/2))] \end{aligned}$$

$W^{proof}(\lambda, \pi)$ is increasing in λ and decreasing in π . Moreover $W^{proof}(\lambda, 0) > W^{Nproof}$ for all $\lambda \in (0, 1]$ and $W^{proof}(1, 1/2) = W^{Nproof}$, Finally $W^{proof}(\lambda, 1/2) < W^{Nproof}$ all $\lambda \in (0, 1]$ Thus there exists a threshold $\bar{\pi}(\lambda)$ such that $W^{proof}(\lambda, \pi) \geq W^{Nproof}$ if and only of $\pi \leq \bar{\pi}(\lambda)$, with $\bar{\pi}(\lambda)$ increasing in λ and $\bar{\pi}(1) = 1/2$. From this discussion, we conclude: there is coup-proofing (i.e., segmented military) for the region of parameters $\pi \leq \bar{\pi}(\lambda)$. In such a regime, the optimal military size $M^*(\lambda, \pi)$ is increasing in λ and decreasing in π .

When π is relatively small and λ close to 1 (ie. coup-proofing is very effective), then the size of the military under coup-proofing $M^*(\lambda, \pi)$ is larger than the corresponding unitary military $M^*(1, 1/2)$. In such a case, the equilibrium regime is more likely to be of the exclusive military co-option type, implying the adoption of more reforms. When coup-proofing is less efficient on repression but very effective on coup prevention (λ is close to 0 and π is small), however, coup-proofing prevails, the size of the fragmented military is smaller than the corresponding unitary alternative, and double co-option prevails.

H Case studies: Double co-option with moderately strong clerics

Each of the regime cases selected for illustrating the configuration "strong army, strong clerics" is discussed in some detail below.

H.1 Pakistan

We begin with the regime of *Zia ul-Haq* (1977-1988) in *Pakistan*, under which a powerful army and powerful clerics coexisted and shared a strong aversion to progressive institutional reforms (so that social aversion to reforms, is very large). It is under Zia that the country's military, intelligence service and police, which largely escaped civilian control, came to be

formed of many religiously committed cadres and Zia's loyalists.⁴⁰ The co-ness between the military commanding structure and the clerics, not only the urban ulama of the official establishment but also the Sufi masters and shrine guardians of the countryside or remote towns, was thus closer than ever (Malik and Malik 2017; Martin 2016). It is therefore no surprise that for the first time in the short history of Pakistan, Islamization acquired legitimacy and the backing of the state, thereby guaranteeing a wide support from religious parties and movements. In a revealing move, Zia presented the military as "the ideological vanguard of an Islamic state", and he vowed to bring not only the army but also the economy, the judiciary, and the education system closer in line with the sharia (Haqqani 2005: 132-3, 146-8; Abbas 2005: 101-108). He actually took many drastic steps in that direction and, among the most reactionary ones were his infamous Hudood Ordinances, his Blasphemy Law, and his laws against (religious) minorities (Zaman 2007: 72-3; Abbas 2005: 103-6; Haqqani 2005: 140-5).⁴¹

Moreover, under Zia's rule the army perfected the practice of using Islamic parties and radical Islamic groups "as pawns in domestic and international politics" (Cohen 2004: 113). Unlike other Pakistani rulers, Zia was even ready to grant clerics, religious leaders and parties a significant role in the civilian administration and the affairs of the state, going as far as allowing Islamist journalists to operate within the government-owned media (Haqqani 2005: 132, 148-9). As for the military, not only were their role and interest in politics entrenched (Mohmand 2019 : 74-76), but they also benefited from enormous privileges and opportunities for personal enrichment, particularly in the form of participation in, and ownership of, luxury properties as well as highly profitable and well-sheltered business firms forming the Milbus complex.⁴² Revealingly, not only did Zia expand

⁴⁰Pakistan's intelligence sector operates in a legal vacuum and does not fall under the authority of the federal government. Yet, it is under the control of the high command of the army (Shah 2014: 273).

⁴¹While the Hudood Ordinances made the victim of a rape practically guilty of fornication, the Blasphemy Law carried a mandatory sentence of death or life imprisonment for anyone making derogatory remarks against the sacred person of the Prophet or for desecrating the Quran.

⁴²The Defence Housing Authority (DHA) developed a sprawling property empire that includes the entire district of Clifton, a swanky suburb of Karachi with half a million

Milbus considerably, but he also took active measures to establish the military's financial autonomy and he empowered senior commanders by putting special secret funds at their free disposal (Siddiqi 2017 : 161-5).

It is important to avoid the temptation to consider Zia as a simple representative of the army, thus confounding the roles of the Ruler and the Military. Besides being an army man and a religious zealot, Zia was above all a shrewd politician adept at subduing the army and using religious forces against his political opponents (Platteau 2017: 215). And although he did not hesitate to manipulate extremist religious organizations, he knew where to stop and his most radical measures were not necessarily implemented. In any case, the institutional setup of Pakistan cannot be compared with the setup of Saudi Arabia and the Emirates of the Persian Gulf where traditional Islamic law has remained the fundamental law up to the present day (Coulson 1964: 151-5). Still, it is striking that Zia's regime left a deep imprint on the polity and the entire fabric of Pakistan. As a matter of fact, none of his successors, including civilians (Benazir Bhutto, Nawaz Sharif, and Imran Khan), has dared effectively challenge the obscure interference of the radical clerics, and above all the military, in the country's affairs that Zia had encouraged and organized.

H.2 Egypt

Regimes of Anwar *al-Sadat* (1970-1981) and Hosni *Mubarak* (1981-2011) in *Egypt* differ from Zia's regime in two senses. First, the body of religious clerics is rather sharply divided between, on the one hand, the official establishment of al-Azhar, and, on the other hand, the Muslim Brotherhood, and movements or organizations of the extreme religious right (Islamic Group -"Jama'at Islamiya"-; "Excommunication and Exodus"- "Takfir wa-l Hijra"). Second, the values of the military differ from those of the Muslim Brothers and other extremist religious organizations. Both Sadat and

residents and 15km of beachfront, and the entire south-east quarter of Lahore, in which the main business district is located. Pakistan's supreme court admonished the DHA for ignoring orders to open its accounts to public scrutiny, and a judge remarked that the agency "seems like a government operating within the government", while another went so far as saying that "You people run your business by using widows and martyrs as a shield, and you pocket royalties in their name" (Economist, May 11-18 2019).

Mubarak have therefore been able to work in close cooperation with the army whose top commanders hold secular values (i.e., not anti-reforms). They have also systematically sought to co-opt al-Azhar's official clerics and to gain the support of the Muslim Brothers. Because members of the religious establishment can be bought at a reasonable price, coopting them proved rather easy while attempts to court the Muslim Brothers were met with variable success.⁴³ It corresponds to a case where only a partial co-option of the religious class is optimal (i.e., γ^* is smaller than one).

Sadat's decision to strike peace with Israel was considered as an act of treason by many Egyptians, including the Brothers and the extreme religious right. The support of al-Azhar clerics remained unbending, however, as witnessed by their fatwa, called the "Religious Legal Verdict", that provided religious sanctioning of the peace treaty and the Camp David Agreement (Ramadan 1993: 169; Kepel 2005 : 51). As a result of the treaty, his legitimacy fell sharply. Moreover, the adverse effects of his liberalization policies on the popular masses prompted the Brothers to organize social protests while their prestige simultaneously increased thanks to their effective and benevolent efforts to relieve poverty. By appearing to give in to the Brother's demand for the gradual Islamization of the Egyptian state, Sadat played a dangerous game because he was not actually prepared to make such a move. He overestimated its impact as well as the army's willingness to intervene against demonstrators denouncing peace with the erstwhile enemy ($\theta^c - \theta^m$ is small when the issue of Israel becomes salient). He was assassinated by a religious extremist from the "al-Jihad" group.

Mubarak learned the lesson and was more cautious in dealing with Islamists. He also pursued the same liberal economic policies as Sadat and continued the strategic partnership between Egypt and the United States by engaging his country on the side of the US in the first Gulf War. This move obeyed a constant preoccupation of Egyptian leadership to obtain so-

⁴³Sadat tried to woo the Muslim Brothers when he let them take control of the prestigious professional associations of engineers, doctors, lawyers, scientists, and pharmacists, and when he appointed a well-known religious fundamentalist (Muhammad Uthman Ismail) as governor of Asyut province (Cook 2012: 123-5). Likewise, he encouraged the movement called Islamic Community to take over the Egyptian Student Union (Dreyfuss 2005: 154; Ayubi 1991: 74-5).

phisticated weaponry and financial assistance for the army (including the military, the intelligence service, and the police), so that it can enhance its external dissuasive power and beat back active religious movements. Confronted with unabating and determined political opposition, Mubarak chose to demonize the Brothers by conflating them with religious extremist groups.⁴⁴ The religious support for his regime was thus limited to the official clerics of al-Azhar whose own credibility was dented by their unconditional justification of Mubarak's policies and their refusal to denounce the deeply authoritarian character of the Egyptian state (Platteau 2017 : 196-200). As a consequence, the society became polarized between ordinary Egyptians many of whom identified themselves with the Brothers, and the regime clique supported by the religious officialdom. The regime clique was formed by the presidential circle and a narrow business elite tightly linked to a deep state constituted by top military, "intelligence barons" and police officers who all enjoyed enormous economic privileges (see Sayigh 2019, for evidence on the military economy).

Closer to Zia's Pakistan than to Sadat's and Mubarak's Egypt are the regimes of *Houari Boumedienne* (1965-1978) and *Chadli Bendjedid* (1986-1992) in *Algeria* and the regimes of *Muhammad al-Nimeiri* (1969-1989) and *Omer al-Bashir* (1989-2019) in *Sudan*.

H.3 Algeria

Under Boumedienne (first as prime minister, then as president), a bizarre alliance was sealed between the new socialist, anti-imperialist regime and the ulama represented by the Supreme Islamic Council. Boumedienne chose to use Islam to counteract any opposition movement and prevent the emergence of a genuine civil society.⁴⁵ In exchange for their support, he did not

⁴⁴This is despite the fact that "There never was a single, essential character of the Muslim Brotherhood, because the Brothers themselves never fully agreed with one another" about most issues (Kirkpatrick 2018: 122). In addition, they had long renounced the use of violent means.

⁴⁵This alliance was motivated by the need to obtain a religious defense of socialism (actually a system of state control of the economy) and an active support for the regime (through religious speeches) whenever political opposition manifested itself in street demonstrations (Tamzali 2007: 199-202; Laribi 2007: 53-4).

hesitate to give free rein to the most reactionary clerics among the ulama.⁴⁶ In particular, he granted them the right to lead the Arabization of the country (with disastrous consequences), to manage the education system (including the right to rewrite school textbooks), and to even meddle in mundane matters like dress code, alcohol consumption, etc.

The regime went quite far in co-opting religious clerics, including those of radical stripe, and this was done with the consent of the army (and intelligence services) which were never far from the presidency and often acted behind the scene. Most notably, Boumedienne encouraged the rise of the Islamic Salvation Front (FIS), whose most radical strand was headed by a puritanical cleric (Ali Belhadj) who called for the formation of an Islamic state, if necessary by violent means (Bouamama 2000: chap. 3; Lapidus 2002: 599-600).⁴⁷ Like in Saudi Arabia, this double co-option strategy was feasible because of the presence of natural resources that could be exploited without significant modernization of institutions. Members of the Algerian deep state amply participated in the rents extracted from the state exploitation of abundant natural gas resources (see Garçon 2020: 45-47; Malti 2020: 196-202).

Chadli essentially continued his predecessor's policies: he used Islamist support to defeat the opposition, a strategy justified by the fact that the FIS defended private property rights and justified the intervention of the International Monetary Fund to help rescue Algeria from an economic and financial crisis (Bouamama 2000: 214-8). This was allegedly for the purpose of controlling it, yet it is probably closer to the truth to say that the deep state of Algeria cooperated with the FIS (which was officially constituted as a party in 1989), but viewed it as a potentially dangerous ally given the violent character of its most extremist wing.⁴⁸ This tactic was apparently

⁴⁶He also strove to reach out to extremist religious forces beyond the influence of the official Muslim establishment and propagated their messages of hatred through a number of unofficial mosques and schools harboring an independent Muslim community life (Lapidus 1988: 697; Chachoua 2001).

⁴⁷As was later revealed, the intelligence service actually infiltrated the FIS and held no less than half of the seats in the Consultative Council (Laribi 2007: 74).

⁴⁸Thus, one of the leaders of the FIS, Ali Benhadj, was a puritan cleric who called for the formation of an Islamic state, if necessary by violent means (Bouamama 2000: chap. 3; Lapidus 2002: 599-600).

repeated for other Islamist outfits.⁴⁹ Consistent with the theory, the price paid for the religious support of the regime was high in terms of reforms foregone. For example, a reactionary Family Code was enacted (1984), and a radical Islamist was appointed as president of the University of Islamic Sciences at Constantine (Platteau 2017: 227).

H.4 Sudan

In Sudan, because he himself came from the army, Nimeiri was able to rely on the military to counter political opposition. But he did not consider that the military offered sufficient protection, perhaps because having himself seized power through a coup, he feared the presence of too powerful an army. Here is therefore one of the clearest instances in which the autocrat chose the army size with essentially internal security considerations in mind (in conformity with the section 3.2 of our model). Because of his overwhelming concern with maintaining himself in power, Nimeiri opted for a double-edged tactic consisting of relying on a moderately-sized army and on strong religious support. Revealingly, he struck an alliance with Islamist factions, going as far as inviting into his government (in 1977) two prominent Islamists, including Hassan al-Turabi, leader of the Muslim Brotherhood and founder of the National Islamic Front (NIF). Appointed attorney-general, Turabi exerted steady pressure for the Islamic reform of the legal system (Lapidus 1988: 859; Jok 2007: 74; De Waal 2015: 69-73).

In 1983, Nimeiri completely reversed his initial secular policy by declaring an "Islamic revolution" and transforming the Sudanese state into an Islamic republic to be governed by Islamic law, with no exemption for non-Muslim regions. Sudanese law was to be immediately reformed according to the sharia, and the so-called September laws gave rise to highly publicized public executions, amputations of limbs for theft, and lashing for alcohol consumption (Jok 2007: 74-6). Similarly to what Zia ul-Haq did in Pakistan, Nimeiri demanded an oath of unconditional allegiance from all members of the civil service and judiciary, thereby causing the departure of

⁴⁹Colonel Samraoui thus accused the intelligence service of having placed one of its men at the head of the Islamist organization "El Hijra oua Takfir" ("Exile and Expiation") during the 1980s (Laribi 2007: 53).

prominent secularists and the dominance of the civil service, the army and the financial sector by Islamists (De Waal 1997: 88). Members of the NIF and Muslim Brotherhood were left free to gain influence within the civil service, intelligence, and institutions of government in charge of education and welfare. By thus modifying selection and promotion rules, Nimeiri, like Zia in Pakistan, obviously influenced the aversion to reforms of the military and the administration (which, for the sake of analytical tractability, had to be assumed exogenously fixed in our model).

As soon as he acceded to power, al-Bashir professed his goal of creating a theocratic rather than a democratic state. He promulgated the Sudanese Penal Code (in 1991), which includes a provision on the crime of apostasy, and he actively pursued the Arabization and Islamization policies of the previous junta.⁵⁰ During the years 1990-1999, al-Turabi was a dominant force in Sudanese politics and he was the speaker of the national assembly. The cost of Islamic support for the regime in Khartoum proved enormous, as attested by the official sanctioning of reactionary tribal customs justified on religious grounds, appalling bloodsheds in Darfur and southern Kordofan, and the eventual secession of the Christian South (in 2014).

Inflamed by the Islamist imperialism of the North, the southern region's rebellion was revived and could not be defeated by the national army (Jok 2007: 89-90, 120-7). This incapacity of the Sudanese military to deal with an internal insurrection was the consequence of a deliberate choice of the autocratic regime. Not only did it refrain from creating a strong army but it also made no serious attempt to control and disarm the malicious militia which developed in the wake of Islamist movements or as a reaction against them. Worse still, besides the official national army, al-Bashir controlled half a dozen semi-formal military outfits, from the much-feared National Intelligence and Security Services (NISS) to pro-government militias (such as the notorious Janjaweed responsible for mass rape and massacres in Darfur) which he tried to balance against each other in order to stay in power. In Darfur, for example, there were violent incidents in which "government-

⁵⁰In a way reminiscent of Zia in Pakistan, al-Bashir formed his own Islamic militia, the People's Defence Force, and training was made compulsory for civil servants, teachers, students and higher-education candidates.

armed paramilitaries fought against one another and against the army, police and security forces, and even different arms of the official security establishment fought one another” (De Waal 2015: 58).⁵¹

As witnessed by the popular uprising which caused the demise of al-Bashir (in early April 2019), the Sudanese military were not able to deal with an internal insurrection. Indeed, its fragmentary and divisive approach easily leads to fights between soldiers affiliated with different parts of the state’s defense system (De Waal 2015: 57-62). In terms of the coup-proofing extension of our model, the very existence of a segmented body of repressive forces can be interpreted in the same way as we did for Iran.

H.5 Bangladesh

To complete our picture, we consider the regimes of *General Ziaur Rahman* (1977-81) and *General Ershad* (1983-90) in *Bangladesh*, two regimes under which a rather mild form of double co-option prevailed. The two generals decided to court Islamist movements, the Jamaat-e-Islami in particular, despite the fact that members of these movements were considered traitors and even war criminals by many people because of their collaboration with Pakistani forces during the independence war. Rahman’s and Ershad’s underlying motive was double: to portray political rivals as intended to make Bangladesh into a satellite state of Hindu India, and to revive an Islam-oriented Bangladeshi nationalism susceptible of gaining the support of religious and conservative parties. This tactic was an attempt to modify the identity of the new nation as proposed by its founder, Sheikh Mujibur Rahman. For the latter, indeed, Bangladesh was constitutionally defined as Bangali, that is, alongside an ethno-linguistic secular dimension.

Presenting the secular Bengali identity as a pro-Indian or pro-Hindu identity in a context where Indian domination was resented by popular masses was the way chosen by Ziaur Rahman and Ershad to build up the legitimacy of their regimes. Despite successfully gaining public support, the former was nevertheless unable to ensure the backing of the armed forces

⁵¹In these circumstances, it is difficult to give much weight to the various indicators of military strength and militarization presented earlier.

and he was eventually assassinated by a group of army officers. (This, incidentally, shows that it is pertinent to maintain a distinction between the autocrat and the army even when the former comes from the latter.)

The co-option of Muslim fundamentalists by the autocrats did not correspond to a deep move, however. In stark contrast to Zia's regime in Pakistan, indeed, their use of Islam was more a matter of ostensible symbols than real substance. It rested on displays of Quranic verses and Prophet's sayings on posters hanging in government offices, telecasting of principles of Shariah on radio and television, frequent visits of mosques and Islamic shrines by high-level officials, regular attendance by the same to religious festivals and events, establishment of a new Islamic university and provision of generous grants to religious institutions, promotion of Islamic learning, and the like (for more details, see [Sheikh and Ahmed, 2020](#): 333-360).

I MBS regime in Saudi Arabia

In the absence of religious legitimacy, progressive reforms entail huge costs in the form of increased use of brutal force and absolute intolerance toward any dissent. Modernization as conceived by MBS does not include political liberalization, quite the opposite: the concentration of powers in his hands, and the strength and loyalty of the intelligence services are unprecedented in the history of Saudi Arabia ([Hubbard, 2020](#)). And if the role of religion is toned down, national grandeur is extolled and imperial ambitions are re-asserted with especial vigour. The major objective proclaimed by MBS is thus to make the country become the leader of the Middle East and a major world power.⁵² Any opponent or dissenter is labeled a traitor, and mutual denunciation and electronic spying of all citizens are systematically used for the purpose of not only crushing critics but also silencing those who express neutral opinions.⁵³ It is no exaggeration to say that MBS exerts genuine tyranny to achieve his so-called "Vision 2030".

⁵²The breaking of diplomatic relations with Qatar, considered to be close to Iran, and the military intervention in Yemen to crush Houthi rebels supported by Iran are steps in this direction.

⁵³For example, just to say that placing ARAMCO on the stock exchange is not a good idea has sent Saudi experts to jail.

To this date, however, progress with the most contentious reforms is disappointing as witnessed by the fact that women who dare put pressure on the crown prince to accelerate reforms and get them properly enforced are immediately arrested, intimidated and even tortured. Moreover, there are still no Shia members of the top religious authority, no Shia judges sitting on national courts, no Shia police officers or ambassadors. A plausible explanation is that the absolute power claimed by MBS is questioned inside the country: his ruthlessness and megalomania have stirred resistance among part of the elite, even among those who initially supported him (such as Jamal Kashoggi, who ended up being murdered in the Saudi embassy of Turkey on October 2, 2018). This resistance compels MBS to avoid head-on confrontation with the religious establishment, hence his careful treading in matters sensitive for the clerics. In other words, the transition from a co-optive to a repressive autocracy cannot be considered to have been fully accomplished yet in the Saudi kingdom. And there is presently no guarantee that it will eventually be successful.