

Role of peer effects in social protest. Evidence from
the Arab spring

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Abstract

The aim of this paper is to understand the economic, sociological and political determinants of the so-called Arab spring. In particular, the paper evaluates to what extent weak economic conditions increase protest participation. A second motivation is to estimate the role of proximity in individuals' social

behavior. Then, the paper analyses spill-over effects on protest participation through its ability to promote coordination between individuals. The paper utilizes data from the Arab Democracy Barometer Wave III 2012-2014, and proposes an econometric estimation of the individual features of participation to social protests in the Arab spring

1. KEYWORDS: Arab Spring; Social interaction.

2. JEL: C21; C25; J62; J13

1 Introduction

The aim of this paper is to understand the economic, sociological and political determinants of individual participation to the so-called Arab spring. The propensity to engage in social protest has raised several issues that are specific to the Arab world. Firstly, many scholars were surprised by the occurrence of the Arab spring, since the Arab countries were viewed as strong states in which civil societies were weak (Dupont and Passy, 2011, p. 447). The term 'strong' referred to authoritarianism, dictatorship, or police states. Indeed, a global view of the Arab league members gives the impression of a political fatalism: when occurred the Arab spring, most countries were authoritarian regimes. A comparison of three democracy indexes ? the Polity IV, the Freedom House and the Economist Intelligence Unit's index of democracy - in 157 countries in 2010, that is just before the beginning of the Arab spring, provides a global image of the Middle East. In each index, the average level of democracy in the Middle East is far beyond the total average (for the 157 countries). Despite the weaknesses of its political regime, only Lebanon could then be seen as a democracy, in the sense that parliamentary elections were organized (Zouache, 2017). Secondly, many scholars depicted the Arab world as unsubjects to political change and innovation due to cultural factors, and especially due to the place of Islam in the Middle East societies. This vision, very pregnant in the academic literature in economics (Zouache, 2017), led to a representation of the Arab world as affected by religious fatalism. One corollary of this view is that the political change could only come from religious motives, and thus, Islamist parties were seen as the essential engine for political change.

Rejecting fatalism and determinism for the Arab world involve that the individual should be placed at the forefront of the scene. Thus, rather than looking at the

macroeconomic aspect, the paper makes the choice of adopting a microeconomic perspective: what interest us in the first instance is to identify the reasons that motivate individuals to participate to social protests in the Arab countries. Why young, urban and well-educated citizens are often described as the most influential demographic group engaged in mass protests and in the spread of democratic ideas? Was the Arab spring a cry for democracy or a demand for improved economic performance? This perspective has been recently adopted to analyze the Arab spring.

Studies have notably pointed the impact of the new technologies of information and communication and social networks in the rise, diffusion and spread of the Arab spring. Acemoglu et al. (2016) use Egyptian tweet data and show that activity on Twitter predicts protests in Tahrir Square, “suggesting that social media has helped coordinate street mobilizations in Egypt” (ibid., p. 2). In our view, beyond the pure ‘technological’ aspect, the role of technology questions the role of the youth, especially the young students, in the Arab uprisings. It also questions the role of the middle class in the Arab spring: could we speak of a middle-class effect? Looking at the social network effects, Achcar (2013, p. 192-194), argues that it was not a ‘middle-class’ effect because the young members of the social networks were more from the intermediaries classes with a strong share of students and ex-students who suffer from mass unemployment in the Arab countries. In this line, our article also examines a social network effect without focusing on new technologies and social medias (twitter, facebook, etc.).

In that perspective, the paper evaluate to what extent weak economic conditions increase protest participation. A second motivation is to estimate the role of proximity in individuals’ social behavior Is an individual propensity to engage in social protest affected by the prevalence of that behavior among the individual’s peers? Then, the paper analyses spill-over effects on protest participation through its ability to promote

coordination between individuals.

The paper is organized as follows. The second section presents the data and gives the first results from a descriptive analysis. The third section provides an academic background of the social protests. It briefly examines the sociological and political science literature on the subject in order to focus on the economic framework based on the literature of social networks with imperfect information. The paper is based on a theoretical model built from an utility function that analyzes the probability of protest participation. The model assumes that agents maximize the payoff from participating in protesting. The model also includes strategic complementarities in order to reinforce the impact of collective action: individuals' behavior depend on their neighbors' best responses, knowing that everybody else will be more likely to participate. The fourth section provides the econometric framework and analyses the results. The last section concludes.

2 Empirical analysis: first results

2.1 The data

The data are collected from the Arab barometer (<http://www.arabbarometer.org>) whose aim is ?to measure and track over time citizen attitudes, values, and behaviour patterns relating to pluralism, freedoms, tolerance and equal opportunity; social and inter-personal trust; social, religious and political identities; conceptions of governance and an understanding of democracy; and civic engagement and political participation?.

The Arab barometer initiative organized several surveys around the Arab world from a cooperation with Arab university scholars. The first wave took place in 2006/07

and 2009, and concerned eight countries: Jordan, Morocco, Palestine (West Bank and Gaza), Bahrain, Algeria, Kuwait, Lebanon, and Yemen. The data we used for this paper are from the third wave, which occurred in 2012-2014. Twelve Arab countries have been examined: to the former sample, the surveys have been further implemented in Egypt, Iraq, Libya, Tunisia and Sudan; and Bahrain is no more present in the sample. In other words, North Africa is very well surveyed (Morocco, Algeria, Tunisia, Libya and Egypt), the Levant also (Palestine, Jordan, Lebanon and Iraq) whereas the Gulf is less documented (Kuwait and Yemen).

The 13809 persons who have asked form the size of the sample, that is 1150 persons per country on average. The surveys involve face-to-face interviews, and all used multi-stage area probability sampling to select respondents. The respondents are at least eighteen years of age. The survey in each country is designed to be nationally representative at the household level, not at the regional level. The data set includes a weight variable WT which is different for each country.

The survey is organized in several sections whose aim is to gather the responses around a list of topics. Section I, "General Topics", proposes a subjective evaluation by the respondents of the economic situation. In a sense, it is an assessment of optimism, of social confidence in the Arab countries, but also of the business climate (safety, security) and of the sentiments of injustice that the respondents resent. Section II estimates the confidence of Arab citizens in their public institutions (government, army, police, parties, religious institutions). This section allows an estimation of the economic dimension respective of political (corruption, democracy) and geopolitical factors. Section III asked the individuals on their participation to elections, their connection to medias and their beliefs in the influence of these medias. This section allows an estimation of the participation to the social networks and to internet medias. Section V looks at the participation of the respondents to

the political life (party, association). One interesting feature of this section is the conception of democracy that the respondents have. In particular, the survey then allows to estimate the beliefs into the economic benefit of a democratic system, in comparison with authoritarian regimes, and the conception the respondents have of political leadership (tribal, family, or meritocracy). Section VI deals with cultural and religious topics. Then, the gender issue appears, as well as the beliefs of respondents in Islamic law and their confidence on religious parties especially through the role of religious leaders and institutions in elections. On the whole, this section gives an overview of the religiosity, both in terms of beliefs (role of religion in Islamic law and private life) and in terms of practices such as the participation to prayers. Section VII is the geopolitics section. It provides an estimation of the influence of western and neighbouring countries (including Iran) and of the Palestinian/Israeli conflict. It also allows an evaluation of openness to trade and to reforms. Section VIII deals with the Arab spring, and especially on the perception of the respective role of political and economic factors in its emergence. Section X provides the respondents' personal information.

2.2 Descriptive statistics

A first descriptive analysis provides an interesting picture of the connection of the Arabs as regards political participation, the role of religion and the influence of geopolitics.

As regards the relations of the Arabs with politics, we firstly observe that, except in Kuwait, a lack of confidence into their governments. In the majority of Arab countries, the trust in government is limited. Secondly, it is interesting to note that the Arabs support individual freedoms (press, association, speech). The greatest

support is in Lebanon, where the strong support for individual freedom exceeds 70%. Only Jordan, Kuwait and Iraq obtained a score below 50% in terms of strong support. What should be retained is that, when we add strong and mild support for freedom, the Arabs appeal for more freedom in their society. This point is important because it confirms a previous result from the Gallup centre for Muslim studies, as quoted in Muasher (2014). To the question on the liberty of speech (Allowing all citizens to express their opinion on the political, social, and economic issues of the day), the Gallup polling response for Egypt, Tunisia and Morocco, led to only 2% or 3% of disagreement. Our result also contradicts the low democracy index for the Arab world (table 3).

As regards the relations of the Arabs with religion, this wave of the Arab barometer confirms a high degree of religiosity in the Arab society. If we add the daily and regular participation to prayer, we find a high participation rate; the 'lowest' being for Lebanon and Algeria; the highest for Sudan, Libya. Figure 5 confirms this aspect: the majority of respondents read regularly the Quran, the most active being the Egyptians, Jordanians and Tunisians and the less being the Algerians, the Yemenis and the Moroccans. Figure 5 reveals a diversity concerning the degree of religious tolerance among the respondents. The countries with a substantial share of minorities ? Lebanon, Egypt and Palestine ? are the most 'tolerant' countries whereas the countries with a lowest share on minorities are less 'tolerant', Algeria being an extreme case. This outcome also confirms a previous result quoted in Muasher (2014). According to the Gallup centre for Muslim studies, the majority of respondents to a polling study in Egypt, Tunisia and Egypt, allow all citizens to observe any religion of their choice and to practice it freely but the score was lower for Tunisia and Morocco compare to Egypt.

Concerning geopolitics, figure 6 tells us about the perception of the influence of

the United States in the region. It is important, again, to stress the diversity of perception among the respondents. A first group, composed of Algeria, Palestine, Iraq and Egypt, believe that the United States exert a negative influence on the region. The respondents from Yemen and Sudan also believe that this influence is negative, but to a lesser extent. A second group, with Libya, Morocco, Kuwait and Jordan, think that the United States exert a positive influence on their countries.

The survey represents a national probability sample design of 14805 adults 18 years and older across 222 provinces in 12 countries.

3 Theoretical Framework

There is a huge tradition in sociology and political science that deals with the motives to participation in social protests. This section will not review this literature but a detour may help to disentangle the different perspectives and factors. In a second step, we will present the economic model.

3.1 The determinants of individual participation to social protests

Moaddel (2012) gathers the different contributions to the literature on social protest in two clusters: 1/ the political conflict, resource mobilization, organizational, and political opportunity theories which he labels as PROP theories, and 2/ the mass society, structural-functional, and relative deprivation theories that he labels as MSR theories.

In the first cluster of theories look at individual factors and, in this sense, are more microeconomics. The second group seems to adopt a perspective that is more

determinist: it is more macroeconomics in the sense that more weight is given to the environment constraints on the individuals. These two clusters of theories lead to different conceptions and representation of the individual when she/he participates to social protests or to revolutionary movement.

In PROP theory, individuals are described/represented as more involved (embedded) in communities, either political or not. They are more active, in a certain sense, and take the opportunity of the occurrence of certain events to participate to social movements. This participation is a confirmation of previous engagement, or at least of a certain vision of the world to which they belong. In MSR theories, individual are more subject to emotion, to frustration, to isolation, feeling and emotions that pushes them to participate to social movements. In the more extreme case, these frustration could lead to a certain of suicide, an implementation of an emotional fatalism into political suicide, that is the participation to social protest even under very strict and risky political regimes (dictatorship, police states?).

In an economist's perspective, it seems difficult to disentangle between the individual motives. Certain individual motives can be mobilized in both clusters of theories. What is of interest is that these sociological and political theories highlight the respective roles of cultural and socioeconomic factors in the participation to the protests? Shall we consider these participants as self-conscious, embedded in organized networks as in PROP theories or shall we see them as fatalist, frustrated, powerless and constrained by global socioeconomic factors as MSR theories suggest? What is the role of ideology? In particular, in the Arab societies, what is the respective role of religious factors (religious beliefs and practices), political factors (party, beliefs in an ideology, corruption), of material constraints (material conditions, economic constraints, lack of future, etc.)?

3.2 Peer Effects Model

By using micro-data on protest participation it allows us to identify the channels through which information and communication technology might affect political mobilization. In order to model these mechanisms we extend the literature on social network with imperfect information (Jackson and Yariv, 2007). The model assumes that agents maximize the payoff from participating in protesting. The individual utility depends positively on the number of connected individuals participating in the protest through strategic complementarities, and negatively on the cost of participation.

Weak economic conditions increase protest participation through two mechanisms. Firstly, they reduce the opportunity cost of participating in mass mobilization and therefore increase everybody's willingness to participate. Secondly, spillover effect further magnifies the effect of recessions on protest participation through its ability to promote coordination. Strategic complementarities reinforce collective action as individuals behavior depends on their neighbors' best responses, knowing that everybody else will be more likely to participate.

The baseline model of social interactions analyzes the joint behavior of individuals who are located in the same province or governorate r of size n_r . Following Liu et al. (2011), we define by $N_r = \{1, \dots, n_r\}$, a finite set of individuals belonging to the same governorate structure w_r ($r = 1, \dots, R$), where R represents the total number of provinces. Total number of individuals is defined by $n = \sum_{r=1}^R n_r$.

All individuals within the same province have some interactions and influence each other's participation in mass protest, but we assume each province is independent with respect to other provinces. Interactions are driven by expectations of another individual's behavior. Within a province, all interactions are assumed to be global

and symmetric. Every individual's effort to collective action has the same weight. This assumption will be relaxed when analyzing network formation more carefully. To model interaction between individuals, we assume that an individual subjective expectation is based on the expected choice of other's effort to participate.

The matrix of interactions is specified as a block diagonal matrix $W = \text{Diag}(w_1, \dots, w_R)$. where each household corresponds to a block defined as

$$w_r = \frac{1}{n_r - 1}(\iota_{n_r} \iota'_{n_r} - I_{n_r}), \quad r = 1, \dots, R, \quad (1)$$

where ι_{n_r} is the n_r -dimensional vector of ones and I_{n_r} is the n_r -dimensional identity matrix. Thus, each element $w_{il,r}$ of the row-standardized weights matrix W for each household r is equal to $1/(n_r - 1)$ if members i and l belongs to the same province and $w_{il,r} = 0$ if $i = l$. The spatial lag term for each observation in the same province is equivalent to the average of all values in the province, excluding the observation itself. The outcome of a decision made by an individual shall not be influenced by her own outcome. In fact, the endogenous effect refers only to the contemporaneous and reciprocal effects of other participation in the province. This alleviates the difficulty of distinguishing between endogenous and contextual factors that measure the direct influence of others' characteristics.

For the linear-in-means model, each individual decision is determined by an intrinsic personal benefit and by a social conformity benefit which is defined by the norm in each province. In incorporating other individuals' influences, one could gauge the effect of interaction on the decision-maker's choice. Let $y_{i,r}^*$ denote the protest effort of an individual i in the province r . We suppose first that the effort is observed and continuous. We assume there are three components that could exert different influences on individual choices. Let a_r be the provincial-level heterogeneity in which

sociodemographic attributes are shared by all individuals living in province r . We assume that $c_{i,r}$ represents individual-level heterogeneity for each member i arising from variation in income, marital status, age, and so on, and $\mu_{i,r}$ corresponds to the subjective beliefs member i possesses about protest effort of other individuals. Let $\epsilon_{i,r}$ represent the individual unobserved characteristics. We suppose that the utility of each individual i when choosing $y_{i,r}^*$, while the other individuals choose $y_{(l \neq i),r}^*$, takes the following form:

$$U(y_{i,r}^*, y_{(l \neq i),r}^*) = y_{i,r}^*(a_r + c_{i,r} + \epsilon_{i,r}) - \frac{1}{2}y_{i,r}^{*2} - \frac{\kappa}{2}(y_{i,r}^* - \mu_{i,r})^2. \quad (2)$$

Equation (2) corresponds to the quadratic utility function considered by Bernheim (1994) and Akerlof (1997). The first term of (2) capture the intrinsic utility for each individual's independent effort toward protest $\frac{1}{2}y_{i,r}^{*2}$. The utility function is strictly concave in own effort.

The effect of other individuals' decisions is defined using $\mu_{i,r} = \sum_{l=1}^{n_r} w_{il,r}y_{l,r}^*$ so that the term $\frac{\kappa}{2}(y_{i,r}^* - \mu_{i,r})^2$ reflects the influence of other individual's behavior on an individual's decision. It corresponds to the disutility for deviating from the province norms. Therefore, each individual wants to minimize the social distance between oneself and the other household members, where κ is the parameter describing the strength of the peer effect, or the effort toward sharing similar effort. As detailed in Ballester et al. (2006), neighboring influences are captured by the cross-derivatives. Negative values for κ would lead to negative cross-derivatives and reveal that participation efforts are strategic substitutes. Observing a high willingness to protest from neighboring individuals would deter one's participation. On the other hand, if κ is positive, an increase in other's participation effort would trigger a positive shift in one's reaction, allowing these two efforts to be strategic complements. A high,

positive value would indicate a high taste for conformity in protest effort, while a low positive value suggests individuals do not value coordination in effort and demonstrate no willingness to conform to its neighbors' behavior. The empirical section will test whether the effort of neighboring individuals are strategic substitutes or strategic complements.

The utility of individual decision maker depends also on the observable characteristics of other individuals in the province. In fact, the effort may also depend on province-specific effects, because of weak regional economy or isolated regions, for instance. We define the idiosyncratic heterogeneity, which is assumed to be deterministic, perfectly observable by all members in the household and corresponds to the observable characteristics of member i (like e.g. sex, age, education, income, etc.) and to the observable average characteristics of individual i 's other household members, i.e. average age of the other members excluding own observation, etc. (contextual effects).

Participation in mass protest depends on observable socio-political environment that are province-specific a_r , but also on unobserved effects ζ_r , such the disarray of years of abandonment. Thus, regional-specific effects a_r and observable individual characteristics $c_{i,r}$ can be written as:

$$a_r = \sum_{p=1}^P z_r^p \xi_p + \zeta_r, \quad (3)$$

$$c_{i,r} = \sum_{q=1}^Q x_{i,r}^q \varphi_q + \sum_{q=1}^Q \sum_{l=1}^{n_r} w_{il,r} x_{l,r}^q \theta_q \quad (4)$$

where $x_{i,r}$ is the Q -dimensional vector of individual-specific characteristics, z_r corresponds to the P -dimensional vector of province-specific characteristics that are common for all individuals living in the same province r and $\theta_q, \xi_p, \varphi_q$ are parameters of

interest.

One of the persistent dilemma relies on the difficulty to disentangle endogenous peer effects coming from interactions between individuals' willingness to engage in mass protest from correlated unobservable effects stemming from a common socio economic political environment shaping individual political predisposition and preferences. In fact, Lee (2007) shows that interaction effects cannot be identified if there is no variation in size between groups or provinces. He proposes to model unobserved heterogeneity via fixed effects and discusses efficient estimators to overcome the incidental parameter problem. We implement the popular correlated random effects model (Chamberlain 1984) for which parameters of interest and marginal effects are easily identified. For this approach, dependence between the unobserved effects and covariates is restricted through assumptions on the conditional distribution of heterogeneity given the covariates. Thus, both the incidental parameters problem associated with the fixed effect model and the strong assumption of independence imposed by the random effect model are avoided. The main advantage of this approach relies on its simplicity to evaluate partial effects for discrete choice models.

When all individuals choose protest effort $y_{i,r}^*$ simultaneously to maximize their utility defined in (2), the following first-order conditions result:

$$\frac{\delta U(y_{i,r}^*, y_{(l \neq i),r}^*)}{\delta y_{i,r}^*} = ar + c_{i,r} + \epsilon_{i,r} - y_{i,r}^* - \kappa(y_{i,r}^* - \mu_{i,r}) \quad (5)$$

Assuming that the $(a_r, c_{i,r})_{1 \leq i \leq n_r}$ are observed by all individuals across provinces, the model reaches the following non-cooperative Nash social equilibrium for which

$(y_{i,r}^*, \dots, y_{n_r,r}^*)$ satisfies:

$$\begin{aligned}
y_{i,r}^* &= \frac{1}{1+\kappa}(a_r + c_{i,r} + \epsilon_{i,r}) + \frac{\kappa}{1+\kappa} \sum_{l=1}^{n_r} w_{il,r} y_{l,r}^* \\
&= \rho \sum_{l=1}^{n_r} w_{il,r} y_{l,r}^* + \sum_{q=1}^Q x_{i,r}^q \beta_q + \sum_{p=1}^P z_r^p \lambda_p + \\
&\quad \sum_{q=1}^Q \sum_{l=1}^{n_r} w_{il,r} x_{l,r}^q \gamma_q + \nu_r + \epsilon_{i,r},
\end{aligned} \tag{6}$$

where $\rho = \frac{\kappa}{1+\kappa}$, $\beta = (1-\rho)\varphi$, $\gamma = (1-\rho)\theta$, $\lambda = (1-\rho)\xi$, $\nu = (1-\rho)\zeta$ and $\epsilon = (1-\rho)\epsilon$. Since W is a doubly stochastic matrix, a unique Nash equilibrium is defined when $|\rho| < 1$. Strategic interaction between individuals can be characterized by protesting efforts that are either complements ($\rho > 0$) or substitutes ($\rho < 0$). Lee (2007) and Bramoullé et al. (2009) show that identification of the interaction effects may be possible only when there are various group sizes and when the spatial Durbin model does not collapse to the so-called spatial error model.

It is important to note that this framework relies on continuous quantitative models for which the willingness to participate $y_{i,r}^*$ is observed. In this study, the participation to protest will be analyzed using discrete choice models. For the linear-in-means model, each individual's subjective belief corresponds to the mathematical expectation of the average choice across each province. For discrete choice models, interaction effects no longer depend linearly on other household members anymore. Previous studies (Brasington and Parent, 2016) have shown that the latent utility derived from probit models can be equivalent to the Nash equilibrium defined in (6).

4 Empirical Results

Similar to Brasington and Parent (2016), we implement a Bayesian approach to estimate a spatial probit model. Estimation results are based on a simulated chain, where the first 10,000 iterations are discarded as a 'burn-in' period, followed by 40,000 iterations that were collected to produce posterior summaries for the parameters of interest. Prior distributions are similar to the ones described in Kim and Parent (2016).

Interpretation of probit models with spatial dependence has been deeply analyzed by LeSage et al. (2009). Because parameter estimates of traditional probit model cannot be interpreted directly, particular attention has to be given to direct and indirect effects. The identification of these effects is of paramount importance for policy purposes. It allows us to disentangle direct effects coming from a change in one's individual characteristic from indirect or peer effects coming from a change in other members' household behavior or characteristics.

In fact, in addition to altering the individual's own willingness to protest, spillover effects will generally impact the other members' decisions via two different mechanisms. A change in individual behavior will have a direct impact of the behavior of other neighboring individuals (endogenous or peer effect) and for a change of individual characteristics, the willingness to protest of peers will be altered (contextual effect).

As described in LeSage et al. (2011) the indirect effects cumulate the spillover effects falling on all other individuals living in the same province. The sum of the direct and indirect effects represents the total effects and reflects the cumulative change in probability of participation arising from a change in an individual characteristics. Direct, indirect, and total effects are presented in Table 6. We report the posterior

means of the estimated parameters and their standard deviations.

We find that social interaction effects play a central role in individual participation in mass protest. The strength of peer or endogenous effects ρ is highly significant with a value of 0.82. This estimates shows a strong impact of neighboring individual behavior. The individual propensity to participate in social protest is affected by the prevalence of that behavior among the individual's peers. This leads to the observation for most determinants, the total effects are mostly explained by the indirect effects, i.e. effects arising from other individuals living in the same province.

Young, urban and well-educated citizens are often described as the most influential demographic group engaged in the spread of democratic ideas. Results confirm that individuals being between 20 and 30 years old (+0.146) followed by young individuals of less than 20 years old (+.128) have the highest propensity to demonstrate. The age 20–30 cohort consists also of young individuals entering the prime of their working age years. Their political behavior would be more responsive toward poor labor market conditions.

Campante and Chor (2012) underline that the expansion of education in the Arab world was matching with weak prospects for the workforce. They argue that these conditions are robust predictors of political instability. The causal nature of this relationship has yet to be established. However a large body of empirical evidence has shown that individuals attaining higher educational levels have a higher propensity to engage in political activities (Glaeser, Ponzetto, and Shleifer 2007). With weak economic condition, educated workers have lower opportunity cost of political engagement making them more likely to channel their effort toward political activism. Effort intensive activities like public protest then become an important vehicle of expression given the high foregone income that such individuals should command. A more peaceful resolution via the electoral process could have been thought within a

more democratic institutional framework.

Whereas our results do not reveal any negative effects of workers on participation for mass protest, we do observe a significant impact of education on the willingness to protest. The increase in participation ranges from (+0.310) to (+0.414) for educational level going from elementary up to a BA.

Cross-country studies generally claim a causal relation between income and education and support for democracy (Barro, 1999; Epstein et al., 2006). Mass education and higher incomes reduce the intensity of conflict over the distribution of income, and thereby give way to democratic institutions that discourage expropriation and support redistributive fiscal policies under the rule of law.

However, the empirical work has struggled to show a clear causal effect from within-country increases in schooling to improvements in democracy. For example, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004) find Lipsetian results, where human capital is the root cause of economic development. Murin and Wacziarg (2013) confirm strong empirical link from the level of development, particularly as captured by the level of primary schooling, to democracy.

While Acemoglu, Johnson, Robinson, and Yared (2009) argue an efficient institutional framework is a prerequisite for expanding education levels and economic growth.

The connections between education, the economic environment, individual political engagement, and institutional change will most certainly continue to play a large role in driving political developments and dynamics in the years to come.

Economic and institutional development tend to go hand in hand, and so "modernization" including the expansion of education-naturally begets democracy. Modernization can instead be destabilizing in the absence of the necessary institutional infrastructure to support the process of change.

Thus, one interpretation is that in the societal pressures against incumbents has been building up for years in the Middle East. The absence of democratic mechanisms for regime change eventually found expression in popular outbursts of protest. Our results reveal that the most important challenge that are facing individual today and that had an impact on the willingness to protest is the strengthening of democracy (+0.259). Whereas individuals with higher willingness to protest tend to have hope in the betterment of the economy (+0.173), they display no trust in their public institutions.

In fact, higher willingness to protest is observed young educated individuals suffering from current economic situation but hoping for brighter future and for individuals living in areas with higher income inequalities (+0.011). Individuals who value influences of neighboring countries tend to participate more to mass protest (+0.259). However, when asked whether global connectivity would enrich cultural diversity, individuals who feel that traditional values are threatened will increase participation in these upheavals (+0.231).

Political stability is also shaped by a strong network of international support. Withdrawal of massive foreign support would trigger major financial crisis. Coercive regimes lose capacity to hold on to power when losing international support. Estimations results confirm that individuals protesting tend to value influence of neighboring countries (+0.259) and that economic relationship with the US can be valuable (+0.308).

Finally, our results reveal also the willingness to protest of another types of individuals that are illiterate (+0.194), untrustworthy in the future of the economy (+0.092), thinking that the other countries have negative influence (+0.148), and that global connectivity can be harmful (+0.042).

Even though the initial surge of protest across the MENA region was seen as

leaderless and largely led by non-ideological movements, our study shows a more diverse array of actors having strong political and economic demand.

5 Conclusion

Protests occur when the social and economic environment leads to significant levels of discontent for a large proportion of the population. In the case of the Arab uprisings, a broad coalition of different protest movements and social movements coexisted and came together to bring about change.

First, our descriptive statistics reveals that the political context is favorable for pluralism, democracy and religious tolerance in the Arab world. Whereas the descriptive analysis also portrays a global picture of religious tolerance among the respondents that goes with a high degree of religiosity, the empirical results reveal an ideologically diverse set of actor.

Focusing on structural forces, the demographic plays a central role. Youth tend to be more likely to act on their political beliefs through public demonstration. Human capital accumulation stemming from an improvement in educational opportunities for the youth can lead to two opposite effects. On one side it raises skilled workers' expectation, being more demanding in term of salary. On the other side, human capital accumulation triggers economic growth by enhancing labor productivity. Lack of redistribution of those capital gains would lead to higher income inequality and stronger propensity to protest. Our empirical results confirm the importance of inequalities that increases individuals' willingness to protest.

Most importantly, this study shows that individual propensity to engage in certain deviant behavior or social protest is affected by the prevalence of that behavior among the individual's peers. The economic model and its estimation can then gen-

erate better predictions and better guidance for policy. By quantifying the effects stemming from peer influences, our results reveal a unique situation for which two types of individuals have higher propensity to protest. The educated, with high hope in global modernization, but also the illiterates and those who foresee dramatic economic conditions.

References

- [1] Akerlof, G.A., 1997. Social distance and social decisions. *Econometrica* 65, 1005-1027.
- [2] Acemoglu, D., Hassan, T and A. Tahoun, 2016, The power of the street. Evidence from Egypt's Arab spring, mimeo, August, 76 p.
- [3] Acemoglu, D. and Robinson, J. A. (2006), *Economic Origins of Dictatorship and Democracy*, Cambridge University Press.
- [4] Bernheim, B.D., 1994. A theory of conformity. *Journal of Political Economy* 102, 841-877.
- [5] Bond, R. M., Fariss, C. J., Jones, J. J., Kramer, A. D., Marlow, C., Settle, J. E. and Fowler, J. H. (2012), 'A 61-Million-Person Experiment in Social Influence and Political Mobilization', *Nature* 489(7415), 295-298.
- [6] Campante, F. R. and Chor, D. (2012), 'Why Was the Arab World Poised for Revolution? Schooling, Economic Opportunities, and the Arab Spring', *Journal of Economic Perspectives* 26(2), 167-187.

- [7] Chamberlain, G., 1984. Panel Data. In: Griliches, Z., Intriligator, M.D., (Eds.), Handbook of Econometrics, Volume 2, Amsterdam, North Holland, pp. 1248-1318.
- [8] DellaVigna, S. and Kaplan, E. (2007), 'The Fox News Effect: Media Bias and Voting', Quarterly Journal of Economics 122(3), 1187-1234.
- [9] Dupont C. and Passy, F. (2011), 'The Arab Spring or How to Explain those Revolutionary Episodes?', Swiss Political Science Review, 17(4), pp. 447-451.
- [10] Jackson, M. O. and Yariv, L. (2007), 'Diffusion of Behavior and Equilibrium Properties in Network Games', American Economic Review 97(2), 92-98.
- [11] Ho?gstro?m, J. (2010), 'Classification and Rating of Democracy. A comparison?', Taiwan Journal of Democracy, 9 (2), pp. 33-54.
- [12] Manski, C. F. (1993), 'Identification of Endogenous Social Effects: The Reflection Problem', The Review of Economic Studies 60(3), 531-542.
- [13] Moaddel, M. (2012), 'The Arab Spring and Egyptian Revolution Makers: Predictors of Participation?', Population Studies Center Research Report 12-775, p. 1-41.
- [14] Moffitt, R.A., 2001. Policy interventions, low-level equilibria, and social interactions. In Durlauf, S.N., Young, H.P., (Eds), Social Dynamics, MIT press, Cambridge, pp. 45-82.
- [15] Morozov, E. (2012), The Net Delusion: The Dark Side of Internet Freedom, Public Affairs.
- [16] Muasher, M. (2014), The Second Arab Awakening and the Battle for Pluralism, Yale University Press.

- [17] Yanagizawa-Drott, D. (2014), ‘Propaganda and Conflict: Evidence from the Rwandan Genocide’, *Quarterly Journal of Economics* 129(4), 1947-1994.
- [18] Zouache A. 2017a, the political economy of electoral reforms in lebanon, mimes.
- [19] Zouache, A. 2017b, islam, institutions, development, and the mistakes of orientalist economics, mimes.

Appendix A -

Table 1: Arab Spring participation across countries

Country	mean
Yemen	39.17
Libya	32.64
Tunisia	18.60
Sudan	14.67
Egypt	13.46
Palestine	11.83
Kuwait	10.09
Morocco	9.14
Iraq	5.84
Algeria	4.26
Jordan	3.12
Lebanon	2.92

FIGURE

Figure 1: Trust in the government

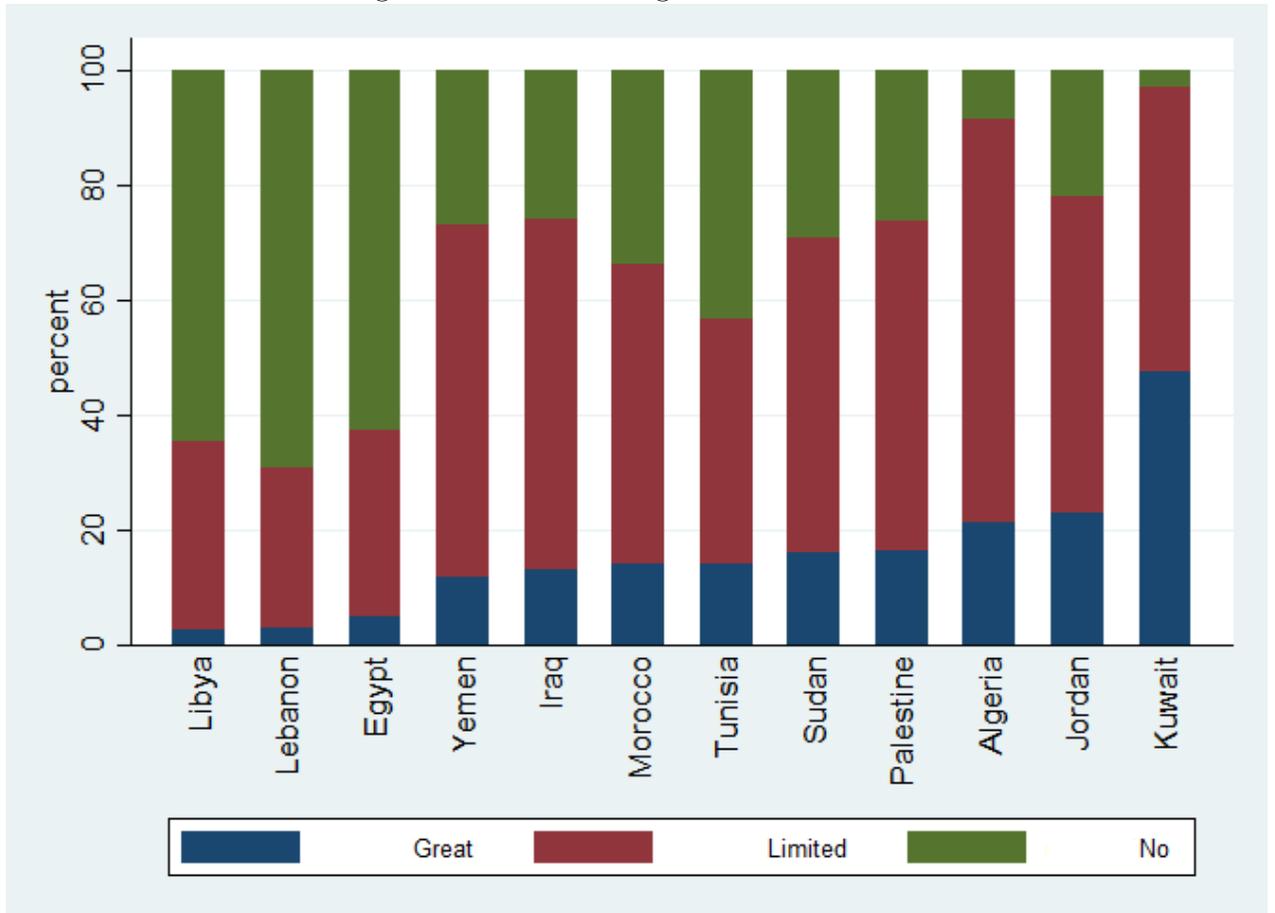


Figure 2: Support Individual political freedoms (press, expression, association)

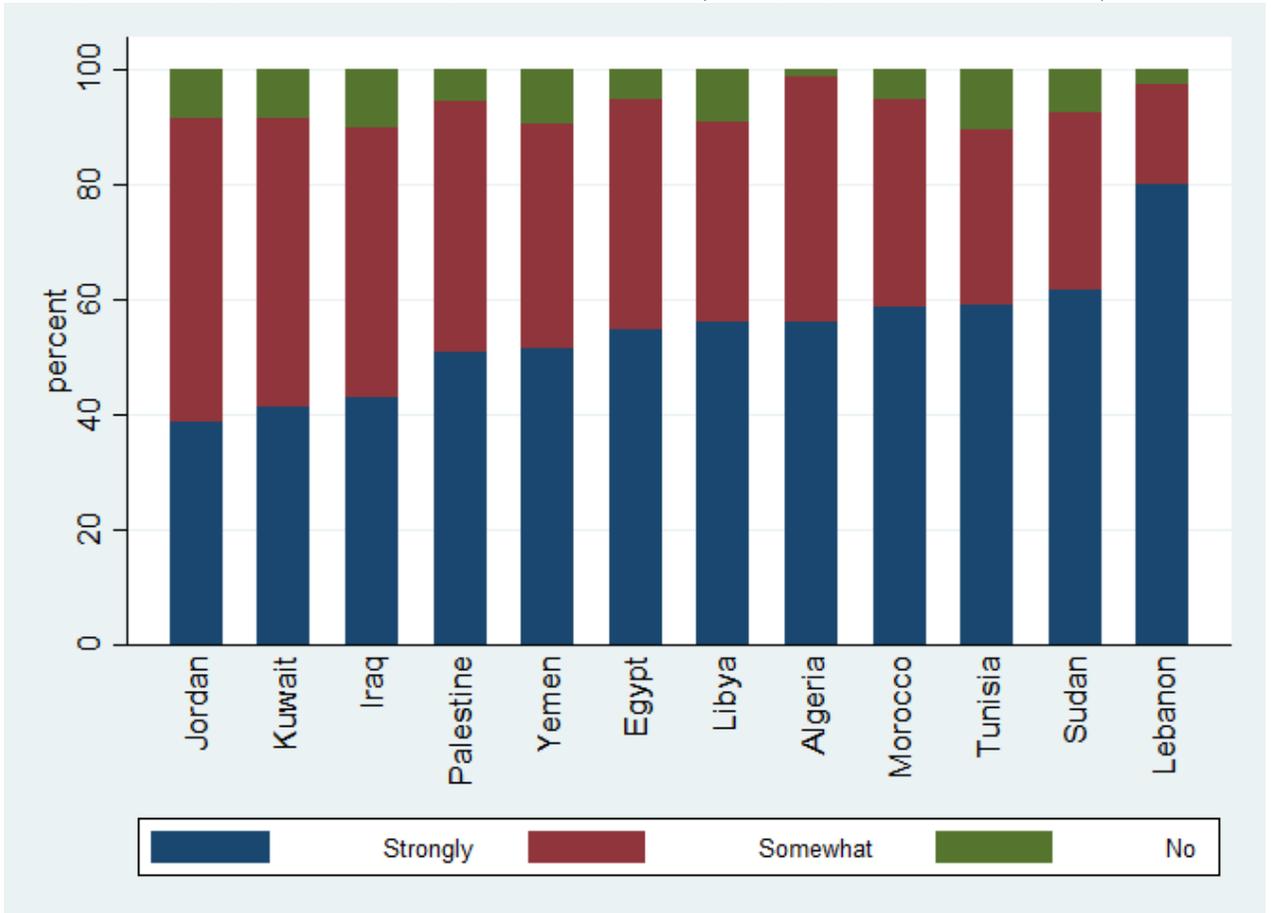


Figure 3: Daily Prayer

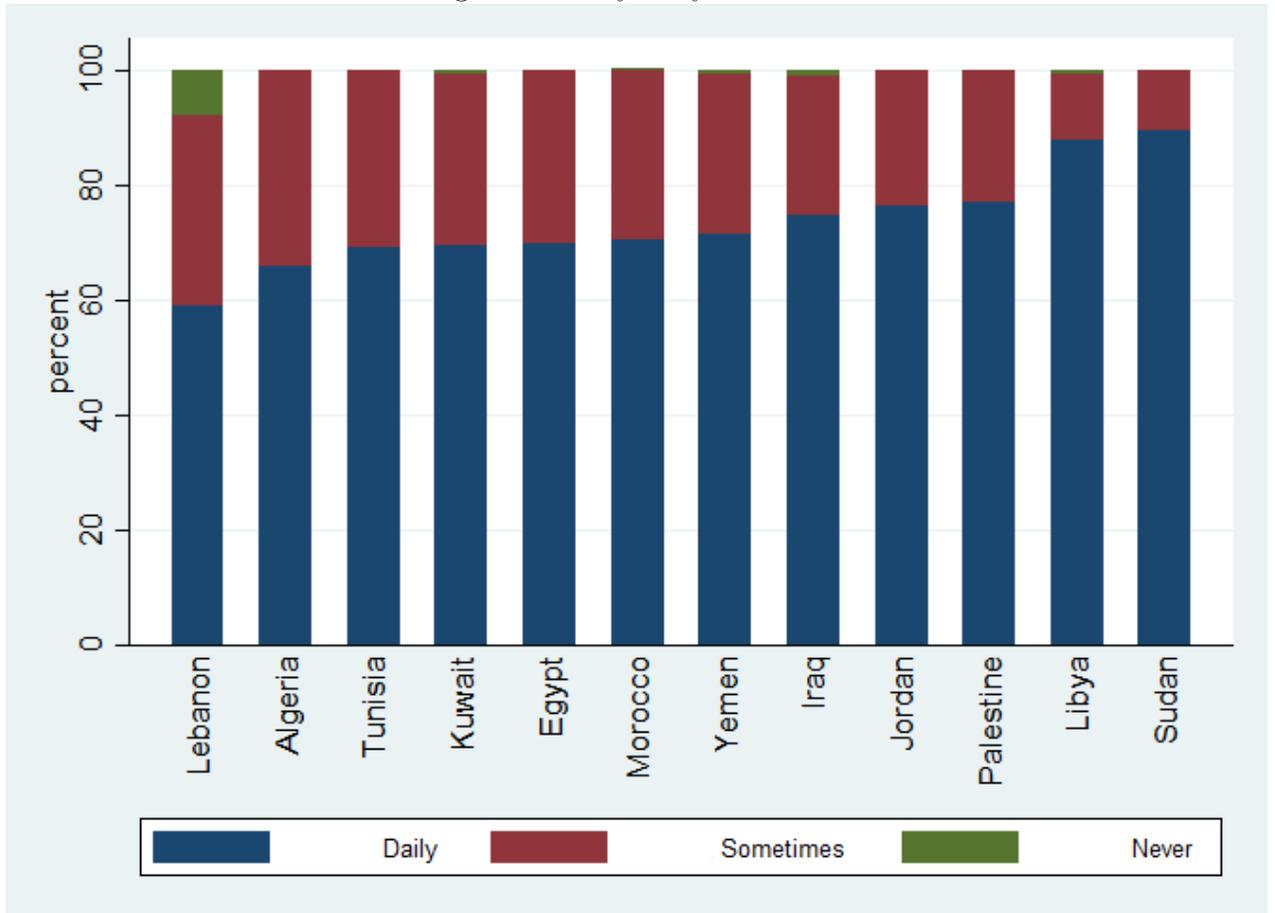


Figure 4: Freedom of Religion for Minorities

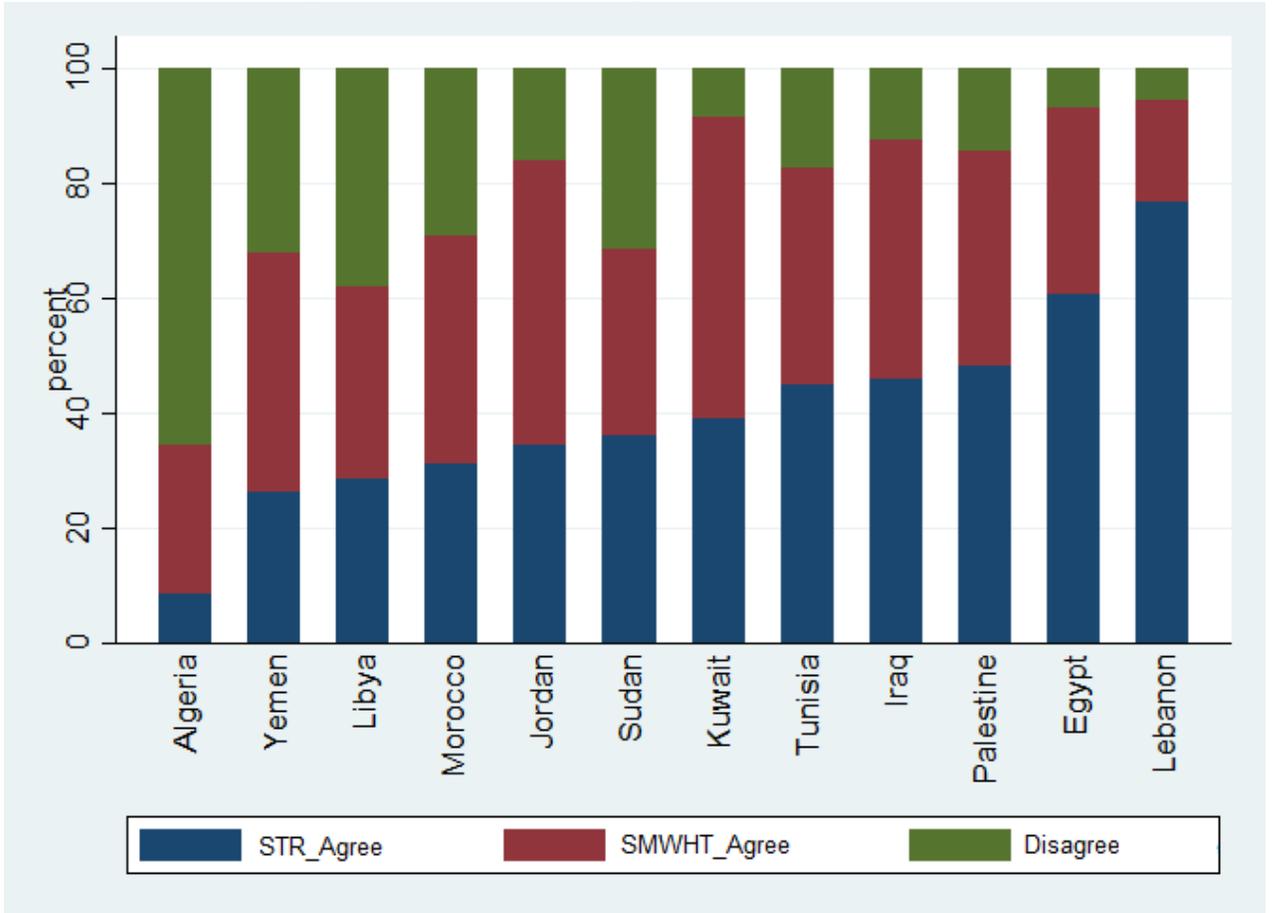


Figure 5: Reading Quran/Bible

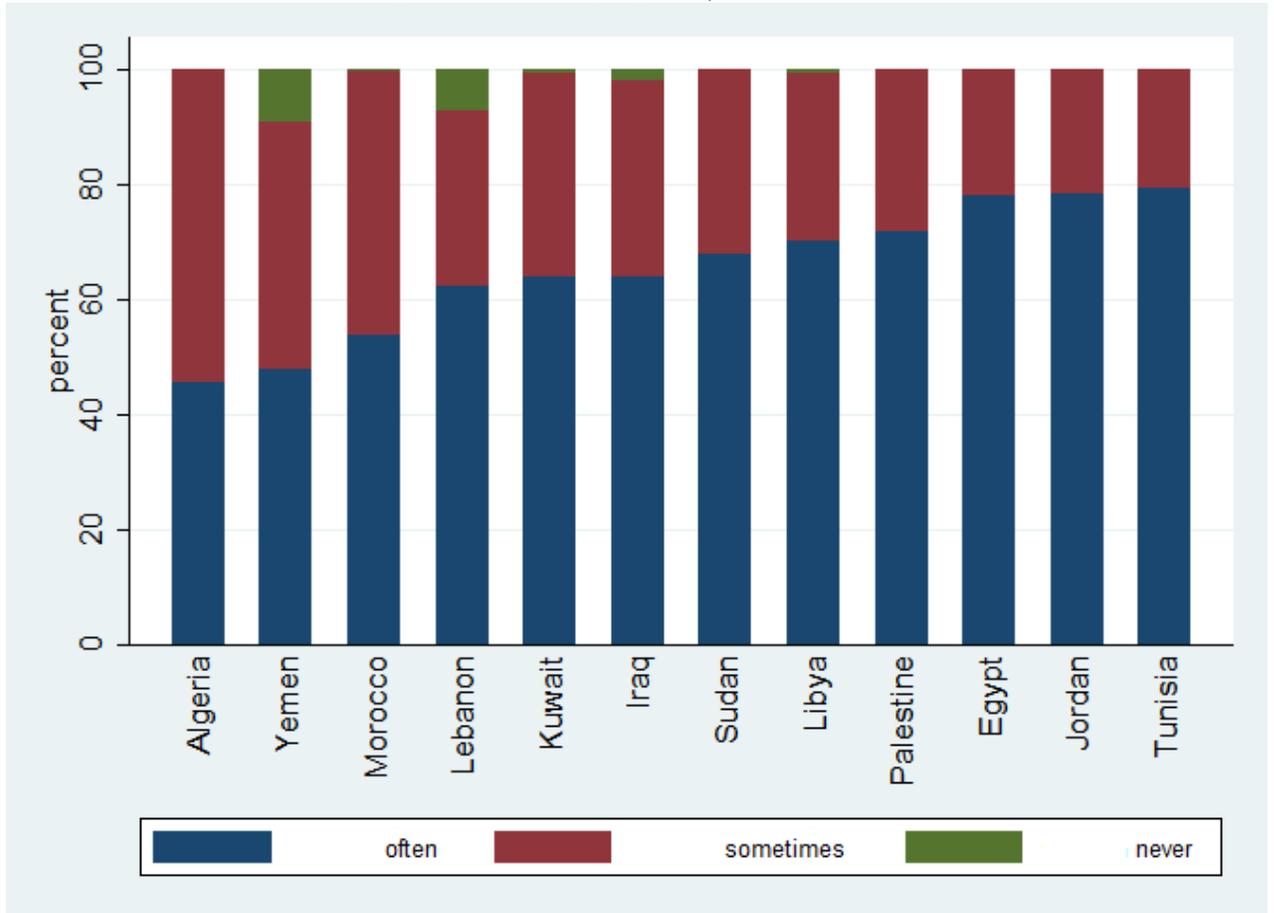


Figure 6: Influence of the United States on the development of democracy

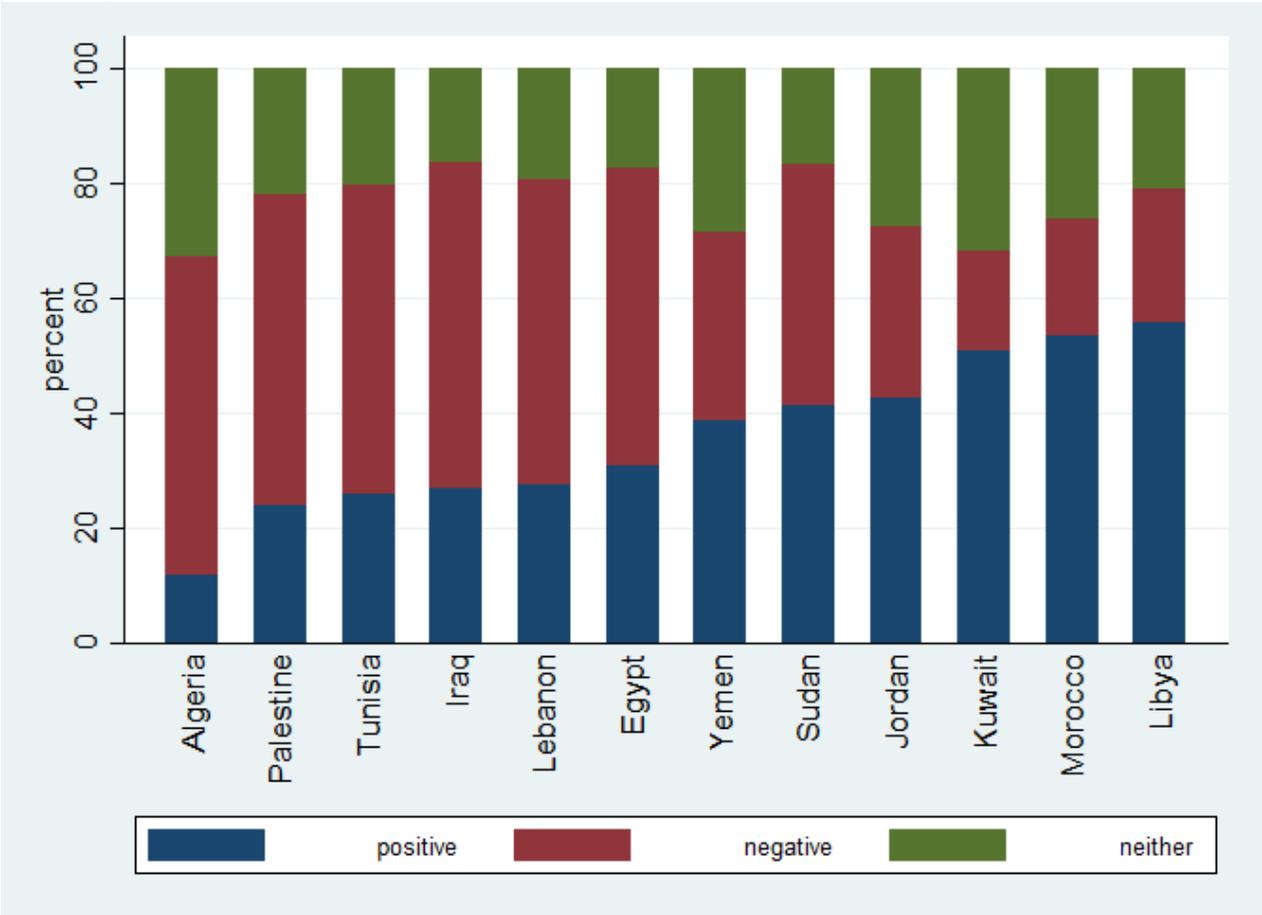


Table 2: Average household income

Country	mean	Theil Index
Kuwait	10322.23	.09
Lebanon	1222.09	.26
Libya	886.43	.34
Palestine	761.09	.30
Jordan	731.64	.24
Iraq	717.69	.27
Algeria	716.74	.34
Yemen	693.83	1.33
Morocco	484.98	.29
Tunisia	409.61	.90
Egypt	198.9622	.22
Sudan	70.93	3.53

Table 3: Descriptive Statistics

Country	Number of Obs.	Perceived Democracy		Democracy Index 2013
		Mean	S.D.	Value
Algeria	1129	6.33	1.96	3.83
Egypt	1056	3.31	2.50	3.27
Iraq	1171	4.68	2.53	4.1
Jordan	1722	5.73	2.31	3.76
Kuwait	1011	6.30	2.53	3.78
Lebanon	1192	4.10	2.74	5.05
Libya	1171	3.37	3.00	4.82
Morocco	1036	3.99	2.41	4.07
Palestin	1166	4.57	2.65	4.8
Sudan	1125	3.91	3.27	2.54
Tunisia	1067	4.33	2.45	5.76
Yemen	1123	4.03	2.52	2.79

Table 4: Descriptive Statistics

Variable	mean	s.d.	min	max
Dependent Variable				
protest	0.13	0.34	0	1
Individual Characteristics				
Male	0.50	0.50	0	1
age_less_20	0.05	0.22	0	1
age_20_29	0.29	0.45	0	1
age_30_39	0.25	0.43	0	1
age_40_49	0.21	0.40	0	1
age_50_59	0.12	0.32	0	1
Socio-Economic Characteristics				
Illiterate	0.15	0.35	0	1
Elementary	0.16	0.37	0	1
secondary	0.22	0.41	0	1
Midlevel	0.10	0.31	0	1
BA	0.16	0.37	0	1
work	0.45	0.50	0	1
single	0.31	0.46	0	1
urban	0.61	0.49	0	1
Theil	0.67	0.91	0.09	3.53
Household income (monthly, in \$ chained 2013)	931.05	2207.78	0	65000
Culture-Governance-Political View				
econ_very_good	0.06	0.24	0	1
econ_bad	0.34	0.47	0	1
econ_very_bad	0.28	0.45	0	1
future_econ_much_better	0.17	0.38	0	1
future_econ_somewhat_better	0.30	0.46	0	1
future_econ_same	0.21	0.41	0	1
future_econ_somewhat_worse	0.13	0.34	0	1
govern_great_trust	0.15	0.36	0	1
govern_limited_trust	0.19	0.40	0	1
govern_no_trust	0.34	0.47	0	1
Quran_always	0.37	0.48	0	1
Quran_most	0.27	0.45	0	1
Quran_sometimes	0.23	0.42	0	1
Quran_rarely	0.08	0.28	0	1
neigh_infl_very_positive	0.12	0.33	0	1
neigh_infl_positive	0.22	0.41	0	1
neigh_infl_negative	0.15	0.36	0	1
neigh_infl_very_negative	0.14	0.35	0	1
US_econ_relation_stronger	0.45	0.50	0	1
US_econ_relation_weaker	0.23	0.42	0	1
global_connectivity_very_good	0.37	0.48	0	1
global_connectivity_good	0.36	0.48	0	1
global_connectivity_bad	0.06	0.24	0	1
global_connectivity_very_bad	0.03	0.16	0	1
challenge_economy	0.68	0.47	0	1
challenge_corruption	0.18	0.38	0	1
challenges_democracy	0.03	0.16	0	1
challenges_foreign_influence	0.04	0.17	0	1

Table 5: Increases in Schooling Attainment across the World - Barro-Lee dataset (2016),

Rank	country	1980	2010	Increase
1	Botswana	3.12	9.55	6.43
2	Singapore	5.26	10.81	5.55
3	Germany	7.03	12.37	5.34
4	Iran (Islamic Republic of)	3.58	8.88	5.3
5	United Arab Emirates	3.89	9.07	5.18
7	Jordan	4.55	9.59	5.04
9	Libyan Arab Jamahiriya	3.26	8	4.74
10	France	5.96	10.68	4.72
13	Egypt	2.65	7.15	4.5
15	Iraq	2.74	7.16	4.42
18	Saudi Arabia	4.26	8.53	4.27
19	Tunisia	3.25	7.48	4.23
28	Algeria	2.81	6.68	3.87
29	United Kingdom	8.41	12.24	3.83
44	Yemen	0.23	3.68	3.45
57	Morocco	1.76	4.96	3.2
123	Sudan	1.27	3.21	1.94
141	USA	12.03	13.18	1.15

Figure 7: Percentage of protests

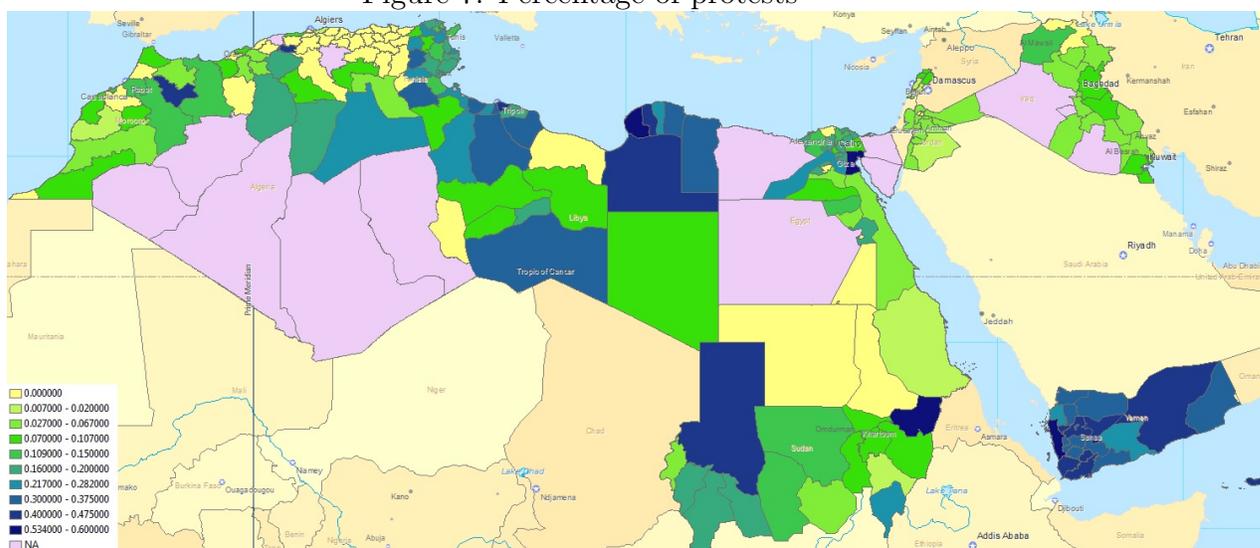


Table 6: Direct, Indirect and Total Effects

Variable	Direct	Indirect	Total
Male	0.087 ***	0.389 ***	0.476 ***
Illiterate	0.035 ***	0.158 ***	0.194 ***
Elementary	-0.001	-0.007	-0.008
secondary	0.056 ***	0.253 ***	0.310 ***
Midlevel	0.064 ***	0.289 ***	0.353 ***
BA	0.075 ***	0.338 ***	0.414 ***
work	-0.004	-0.018	-0.022
single	0.031 ***	0.139 ***	0.170 ***
urban	-0.012	-0.053	-0.064
econ_very_good	-0.044 ***	-0.195 ***	-0.239 ***
econ_bad	0.021 ***	0.095 ***	0.116 ***
econ_very_bad	0.017 ***	0.075 ***	0.092 ***
future_econ_much_better	0.032 ***	0.142 ***	0.173 ***
future_econ_somewhat_better	0.020 ***	0.092 ***	0.112 ***
future_econ_same	0.016 ***	0.073 ***	0.089 ***
future_econ_somewhat_worse	0.017 ***	0.075 ***	0.092 ***
govern_great_trust	-0.008	-0.036	-0.044
govern_limited_trust	0.002	0.010	0.012
govern_no_trust	0.007 ***	0.034 ***	0.041 ***
Quran_always	0.034 ***	0.152 ***	0.186 ***
Quran_most	0.030 ***	0.135 ***	0.165 ***
Quran_sometimes	0.010	0.044	0.053
Quran_rarely	0.049 ***	0.221 ***	0.270 ***
neigh_infl_very_positive	0.047 ***	0.212 ***	0.259 ***
neigh_infl_positive	0.038 ***	0.172 ***	0.210 ***
neigh_infl_negative	0.023	0.103	0.126
neigh_infl_very_negative	0.027 ***	0.121 ***	0.148 ***
US_econ_relation_stronger	0.056 ***	0.252 ***	0.308 ***
US_econ_relation_weaker	0.058 ***	0.261 ***	0.319 ***
global_connectivity_very_good	0.024	0.107	0.131
global_connectivity_good	0.017	0.075	0.091
global_connectivity_bad	0.022	0.097	0.118
global_connectivity_very_bad	0.042 ***	0.189 ***	0.231 ***
challenge_economy	-0.004	-0.017	-0.021
challenge_corruption	0.001	0.004	0.005
challenges_democracy	0.047 ***	0.212 ***	0.259 ***
challenges_foreign_influence	0.026	0.117	0.143
theil	0.002 ***	0.009 ***	0.011 ***
age_less_20	0.023 ***	0.105 ***	0.128 ***
age_20_29	0.026 ***	0.120 ***	0.146 ***
age_30_39	0.023 ***	0.103 ***	0.125 ***
age_40_49	0.021 ***	0.095 ***	0.116 ***
age_50_59	0.016 ***	0.071 ***	0.087 ***
Variable	Coefficient	Std Deviation	
ρ	0.829 ***	0.012	