**The Impact of Mass Media on Voting Behavior: The Cross-Country Evidence.**

Very Preliminary. Comments welcome.

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**Abstract.**

In this study, we challenge the topic of vote turnout by exploring original surveys in three north African countries: Algeria, Libya and Tunisia. We test the impact of media consumption on individual intention to vote. The existing literature argues that Media could stimulate political participation, however, the empirical evidence still scarce especially in the aforementioned countries. The use of BBC Media Action surveys provides the opportunity to fill this research gap. Separately in each country we verify the role of media in the intention to vote using logistic regressions. To make the results more robust, we add to our regressions a set of socio-demographic control variables. Our findings clearly show that media consumption increases the intention to vote. Furthermore, we confirm that age, education and location are significant predictors of the likelihood to vote in the studied societies. We believe these results have a practical meaning in term of policy making.

**Key words**: Voting Behavior, Mass Media, Cross-Country Comparison.

**Code JEL : D72, L82.**

## 1- Introduction.

The participation in elections has been decreasing since 1960, which is a loss given the high cost of organizing elections (Lijphart 1997, Feddersen, 2004). Many authors argue that mass media may contribute in mobilizing voters to go to polls (Müller, 2010). Furthermore, Vreese and Semetko (2004) argue that media play a critical role in reinforcing democracy and informing electorate. However, the empirical studies in this field are still scarce, especially in Arabic countries. The aim of this paper is to test empirically the impact of mass media on voting behavior in three North African countries: Algeria, Libya and Tunisia.

The methodology of this article is based on estimating logit model to test the impact of media consumption on individuals' willingness to vote. For this purpose, we explore original household surveys undertaken by ''BBC Media Action'' in 2018, which allows a unique opportunity for a cross-country comparison. The surveys cover 3000 households in both Algeria and Libya. In Tunisia 1000 households were surveyed and only young members (16-35 years old) were included in the survey. The surveys measure variables about media consumption (the frequency of access to different kind of media), intention to vote, socio demographics and trust in government and political leaders. We will mainly focus on the intention to vote in the next elections; people were asked if they plan to vote in the next presidential elections. Some of them declared that they are very likely to vote while other respondents are very unlikely to vote (likert scale). We will test whether this variable could be predicted by media consumption, trust in political leaders and other socio demographics.

The results show that in Algeria, people who access newspapers are more likely to vote in the next presidential election. However, we did not find a significant impact of other media (TV, radio and social media) on the probability to vote. We also find the positive impact of age and education on the intention to vote. Furthermore, people in rural areas are more likely to vote. Finally, individuals who are actively looking for information about politics and economics are more likely to vote.

In Tunisia, the results are quite different given that the sample covers only 16-35 years old. The proportion of respondents who have the intention to vote in the future election is low (20.5%). We did not find a significant impact of access TV, internet and social media on the intention to vote. However, the result shows that people who access radio and newspapers frequently are more likely to vote. In addition, older individuals, high educated, people in urban area and people who are actively looking for information about politics and economics are more likely to vote. In contracts, we did not find a significant impact of gender on the probability to vote.

In the case of Libya, the dependent variable is slightly different; people were asked to what extent Libyan media influence their decision to vote. The result shows that females are less likely to be influenced by media in their decision to vote. Location and age do not seem to have a significant impact on the decision to vote. Furthermore, the more frequently people access to media the more likely this influences their vote decision.

Last but not least, we have verified the significant impact of trust in the political leaders on the willingness to vote for the three countries. The outline of this paper is organized in four sections: the second section will present the theorical framework. In the third section we will describe the

methodology and data description. The results of the empirical analysis will be presented in the fourth section. Section five will conclude with some policy implications.

## 2- Theoretical background

This article is related to literature on media consumption and its impact on individual behavior. The issue was tackled using different methods and approaches. Dealing with the topic of the impact of media on individual behavior, Gentzkow & Shapiro (2006) have revealed the relationship between media products and consumers expectations. The authors argue that when consumers are uncertain about the quality of information sources, they rely on the media which provide information suitable to their expectation. This is why some media tend to produce suitable products to consumers expectation, hence, they neglect the truth about the information, which makes ''media bias''. The authors suggest that in a competitive market of media, this bias will be reduced. Doms & Morin (2004) argue that Media has a significant impact on individual perception of the economy, they build R-word index of *The Economist* to show that in period when the media do not cover sufficiently the economic events, people perception of the economy was quite away from the reality.

Dahl and DellaVigna (2009) studied the impact of media on individual behavior by investigating the impact of media violence and the number of crimes. The findings show that in the short term (in the same day) the media violence tend to reduce the number of crimes, this is because the exposed person will be in the cinema watching a movie. After exposure to the movie, the number of crimes also decrease. The authors did not provide results on the long terms effect of media violence on crimes recurrence, the later still controversial according to Shari J. Eli, (2010). By challenging the topic of the desire to be informed about economic issues and its role in the formation of public opinion, Blinder & Krueger (2004) argue that that the desire to be informed is very important for more than 75% of the US population. Except the fact that the older people are more likely to desire to be informed, this desire does not vary significantly across other socio-demographic groups (education, income, race and gender). Authors also found that Television and newspapers are the two first sources of information.

Lamla and Lein (2012) have studied the issue of consumer's inflation expectation by investigating the role of media coverage on forming those expectations. The authors recognized that people get their information mainly from media. Relying on rich media data set from Germany (4000 reports about inflation), the authors examined how people react to information provided by TV and newspapers. They measure the accuracy of consumers by comparing the expectation of professional forecasters and consumer's expectations. The findings show that the both quantity (intensity of news reports) and quality (partial information) of information are good predictors of the accuracy of consumer 'inflation expectations.

Some other authors were interested in the individual utility of media; Poort & Baarsma (2016) measured the welfare effect of television programs. The authors assume that the utility of watching TV is at least equal to the time spend on watching program (opportunity cost approach). The authors convert the number of hours spent on TV into monetary value using the hourly wage (12 euros per hours according to the study). The findings show that for each more hours spend watching TV, increase the welfare by 2.5% (0.3 euros). Another study Lin et al (2013) showed

that people demand for media and are able to pay its access; they have used contingent valuation method to estimate the willingness to pay (WTP) of Taiwanese population for the television, the results shows that people willingness to pay is $US30 per year.

Moving now to the most interesting literature dealing with the impact of media on people voting behavior; Muller (2010) has conducted an empirical study using multilevel analysis on 33 countries dataset. The findings show that the media (newspapers) consumption does not motivate people to go to the polls. Some other articles in the field of game theory were also important in feeding our literature review. Using game theoretic model, Feddersen et al (1999) show that better informed people are more likely to vote. Also, Oliveros (2014) used game theory to show the impact of media on willingness to vote.

Finally, despite the large literature on media consumption and people behaviors, we have noticed a clear scarcity when it comes to papers dealing with the impact of media on voting behavior. Our article will fill the research gap by testing empirically the impact of media on voting behavior. We will specifically be working on the case of Maghreb countries.

### 3- Econometric Approach.

As mentioned before, we utilize a logit[1] model which allows us to estimate the impact of media consumption and other socio-demographics variables on the intention to vote. We estimate the regression (1) for both Algeria and Tunisia separately. The second regression (2) will be estimated for Libya data.

$$IV_i = \beta + \gamma Mc_i + \sum_{k=1}^{r} \emptyset_k SD_{i,k} + \varepsilon_i \ (1)$$

(1)

$$EM_i = \beta + \gamma Mc_i + \sum_{k=1}^{r} \emptyset_k SD_{i,k} + \varepsilon_i \ (2)$$

(2)

$IV_i$ is a dummy variable equal to 1 if the respondent $i$ declares having the intention to vote in next elections. $Mc_i$ refers to media consumption; it's the frequency of using different type of media (TV, newspapers, Radio and Internet). This variable is binary taking the value 1 if the respondents use media at least once week and 0 if not. $SD_i$: vector of sociodemographic variables (age, gender, education, etc). $EM_i$ is used for the Libyan case, it is a dummy variable equal to 1 if the respondent $i$ declares that media encourage him/her to vote. Finally, $\beta$ is a constant and $\varepsilon_i$ is an error term.

We will mainly display the odds ratios of a binary logit models[2] showing the variation of the probability of participation to the next elections with respect to media consumption and other

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[1] For more details on the logit model, see Merouani et al 2016.
[2] Ordered logit model on the original variable of intention to vote ( rate from 1 very likely to 5 very unlikely) were run and gave the similar results.

sociodemographic variables. For example, if $\gamma$ (odds ratio) is equal to 1.85 in the equation (1), this means that people who access media at least once a week are 1.85 more likely to vote than people who have not access. If $\emptyset_k$ =2.15 (odds ratio) and $SD_i$ is gender variable (dummy=1 if the respondent is a female), this means that female are 2.15 times more likely to vote in the next elections compared to male.

## 4- Data:

The data applied in this study comes from the BBC Media Action Surveys. These surveys have been conducted separately throughout Algeria, Libya and Tunisia in 2018. Similar data has been collected which allows a unique opportunity for a cross country comparison. Stratified sampling method has been used in each of Algeria and Tunisia. For data availability reason, quota method of sampling has been applied in Libya. Hence, the surveys are representative of the national population of each country. Furthermore, in order to make sure the samples are representative of the general population, we have calculated weight variable for Algerian and Tunisian data[3]. The auxiliary variables of this weighting are age and gender for Algeria and gender and governorate for Tunisia[4]. Precisely, the surveys cover 3020 households in Algeria and 3100 in Libya. In Tunisia 1000 youth (16-35) have been covered. One person was surveyed in each household using Kish grid. The surveys measures variables about media consumption and habits but also variables about political participation, values and sociodemographic.

In this study we focus on the variables intention to vote in the next election (IV), which is measured in the same ways in Algeria and Tunisia asking the following question ʾʾ **How likely are you to vote in the presidential (municipal in Tunisia) elections?"[5].** The respondent can pick one of the following answers: [1] Very likely;  [2] somewhat likely; : [3]Neither; : [4] somewhat unlikely; : [5] Very unlikely; [99] don't know ; [88] refuse to answer.  In Libya the question was slightly different: **ʾʾ To what extent do you agree or disagree with the following statement: "Local media encourage me to vote";** So, would you say you [1] Strongly agree; [2] Agree; [3] Neither agree nor disagree; [4] Disagree; [5] Strongly disagree; [99] Don't know; [88] refuse to answer. The investigated variables have been standardized in terms of their content and coding structure using the same value code and label for all countries. In order to simplify the results we have re codified the variable of intention to vote into dummy; it's equal 1 ($IV = 1$) if respondents are likely or very likely to vote. Following (Müller, 2010), People who refuse to answer or respond by ʾʾdon't' know'' were coded as ʾʾdo not have an intention to vote'' ($IV = 0$). Respondents who are not allowed to vote and other missing are excluded. For Libya's question, we grouped people who strongly agree and agree in the same category ($EM = 1$); this category is made up by people who are more likely to be affected by media. We consider that the

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[3] In Libya the data of the census are not available, no weighting has been applied.

[4] Before proceeding to weighting, we have calculated confidence interval for the auxiliary variables and we find that the age of the sample is not significantly different than the age of the general population which makes the weighting by age not necessary.

[5] We are aware that this question could be biased in the sense that the intention to vote could be significantly different from the real participation, however, this deference is assumed not very big (Müller, 2010).

rest of respondents (those who strongly disagree, disagree or neither agree nor disagree with the statement ''Media encourage me to vote'') are not sensitive to media ($EM = 0$).

Variables above $IV\ and\ EM$ make up the dependent variables that we will try to predict using binary logit model. The independent variables are made up by: media consumption, education, age, location, confidence in government, frequency of searching information[6] and finally we capture a proxy of self-confidence highlighting whether individuals consider themselves having influence in decision made in their community[7].

## 5- Empirical results.

We start our empirical analysis by some descriptive statistics highlighting the level of access different kinds of media. Access to media diverge from a country to another; in Algeria 99% of the population has access to TV. 98% have access to satellite dishes, Access to Radio is lower; 50% of the population declare having access to radio set and 46% declare they have access to radio on mobile phone. 62% of the population declare having access to internet, 56% declare having access to social media. Finally, 53% declare having access to newspaper.

In Tunisia, access to Tv set and satellite dishes is almost universal (99%). 60% and 56% of the sample declare having access to radio set and radio on mobile phone respectively. 55% of the respondent have access to internet. 72% and 29% declare having access to social media (Facebook twitter) and online messaging, respectively. As in Algeria, access newspapers is low in Tunisia, only 10% of the respondents declare having access to newspapers.

In Libya, the result shows that 76% and 74% of the population are having access to Tv and to Satellite dishes, respectively. 32% have access to radio set and 12% have access to Radio on mobile phone. Only 13% of the sample have access to newspapers. 70% have access to internet. 66% and 46% declare having access to social media and online messaging services.

Given that having access does not mean that people use effectively those media, the surveys asked question about the frequency of using media[8]. The desctiptive statistics derived from this question are displayed in the following figure:

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[6] The following question was asked in the survey: Some people seem to follow news and current affairs most of the time, while others aren't that interested. Would you say you follow news and current affairs all the time: [1] most of the time; [2] about half the time; [3] once in a while, [4] never; [99]DK; [88] refuse.

[7]''I have little or no influence over decisions taken in my community'': the respondents can pick [1] Strongly agree; [2] Agree; [3] Neither agree nor disagree; [4] Disagree; [5] Strongly disagree; [99] Don't know; [88] refuse to answer.

[8] How frequently do you use the following types of media? Please specify whether you use the following types of media [1] several times a day, [2] once a day, [3] several times a week, [4] once a week, [5] several times a month, [6] once a month, [7] less often than once a month, or[8] never. The figure 1 convert the variable into dummy = 1 if the answers are 1 or 2 (daily use).

Figure 1 : Pourcentage of people using media by country
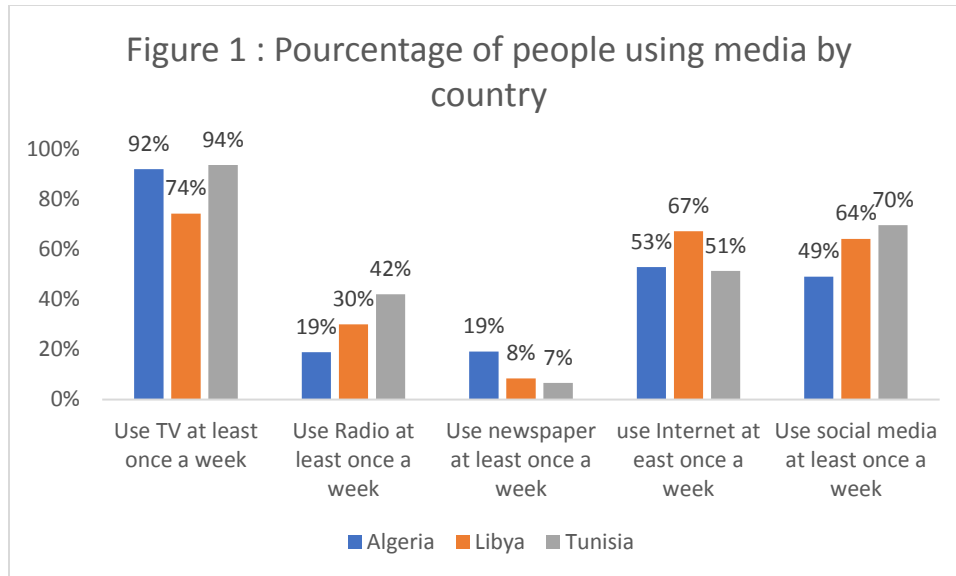
Source: BBC Media action survey.

The figure above displays the frequency of using media in the studied societies. In Algeria, 92% of Algerians watch TV at least once a week. This percentage is equal to 74% and 94% in Libya and Tunisia respectively. While half the population have access to radio, only 19% of Algerians listen to radio at least once a week. This percentage is higher in Libya (30%) and Tunisia (42%) . It seems that newspapers are less frequently used in the studied countries, 19% of people declare using newspapers at least once a week in Algeria, less people use newspaper as frequently in Libya (8%) and Tunisia (7%). More than half of the population declare using internet at least once a week in the three studied countries with more people using internet in Libya (67%). Social media maybe the main purpose for using internet; 49% of respondent in Algeria declare using social media at least once a week. In Libya and Tunisia those proportion are more important; 64% of respondents in Libya and 70% in Tunisia declare using social media at least once a week.

As we aforementioned, the intention to vote in each country is the key variables of this article. The descriptive statistics shows that 52% of people in Algeria plan to vote in the next presidential elections 2019. In Tunisia, only 23% of respondents are planning to vote in the next municipal elections. This low percentage is due to the fact that we have surveyed only youth (18-35). In Libya, 30% of the respondents agree that Libyan media encourage them to vote.

To know if this intention to vote could be predicted by media consumption, we will be running logistic regressions taking the intention to vote (Media encourage me to vote for Libya) as a dependent variable. Separately for each country, we will explain this dependent variable by media consumption but also by some demographics. The table below display the result for three countries. We tried to standardize the variables in order to make the comparison straightforward. However, given the heterogeneity of educational systems we have decided to leave the codification of education variables in their original designs.

Table 1: weighted binary logit models. The dependent variables are the intention to vote (whether media encourage Libyan to vote).

| VARIABLES | (Algeria) odds ratio | (Libya) odds ratio | (Tunisia) odds ratio |
|---|---|---|---|
| Using TV at least once a week | 1.255 | 2.302*** | 0.856 |
| | (0.189) | (0.268) | (0.329) |
| Using Radio at least once a week | 1.061 | 1.258** | 1.348* |
| | (0.113) | (0.114) | (0.244) |
| Using internet at least once a week | 0.921 | 1.671*** | 1.080 |
| | (0.139) | (0.261) | (0.241) |
| Using newspapers at least once a week | 1.390*** | 1.240 | 2.193** |
| | (0.151) | (0.174) | (0.682) |
| Using Social media at least once a week | 1.154 | 0.780* | 0.988 |
| | (0.174) | (0.117) | (0.253) |
| Age | 1.038*** | 0.999 | 1.045** |
| | (0.00384) | (0.00372) | (0.0184) |
| 2.Females | 0.909 | 0.768*** | 1.263 |
| | (0.0755) | (0.0657) | (0.233) |
| 2.location | 1.309*** | 1.050 | 1.115 |
| | (0.113) | (0.0999) | (0.214) |
| 2.Did not complete primary education | | 0.752 | |
| | | (0.659) | |
| 3.Primary (6-11 years old) | | 3.504** | |
| | | (1.813) | |
| 4.Elementary (12-15 years old) | | 3.737*** | |
| | | (1.762) | |
| 5.High school / secondary (16-18 years old) | | 2.721** | |
| | | (1.260) | |
| 6.Quranic school | | 1 | |
| | | (0) | |
| 7.Vocational / Technical School | | 2.419* | |
| | | (1.144) | |
| 8.Private institute/adult education | | 2.552** | |
| | | (1.202) | |
| 9.University: Bachelors, Masters or PhD | | 2.171* | |
| | | (0.993) | |

| | | | |
|---|---|---|---|
| 10.Don't know | | 0.937 | |
| | | (1.107) | |
| 11.Refused / No answer | | 0.886 | |
| | | (0.691) | |
| Actively looking for information | 1.237** | 2.009*** | 1.851*** |
| | (0.108) | (0.174) | (0.347) |
| Trusting government | 1.457*** | 2.058*** | 1.938 |
| | (0.141) | (0.370) | (1.838) |
| 2.Medium education | 1.423** | | |
| | (0.200) | | |
| 3.Secondary education | 1.197 | | |
| | (0.167) | | |
| 4.High education | 1.702*** | | |
| | (0.259) | | |
| 2. Attended but did not complete primary school | | | 1.261 |
| | | | (1.058) |
| 3. Primary school | | | 0.971 |
| | | | (0.692) |
| 4. Elementary | | | 0.943 |
| | | | (0.665) |
| 5. High school / secondary | | | 1.221 |
| | | | (0.840) |
| 6. Quranic school | | | 2.156 |
| | | | (2.477) |
| 7. Vocational / Technical School | | | 2.485 |
| | | | (1.932) |
| 8 Private institute/adult education | | | 17.93** |
| | | | (25.54) |
| 9. University: Bachelors, Masters or PhD | | | 1.601 |
| | | | (1.136) |
| 10.DK | | | 0.448 |
| | | | (0.570) |
| 11.Refused | | | 0.161 |
| | | | (0.209) |
| Constant | 0.125*** | 0.0563*** | 0.0473*** |
| | (0.0372) | (0.0281) | (0.0418) |
| Observations | 2,927 | 3,093 | 833 |

The table above displays the odds ratio of the regressions explaining the voting behavior by media consumption and other demographics. The findings show that in Algeria and Tunisia, watching TV does have an impact on the intention to vote. In Libya, people who watch TV at least once a week are 2.30 more likely to be incentivized to vote.

We did not find a significant impact of radio consumption on the intention to vote in Algeria. However, in Tunisia people who listen to the radio at least once a week are 1.35 more likely to vote in the next election. In Libya, people who listen to the radio at least once a week are more likely to be encouraged by media to vote. Moreover, using internet does not seem to have a significant impact on the intention to vote in Algeria and Tunisia, while in Libya, people who use internet at least once a week are more likely to declare that media encourage them to vote.

Newspapers consumption seems to have a significant impact on the intention to vote in Algeria and Tunisia; people who read newspapers at least once a week are 1.39 and 2.19 more likely to vote in Algeria and Tunisia respectively. This result opposes Muller (2010) who found that newspapers do not enhance the propensity of voting and rely on this finding to deny the theory of democracy. In Libya, we did not find a significant impact of newspapers consumption on voting behavior.

Social media consumption does not seem to have a significant impact on the intention to vote in Algeria and Tunisia. However, in Libya people who use social media at least once a week are less likely to declare that media encourage them to vote.

If we move to the impact of demographics on the intention to vote, the findings highlight an interesting difference by age, location, and education. Older people are more likely to vote in the next presidential election, this result is applicable in Algeria and Tunisia (odds ratio 1.03 and 1.04 respectively). Gender does not seem to have a significant impact on the intention to vote in Algeria and Tunisia. In Libya, females are less likely to be encouraged by media to go to the urns.

The models above are aware about the difference in voting behavior between urban and Rural area. Findings show that people in rural area are more likely to vote in Algeria. Candidates and media should pay more attention to people of the urban area to encourage them to vote. However, location

does not have a significant impact on the intention to vote in Tunisia and Libya.

Education is well known to be a good predictor of many individual behaviors. We have tested its impact on the intention to vote in the above models. The findings show that high educated people are more likely to vote in Algeria and Tunisia. In Algeria, respondent with high level of education are 1.70 more likely to vote than the people with primary /no education (reference variable). In Tunisia, people who attend private institute/ adult are 17.93 times more likely to vote than people who have never attended the school (reference variable). In Libya, we did not find a significant impact of education on voting behavior.

We have tested the impact of the desire to be informed and trust in government on voting behavior; we have found that people who desire to be informed about political and economic issues are more likely to vote in the three studied countries (Odds ratio equal to 1.23, 2.00 and 1.85 in Algeria, Libya and Tunisia, respectively). Furthermore, people who trust government in Algeria are 1.45 more likely to vote in the next presidential election. In Libya people who trust government are 2.05 more likely to be encouraged by media to vote. In Tunisia, given the very low proportion of respondents trusting government (less than 2%), we did not find a significant impact of this trust on the intention to vote.

Finally, in order to make sure that our models are robust, we analyzed Variance inflation Factors (VIF) for each of them. The VIF can detect any collinearity problem which is a phenomenon that happens when the independent variables are correlated (Mansfield - Helms 1981). This correlation makes the models biased. However, when the VIFs are lower than 10, this means that there is no collinearity problem which is the case in our models[9]; the average of the VIFs in each of the three models is lower than 5 (Appendix: table 5). We have also tested the global reliability of the three models (Appendix: tables 6-8) and confirm their good predictive ability.

## 6- Conclusion.

This article challenged the topic of voting behavior in three Maghreb countries where the issue is understudied or not at all studied. We also recognize that the issue is quite sensitive. We have demonstrated the impact of mass media on voting behavior using original surveys. We believe these results can help to formulate some policy recommendations in order to enhance vote participation.

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[9] We are aware about the high level of some VIFs and that the models need some further improvements.

We have shown that media consumption, especially newspapers could enhance willingness to vote in the studied countries. While access TV is almost universal, and the TV audience seems to be sufficiently high; (92% use it at least once a week in Algeria, 94% of respondents in Tunisia declare using TV at least once a week) the impact of TV on voting behavior is not significant in these countries which is consistent with media malaise theory (Muller, 2010). This might be due to the nature and the content of TV programs. TV channels should, hence, look into the content of their program and think about incentivizing youth to go to the urns. In Libya, it seems that TV has a significant influence on audience given that people who use more frequently Tv are more likely to declare that media encourage them to vote which could be a good opportunity to candidates to attract more voters. We have also demonstrated that Radio have a significant impact on voting behavior in Tunisia. Hence Tunisian candidates could consider radio as a good tool to attract voters. Except for Libya, Social media does net have a significant impact on voting behavior according to the result of the logit models.

Our next general conclusion states that people who use newspapers frequently are more likely to vote in the three studied societies. However, using newspapers is very low; 19%, 6%, and 8% in Algeria Tunsia and Libya respectively declare using newspapers at least once a week. This is why the local newspapers should rethink how to attract readers especially youth who seems to be less likely to use newspapers.

Moving to the more interesting results regarding the impact of sociodemographic on the likelihood to vote, we have found that age have a positive impact on the probability to vote in the three studied societies. This should make the candidate focus on youth and look for tools to attract them to the urns, especially that the demographic structure of general population shows that youth make up a big proportion of the total population. Youth people are more likely to use social media and internet according to the result of the surveys in the three countries. Hence, traditional media should create their web TV and look for the ways to attract youth audience.

Surprisingly, we did not find an impact of gender on the probability to vote. However, we have found that location could predict the probability to vote in Algeria; people in rural area are more likely to vote, hence, the candidate should focus on urban area in their election campaigns. One more interesting result is the significant impact of looking for information on voting behavior. Given that people look for information on media mainly, this could support the hypothesis of the positive impact of media consumption on the intention to vote. Finally, given the significant impact

of trust in government on the intention to vote, candidate to election should work on getting the population trusting them.

Last but not least, we should note the points deserving further research attentions. This article can only be considered as a first attempt to evaluate the impact of media consumption on voting behavior in the studied countries. We are aware about the limitations in this article. First, the question of the intention to vote cannot reflect the real turnout in the next election. Second, the econometric analysis need further test and estimations; we should include other variables that are available in the survey such as political participation, self esteems and involvement in the community, etc. Also, the econometric models can be estimated including interaction effects and we should retest the global reliability of our models. Finally, we have studied the impact of media in general without going into the specific TV channels and Radios. This information is available in the survey and could be add to the analysis. Those limitations will be handled in the final version of the article.

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**Annexes.**

**Table 2: Algeria results.**

**Gender * How likely are you to vote in the presidential election in 2019? Crosstabulation**

Count

| | | J4 How likely are you to vote in the presidential election in 2019? | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | Don't know | Refused | Total |
| S5 | Male | 485 | 357 | 176 | 106 | 257 | 92 | 41 | 1514 |
| Sex | Female | 405 | 358 | 143 | 133 | 257 | 166 | 34 | 1496 |
| Total | | 890 | 715 | 319 | 239 | 514 | 258 | 75 | 3010 |

**Location * How likely are you to vote in the presidential election in 2019? Crosstabulation**

Count

| | | J4 How likely are you to vote in the presidential election in 2019? | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | Don't know | Refused | Total |
| S6 | Urban | 566 | 498 | 233 | 166 | 364 | 175 | 46 | 2048 |
| Location | Rural | 324 | 217 | 86 | 73 | 150 | 83 | 30 | 963 |
| Total | | 890 | 715 | 319 | 239 | 514 | 258 | 76 | 3011 |

## Age groups * How likely are you to vote in the presidential election in 2019? Crosstabulation

Count

| | | J4 How likely are you to vote in the presidential election in 2019? | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | Don't know | Refused | Total |
| Age groups | 16-19 | 29 | 38 | 35 | 37 | 54 | 35 | 17 | 245 |
| | 20-24 | 49 | 82 | 42 | 38 | 79 | 35 | 15 | 340 |
| | 25-34 | 182 | 174 | 98 | 83 | 137 | 81 | 13 | 768 |
| | 35-59 | 438 | 320 | 117 | 65 | 193 | 88 | 26 | 1247 |
| | 60 and over | 192 | 101 | 27 | 15 | 51 | 19 | 4 | 409 |
| Total | | 890 | 715 | 319 | 238 | 514 | 258 | 75 | 3009 |

## D4 What is the highest level of education you have completed? * J4 How likely are you to vote in the presidential election in 2019? Crosstabulation

Count

| | | J4 How likely are you to vote in the presidential election in 2019? | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | Don't know | Refused | Total |
| D4 What is the highest level of education you have completed? | Have never attended school | 114 | 61 | 12 | 7 | 46 | 26 | 3 | 269 |
| | Primary education (1-6years of education) | 118 | 84 | 30 | 25 | 57 | 38 | 7 | 359 |
| | Medium education (7-9 years of education) | 190 | 138 | 46 | 40 | 114 | 35 | 12 | 575 |
| | Secondary education (10-12 years old) | 226 | 209 | 119 | 91 | 160 | 77 | 28 | 910 |

| | | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | DK [DO NOT READ] | Refused [DO NOT READ] | Total |
|---|---|---|---|---|---|---|---|---|---|
| | University: Bachelors, master?s or PhD (13 years of education and over) | 237 | 221 | 109 | 75 | 136 | 79 | 17 | 874 |
| | Don't know | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Refused / No answer | 5 | 2 | 3 | 0 | 1 | 4 | 8 | 23 |
| Total | | 890 | 715 | 319 | 238 | 515 | 259 | 75 | 3011 |

**Table 3: Libya results.**

### Gender? * The Libyan media encourages me to vote Crosstabulation

Count

| | | The Libyan media encourages me to vote | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | DK [DO NOT READ] | Refused [DO NOT READ] | Total |
| Gender? | Male | 294 | 247 | 143 | 114 | 441 | 201 | 59 | 1499 |
| | Female | 191 | 201 | 146 | 115 | 383 | 350 | 69 | 1455 |
| Total | | 485 | 448 | 289 | 229 | 824 | 551 | 128 | 2954 |

### What is the highest level of education you have completed? * The Libyan media encourages me to vote Crosstabulation

Count

| | | The Libyan media encourages me to vote | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | DK [DO NOT READ] | Refused [DO NOT READ] | Total |
| What is the highest level of education you have completed? | Have never attended school | 4 | 2 | 2 | 1 | 5 | 27 | 5 | 46 |
| | Did not complete primary education | 0 | 2 | 3 | 2 | 3 | 6 | 0 | 16 |
| | Primary (6-11 years old) | 14 | 10 | 7 | 3 | 8 | 21 | 5 | 68 |
| | Elementary (12-15 years old) | 49 | 37 | 17 | 11 | 48 | 42 | 18 | 222 |

| | | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | DK [DO NOT READ] | Refused [DO NOT READ] | Total |
|---|---|---|---|---|---|---|---|---|---|
| | High school / secondary (16-18 years old) | 91 | 89 | 48 | 34 | 145 | 113 | 19 | 539 |
| | Quranic school | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 3 |
| | Vocational / Technical School | 34 | 45 | 25 | 29 | 67 | 33 | 14 | 247 |
| | Private institute/adult education | 51 | 41 | 37 | 22 | 62 | 61 | 4 | 278 |
| | University: Bachelors, Masters or PhD | 239 | 221 | 145 | 127 | 476 | 244 | 55 | 1507 |
| | Don't know | 1 | 0 | 3 | 0 | 2 | 1 | 0 | 7 |
| | Refused / No answer | 2 | 1 | 2 | 0 | 6 | 2 | 8 | 21 |
| Total | | 485 | 448 | 289 | 229 | 824 | 551 | 128 | 2954 |

### Age groups * The Libyan media encourages me to vote Crosstabulation

Count

| | | The Libyan media encourages me to vote | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | DK [DO NOT READ] | Refused [DO NOT READ] | Total |
| Age groups | 18-24 | 96 | 59 | 50 | 40 | 152 | 85 | 14 | 496 |
| | 25-34 | 102 | 117 | 80 | 66 | 236 | 145 | 39 | 785 |
| | 35-59 | 269 | 247 | 146 | 114 | 404 | 286 | 62 | 1528 |
| | 60 and over | 18 | 25 | 13 | 9 | 32 | 35 | 13 | 145 |
| Total | | 485 | 448 | 289 | 229 | 824 | 551 | 128 | 2954 |

### Location * The Libyan media encourages me to vote Crosstabulation

Count

| | | The Libyan media encourages me to vote | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | DK [DO NOT READ] | Refused [DO NOT READ] | Total |
| Location | Urban | 352 | 324 | 210 | 169 | 608 | 415 | 85 | 2163 |
| | Rural | 129 | 123 | 79 | 60 | 213 | 134 | 43 | 781 |
| Total | | 481 | 447 | 289 | 229 | 821 | 549 | 128 | 2944 |

**Table 4: Tunisia results.**

### AGE_2 * How likely are you to vote in the municipal election in 2018 : J5- Crosstabulation

Count

| | | How likely are you to vote in the municipal election in 2018 : J5- | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | DK | Refused | Total |
| AGE_2 | 16 - 24 years | 26 | 35 | 19 | 104 | 210 | 36 | 3 | 433 |
| | 25 - 35 years | 67 | 91 | 17 | 110 | 216 | 54 | 12 | 567 |
| Total | | 93 | 126 | 36 | 214 | 426 | 90 | 15 | 1000 |

### S4- Gender * How likely are you to vote in the municipal election in 2018 : J5- Crosstabulation

Count

| | | How likely are you to vote in the municipal election in 2018 : J5- | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | DK | Refused | Total |
| S4- Gender | Male | 40 | 53 | 16 | 115 | 210 | 43 | 6 | 483 |
| | Female | 52 | 73 | 21 | 99 | 216 | 47 | 9 | 517 |
| Total | | 92 | 126 | 37 | 214 | 426 | 90 | 15 | 1000 |

### The highest level of education you have completed : D4- * How likely are you to vote in the municipal election in 2018 : J5- Crosstabulation

Count

| | | How likely are you to vote in the municipal election in 2018 : J5- | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | DK | Refused | Total |
| The highest level of education you have completed : D4- | Have never attended school | 1 | 2 | 1 | 6 | 5 | 1 | 2 | 18 |
| | Attended but did not complete primary education | 1 | 4 | 2 | 1 | 16 | 4 | 3 | 31 |
| | Primary (6-11 years old) | 7 | 14 | 6 | 30 | 34 | 10 | 1 | 102 |

| | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | DK | Refused | Total |
|---|---|---|---|---|---|---|---|---|
| Elementary (12-15 years old) | 14 | 18 | 9 | 49 | 102 | 14 | 3 | 209 |
| High school / secondary (16-18 years old) | 30 | 38 | 12 | 90 | 161 | 32 | 5 | 368 |
| Quranic school | 1 | 1 | 0 | 4 | 3 | 2 | 0 | 11 |
| Vocational / Technical School | 4 | 8 | 2 | 3 | 17 | 2 | 0 | 36 |
| Private institute/adult education | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 4 |
| University: Bachelors, Masters or PhD | 30 | 39 | 5 | 30 | 75 | 22 | 1 | 202 |
| Don't know | 1 | 0 | 1 | 1 | 2 | 1 | 0 | 6 |
| Refused / No answer | 1 | 0 | 0 | 1 | 9 | 1 | 1 | 13 |
| Total | 91 | 126 | 38 | 215 | 425 | 89 | 16 | 1000 |

### S5 . Rural or urban * How likely are you to vote in the municipal election in 2018 : J5- Crosstabulation

Count

| | | How likely are you to vote in the municipal election in 2018 : J5- | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Very likely | Somewhat likely | Neither likely nor unlikely | Somewhat unlikely | Very unlikely | DK | Refused | Total |
| S5 . Rural or urban | Rural | 23 | 43 | 16 | 82 | 143 | 29 | 7 | 343 |
| | Urbain | 70 | 83 | 20 | 132 | 283 | 61 | 8 | 657 |
| Total | | 93 | 126 | 36 | 214 | 426 | 90 | 15 | 1000 |

# Table 5: Collinearity diagnostic for the three models.

| Algeria | | | Libya | | | Tunisia | | |
|---|---|---|---|---|---|---|---|---|
| Variable      VIF | VIF - ALG | 1/VIF | Variable      VIF | VIF-LIB | 1/VIF | Variable      VIF | VIF TUN | 1/VIF |
| Use TV at least once a week | 10.95 | 0.091355 | Use TV at least once a week | 4.54 | 0.220389 | Use TV at least once a week | 16.08 | 0.0622 |
| Use Radio at least once a week | 1.36 | 0.735988 | Use Radio at least once a week | 1.64 | 0.611448 | Use Radio at least once a week | 1.9 | 0.526073 |
| Use newspaper at least once a week | 6.68 | 0.14972 | Use newspaper at least once a week | 9.87 | 0.101309 | Use newspaper at least once a week | 3.3 | 0.302848 |
| use Internet at east once a week | 1.47 | 0.680317 | use Internet at east once a week | 1.13 | 0.881636 | use Internet at east once a week | 1.17 | 0.857767 |
| Use social media at least once a week | 6.02 | 0.166202 | Use social media at least once a week | 8.98 | 0.111315 | Use social media at least once a week | 5.82 | 0.171746 |
| Age | 7.43 | 0.13467 | Age | 9.56 | 0.104631 | Age | 22.3 | 0.044839 |
| 2.Gender | 8.24 | 0.121366 | 2.Gender | 2.07 | 0.482304 | 2.Gender | 2.38 | 0.420461 |
| 2.location | 1.46 | 0.683425 | 2.location | 1.43 | 0.697965 | 2.location | 3.07 | 0.325645 |
| Education | | | Education | | | Education levels | | |
| 2 | 1.91 | 0.524688 | 2 | 1.13 | 0.882089 | 2 | 1.75 | 0.570441 |
| 3 | 3.01 | 0.332115 | 3 | 1.46 | 0.683165 | 3 | 4.39 | 0.22775 |
| 4 | 3.55 | 0.28132 | 4 | 2.08 | 0.480526 | 4 | 6.15 | 0.162629 |
| Actively looking for information | 3.34 | 0.299445 | 5 | 3.24 | 0.308713 | 5 | 10.27 | 0.097345 |
| Trust In govenment | 1.36 | 0.736575 | 7 | 2.18 | 0.459514 | 6 | 1.27 | 0.784534 |
| Mean VIF | 4.37 | | 8 | 2.39 | 0.417606 | 7 | 2.18 | 0.45788 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | 9 | 8.11 | 0.123374 | 8 | 1.16 | 0.863402 |
| | | | | 88 | 1.03 | 0.970654 | 9 | 9.03 | 0.110746 |
| | | | | 99 | 1.1 | 0.912661 | 10 | 1.29 | 0.777463 |
| | | | Actively looking for information | 1.86 | 0.537821 | 11 | 1.4 | 0.715708 |
| | | | Trust In govenment | 1.06 | 0.938991 | Actively looking for information | 1.61 | 0.620631 |
| | | | **Mean VIF** | **3.41** | | Trust In govenment | 1.04 | 0.964887 |
| | | | | | | **Mean VIF** | **4.88** | |

**Table 6: robustness of the logit models for Algeria.**

| Algeria | | | |
|---|---|---|---|
| -------- True -------- | | | |
| Classified | D | ~D | Total |
| | | | |
| + | 922 | 601 | 1523 |
| - | 605 | 809 | 1414 |
| | | | |
| Total | 1527 | 1410 | 2937 |
| | | | |
| Classified + if predicted Pr(D) >= .5 | | | |
| True D defined as vote2019 != 0 | | | |
| | | | |
| Sensitivity            Pr( + D) | 60.38% | | |
| Specificity            Pr( -~D) | 57.38% | | |
| Positive predictive value      Pr( D +) | 60.54% | | |
| Negative predictive value Pr(~D -) | 57.21% | | |
| | | | |
| False + rate for true ~D        Pr( +~D) | 42.62% | | |
| False - rate for true D        Pr( - D) | 39.62% | | |
| False + rate for classified +    Pr(~D +) | 39.46% | | |
| False - rate for classified -    Pr( D -) | 42.79% | | |
| | | | |
| Correctly classified | 58.94% | | |

**Table 7: robustness of the logit models for Tunisia.**

| Tunisia | | | | |
|---|---|---|---|---|
| | | | | |
| Classified | D | ~D | | Total |
| | | | | |
| + | 17 | 11 | | 28 |
| - | 181 | 624 | | 805 |
| | | | | |
| Total | 198 | 635 | | 833 |
| | | | | |
| Classified + if predicted Pr(D) >= .5 | | | | |
| True D defined as vote != 0 | | | | |
| | | | | |
| Sensitivity | Pr( + D) | | 8.59% | |
| Specificity | Pr( -~D) | | 98.27% | |
| Positive predictive value | Pr( D +) | | 60.71% | |
| Negative predictive value Pr(~D -) | | | 77.52% | |
| | | | | |
| False + rate for true ~D | Pr( +~D) | | 1.73% | |
| False - rate for true D | Pr( - D) | | 91.41% | |
| False + rate for classified + | Pr(~D +) | | 39.29% | |
| False - rate for classified - | Pr( D -) | | 22.48% | |
| Correctly classified | | | | 76.95% |

**Table 8: robustness of the logit models for Libya.**

| Libya | | | | |
|---|---|---|---|---|
| Logistic model for vote | | | | |
| | | | | |
| -------- True -------- | | | | |
| Classified | D | ~D | | Total |
| | | | | |
| + | 131 | 124 | | 255 |
| - | 797 | 2041 | | 2838 |
| | | | | |
| Total | 928 | 2165 | | 3093 |
| | | | | |
| Classified + if predicted Pr(D) >= .5 | | | | |
| True D defined as vote != 0 | | | | |
| | | | | |
| Sensitivity | Pr( + D) | | 14.12% | |

| | | |
|---|---|---|
| Specificity            Pr( -~D) | 94.27% | |
| Positive predictive value     Pr( D +) | 51.37% | |
| Negative predictive value Pr(~D -) | 71.92% | |
| | | |
| False + rate for true ~D       Pr( +~D) | 5.73% | |
| False - rate for true D       Pr( - D) | 85.88% | |
| False + rate for classified +   Pr(~D +) | 48.63% | |
| False - rate for classified -   Pr( D -) | 28.08% | |
| Correctly classified | | 70.22% |