

THE RELATIONSHIP BETWEEN INCOME AND EDUCATION AND SUPPORT FOR DEMOCRACY  
IN SIX ARAB COUNTRIES

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**ABSTRACT**

Using public opinion survey data from Arab Barometer Project Wave I, this study investigates the relationship income and education and support for democracy in six Arab countries: Yemen, Morocco, Palestine, Algeria, Lebanon, and Jordan. Unlike related studies, this study focuses specifically on the Arab world and uses individual-level instead of country-level data. Some previous studies using country-level data found no relationship between income and education on the one hand and democracy on the other, when controlling for country fixed effects. This study confirms this finding, concluding that the relationship disappears in a fully specified model that includes country controls.

## TABLE OF CONTENTS

Introduction.....	1
Background.....	3
Literature Review.....	5
Conceptual Framework and Hypothesis .....	10
Data and Methodology.....	14
Descriptive Statistics.....	19
Results.....	22
Conclusion .....	28
References.....	32

## LIST OF FIGURES AND TABLES

Figure 1: Relationship between Income-Education and Support for Democracy.....	10
Table 1: Variable Definitions.....	16
Table 2: Descriptive Statistics for the Dependent and Key Independent Variables .....	19
Table 3: Descriptive Statistics for Demographic Controls .....	20
Table 4: Descriptive Statistics of Attitudinal Control Variables .....	21
Table 5: LPM Regression Results.....	25
Table 6: Country Specific LPM Regression Results .....	27

## INTRODUCTION

Democracy is a broadly recognized ideal and one of the United Nations' core values because it protects citizens and guarantees them their basic human rights.<sup>1</sup> Huntington (1991) identified three successive waves of democracy. The first wave happened in the 19<sup>th</sup> century when democracy spread to Northern America and Western Europe. The second wave happened after the World War II when democracy was adopted by several countries like Japan and Germany. This second wave ended in the mid-1970s. The third wave of democracy began in 1974 in Portugal and expanded to Latin America, Central Europe, Asia, and Africa. Freedom House reports show an increase in the number of democracies between the years 1974 and 2005. This increase was the results of various developments in the affected countries, among them the people's embrace of democratic values, economic growth, and the proximity effect (i.e., the effect of neighboring democracies).

The spread of democracy did not reach the Middle East. Authoritarianism in the Arab Middle East survived the third wave of democracy and maintained its resilience and defiance of democratization for many reasons beyond the scope of this paper (Heydemann, 2007). This defiance continued until the Arab Spring events broke out in late 2010. It is still unclear whether the Arab Spring has brought democracy to the Middle East, as this series of events is still unfolding. Despite this fact, the Arab Spring and some other democratic movements in Africa and Asia have brought scholars of democracy, such as Carl Gershman of the National Endowment for Democracy, closer to announcing "The Fourth Wave of Democracy," (Gershman, 2011).

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<sup>1</sup> This statement comes from the United Nations global issues website: <http://www.un.org/en/globalissues/democracy/index.shtml>

One of the necessary conditions for democratization is the domestic demand for democracy (Zuercher, Roehner, & Riese, 2009). If we take the Arab Spring as evidence that there is popular support for democracy in this region, what drives this support? Or more specifically, how is this support affected by education and income as measures of socioeconomic status? In this paper, I explore whether individuals' support for democracy is related to his/her level of education and income in six countries of the Arab Middle East: Morocco, Algeria, Palestine (West Bank and Gaza), Jordan, Lebanon and Yemen during 2006, 2007 and 2008.<sup>2</sup> To conduct this analysis, I utilize public opinion survey data from the Arab Democracy Barometer Survey (Tessler & Jamal, 2013).

I find that income and education are not associated with the individual support for democracy when controlling for country fixed effects. I also find that the inclusion of religion in the model causes the relationship between income and the individual support for democratic regime to disappear.

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<sup>2</sup> The Middle East countries are: Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Malta, Mauritania, Morocco, Oman, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, Turkey, the United Arab Emirates (UAE), West Bank and Gaza, Israel and Yemen.

## BACKGROUND

Average levels of education vary across Arab countries, but there are some similarities. Access to basic education has increased in the Middle East and North Africa. Most Arab countries have achieved universal primary school enrolment and significant increases in secondary school enrolment (Akkari, 2004). By 2011, primary school enrollment in the Arab countries had risen to 97%, the primary school completion rate was 85%, secondary school enrolment was 71%, and the adult literacy rate was 75%.<sup>3</sup> In the same year, GNI per capita (Gross National Income) in these countries reached \$6,262. GNI had been less than \$3,000 in 2003.<sup>4</sup>

Despite the fact that some of the above mentioned numbers seem encouraging, compared to other regions in the developing world, the demographic explosion within Arab states has made it hard for Arab youth to make a good living (Desai, Olofsgard, & Yousef, 2012). Oppressive regimes contributed to this outcome by depriving their citizens of basic human rights. The Arab World dictators, who survived the third wave of democracy, upgraded their dictatorships and authoritarian regimes, turning them into consolidated autocracies (Heydemann, 2007). The overall Freedom House freedom score for the 21 Middle East and North Africa (MENA) countries is 2%, which means that only 2% of the population in MENA countries are considered free; the MENA free press score

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<sup>3</sup> According to the World Bank, the primary/secondary school enrolment is the total enrollment in primary/secondary education, regardless of age, expressed as a percentage of the population of official primary/secondary education age. The primary school completion rate is the total number of new entrants in the last grade of primary education, regardless of age, expressed as percentage of the total population of the theoretical entrance age to the last grade of primary education.

<sup>4</sup> Arab Gulf countries are included in this measure, which could explain the large increase in GNI.

is 0%, which means that 0% of the MENA countries have a free press (Freedom House, 2013).<sup>5</sup>

The Arab Middle East is considered a demographic time bomb, with its population reaching over 360 million in 2012 (World Bank, 2011). High unemployment rates, aging dictatorships, demand for democracy, corruption, youth exclusion, oppression, inequality and social disparity, among other factors, helped ignite the Arab Spring (Pollack, 2011). The Arab Spring brought opportunities for democratic transitions in this region and moved some countries in the Middle East from the “Not Free” classification to “Partially Free,” e.g., Tunisia, (Freedom House, 2013).<sup>6</sup> However, the Arab Spring events are still unfolding and it may be a number of years before we are able to assess their outcome. What we can examine at this juncture is how this popular support for democracy evolved and how it is affected by socioeconomic development factors such as income and education. I examine this question here, focusing on the relationship between support for democratic forms of government and levels of education and income in six Arab countries.

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<sup>5</sup> These indicators come from the Freedom House “Freedom in the World” index, which provides an annual evaluation of the progress and decline of freedom in nations and disputed territories, and “Freedom of the Press” index, which measures the level of freedom and editorial independence enjoyed by the press in the world nations and disputed territories. Lower percentages indicate lower general freedom levels and lower press freedom levels. A team of consultants and regional experts conducted a deep analysis and evaluation to reach these findings.

<sup>6</sup> This indicator comes from Freedom House “Freedom in the World” survey mentioned in the previous footnote. The average of the political rights and civil liberties ratings, known as the freedom rating, determines the overall status: Free (1.0 to 2.5), Partly Free (3.0 to 5.0), or Not Free (5.5 to 7.0).

## **LITERATURE REVIEW**

Scholars disagree about the relationship between democracy and socioeconomic indicators such as income and education. Some scholars have found evidence of a relationship between socioeconomic development in general and democracy. Other scholars have examined the same relationship and arrived at divergent conclusions. The following section highlights previous findings regarding this relationship.

### **Relationship between Income and Democracy**

Looking at the relationship between income and democracy, we find the literature to be contradictory. Lipset (1959) is one of the first scholars to suggest that socioeconomic development is linked to democracy sustainability. Some scholars such as Barro (1999) and McMahon (1999) provide evidence that higher income is associated with increased support for democracy. Others conclude that per-capita incomes have almost no correlation with whether a country is democratic (Acemoglu, Johnson, Robinson, & Yared, 2005). The following discussion explores studies that reflect these positions.

Some studies analyze the relationship between democracy and income inequality in particular. A cross-country empirical analysis conducted by Gradstein et al. (2001), covering the period 1960-98 for 126 countries, finds that the increase in the number of democracies seems to be associated with lower inequality in Judeo-Christian societies, while democratization seems to have insignificant association with inequality in Muslim and Confucian societies. Reuveny and Li (2003) measure income inequality in the period from 1960 to 1996 in a sample of 69 countries and also find that democracy is linked

with reductions in income inequality. On the other hand, Özer (2008), after analyzing previous studies of relationship between democracy and income inequality, finds that the correlation between the two is spurious.<sup>7</sup>

In contrast, Fayad et al. (2012) find that the association between income and democracy is significant and negative. However, when they decompose overall GDP per capita into its resource and non-resource components (e.g., oil vs. human capital), they find that the coefficient on non-resource type income is significant and positive, while the coefficient on the resource type income is significant and negative. This indicates the central role resource type income plays in the income-democracy relationship.

In an influential study, Acemoglu et al. (2008) acknowledge the strong cross-country correlation between income and democracy over 500 years. But when they control for country fixed effects, the association between income per capita and democracy disappears. In an effort to explain Acemoglu et al.'s findings, Jung et al. (2012) conduct a replication of their analysis and provide evidence of a significant but heterogeneous association between income and democracy in former colonies and non-colonies. Specifically, they find a strong positive relationship in non-colonies. However, they find that there is strong negative relationship between income and democracy among colonies that became independent after 1900 as compared to strong positive relationship among colonies that became independent before 1900.

In another study, Boix (2011) uses panel data running from the early nineteenth century to the end of the twentieth century, controls for country and time effects, and

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<sup>7</sup> Özer finds that, when including control variables such as technological innovation, which affects both political and economic structure in a country, the relationship disappears.

shows a positive and significant relationship between income and the likelihood of democratic transitions and democratic consolidations. Boix's results suggest that the effect of income varies across income levels and eras.

For further insight into the disparate findings in the literature, especially how the relationship between income and democracy disappears when controlling for country fixed effects, Benhabib et al. (2011) reexamine the robustness of the income-democracy relationship, focusing on the possibility that the correlation in the data is being driven by an omitted characteristic, such as institutional quality. When including country fixed effects, they find a robust, significant, and positive association between income and democracy. Moral-Benito and Bartolucci (2012) also control for country fixed effects and find a non-linear correlation between income and democracy. According to their study, while a positive correlation emerges for poor countries, this correlation vanishes for rich countries. The reason is that rich countries are less likely to change their institutions in an effort to maintain the status quo.

### **Relationship between Education and Democracy**

Several scholars conclude that education is positively associated with support for democracy (Rackham, 1932) (Lipset, 1959) (Chabbott & Ramirez, 2006). However, other scholars disagree and find no association between education and democracy (Acemoglu, Johnson, Robinson, & Yared, 2005).

Barro (1999) and Przeworski et al. (2000) find evidence of a relationship between education and democracy. Moreover, Glaeser et al. (2004) find that education levels play an important role in determining the levels of support for democracy. Similarly, Papaioannou and Siourounis (2008), using data from 174 countries from the period 1960-

2005, find that the more affluent the society is, the higher the chances it will move towards democracy. The authors also find that the higher the levels of economic development and education are, the quicker these countries will transition to democracy. In a related study, Murin and Wacziarg (2013) find that illiteracy is negatively associated with demand for democracy. They speculate that the reason for this negative association is that illiterates are usually less capable of holding autocratic governments accountable for their policies. They provide evidence that higher levels of economic development and literacy lead to a shift in the people's focus from basic survival to demanding their political rights. They also find that literates are more capable of expressing their suffrage which leads to sustainable democracy.

Acemoglu et al. (2005) incorporate potential omitted factors associated with education and democracy. They estimate the likelihood that a country will move towards democracy when its people gain more education. They conclude that more education is not associated with higher probability of democratization. Additionally, they include year dummies and re-estimate Glaeser et al.'s (2004) findings and conclude that Glaeser et al.'s omission of time fixed effects resulted in inaccurate findings and that there is no correlation between education and democracy.

In an effort to explain their earlier findings further, Glaeser et al. (2007) present empirical evidence suggesting a causal mechanism that can explain the correlation between education and democracy. According to their reasoning, education helps people interact with each other, which leads to more civic engagement and political mobilization. The increase in civic engagement leads to greater support for political opening of the regime (democracy) relative to support of a closed regime (dictatorship).

Finally, Dražanova (2010) finds that the relationship between education and democracy exists but it varies among countries depending on the type of political regime they have.<sup>8</sup>

### **Contribution of this Study**

The literature provides conflicting findings regarding the relationship between socioeconomic status (measured via income and education) and support for democracy, transitions to democracy, and the sustainability of democracy. Controlling for country and/or time fixed effects eliminates the relationship between income and education and democracy in many studies. In addition, some scholars such as Tessler (2004) investigate whether religion plays a significant role in defining the relationship between income-education and democracy. Most studies, though, use cross-sectional data from various countries without focusing on a specific region, such as the Arab Middle East, which has common socioeconomic, cultural, religious, and regime characteristics. Most of the literature also does not use individual level data, focusing instead only on country level data. This approach has left important questions unanswered. For example, if the literature reaches conflicting conclusions on the relationship between income-education and democracy, what does this relationship look like in the Arab World? How is it affected by the specific regional and socioeconomic characteristics of the Arab region? And how is it affected when using individual-level data and controlling for country fixed effects? In order to answer these questions, this study examines the relationship between education and income and the support for democracy in the Arab World by looking specifically at individual level data from six Arab countries.

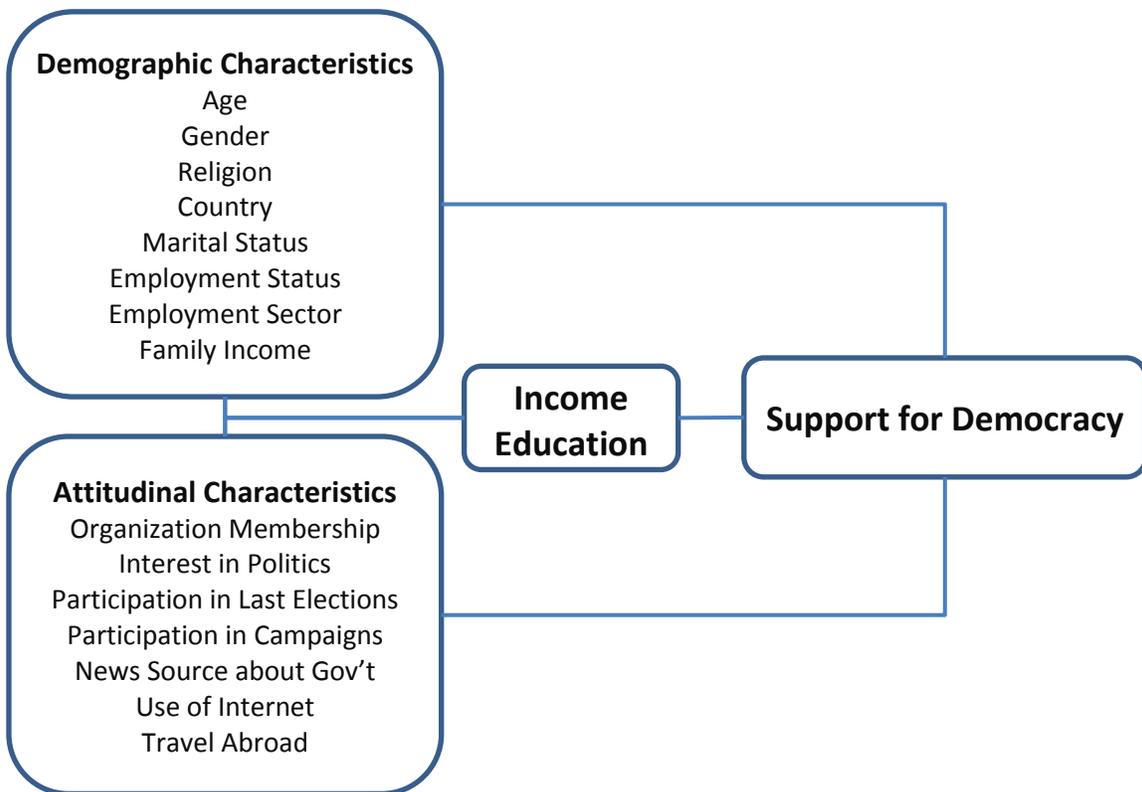
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<sup>8</sup> The types of regimes in Dražanova's study are: Full Democracy, Democracy, Flawed Democracy, Hybrid Regime, Open Anocracy, Closed Anocracy, and Authoritarian Regime.

## CONCEPTUAL FRAMEWORK AND HYPOTHESIS

I hypothesize that Arab individuals with comparatively high incomes and/or comparatively high levels of education attainment are relatively more inclined to support democratic forms of government. As noted in the Literature Review section, the literature on this relationship reaches conflicting conclusions. Some scholars even suggest that the relationship disappears entirely when controlling for country fixed effects. Other individual-level characteristics plausibly associated with support for democracy include demographic and attitudinal factors. **Figure 1** shows this relationship graphically.

**Figure 1: Relationship between Income-Education and Support for Democracy**



Support for democracy can be measured in terms of different individual attitudes and political opinions. For example, it could be analyzed through people's views of and preferences for democratic regimes and/or their opinions as to how democratic

institutions affect the economy, political order and stability. In this study, I operationalize support for democracy using a variable that measures respondents' answers to a question about whether or not they prefer a democratic regime.

The logic behind the correlation between income and the support for democracy is that when people are poor, they may not have time to even formulate their political opinions because they are focused simply on surviving.<sup>9</sup> The poor may be indifferent to the distinction between democracy and dictatorship or they might even support the status quo under which they have been surviving so far, compared to an unknown regime, i.e. democracy. On the other hand, people with high incomes may be more involved in politics. They may have the time to formulate political opinions and may support democratic governance because their basic needs are satisfied whereas their other needs – such as freedom, political rights, civic engagement, and participation – are not satisfied.

As indicated earlier, the reasoning behind the hypothesized relationship between education and support for democracy, as argued by Glaeser et al. (2007), is that education helps people interact with each other, which lead to more civic engagement and political mobilization. The increase in civic engagement leads to greater support for political opening of the regime (democracy) relative to support of a closed regime (dictatorship). As indicated earlier, illiterates are less capable of demanding their rights and holding autocratic governments accountable for their policies. Conversely, literates who enjoy higher levels of economic development are more inclined to demand their political rights and better express their suffrage (Murtin & Wacziarg, 2013). This concept is aligned with the Post-Materialism Theory, developed in the 1970s by Ronald Inglehart (1971), which

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<sup>9</sup> Unless otherwise noted, the relationships mentioned here are based on the Literature Review section.

refers to the change from demanding materialist and physical values to demanding more autonomy and self-expression. According to Inglehart, this usually happens in industrialized countries where the people's basic materialistic needs are satisfied and they have the time and resources to focus on other needs.

Other factors should also be considered when examining this relationship. For example, individual demographic factors are important because they are determinants of one's political attitude, income, and education. These factors include age, gender, religion, marital status, employment status, and employment sector. Age is included because other studies find significant associations between age and political attitudes, activities, and behavior (Powell, 1987). Gender is important because democracies provide more women's rights than dictatorships do and because men and women often have different stances on political issues (Reed, 2006). Religion's role in this relationship is also worth exploring because religion influences all aspects of political life.<sup>10</sup> Employment status and employment sector controls are included because those factors are associated with differences in political opinions and political involvement (Andersen & Cook, 1985). Marital status is included because marriage and family may be associated with a person's political attitudes, predisposing him or her toward democracy, if he/she believes that it will benefit his or her family, or towards less demand for democracy if democracy is believed to threaten his or her family values and structures (Zakaria, 2007). Marriage also brings a variety of household responsibilities which may change political

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<sup>10</sup> Some scholars, such as Tessler (2004), find a weak relationship between the degree of religiousness on the one hand and attitudes about democracy on the other. I explore below how religion affects people's attitudes towards democracy.

attitudes. In addition, people often align with their spouses' political views (Burns, Schlozman, & Verba, 1997).

Other factors that might explain individuals' view of democracy are membership in political organizations or other types of social organizations, participation in elections and campaign meetings and rallies, and their interest in politics. Individuals' political preferences may also be related to their political news sources and the use of the Internet; for example, the use of social media. Political opinions may also be shaped by whether the person has experienced travel outside his/her home country and has been exposed to different types of governance. All these factors are plausibly correlated with views about democracy and with income and education.

One's country of residence matters because, as indicated in the literature review section, when country fixed effects are controlled for, the association between income and education on one side and democracy on the other sometimes disappears. The country effect may proxy for the type of political regime, the local culture, institutional quality, and other country characteristics. As suggested by Benhabib et al. (2011), institutional quality could be one of the factors that affect individuals' attitudes towards democracy.

## DATA AND METHODOLOGY

My empirical analysis uses data from the Arab Barometer First Wave Survey, which is a cross-sectional, person-level dataset. The Arab Barometer Project carried out nationally representative Democracy Barometer Surveys in Algeria, Morocco, Jordan, Lebanon, Palestine and Yemen during the years 2006, 2007, and 2008.<sup>11</sup> The data set includes answers to a variety of attitudinal questions about democracy. The universe of study in this data set is citizens over the age of 18. The data were collected through face-to-face interviews, and the survey included questions on topics including political opinions, cultural and social values, types of governance, and political attitudes. The sampling process ensured proportionally appropriate rural-urban and male-female representation in each country. The sample size is nearly 6,900, with some variation in the numbers of observations obtained from each country.

As described below, my dependent variable is dichotomous. I therefore estimate a Linear Probability Regression Model (LPM) that includes country dummies to control for country-level differences that are correlated with education, income, and support for democracy at the individual level. More specifically, I estimate the following model:

$$\begin{aligned} P(\text{democracy} = 1|x) = & \beta_0 + \beta_1 \text{income} + \beta_2 \text{HighSchoolOrLess} + \beta_3 \text{HigherEducation} + \\ & \beta_4 \text{Age} + \beta_5 \text{Male} + \beta_6 \text{Muslim} + \beta_7 \text{Married} + \beta_8 \text{Employed} + \beta_9 \text{PublicSector} + \\ & \beta_{10} \text{TravelAbroad} + \beta_{11} \text{OrgMembership} + \beta_{12} \text{ElectionsParticipation} + \\ & \beta_{13} \text{CampaginParticipation} + \beta_{14} \text{PoliticsInterest} + \beta_{15} \text{NewsSourcePrint} + \\ & \beta_{16} \text{NewSourceInternetMobile} + \beta_{17} \text{InternetUse} + \beta_{18} \text{FamilyIncome} + \rho + \mu, \end{aligned}$$

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<sup>11</sup> The administrators of the survey found some problems with a significant number of interviews in the 2006 Arab Barometer survey in Kuwait. Accordingly, they removed 2006 Kuwait survey from the first wave of the Arab Barometer dataset.

where the dependent variable *democracy* reflects whether the respondent supports a democratic political system,  $\rho$  corresponds to a set of country dummies, and  $\mu$  is the error term. The key explanatory variables are monthly *income* and *education* which consists of three categories, *Illiterate* is the base category, “*High School or Less*” and “*Higher Education*” are the other two categories.<sup>12</sup> In order to ensure comparability across countries, income is stated for all countries in terms of US dollars and is adjusted for inflation with 2007 as base year. The model also includes control variables that are plausibly correlated with support for democracy and with income and education. Specifically, the model controls for the following demographic characteristics: *age*, *male*, *Muslim*, *married*, *employed*, *public sector*, *family income*, and *country*.<sup>13</sup> Additionally, the model controls for the following attitudinal and political activism characteristics: *organization membership*, *elections participation*, *campaign participation*, *politics interest*, *Internet use*, and *travel abroad*, and *news source* variable which consists of three

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<sup>12</sup> The original *democracy* variable is a categorical variable. The survey asked what the respondent thinks of democratic political systems, and the options were: Very Good, Good, Bad, and Very Bad. I recoded this variable as binary variable by combining the first two options as 1, meaning the individual prefers democratic systems, and the latter two options as 0, meaning the individual does not prefer democratic systems.

As for the income variable, the original dataset contains an income variable for all countries except Morocco and a separate income variable for Morocco. This is because income in Morocco was coded in categories whereas, in the other countries, it is a continuous variable based on local currency. In order to make the income variable comparable across all countries, a new continuous income variable was created to include all countries' income after converting Morocco's categorical income variable into a continuous one. All local currency values were then converted to US Dollars according to average exchange rates of the years 2006 and 2007 (when the surveys were conducted). For more information on how my income variable is treated, the reader can refer to “Processing Notes Accompanying Data and Survey Instrument,” which can be downloaded from the Arab Barometer website at this link: <http://arabbarometer.org/sites/default/files/files/ProcessingNotestoAccompanyDataandSurveyInstrumentFinal.pdf>. With respect to the how education levels are determined, the education variables are categorized as follows: Elementary School (6 years, age 6-11), Primary School (3 years, age 12-14), and Secondary School (3 years, age 15-17).

<sup>13</sup> The age variable in the original Arab Barometer dataset is continuous for all countries except Morocco. In Morocco, age was coded into categories. In order to make “age” comparable across all countries, a new continuous age variable was created after converting Morocco's categorical age variable into a continuous one and then combining it with the overall age continuous variable. As for religion, Sunni, Shiite, and Druze affiliations were measured only in Lebanon. For the purposes of this study, all of these sects are considered to be Muslim.

categories, *TV-Radio* is the base category, *Print* and *Internet-Mobile* are the other two categories. **Table 1** provides definitions for all of these variables.<sup>14</sup>

**Table 1: Variable Definitions**

Variable	Definition	
<b>Dependent Variable</b>		
Support for Democracy	A dichotomous variable that reflects whether the respondent supports a democratic political system, which includes public freedom, equal political and civil rights, balance of power, accountability and transparency.	
<b>Independent Variables of Interest</b>		
Income	A continuous variable that measures the respondent's monthly income in 2007 US Dollars.	
Education	<i>Illiterate</i>	A dichotomous variable that indicates whether the respondent is illiterate.
	<i>High School or Less</i>	A dichotomous variable that indicates whether the respondent has received elementary, primary, and/or secondary school education but has not received any higher education.
	<i>Higher Education</i>	A dichotomous variable that indicates whether the respondent has received a college diploma (two years), BA, MA, and/or higher level of education.
<b>Demographic Characteristics</b>		
Age	A continuous variable that measures age in years.	
Male	A dichotomous variable that reflects whether the respondent is a male.	
Muslim	A dichotomous variable that reflects whether the respondents' religion is Muslim.	
Married	A dichotomous variable that reflects whether the respondent is married.	
Employed	A dichotomous variable that reflects whether the respondent is employed.	

<sup>14</sup> Social organizations include: political parties, living cooperatives or local societies, religious organizations, sport and entertainment clubs, cultural organizations, associations or workers' unions, farmers' unions, professional unions or associations, economic organizations or associations, entrepreneurial organizations, parent-teacher associations, and other voluntary organizations.

**Table 1 (continued)**

Public Sector	A dichotomous variable that reflects whether the respondent is a public sector employee.	
Family Income	A continuous variable that measures the respondent's family monthly income in 2007 US Dollars.	
Country Dummies	A set of dichotomous variables reflecting the country of residence. There are six country variables, Jordan, Palestine, Algeria, Morocco, Lebanon, and Yemen.	
<b>Attitudinal Characteristics Variables</b>		
Organization Membership	A dichotomous variable that reflects whether the respondent is a member of social organization.	
Elections Participation	A dichotomous variable that reflects whether the respondent voted in the most recent election.	
Campaign Participation	A dichotomous variable that reflects whether the respondent participated in the campaign meetings or rallies during the most recent election.	
Interest in Politics	A dichotomous variable that reflects whether the respondent is interested in politics.	
News Source	<i>TV-Radio</i>	A dichotomous variable that reflects whether the respondent receives information about local politics and government from TV and/or radio.
	<i>Printed Newspapers &amp; Magazines</i>	A dichotomous variable that reflects whether the respondent receives information about local politics and government from printed newspapers and magazines.
	<i>Internet &amp; Mobile</i>	A dichotomous variable that reflects whether the respondent receives information about local politics and government from the Internet and/or Mobile technology (SMS).
Use of the Internet	A dichotomous variable that reflects whether the respondent uses the Internet.	
Travel Abroad	A dichotomous variable that reflects whether the respondent has traveled to Europe, the US, or other Western countries, during the past five years.	

When examining the relationship between income/education and support for democracy, some scholars include an ethnicity variable. I cannot control for ethnicity because no such variable exists in the dataset I am using, presumably because the

substantial majority of survey respondents are Arabs. Another factor that can play an important role when measuring people's support for democracy is the country's institutional capacity or level of institutionalization, that is, how developed and mature the country's political institutions are. This factor is captured by the country dummies included in the regression and is therefore not included in my model.

## DESCRIPTIVE STATISTICS

**Table 2** provides descriptive statistics for my dependent and key independent variables; **Table 3** presents descriptive statistics for my demographic control variables; and **Table 4** provides descriptive statistics for my remaining controls.

**Table 2** shows that a substantial majority of the overall survey respondents (90%) support a democratic political system. The first key independent variable is monthly income, which has a mean of \$325. The second key independent variable is education, which is divided into three categories. The first category includes illiterate respondents, who account for 14% of survey respondents. The second category includes respondents who have received high school diploma or less. This group accounts for 55% of respondents. The last category, which accounts for 31% of respondents, includes those who have received higher education, whether a college diploma (two years), BA, MA, or higher.

**Table 2: Descriptive Statistics for the Dependent and Key Independent Variables**

Variable	Mean	Std. Dev.	Min	Max
<b>Support for Democracy</b>	<b>0.90</b>	<b>0.30</b>	<b>0</b>	<b>1</b>
<b>Income</b>	<b>\$325</b>	<b>\$477</b>	<b>\$0</b>	<b>\$7095</b>
<b>Education</b>				
<i>Illiterate</i>	.14	.32	0	1
<i>High School or Less</i>	.55	.50	0	1
<i>Higher Education</i>	.32	.47	0	1
<b>N = 4231</b>				

**Table 3** shows that the average age of survey respondents is around 37. There is an even distribution of males and females: almost half of respondents are female and about half are male. About 91% of respondents are Muslim, which is consistent with the

findings of other studies.<sup>15</sup> Also noteworthy is the fact that 50% of survey respondents are unemployed.<sup>16</sup> Among survey respondents, only 12% work in the public sector.

**Table 3: Descriptive Statistics for Demographic Controls**

Variable	Mean	Std. Dev.	Min	Max
Age	36.8	13.80	18	99
Male	0.55	0.50	0	1
Muslim	0.91	0.28	0	1
Married	0.60	0.49	0	1
Employed	0.50	0.50	0	1
Public Sector	0.12	0.33	0	1
Family Income	\$423	\$73.4	\$0	\$1,511
<b>N = 4231</b>				

**Table 4** provides statistics for my attitudinal control variables. The data show that only 10% of respondents traveled to Europe, the US, or other Western countries in the last five years. Around 81% of respondents are not members of any organization or formal group such as political parties or unions. Over 60% of respondents are not interested in politics, and 39% did not vote in the last election. Around 84% of respondents get their news from TV and/or radio, and 12% use print (newspapers and magazines), and 4% use digital media sources like the Internet and mobile SMS services. This finding might be explained by the fact that only 24% of respondents use the Internet.

<sup>15</sup> The demographic indicators of the six countries show a very high percentage of Muslims (90%) compared to Christians (10%) except in Lebanon where, according to the CIA World Factbook (2013), Christians form about 40% of the population. In the Arab Barometer survey, 50% of the respondents are Christians and the rest are Muslim Sunni, Shiite, and Druze.

<sup>16</sup> This is inconsistent with other reported unemployment rates in the six countries. There are two ways to explain this discrepancy: either the countries' reported unemployment rates (which, according to the World Bank, were between 10% and 12% during the years 2006 and 2007) are incorrect, or almost a third of those who are unemployed are unemployable because they are still in the first age category (18-24), i.e. those who are unemployable either because they are still in college or do not have enough experience to be employable.

**Table 4: Descriptive Statistics of Attitudinal Control Variables**

Variable	Percent	Std. Dev.	Min	Max
Organization Membership	19	0.39	0	1
Percentage of Participating in Last Election	61	0.49	0	1
Percentage of Participating in Political Campaign	28	0.45	0	1
Percentage of Interested in Politics	40	0.49	0	1
<b>Source on Information about Gov't</b>				
<i>Source of News is TV/Radio</i>	84	0.37	0	1
<i>Source of News is magazines/newspapers</i>	12	0.32	0	1
<i>Source of News is Internet/Mobile</i>	4	0.20	0	1
Percentage Using the Internet	24	0.43	0	1
Percentage who have Traveled to US and/or Western countries in the Last Five Years	10	0.29	0	1
<b>N = 4231</b>				

## RESULTS

The results of my regression analyses are summarized in Tables 5 and 6 below. Robust standard errors are reported for all coefficients. Model 1 in Table 5 reports the relationship between monthly individual income and education (the key independent variables) and the individual's support for a democratic system (the dependent variable) without including any other control variables. Model 2 adds the religion factor and Model 3 includes attitudinal and other control variables. Model 4 is fully specified and includes country dummies to control for characteristics that are the same for all observations within a given country. These country-level characteristics include regime type, institutional quality, GDP, and national literacy rates.

In comparing results across the four models, the coefficient on the monthly individual income is statistically significant and positive only in Model 1, where neither religion nor country fixed effects are included. The coefficients on the education variables are also significant but negative in models 1, 2, and 3 where country dummies are not included. When we control for religion and/or country fixed effects, the income coefficient becomes insignificant. The education coefficients become insignificant only when we add country controls.<sup>17</sup>

Next, I discuss each model in turn to explore its nuances. Model 1 probably suffers from omitted variable bias as it excludes many factors that are likely associated with the dependent and key independent variables. This model reports significant coefficients on both the income and education variables. A \$1,000 increase in monthly

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<sup>17</sup> In other analyses I find that so long as the Muslim variable is excluded, inclusion of country controls makes the income coefficient insignificant.

individual income is associated with a 2.5 percentage point increase in the probability that this individual will support a democratic system. On the other hand, and contrary to my hypothesis, education seems to be associated with less support for democracy. The education dummies are also jointly significant.

Including the religion factor in Model 2 makes the income coefficient insignificant and does not change the education coefficients. The religion variable is significant but negative, meaning that being a Muslim is associated with less support for a democratic system. In order to reduce potential omitted variable bias, Model 3 includes several control variables; however, this does not affect both income and education coefficients, which remain as in Models 1 and 2. Inclusion of country fixed effects in Model 4 causes both the income and education coefficients to become insignificant. The country control variables are jointly significant at the 99% level, and including them in my model increases the R-squared. The income variable and higher education dummy variable signs become positive but extremely small in magnitude.

To explore reasons for the negative relationship between education and democracy, I conducted several sensitivity analyses. The methodologies for these analyses ranged from dealing with omitted variable bias, to trying different functional forms for my key independent and control variables, to including several interaction terms. To deal with omitted variable bias, I included several demographic, attitudinal, and other control variables such as age, family income, gender, religion, interest in politics, and news source. I also tried different functional forms such as the logarithm of the income variable and a squared form of the age variable. Additionally, I included several interaction terms such as interactions between income and religion, income and

education, and religion and education. None of these methodologies produced different results.

There is very limited variation in the democracy variable, which in turn makes the model's coefficients unstable. For example, 91% of illiterate individuals support a democratic form of government as compared to 90% of the literate population. Around 70% of illiterate individuals who support democracy are from Morocco. Excluding Morocco from the regression makes the education coefficients highly significant and positive.

**Table 5: LPM Regression Results**

Dependent Variable	Individual Support for Democratic System of Government			
	(1)	(2)	(3)	(4)
<b>Country Dummies</b>	No	No	No	Yes
<b>Key Independent Variables</b>				
Individual Income (in \$1,000)	0.025*** (0.009)	0.003 (0.010)	-0.003 (0.010)	0.002 (0.011)
High School Or Less	-0.041*** (0.012)	-0.043*** (0.012)	-0.046*** (0.014)	-0.002 (0.015)
Higher Education	-0.055*** (0.014)	-0.060*** (0.014)	-0.063*** (0.017)	0.002 (0.018)
<b>Demographic Variables</b>				
Muslim	----	-0.089*** (0.012)	-0.088*** (0.013)	-0.095*** (0.018)
Family Income (in \$10,000)	----	----	-0.000 (0.000)	-0.000 (0.000)
Age	----	----	-0.001 (0.000)	-0.000 (0.000)
Male	----	----	-0.011 (0.010)	-0.007 (0.010)
Married	----	----	0.015 (0.010)	0.010 (0.010)
Employed	----	----	0.004 (0.010)	-0.002 (0.011)
<b>Attitudinal Variables and Other Controls</b>				
Organization Membership	----	----	-0.010 (0.012)	0.008 (0.013)
Participate in Last Elections	----	----	0.001 (0.011)	0.007 (0.010)
Participated in Political Campaigns	----	----	0.024** (0.011)	0.013 (0.011)
Interest in Politics	----	----	0.015 (0.010)	0.024** (0.010)
News Source is TV/Radio	----	----	0.079*** (0.029)	0.044 (0.029)
News Source is Newspapers	----	----	0.041 (0.032)	0.041 (0.031)
Use the Internet	----	----	0.029** (0.012)	0.026** (0.012)
Travel Abroad During the Past 5 Years	----	----	0.014 (0.015)	0.022 (0.015)
Constant	0.934*** (0.010)	1.025*** (0.016)	0.956*** (0.039)	0.900*** (0.051)
Observations	4,231	4,231	4,231	4,231
R-squared	0.004	0.010	0.018	0.048
Prob>F	0.000	0.000	0.000	0.000
<b>F-statistics, p-values of Joint Hypotheses</b>				
Education Dummies	8.04*** (0.000)	9.43*** (0.000)	7.47*** (0.000)	0.09 (0.915)
Country Dummies	----	----	----	23.62*** (0.000)
Robust standard errors are given in parentheses under coefficients and p-values are given in parenthesis under F-statistics. *** p<0.01, ** p<0.05, * p<0.1				

The puzzling results from the Morocco observations suggest the potential importance of performing a separate analysis for each country. Table 6 summarizes the results of my country specific analyses. There are no Christians in the samples of Algeria, Morocco, and Yemen; hence the omitted religion variable in the regression results for these countries. The income coefficient is imprecisely estimated and insignificant in all six countries with varying signs. The education coefficients are also insignificant in all countries except in Algeria and Palestine. In Algeria, both education coefficients are significant but negative. For Algerians, having a higher education is associated with 17 percentage points less support for democracy compared to illiterates. Only in Palestine is the coefficient on higher education significant and positive. The probability that a Palestinian with higher education will support democracy is 17 percentage points higher compared to illiterate Palestinians.

**Table 6: Country Specific LPM Regression Results**

Dependent Variable	Individual Support for Democratic System of Government					
	(1)	(2)	(3)	(4)	(5)	(6)
Country	Jordan	Palestine	Algeria	Morocco	Lebanon	Yemen
<b>Key Independent Variables</b>						
Individual Income (in \$1,000)	-0.028 (0.029)	-0.036 (0.057)	0.032 (0.086)	0.043 (0.053)	0.001 (0.011)	0.139 (0.285)
High School Or Less	0.009 (0.039)	0.139 (0.099)	-0.135* (0.076)	0.008 (0.015)	-0.048 (0.075)	0.131 (0.330)
Higher Education	0.001 (0.045)	0.169* (0.099)	-0.172** (0.077)	-0.006 (0.022)	-0.009 (0.077)	0.175 (0.332)
<b>Demographic Variables</b>						
Muslim	-0.093*** (0.025)	0.057 (0.105)	----	----	-0.105*** (0.019)	----
Family Income (in \$1,000)	-0.000 (0.000)	0.511* (0.270)	-0.003 (0.003)	-0.178 (0.421)	0.115** (0.052)	0.878 (1.804)
Age	0.001 (0.001)	-0.000 (0.001)	-0.002 (0.002)	-0.000 (0.000)	0.000 (0.001)	-0.002 (0.003)
Male	-0.037* (0.020)	-0.009 (0.031)	0.019 (0.034)	-0.018 (0.015)	0.020 (0.022)	0.047 (0.059)
Married	0.013 (0.023)	-0.002 (0.035)	0.025 (0.041)	0.002 (0.012)	-0.028 (0.022)	0.121 (0.081)
Employed	0.008 (0.022)	0.027 (0.030)	0.011 (0.040)	-0.018 (0.013)	-0.035 (0.030)	0.047 (0.086)
<b>Attitudinal Variables and Other Controls</b>						
Organization Membership	0.053* (0.028)	-0.032 (0.032)	-0.001 (0.039)	-0.008 (0.017)	-0.043 (0.027)	0.151** (0.060)
Participate in Last Elections	-0.036* (0.021)	0.041 (0.034)	-0.041 (0.036)	0.024* (0.013)	0.009 (0.024)	0.018 (0.073)
Participated in Political Campaigns	0.012 (0.022)	-0.005 (0.029)	0.043 (0.042)	0.022 (0.014)	0.043* (0.023)	-0.131** (0.063)
Interest in Politics	-0.008 (0.020)	0.028 (0.028)	0.031 (0.037)	-0.008 (0.015)	0.037 (0.023)	0.130** (0.053)
News Source is TV/Radio	0.044 (0.077)	0.085 (0.086)	0.066 (0.055)	0.004 (0.047)	0.022 (0.050)	-0.039 (0.105)
News Source is Newspapers	0.018 (0.081)	0.151 (0.095)	0.048 (0.058)	0.026 (0.053)	0.084 (0.051)	-0.105 (0.108)
Use the Internet	0.027 (0.029)	-0.006 (0.037)	0.057 (0.036)	0.004 (0.016)	0.048** (0.019)	-0.094 (0.071)
Travel Abroad During the Past 5 Years	-0.028 (0.040)	-0.042 (0.066)	0.112*** (0.039)	0.013 (0.021)	-0.040 (0.028)	0.071 (0.080)
Constant	0.975*** (0.094)	0.539*** (0.185)	0.915*** (0.124)	0.962*** (0.053)	0.965*** (0.109)	0.515 (0.365)
Observations	919	704	655	1,066	718	169
R-squared	0.015	0.026	0.041	0.013	0.091	0.194
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
Robust standard errors are given in parentheses under coefficients. *** p<0.01, ** p<0.05, * p<0.1						

## CONCLUSION

My empirical analyses tested the hypothesis that income and education are positively associated with support for democracy among individuals in the Arab world. The regression results from my fully specified model are consistent with most of the literature, showing that there is no association between income and education on the one hand and democracy on the other. My regression models that do not include religion or country controls show that monthly individual income has a positive, small, and significant association with individual support for democracy. As for education and contrary to my hypothesis, my models without country dummies show that education has a small and significant but negative association with individual support for democracy.

When I controlled for country fixed effects, the income-democracy and education-democracy relationships disappear. This led me to conduct further analysis on the country level, but I found no relationship between income and democracy within countries. As for the relationship between education and democracy, I again found no relationship at the country level, except in Algeria where both education variables' coefficients are significant and negative, and Palestine where only higher education coefficient is significant and positive.

The negative relationship between education and democracy in the models without a full set of controls should not puzzle us because of the potential omitted variable bias. Neither should we rely on the positive, small association between income and democracy because it is also not a result of the fully specified model. However, it should be noted that the Moroccan illiterates' strong support for democracy seems to be

one of the possible underlying reasons for the puzzling results. Future research should explore these relationships further.

The results from my analysis are not directly comparable to the findings of previous research, as other studies have used country-level data, whereas I use individual-level data. Nevertheless, assuming that the individual support for democracy can be taken to be an indicator of more aggregated measures, I find results consistent with the other literature, as the finding among many of the studies included in my literature review is that the income-democracy and education-democracy relationships disappear when controlling for country fixed effects.

The findings from my study, especially the negative sign on the education coefficient and the disproportionate support for democracy among illiterate Moroccans, suggest that the study might have some limitations. Among them is the limited number of countries where the survey was conducted, which reduces the variance of the dependent and independent variables. The Arab Barometer Surveys II and III were conducted in a wider range of countries. However, when my study was conducted, these data were not yet released. Had data been available for additional countries, I would have been able to exploit additional variation both within and between countries, allowing for potentially more precise estimates.

Another potential limitation is the fact that some of the measures used in my study, such as income and age, are imprecise as they were measured in different ways in different countries.<sup>18</sup> This may have led to measurement errors, which might in turn have

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<sup>18</sup> Refer to the Data and Methods section for information as to how I dealt with Morocco's categorical income and age variables.

affected the results of my analysis. A consistent measurement of income and age along with other control variables across all countries would be ideal for future research.

Finally, although my analysis includes a wide range of controls, it may nevertheless be subject to omitted variable bias. Several factors that are associated with people's socioeconomic status and with their perceptions about democracy are not included in the analysis. Examples of these factors include, but are not limited to, the individual's living settings (rural vs. urban) and his/her political ideology. These factors are not included in the survey data I used. Rural individuals may differ from those who live in urban areas when it comes to their perceptions about democracy. More specifically, they may be less inclined than urban individuals to support democratic systems. Also, levels of income and education are usually lower in rural areas. This leads me to suspect that there is a positive bias in the results due to the omission of this variable. As for the political ideology, people with conservative political ideologies may have less enthusiasm for democracy than those with liberal political ideologies, but the relationship between conservative ideologies and people's socioeconomic status is unclear. Therefore, it is unclear how the political ideology factor affects the results of this study. In future research, including additional control variables may reduce the effect of omitted variable bias in similar analyses.

Democracy promotion organizations and policymakers may be puzzled by the results of this study. Some organizations have long believed that a more educated and wealthier population would eventually express greater support for democracy. My results suggest that this belief may be misplaced. However, further analysis needs to be conducted because my results are certainly not definitive and the belief that rising income

and education levels increase support for democracy affects a wide range of international development and democracy promotion policies worldwide.

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