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5 January 2018

Online at <https://mpra.ub.uni-muenchen.de/86369/>  
MPRA Paper No. 86369, posted 25 Apr 2018 15:44 UTC

## **Does Democracy Increase Bilateral Trade in MENA Region?**

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# Does Democracy Increase Bilateral Trade in MENA Region?

## Abstract

This paper aims to analyze the effects of democracy to the trade of countries in MENA Regions. The Gravity Model used to test the effects of democracy on trade. Estimation is done with several models, that is FE, RE, MLE, and PPML. From this estimation can be detected endogeneity problem that is caused by simultaneity between export and democracy. The FE model with the infant mortality rate as instrumental variable was chosen to address the problem. After controlling endogeneity, it can be concluded that democracy positively affects (3-4 per cent) of trade in MENA Regions, especially democracy in partner countries.

**Keywords** trade, export, democracy, Gravity Model, MENA.  
JEL: F14, F17.

## 1. INTRODUCTION

Scientists and policy makers believe that democracy will bring prosperity through global integration that enhances international trade (Balding, 2011). Democracy can affect trade through two ways, that is exports and imports. Democratization in exporting countries can improve product quality, lower trade costs, and increase bilateral trade. Hence, democratization in the country can increase trade barriers so as to decrease imports (Bu, 2010).

Since 1960, the Middle East and North Africa (MENA) region has been the second or the second most undemocratic region. In terms of political inclusiveness, the most of countries in the MENA region have low (exclusive) political inclusiveness and only a small proportion have good policy coordination (Saudi Arabia, Bahrain, Oman and Tunisia). Only Iran is politically inclusive with good policy coordination (Ross, ET AL., 2011). The democratization process in this region is not easy because of religious and cultural factors (Diamond, 2010). One of the causes of the slow progress toward democracy (from autocracy) in MENA Regions is the large number of countries that have oil wealth. The oil-rich countries tend to have lower social civilization than the oil-poor countries. Oil wealth in an undemocratic country tends to reduce social freedom of society. Oil wealth has a tendency to increase the risk of conflict in a country, especially if the income of the community is relatively low. The number of conflicts in the MENA region increased in trend from 1946 to 1992, then decreased until 2003, and again increased (Ross, ET AL., 2011).

According to several literature studies, the performance of trade of MENA Regions is not as expected (Diop, ET AL., 2010; Gourdon, 2010; Behar and Freund, 2010; Rouis and Tabor, 2013). In 2005 to 2007, Behar and Freund (2011) conducted an analysis of trade

openness in the MENA Zone. The trade-to-GDP ratio of countries in the MENA region is lower than other regions of the world. Only the South Asian Region as well as Latin America and Caribea have a lower trade-to-GDP ratio than MENA Regions. Overall, trade openness in the MENA Region is still above the world average but becomes lower if oil or natural resources to be removed from the calculation (Behar and Freund, 2011).

Countries in the MENA region tend to have high political conflicts. The majority of countries have low levels of democracy, that is between open autocracy to full autocracy (no democracy). The constitution and the head of state also vary, from the republic to the absolute monarchy to the head of the executive and ceremonial countries. These things cause the process of democratization in the MENA Region to be not easy. The trade characteristic of countries in the MENA region has not been established, the proportions of trade to GDP are low compared to other regions, have a trend that tends to be positive, growth fluctuates, and is still below its potential. Countries with abundant natural resources have better trade performance.

Mansfield's, et al. (2000), Duc, et al. (2005), Decker and Lim (2009), Khan and Hossain (2010), Yu (2010), and Balding (2011) showed that democracy positively affects the flow of trade. On the other hand, Kono (2006) and Kono (2008) show that democracy affects trade policy. The aim of this paper is to examine the influence of democracy to the trade of countries in MENA Regions.

## **2. LITERATUR REVIEW**

Political institutions have an important role in the economy. Both economic institutions and political institutions have a direct impact on outcomes in the economy (Acemoglu, 2009). Political institutions can be in direct democracy, representative democracy, and non-democracy. In direct democracy, the key to decision-making lies in the majority of voting. In representative democracies voters elect representatives who then take political options with consequences to be downgraded if their policies are not in accordance with the wishes of the electorate. On the other hand a non democratic regime (dictator or autocracy), a small group of people play a key role (Acemoglu, 2009). An important distinction between democracy and autocracy is the legislative existence that de jure and de facto have the power to endorse the proposed chief executive of a democratic country. In an autocratic state, there are only executives as sole actors who must maintain political support, including consumer and corporate support affecting economic conditions. The choice of trade policy in an autocratic state tends to focus on its executive leader (Mansfield, et al., 2000). The Democratic trade flow is greater than the mixed state and autocracy (Cindy, et al., 2004).

Democracy is one type of political institutions that affect trade barriers. Mansfield, et al., (2000) modeled how politicians' preference influenced trade barriers. The model yields two hypotheses. First, trade barriers in aggregate will be lower between two democracies than the democratic state with autocracy. Second, the level of aggregate trade barriers will be higher between two autocratic states than with the two democracies or mixed couples, depending on their relative trade preference.

Some studies suggest that democracy has a positive influence on international trade (Mansfield, et al., 2000; Cindy, et al., 2004; Balding, 2011; Decker and Lim, 2009; and Yu, 2010). Political institutions affect the flow of bilateral trade by (Cindy, et al., 2004): (1) democracy countries will more easily negotiate trade agreements; (2) democracy countries will tend to set lower tariffs with trading partners whose transaction costs are low; (3) and transaction costs will be lower if each country that trades is low democracy.

Yu (2010) states that democracy impacts trade costs through: (1) for exporters impact on institutional improvement, product quality, and enhancement of international trust in the pitching of its products; and (2) for importers impact on tariff reduction.

Balding (2011) argues that political freedom is highly likely to be closely correlated with economic freedom which has an impact on increasing economic activity and democracy has implications for improving governance quality through institutional and policy-setting procedures. Democratic political institution will increase trade flow and tends to reduce trade barriers. Anderson and Nincompoop (2004) stated that trade costs are due to policies (tariffs, quotas) and environments (transportation costs as well as large and retail distribution costs). Democracy will affect the cost / trade barrier. The causality can be developed into Equation 1:  $x_i = f(y_i^+, y_j^+, d_{ij}^-, \mathbf{Democracy}_{ij}^+, p_i^-, p_j^-, \dots)$ .....(1).

### 3. METHODOLOGY

#### 3.1. DATA

This study focused on 16 MENA countries, that is Egypt, Jordan, Lebanon, Morocco, Jordan (resource poor – labor abundance); Algeria, Iran, Syria, Yemen (resource rich – labor abundance); and Bahrain, Kuwait, Libya, Oman, Qatar, Saudi Arabia and the United Arab Emirates (resource rich – labor importing) from 1988 to 2015. Djibouti, Iraq and Israel / Palestine were excluded from observations due to the lack of available data. The bilateral trade partners included in the observations are 16 countries in the MENA Region and important trading partners outside the MENA, that is United States, United Kingdom, France, Italy and

Germany. The pattern of trade is analyzed in five years while the Gravity Model is analyzed annually.

This study uses secondary data sourced from United Nations Commodity Trade Statistics Database (UN-Comtrade), Direction of Trades-International Monetary Fund (DOTS-IMF), International Financial Statistics (IFS), World Development Report- World Bank (WDI-WB ), CIA's World Facebook.

### 3.2. GRAVITY MODEL

To measure the effect of democracy to trade performance, democracy index (Yu, 2010, Balding, 2011) as a proxy variable of democracy is used. Equation 2 uses the democratic index as a proxy for democratic variables.

$$\begin{aligned} \ln(Ex_{ijt}) = & \beta_0 + \beta_1 IDem_{it} + \beta_2 IDem_{jt} + \beta_3 \ln(GDP_{it}) + \beta_4 \ln(GDP_{jt}) + \beta_5 \ln(Dist_{ij}) \\ & + \beta_6 \ln(Pop_{it}) + \beta_7 \ln(Pop_{jt}) + \beta_8 \ln(Area)_i + \beta_9 ER_{ijt} \\ & + \beta_{10} OP_t + \beta_{11} Col_{ij} + \beta_{12} Comcol_{ij} + \beta_{13} Lang_{ij} + \beta_{14} GFC_t + \beta_{15} IGOV_{it} \\ & + \beta_{16} IGOV_{jt} + \varepsilon_{ijt} \dots (2) \end{aligned}$$

where i is the home country, j is a partner country, and t is the year. Balding (2011) argues that democracy is not strong enough proxy for political institutions, so it needs to add other institutional control variables. Yu (2010) uses institutional quality as an institutional control variable (beyond the state characteristic control variables). According to these studies, this study uses governmental index variables (IGOV) as the institutional control variable.

To anticipate endogeneity that caused by simultaneity on democracy variables, Yu (2010) and Balding (2011) used instrument variables on democracy index variables. An instrument variable which correlated with the instrumented variable and not correlated with the error is required (Wooldridge, 2013). Yu (2010) used variable infant mortality rate in a country as an instrument variable of the democracy index. To control endogeneity (caused by the simultaneous) of democracy index variable, this study uses infant death ratio (IDR) as instrument variables on democracy variable. Equation 3 shows a reduced form of infant mortality rate as an instrument democracy variable.

$$\begin{aligned} IDem_{it} = & \delta + \alpha_0 IDR_{it} + \alpha_1 \ln(GDP_{it}) + \alpha_2 \ln(GDP_{jt}) + \alpha_3 \ln(Dist_{ij}) + \alpha_4 \ln(Pop_{it}) \\ & + \alpha_5 \ln(Pop_{jt}) + \alpha_6 \ln(Area)_i + \alpha_7 ER_{ijt} + \alpha_8 OP_t + \alpha_9 Col_{ij} \\ & + \alpha_{10} Comcol_{ij} + \alpha_{11} Lang_{ij} + \alpha_{12} GFC_t + \alpha_{13} IGOV_{it} + \alpha_{14} IGOV_{jt} \\ & + \alpha_{15} IDem_{jt} + \varepsilon_{ijt} \dots (3) \end{aligned}$$

**Table 1 about here**

According to the literature review, the estimation begins with applying the Fixed Effect Model with Instrumental Variable. Model adjustment is performed if the model is not eligible to apply. The robustness test is performed by comparing the various models and estimators. The sign consistency test is done by estimating the data as whole, divided by country group (resource poor – labor abundant, resource rich – labor abundant, and resource rich – labor importing), and divided by year period (1988 - 1994, 1995 - 2001, 2002 - 2008, and 2009 - 2015). Table 1 describes the operational definition of regression variables used to see the effect of democracy on trade flows.

#### **4. RESULT AND DISCUSSION**

Since 1960, MENA was one of the most undemocratic region in the world. In terms of political inclusiveness, almost all countries in the MENA region have low (exclusive) political inclusiveness and only a small proportion have good policy coordination (Saudi Arabia, Bahrain, Oman and Tunisia). Only Iran has politically inclusive with good policy coordination (Ross, et al., 2011). Table 2, Table 3, and Table 4 show the progress of democracies index in MENA Countries based on Poly IV Indexes that classified based on the abundance of input sources from 1988 to 2015. Polity IV measures democracy based on executive recruitment (unregulated, transitional, regulated), freedom from executive authority (transitional selection, election), as well as political competition and opposition (closed, double-selection, double-elect, executive executives). The Polity IV Index has a range of values between -10 (full autocracy) to 10 (full democracy). Negative numbers can be interpreted autocracy while positively interpreted democracy.

##### **Table 2 about here**

In resource poor - labor abundant countries, Egypt, Jordan, and Morocco tend to be in autocracy. Lebanon tends to be democratic while Tunisia proceeds from autocracy to democracy. Within 28 years, countries with the higher mean democracy index are Lebanon, Tunisia, Jordan, Egypt and Morocco. The average trend of democracy index has increased (see Table 2).

In resource-rich – labor abundant countries, Syria tends to perfect autocracy. Algeria has been proceeding from autocracy to democracy. Iran and Yemen fluctuate from autocracy to democracy, and back to autocracy. Within 28 years, countries that have higher average index are Yemen, Iran, and Syria. The average trend of democracy index has increased (see Table 2).

In resource rich - labor importing countries, all countries tend to close perfect autocracy (less than -5), even for Qatar and Saudi Arabia for 28 years perfect autocracy. Libya is a country

with the lowest level of autocracy, even ever democracy (zero). Resource rich - labor importing countries tend to be more autocratic than the others. Within 28 years, countries with the highest mean democracy index are Libya, Kuwait, United Arab Emirates, Bahrain, Oman, Qatar and Saudi Arabia respectively. The average trend of democracy index has increased (Table 2).

From these tables can be concluded that the trend of democracy index in all groups of countries has increased with the highest average in the group of resource poor countries - abundant labor countries, the group of resource poor – labor abundant countries.

### **Table 3 about here**

Table 3 shows the results of regression with export as dependent variable. The estimations use several models, that is Fixed Effect/FE (Duc, et al, 2005; Decker and Lim, 2009; Yu, 2010; and Balding, 2011), Random Effect/RE (Decker and Lim, 2009), and Poisson Pseudo Maximum Likelihood/PPML (Yu, 2010). Maximum Likelihood Estimation/MLE is also used to test robustness of model.

Simultaneously, it can be argued that all independent variables can explain changes in export values. This is indicated by the value of F (for FE) or Wald  $\text{Chi}^2$  (for RE) which is much higher than the critical value for 99 percent level of confidence. All  $R^2$  value are greater than 0.5. The chi square value of Hausman's Test (50.59 with probability 0,000) shows that FE Model is preferred than RE Model with 99 percent level of confidence.

For the main variable of Gravity Model, GDP of home country and partner country have positive and significant effect, while the distance has negative and significant effect to export. This fact is in line with the model developed by Tinbergen (1962), Poyhonen (1963), and Linnemann (1966).

Beside the main variables, control variables are included to address endogenous issues. These variables and their relationships are the population of home country (positive and significant), the population of partner country (positive and significant), the area of home country (negative and significant), the exchange rate with the partner country (negative and significant), world oil prices (positive and significant), colonized after 1945 (negative and significant), colonized by the same country (positive and significant), linguistic similarities (positive and significant), global economic crisis in 2008 (negative and significant), governance index of home country (positive and significant), and governance index of partner country (positive and significant). Variable of area of home country is removed from the FE model (automatically by the software) due to the col linearity problem. For all models, the destination country's democratic index has a positive and significant effect on trade with a 99 percent level of confidence.

There is a different results for democratic index of home country. It has a positive and significant effect on the FE Model, negative and significant on the RE and PPML Model. Only the FE Model gives the results that consistent with the theory. This fact indicates endogenous that caused by simultaneity in variable of democratic index in home country, so that the model with the instrument variables becomes an alternative to be estimated (Yu, 2010 and Balding, 2011).

Table 4 summarizes the estimation results with the FE and RE models, either using the instrument variables or not. As Yu (2010), the instrument variable used in this model is the infant mortality rate (in percent). Conceptually, infant mortality rates are positively correlated with democracy (the better the political / democratic order the smaller infant mortality, especially due to the conflict) and not correlated with trade (exports).

#### **Table 4 about here**

Simultaneously, it can be argued that all independent variables can explain changes in export values. This is indicated by the value of F (for FE) or Wald Chi2 (for RE) which is much higher than the critical value for 99 percent level of confidence. All  $R^2$  value are greater than 0.5. The chi square value of Hausman's Test (50.59 with probability 0,000) shows that FE Model is preferred than RE Model with 99 percent degree of freedom.

To test the infant mortality rate as an instrument variable, three tests were used, that is Anderson Canonical Correlation LM Test, Cragg-Donald Wald F Test, and Sargan Test. The significant of Anderson Canonical Correlation LM score at 99 percent level of confidence indicates that the under identification hypothesis of the equation is rejected. The significant value of Cragg-Donald Wald F at 90 percent level of confidence indicates that the weak identical hypothesis of the equation is rejected. The near-zero Sargan value indicates that the infant mortality rate as a valid instance is not rejected. From these results can be concluded that the infant mortality rate is quite feasible to be used as instrument variable.

For the main variable of Gravity Model, GDP of home country and partner country have positive and significant effect, while the distance has negative and significant effect to export. This fact is in line with the model developed by Tinbergen (1962), Poyhonen (1963), and Linnemann (1966).

Like Table 3, country characteristic control variables are included to address endogenous problems. These variables and their relationships are the population of home country (positive and significant), the population of partner country (positive and significant), the area home country (negative and significant), exchange rate (negative and significant), world oil prices (positive and significant), ever colonized after 1945 (negative and significant),

ever colonized by the same country (positive and significant), linguistic similarities (positive and significant), global economic crisis period in 2008 (negative and significant), government index of home country (positive and significant), and Vermont index of partner country (positive and significant). The variable the area of home country removed from the FE model (automatically by the software) due to the collinearity problem.

For all models, the partner country's democratic index has a positive and significant effect on trade with a 99 percent level of confidence. There is a different results for the democratic index of the home country. Original democracy index has positive effect on FE (not significant) and FE + IV (not significant) model, RE + IV model (significant), and has negative and insignificant effect on RE Model. The FE model gives a consistent sign with the (positive) theories, both with and without instrument variables. Models with IV (both FE and RE) provide the results that are most consistent with the theory. These results indicate simultaneity in the democratic index of the home country, so that the model with the instrument variables becomes relevant for use. The estimation results in Table 5 show that the effect of democracy in home country seems unstable.

To test the consistency of the effect of these variables, similar estimation (FE with IV) are both classified by group of countries based on the resources they have (Table 5) and time period (Table 6).

#### **Table 5 about here**

Table 5 shows that the effect of democracy in home country is only positive and significant in resource rich – labor importing countries. The effect of democracy in resource poor – labor abundant countries (positive) and resource rich – labor abundant countries (negative) is not statistically significant. While the effect of democracy in partner country remains positive and significant in all three groups. These analyzes support that the effect of partner country democracy on MENA's trade (positive and significant) is more dominant the democracy of reporting country.

#### **Table 6 about here**

Another way to test the consistency of democratic index variables is to compare estimation with the entire period (28 years) with the seven-year period (1988 - 1995, 1995 - 2001, 2002 - 2008, and 2009 - 2015) as summarized in Table 6. This table shows that the effect of democracy in home country are positive but not significant during the period of 1988 - 1994 and 2002 - 2008 and negative and significant during 1995 - 2001 and 2008 - 2015 period. The effects of democracy in partner country are positive for all periods. These analyzes support that the effect of partner country democracy on MENA's trade (positive not significant and positive

significant) is more dominant than democracy of home country country. The effect of partner country democracy is consistent across times while in the effect of home country democracy is inconsistent. Balding (2011) stated that there is an income effect on the effect of democracy on trade. All of resource rich – labor importing countries which have a positive democracy effect on trade are high level income countries. It supports Linder (1961) and Rose (2004) who stated that countries with higher income levels tend to have higher level of international trade. Governance quality also plays important role (both positive significant for home and partner countries) on trade. Paldam (2003), De Haan and Sturn (2003) stated that the positive effect of democracy on trade has indirect effect through economic freedom and quality of governance.

## 5. CONCLUSION

For all results, the Gravity Model is a good model for explaining the variables affecting trade (exports). It can be seen from  $R^2$  values that greater than 0.55 for the entire observation (8,960). Simultaneously, all explanatory variables explain bilateral trade (exports). For the main gravity variable, GDP of home country and partner country have positive and significant effect, while the distance has negative and significant effect to export. This fact is in line with the model developed by Tinbergen (1962), Poyhonen (1963), and Linnemann (1966). Meanwhile, country characteristic (control) variables and their relationships are the population of home country (positive and significant), the population of partner country (positive and significant), the area of origin country (negative and significant), exchange rate (negative and significant), world oil prices (positive and significant), ever colonized by the same country (positive and significant), language similarity (positive and significant), and period of global economic crisis in 2008 (negative and significant). Governance index of home country (positive and significant), and governance index of partner country (positive and significant). Only variables of ever colonized after 1945 which has an inconsistent sign (negative and significant).

Estimation is done with several models, that is FE, RE, MLE, and PPML. From this estimation can be detected endogeneity problem that is caused by simultaneity between export and democracy. The FE model with the infant mortality rate as instrumental variable was chosen to address the problem. Democracy has a positive effect on trade in MENA Region, with dominant effect on partner country than home country. These result supports Yu (2010) and Balding (2011) that uses democracy and their results showed that democracy has a positive effect on trade flow. After providing control variables to endogeneity (simultaneity and additional control variables for government institutions) it can be concluded that democracy

positively affects trade in MENA Regions, especially democracy in destination countries. Democracy contributes to trade increase by 3 - 4 percent.

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## 7. APPENDIX

**Table 1 Variable Definitions**

<b>Notation</b>	<b>Meaning</b>	<b>Variable Definition</b>	<b>Unit</b>	<b>Source</b>
$Ex_{ijt}$	<i>Bilateral Trade</i>	Bilateral trade (export) from country i to country j, years t.	US\$	UN-Comtrade
$GDP_{it}$	<i>Gross Domestic Product (GDP)</i>	GDP country i, years t	US\$	WDI-WB
$GDP_{jt}$	<i>Gross Domestic Product (GDP)</i>	GDP country j, years t	US\$	WDI-WB
$Dist_{ij}$	<i>Distance</i>	Distance between country i and country j.	km	CEPII Data set
$POP_{it}$	<i>Population</i>	Population number of country i, year t.	Person	WDI-WB
$POP_{jt}$	<i>Population</i>	Population number of country j, year t.	Person	WDI-WB
$Area_i$	<i>Area</i>	Area of country i.	Km <sup>2</sup>	CEPII Dataset
$ER_{ijt}$	<i>Exchange Rate</i>	Exchange rate between country i and j.	Abroad value/home value	WDI-WB
$OP_t$	<i>Oil Price</i>	World crude oil price.	\$/bbl	WDI-WB
$Col_{ij}$	<i>Colony</i>	Binary variable, 1 = pairs ever in colonial relationship, 0 = others.	-	CEPII Dataset
$Comcol_{ij}$	<i>Common Colony</i>	Binary variable, 1 = common colonizer post 1945, 0 = others.	-	CEPII Dataset
$Lang_{ij}$	<i>Language</i>	Binary variable, 1 = common language, 0 = others.	-	CEPII Dataset

<b>Notation</b>	<b>Meaning</b>	<b>Variable Definition</b>	<b>Unit</b>	<b>Source</b>
GFC <sub>t</sub>	<i>Global Financial Crisis</i>	Binary variable, 1 = 2008 and after, 0 = others.	-	
IGov <sub>it</sub>	<i>Government Index</i>	Government effectiveness of country i.	-	WGI-WB
IGov <sub>jt</sub>	<i>Government Index</i>	Government effectiveness index of country j year t.	-	WGI-WB
IDR <sub>it</sub>	<i>Infant Death Ratio</i>	Government effectiveness index of country i year t.	%	WDI-WB
IDem <sub>it</sub>	<i>Democracy Index</i>	Democracy index of country i, year t.	-	Polity IV Dataset
IDem <sub>jt</sub>	<i>Democracy Index</i>	Democracy index of country j, year t.	-	Polity IV Dataset

**Table 2. Democracy Index of Countries in MENA Region**

Year	Resource Poor – Labor Abundance Countries						Resource Rich – Labor Abundance Countries					Resource Poor – Labor Importing Countries							
	Egypt	Jordan	Lebanon	Morocco	Tunisia	Average	Algeria	Iran	Syria	Yemen	Average	Bahrain	Kuwait	Libya	Oman	Qatar	Saudi Arabia	UAE	Average
1988	-6	-9	0	-8	-5	-5.6	-9	-6	-9	-6	-7.5	-10	-10	-7	-10	-10	-10	-8	-9.29
1989	-6	-4	0	-8	-5	-4.6	-2	-6	-9	-5	-5.5	-10	-10	-7	-10	-10	-10	-8	-9.29
1990	-6	-4	0	-8	-5	-4.6	-2	-6	-9	-5	-5.5	-10	-9	-7	-10	-10	-10	-8	-9.14
1991	-6	-4	0	-8	-5	-4.6	-2	-6	-9	-4	-5.25	-10	-9	-7	-9	-10	-10	-8	-9
1992	-6	-2	0	-7	-5	-4	-7	-6	-9	-3	-6.25	-10	-7	-7	-9	-10	-10	-8	-8.71
1993	-6	-2	0	-7	-3	-3.6	-7	-6	-9	-2	-6	-9	-7	-7	-9	-10	-10	-8	-8.57
1994	-6	-2	0	-7	-3	-3.6	-7	-6	-9	-2	-6	-9	-7	-7	-9	-10	-10	-8	-8.57
1995	-6	-2	0	-7	-3	-3.6	-3	-6	-9	-2	-5	-9	-7	-7	-9	-10	-10	-8	-8.57
1996	-6	-2	0	-7	-3	-3.6	-3	-6	-9	-2	-5	-9	-7	-7	-9	-10	-10	-8	-8.57
1997	-6	-2	0	-7	-3	-3.6	-3	3	-9	-2	-2.75	-9	-7	-7	-9	-10	-10	-8	-8.57
1998	-6	-2	0	-6	-3	-3.4	-3	3	-9	-2	-2.75	-9	-7	-7	-9	-10	-10	-8	-8.57
1999	-6	-2	0	-6	-3	-3.4	-3	3	-9	-2	-2.75	-9	-7	-7	-9	-10	-10	-8	-8.57
2000	-6	-2	0	-6	-3	-3.4	-3	3	-7	-2	-2.25	-9	-7	-7	-9	-10	-10	-8	-8.57
2001	-6	-2	0	-6	-3	-3.4	-3	3	-7	-2	-2.25	-8	-7	-7	-9	-10	-10	-8	-8.43
2002	-6	-2	0	-6	-4	-3.6	-3	3	-7	-2	-2.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2003	-6	-2	0	-6	-4	-3.6	-3	3	-7	-2	-2.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2004	-6	-2	0	-6	-4	-3.6	2	-6	-7	-2	-3.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2005	-3	-2	6	-6	-4	-1.8	2	-6	-7	-2	-3.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2006	-3	-2	6	-6	-4	-1.8	2	-6	-7	-2	-3.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2007	-3	-3	6	-6	-4	-2	2	-6	-7	-2	-3.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2008	-3	-3	6	-6	-4	-2	2	-6	-7	-2	-3.25	-7	-7	-7	-8	-10	-10	-8	-8.14
2009	-3	-3	6	-6	-4	-2	2	-7	-7	-2	-3.5	-7	-7	-7	-8	-10	-10	-8	-8.14
2010	-3	-3	6	-6	-4	-2	2	-7	-7	-2	-3.5	-5	-7	-7	-8	-10	-10	-8	-7.86
2011	-2	-3	6	-4	4	0.2	2	-7	-7	-2	-3.5	-8	-7	0	-8	-10	-10	-8	-7.29
2012	-3	-3	6	-4	5	0.2	2	-7	-9	3	-2.75	-10	-7	0	-8	-10	-10	-8	-7.57
2013	-4	-3	6	-4	6	0.2	2	-7	-9	3	-2.75	-10	-7	0	-8	-10	-10	-8	-7.57
2014	-4	-3	6	-4	7	0.4	2	-7	-9	0	-3.5	-10	-7	0	-8	-10	-10	-8	-7.57
2015	-4	-3	6	-4	7	0.4	2	-7	-9	0	-3.5	-10	-7	0	-8	-10	-10	-8	-7.57
<b>Average</b>	<b>-4.89</b>	<b>-2.79</b>	<b>2.36</b>	<b>-6.14</b>	<b>-2.11</b>	<b>-2.71</b>	<b>-1.39</b>	<b>-4</b>	<b>-8.14</b>	<b>-1.96</b>	<b>-3.88</b>	<b>-8.54</b>	<b>-7.36</b>	<b>-5.75</b>	<b>-8.61</b>	<b>-10</b>	<b>-10</b>	<b>-8</b>	<b>-8.32</b>

Source: Polity IV, calculated.

**Tabel 3 Effect of Democracy on Export in MENA Region (Non IV)**

Variable	LEXij / Coefficient (Standard Error)			
	FE	RE	MLE	PPML
<b>Democracy</b>				
IDEMi	0.0014 (0.0093)	-0.0030 (0.0090)	-0.0001 (0.0092)	-0.0021*** (0.0003)
IDEMj	0.0402*** (0.0041)	0.0417*** (0.0041)	0.0405*** (0.0041)	0.0030*** (0.0003)
<b>Gravity</b>				
LGDPi	1.0268*** (0.1217)	1.1060*** (0.0802)	1.0809*** (0.1082)	0.0480*** (0.0017)
LGDPj	0.6688*** (0.0200)	0.6778*** (0.0200)	0.6708*** (0.0200)	0.0424*** (0.0012)
LDISTij	-1.6162*** (0.0257)	-1.6180*** (0.0257)	-1.6167*** (0.0256)	-0.0978*** (0.0015)
<b>Country Characteristics</b>				
LPOPi	1.0493*** (0.1459)	0.6663*** (0.0923)	0.1943*** (0.1335)	0.0219*** (0.0018)
LPOPj	0.2794*** (0.0211)	0.2756*** (0.0211)	0.2785*** (0.0211)	0.0163*** (0.0014)
LAREAi	-	-0.4353*** (0.0593)	-0.5668*** (0.1134)	-0.0082*** (0.0010)
ERij	-0.0000*** (0.0000)	-0.0000** (0.0000)	-0.0000** (0.0000)	-0.0000** (0.0000)
OP	0.0074*** (0.0012)	0.0089*** (0.0012)	0.0077*** (0.0012)	0.0008*** (0.0001)
COLij	-0.4020*** (0.1100)	-0.4183*** (0.1102)	-0.4057*** (0.1098)	-0.0360*** (0.0056)
COMCOLij	0.5218*** (0.0613)	0.5275*** (0.0614)	0.5234*** (0.0613)	0.0249*** (0.0032)
LANGij	0.8970*** (0.0650)	0.9329*** (0.0648)	0.9047*** (0.0649)	0.0699*** (0.0036)
GFC	-0.2364*** (0.0758)	-0.1877** (0.0756)	-0.2231*** (0.0757)	-0.0076*** (0.0043)
IGOV <sub>i</sub>	0.1022* (0.0614)	0.1996*** (0.0584)	0.1259** (0.0612)	0.0392*** (0.0021)
IGOV <sub>j</sub>	0.3232*** (0.0299)	0.3138*** (0.2998)	0.3211*** (0.0299)	0.0155*** (0.0019)
C	-35.6513*** (2.0175)	-26.5612*** (1.6079)	-28.0912*** (2.1488)	0.6735*** (2.1488)
N	8,960	8,960	8,960	8,960
F / Wald Chi <sup>2</sup> / LR Chi <sup>2</sup>	737.16***	11,021.87***	7,210.42***	-
R <sup>2</sup> / R <sup>2</sup> within	0.5532	0.5526	-	0.5672

Source: UN-Comtrade, WDI-World Bank, CEPII, Polity IV, calculated. \* Significant at  $\alpha=10\%$ , \*\* significant at  $\alpha=5\%$ , \*\*\* significant at  $\alpha=1\%$

**Table 4 Effect of Democracy on Export in MENA Region (IV and Non IV)**

Variable	LEXij / Coefficient (Standard of Error)			
	FE	RE	FE + IV	RE + IV
<b>Democracy</b>				
IDEMi	0.0014 (0.0093)	-0.0030 (0.0090)	0.0378 (0.0454)	0.0922** (0.0420)
IDEMj	0.0402*** (0.0041)	0.0417*** (0.0041)	0.0340*** (0.0041)	0.0410*** (0.0041)
<b>Gravity</b>				
LGDPi	1.0268*** (0.1217)	1.1060*** (0.0802)	1.0034*** (0.1251)	1.2111*** (0.0926)
LGDPj	0.6688*** (0.0200)	0.6778*** (0.0200)	0.6667*** (0.0202)	0.6713*** (0.0204)
LDISTij	-1.6162*** (0.0257)	-1.6180*** (0.0257)	-1.6161*** (0.0257)	-1.6177*** (0.0259)
<b>Country Characteristics</b>				
LPOPi	1.0493*** (0.1459)	0.6663*** (0.0923)	1.0760*** (0.1497)	0.5553*** (0.1043)
LPOPj	0.2794*** (0.0211)	0.2756*** (0.0211)	0.2800*** (0.0211)	0.2774*** (0.0213)
LAREAi	-	-0.4353*** (0.0593)	-	-0.4111*** (0.0606)
ERij	-0.0000*** (0.0000)	-0.0000** (0.0000)	-0.0000*** (0.0000)	-0.0000** (0.0000)
OP	0.0074*** (0.0012)	0.0089*** (0.0012)	0.0068*** (0.0014)	0.0069*** (0.0015)
COLij	-0.4020*** (0.1100)	-0.4183*** (0.1102)	-0.4005*** (0.1100)	-0.4151*** (0.1109)
COMCOLij	0.5218*** (0.0613)	0.5275*** (0.0614)	0.5224*** (0.0614)	0.5308*** (0.0618)
LANGij	0.8970*** (0.0650)	0.9329*** (0.0648)	0.8925*** (0.0653)	0.9175*** (0.0655)
GFC	-0.2364*** (0.0758)	-0.1877** (0.0756)	-0.2455*** (0.0767)	-0.2083*** (0.0765)
IGOV <sub>i</sub>	0.1022* (0.0614)	0.1996*** (0.0584)	0.1304*** (0.0711)	0.2890*** (0.0703)
IGOV <sub>j</sub>	0.3232*** (0.0299)	0.3138*** (0.2998)	0.3266*** (0.0302)	0.3240*** (0.0305)
C	-35.6513*** (2.0175)	-26.5612*** (1.6079)	-35.2212*** (2.0868)	-26.9482*** (1.6262)
N	8,960	8,960	8,960	8,960
F / Wald Chi <sup>2</sup>	737.16***	11,021.87***	891,846.81***	10,998.31***
R <sup>2</sup> within	0.5532	0.5526	0.5525	0.5476
Anderson CC- LM Stat.	-	-	376.10***	663.23***
Cragg-Donald Wald F Stat.	-	-	391.95*	715*
Sargan Stat.	-	-	0.000	0.000

Source: UN-Comtrade, WDI-World Bank, CEPII, Polity IV, calculated. \* significant at  $\alpha=10\%$ , \*\* significant at  $\alpha=5\%$ , \*\*\* significant at  $\alpha=1\%$

**Tabel 5 Effect of Democracy on Export in MENA Region (Classified by Resource)**

Variable	LEX <sub>ij</sub> / Coefficient (Standard of Error)			
	Total	Resource Poor – Labor Abundance	Resource Rich – Labor Abundance	Resource Rich – Labor Importing
<b>Democracy</b>				
IDEM <sub>i</sub>	0.0378 (0.0454)	3.5598 (3.6547)	-0.1087 (0.1548)	0.7684*** (0.1697)
IDEM <sub>j</sub>	0.0340*** (0.0041)	0.0247 (0.0290)	0.0841*** (0.0093)	0.0315*** (0.0075)
<b>Gravitasi</b>				
LGDP <sub>i</sub>	1.0034*** (0.1251)	-3.6514 (4.8513)	2.3360*** (0.7360)	1.5762*** (0.2367)
LGDP <sub>j</sub>	0.6667*** (0.0202)	0.6028*** (0.2002)	0.8972*** (0.0462)	0.4767*** (0.0360)
LDIST <sub>ij</sub>	-1.6161*** (0.0257)	-1.2544 (0.1780)	-2.1948*** (0.0637)	-1.7822*** (0.0497)
<b>Country Characteristics</b>				
LPOP <sub>i</sub>	1.0760*** (0.1497)	-5.9339 (6.3833)	-0.6261 (2.7211)	1.0825*** (0.2575)
LPOP <sub>j</sub>	0.2800*** (0.0211)	0.1025*** (0.1554)	0.2280*** (0.0496)	0.5089*** (0.0384)
LARE <sub>ai</sub>	-	-	-	-
ER <sub>ij</sub>	-0.0000*** (0.0000)	-0.0005 (0.0004)	-0.0011*** (0.0004)	-0.0000 (0.0000)
OP	0.0068*** (0.0014)	-0.0795 (0.0878)	0.0092*** (0.0031)	-0.0010 (0.0026)
COL <sub>ij</sub>	-0.4005*** (0.1100)	-0.0534 (0.7786)	-0.0518 (0.2383)	-0.9025*** (0.1973)
COMCOL <sub>ij</sub>	0.5224*** (0.0614)	0.7929 (0.4899)	1.0052*** (0.1407)	0.1983* (0.1150)
LANG <sub>ij</sub>	0.8925*** (0.0653)	0.6744 (0.5285)	1.0043*** (0.1531)	0.7463*** (0.1330)
GFC	-0.2455*** (0.0767)	-1.9638 (2.2763)	-0.6634** (0.2745)	-0.6773*** (0.1514)
IGOV <sub>i</sub>	0.1304*** (0.0711)	-3.0038 (3.0840)	0.0269 (0.4567)	1.3841*** (0.3761)
IGOV <sub>j</sub>	0.3266*** (0.0302)	0.1761 (0.2724)	0.2784*** (0.0685)	0.5509*** (0.0508)
C	-35.2212*** (2.0868)	209.9134* (233.6558)	-42.8602 (39.0923)	-39.675*** (3.0831)
N	8,960	2,800	2,240	3,920
F	737.16***	18,278.66***	158,792.75***	328,829.06***
R <sup>2</sup> within	0.5532	-	0.5825	0.4573

Source: UN-Comtrade, WDI-World Bank, CEPII, Polity IV, calculated. \* significant at  $\alpha=10\%$ , \*\* significant at  $\alpha=5\%$ , \*\*\* significant at  $\alpha=1\%$

**Tabel 6 Effect of Democracy on Export in MENA Region Classified by Periode)**

Variable	LEXij / Coefficient (Standard of Error)				
	Total	1988-1994	1995-2001	2002-2008	2009-2015
<b>Democracy</b>					
IDEMi	0,0378 (0,0454)	1,3532 (0,8350)	-0,9523** (0,4280)	0,6255 (0,6953)	-0,3592*** (0,0990)
IDEMj	0,0340*** (0,0041)	0,0129 (0,0134)	0,0105 (0,0111)	0,0293*** (0,0096)	0,0577*** (0,0067)
<b>Gravity</b>					
LGDPi	1,0034*** (0,1251)	1,9531 (1,3158)	3,1629*** (1,0405)	2,2740 (2,3352)	0,2516 (0,5187)
LGDPj	0,6667*** (0,0202)	0,7435*** (0,0511)	0,6363*** (0,0423)	0,6897*** (0,0474)	0,5916*** (0,0501)
LDISTij	-1,6161*** (0,0257)	-1,8004*** (0,0715)	-1,5608*** (0,0568)	-1,5584*** (0,0530)	-1,5546*** (0,0512)
<b>Country Characteristics</b>					
LPOPi	1,0760*** (0,1497)	-3,4091 (4,4498)	1,8281 (1,5461)	-1,5777 (1,1467)	-0,1724 (0,6434)
LPOPj	0,2800*** (0,0211)	0,2595*** (0,0540)	0,3286*** (0,0448)	0,3029*** (0,0484)	0,3252*** (0,0508)
LAREAi	-	-	-	-	-
ERij	-0,0000*** (0,0000)	0,0001 (0,0001)	0,0001* (0,0001)	0,0000 (0,0000)	-0,0000*** (0,0000)
OP	0,0068*** (0,0014)	-0,0674* (0,0404)	0,0011 (0,0101)	0,0038 (0,0127)	0,0078*** (0,0020)
COLij	-0,4005*** (0,1100)	-0,6221** (0,3022)	-0,2380 (0,2454)	-0,4122* (0,2277)	-0,3296 (0,2129)
COMCOLij	0,5224*** (0,0614)	0,6100*** (0,1826)	0,5467*** (0,1373)	0,4313*** (0,1286)	0,4290*** (0,1209)
LANGij	0,8925*** (0,0653)	0,4306** (0,1730)	0,7836*** (0,1496)	0,9933*** (0,1391)	1,1751*** (0,1252)
GFC	-0,2455*** (0,0767)	-	-	-	-
IGOV <sub>i</sub>	0,1304*** (0,0711)	3,6378 (2,8659)	-0,3010 (0,3609)	-0,8540** (0,4232)	-0,7338*** (0,1683)
IGOV <sub>j</sub>	0,3266*** (0,0302)	0,4654*** (0,0816)	0,5234*** (0,0675)	0,2606*** (0,0756)	0,3034*** (0,0672)
C	-35,2212*** (2,0868)	21,4141 (45,7212)	-106,4905*** (39,1453)	-22,9794 (38,8376)	2,4772 (9,4227)
N	8.960	2.240	2.240	2.240	2.240
F	737,16***	102.829,13* **	171.739,29***	227.334,95***	271.173,29** *
R <sup>2</sup> within	0,5532	0,2352	0,3165	0,3781	0,4253

Source: UN-Comtrade, WDI-World Bank, CEPII, Polity IV, calculated. \* significant at  $\alpha=10\%$ , \*\* significant at  $\alpha=5\%$ , \*\*\* significant at  $\alpha=1\%$