

Gender Standards v. Democratic Standards: Examples and Counter Examples

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Abstract

Common wisdom, and development theory hold that gender standards and democratic standards go hand in hand, in the sense that countries that uphold high standards of gender equality are the same as countries that uphold high standards of democratic governance. Even though this principle appears intuitively appealing, it is disproved by empirical measures I have collected on the recent history of the Maghreb (Morocco, Algeria, and Tunisia). In this paper, I report on my empirical experiments and submit tentative justifications for their outcome.

Keywords: Gender development, gender standards, democratic standards, gender politics, the Maghreb, North Africa.

1. An Intuitive Hypothesis

As a female citizen of Tunisia, I have witnessed first hand the transformation of my country's social fabric from an archaic society based on traditional patriarchal values to a modern, vibrant, society based on equal participation of men and women in the national struggle for development. I credit this profound evolution to laws enacted in 1957 shortly after Tunisia's independence (1955) that replaced traditional gender roles by new, egalitarian legislation dealing with marriage, divorce, child custody, inheritance, etc. These laws turned half of Tunisia's population into active participants in the struggle for development, and helped bring it into the community of modern nations. These transformations brought gender issues to the forefront of my personal and professional interests, up to and including my doctoral research. In my doctoral research, I considered the correlation between gender standards and democratic standards, using North Africa as a case study.

It is easy to imagine why one expects gender standards and democratic standards to be statistically correlated throughout the world. The same progressive ideals that cause a nation to adopt standards of gender equality would cause it to create institutions that support good governance / accountability through representative democracy. I have attempted to test this hypothesis by means of an empirical study, where I take measures on the three countries of the Maghreb, through their recent historical evolution.

The three countries of the Maghreb represent a good sample for my study, both because of what they have in common (contributing to the cohesiveness of the sample), and because of sets them apart (contributing to the richness of the sample).

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- *What They Have in Common.* The three countries of the Maghreb share a common ethnic background, a common history dating back to Phoenician times, a common religion, a common culture, and a common colonial past.
- *What Sets Them Apart.* What sets these countries apart is their post colonial nation-building experiences: Tunisia has turned to a resolutely western model; Algeria has experienced a period of intense debate between two choices, an Islamic orientation and a Socialist orientation, and ended up switching (with some variation) from one to other; Morocco has followed a traditional model, adopting a constitutional monarchy and applying religious-inspired laws.

To quantify gender standards, I have used factors from the UN's WISTAT database, complemented with other sources, mostly from the UNDP. To quantify democratic standards, I have used the *Freedom House* factors. Also, to reflect the historic evolution of these factors and to increase the size of my data sample, I have resolved to collect this data for four time periods, namely: 1970, 1980, 1990, and 2000. The statistical analysis I have conducted on my data shows a total lack of correlation between gender standards and democratic standards.

In order to make sense of this counter-intuitive outcome, I have resolved to analyze the following statistical relations:

- The relation between gender standards and development standards.
- The relation between gender standards and democratic standards for all the countries of the world.
- The relation between gender standards and democratic standards for all the communities of which Maghreb countries are a part (Arab countries, Islamic countries, African countries, Mediterranean countries, Euro-Mediterranean countries).

This paper reports on the results of the study and the lessons that can be drawn from it. In section 2, I briefly introduce the sample of my study, by characterizing the identity of the peoples of the Maghreb. Then, in section 3, I discuss the data that I have collected and generated for the purpose of my study. In section 4 I discuss the results of the statistical analysis of the data I have collected, and in section 5 I present some implications of my statistical analysis. In section 6, I present preliminary conclusions and lessons learned.

2. History as Identity

2.1. A Multi-Dimensional Identity

Before I carry out my analytical and empirical study of the Maghreb, I must address the question: who are the peoples of the Maghreb? I submit the thesis that the identity of these peoples is defined by their history; to support my claim, I submit that all common characterizations of these peoples do not do them justice [Lacoste, 2004].

Algeria, Morocco and Tunisia are all Arab countries, where Arabic is the constitutionally mandated official language. Yet merely characterizing them as Arab countries does not do them justice because they are so radically different from other Arab

countries: their Arabic identity is a cultural attribute, rather than a true ethnic attribute; their Arabic attributes have been watered down by subsequent Turkish/ Moorish/ Spanish/ Italian/ French influences; their Arabic identity appears to be a volatile political statement rather than a deeply felt sense of belonging. Also, Algeria, Morocco and Tunisia are all Muslim countries, where Islam is the official religion. Yet merely characterizing them as Muslim countries does not do them justice either, because they practice a specific form of Islam that sets them apart from other Muslim countries: Unlike Shiites, they separate state and religion (at least in practice, if not in theory); and unlike Middle Eastern Sunnis, they practice a lightweight version of Islam, that is more focused on broad philosophical principles than on rigid ritual; also, unlike most Muslims, and perhaps due to greater European influence, North African Muslims have experienced a European-like religious emancipation that other Muslims have not.

Also, Algeria, Morocco and Tunisia are all African countries, yet they are very different from other African countries, in terms of ethnic differences, religious differences, differences of culture, and differences of geography and history. Finally, Algeria, Morocco and Tunisia are all Mediterranean countries, yet they are different from other Mediterranean countries in terms of their history, ethnicity, religion, political system, and economic standards.

Who are the peoples of the Maghreb? Are they Arabs? Muslims? Africans? Mediterraneans? Euro Mediterraneans? Phoenicians? Berbers? Moors? Romans? What makes them who they are? What makes them think the way they do? I submit that the only way to define their identity is to consider their shared history, which will tell us who they are, how they think, where they come from, what are their aspirations, etc.

2.2. A Common History

Ethnically, the peoples of North Africa are referred to as *Berbers*. While, for the sake of being sensitive, western languages (English, French, Spanish) go to great lengths to distinguish between the substantive *Berber* and the adjective that refers to uncivilized behavior (barbaric, etc), Arabs make no distinction between the two terms, as they have a single vowel (*Hamza*) for e and a. The name Berber, which Arabs used to refer to North African peoples, is borrowed from Greek, where it means *foreigner*. As such, it does not tell us much about the ethnic make-up of the peoples of the Maghreb.

Because of its geography (in the middle of the Mediterranean, a short distance from Italy, at the cross roads of many sea and land trade routes), North Africa held great strategic significance for most of the civilizations that flourished in antiquity (Egypt, Rome, Greece, Mesopotamia, Phoenicia, etc). As a result, The Maghreb has been the object of much covetousness throughout history, and has been the target of many invasions and migrations, with varying degrees of goodwill. This rich history has left behind a rich genetic pool, as well as an openness and a greater acceptance of foreign influences.

Among the civilizations of antiquity, Phoenicians and Romans left the greatest impact, with the former starting the city of Carthage in Tunisia, and the latter subsequently occupying much of North Africa, as they extended their influence throughout the Mediterranean and beyond. The next major wave came from the East, when Arabs invaded North Africa to spread the message of Islam, and continued on their way to Spain. Various Arab dynasties held sway over North Africa until the end of the

fifteenth century, when two concurrent events altered the course of North African history: the emergence of the Ottoman Empire in Constantinople as the unifying Muslim power; the fall of Andalusia, and the migration of Muslims and Jews from Spain back to North Africa. The influence of the Ottoman Empire started to decline in the nineteenth century, when France occupied in turn Algeria, Tunisia then Morocco. As part of its colonial plans in North Africa, France modernized the infrastructure of these countries, created administrative structures to manage them, and brought colonial settlers who developed agriculture and industry.

Independence movements in Tunisia, Algeria and Morocco gained traction in the aftermath of the Second World War and eventually led to the independence of Tunisia and Morocco in the mid-fifties and the independence of Algeria in the early sixties. The three countries then followed distinct evolutionary paths upon their independence, with Tunisia pursuing a western model of state organization, Algeria juggling two models (a Socialist model and a Muslim model) and Morocco adopting a traditional Islamic-inspired model. This has led to distinct configurations in terms of democratic standards, and in terms of gender standards.

3. Research Methodology

3.1 A Multi Method Approach

My work started with a set of empirical observations:

- Countries of the Maghreb have followed distinct political paths in their post-colonial nation building experiments, leading to distinct outcomes.
- The nation building experiences of these countries were concurrent with social transformations that had a great impact on gender.
- There was no visible correlation between the evolution of political systems and the evolution of gender standards. In some instances, women made gains on the coattails of political liberation movements; in other cases women rights were sacrificed for the sake of political expediency.

As a result of these empirical observations, I resolved to conduct an experimental statistical study in which I record measures of gender standards and political standards for the three countries of the Maghreb at four different dates of their post colonial history, and investigate correlations or regressions between these standards. When the statistical analysis failed to show any significant correlation between gender standards and democratic standards in the Maghreb, I resolved to take three steps:

- First, I included the HDI (Human Development Index) into the mix and explored its correlation to the gender index (GDI) and the democracy index (DI). The question I am attempting to answer is: Why isn't there a correlation between GDI and DI? Is it because there is no correlation between GDI and HDI (which would be a social ill)? Or because there is no correlation between HDI and DI (which would be a political ill)?
- Second, I went back to the hypothesis of correlation between gender standards and democratic standards to check it again, statistically.

- Third, having confirmed that these two factors do have a meaningful correlation in general, I have analyzed this correlation for all the communities of which the Maghreb is a member, including: Arab countries; African countries; Muslim countries; Mediterranean countries. The question I am attempting to answer is: why does the Maghreb not abide by this worldwide correlation? Is it because it is African? Arab? Muslim? Mediterranean?

Once I have collected all these answers, I use analytical methods to search for an explanation of these observation in the history, culture, society, religion, and politics of these countries.

3.2 Data on Gender Development

Though I would like to think that we have some latitude in choosing what variables to use to quantify gender equality, I am in fact severely limited by what data is available. My first source of information is the United Nation's *WISTAT* database, which records data on Women's Indicators and Statistics, by country, and by year. For many of its measures, WISTAT has data for years 1970, 1980, 1990 and the latest available year; for others, WISTAT has data for 1970, 1980, 1990, 1995, and predictions for 2000, 2005, and 2010 (these measures were taken prior to 2000); for yet others, WISTAT gives values for 1980, 1985, 1990 and 1995; for evolutionary variables, such as the rate of population growth, WISTAT has measures for two successive periods, 1970-1975, then estimates for 2005-2010. I have found that the most common time scale is 1970, 1980, 1990, 2000, and have resolved to adopt this as the calendar on which I collect data. Given that I am considering three countries, this produces a set of twelve data points for each variable that is selected.

Looking at the WISTAT database, I have selected eight variables of gender equality, on the basis of the following criteria:

- They are meaningful in the context of the Maghreb,
- They are relevant to this study, in the sense that they may have some impact on democratization.
- WISTAT has data for them for all three countries of interest (Algeria, Morocco, Tunisia) and for all dates of interest (1970, 1980, 1990, 2000).

These variables are:

- *Percentage of Female Illiteracy.*
- *Percentage of Females enrolled in Primary Education.*
- *Percentage of Females enrolled in Secondary Education.*
- *Percentage of Economic Activity Traceable to Females.*
- *Percentage of Economically Active Females.*
- *Singulate Mean Age at Marriage for Females.*
- *Female Fertility Rate.*
- *Percentage of Females in National Legislatures.*

Further to these variables, I have chosen to include the United Nations' GDI variable (Gender-related Development Index). Because this variable has only recently been used, I could not find values for it prior to 1990. Hence I have resolved to compute it independently for prior years, 1970 and 1980; to this effect, I had to collect data on the following gender related variables:

- *Life Expectancy for Females.*
- *Life Expectancy for Males.*
- *Rate of Literacy for Females.*
- *Rate of Literacy for Males.*
- *Combined Enrollment in Primary and Secondary Education for Females.*
- *Combined Enrollment in Primary and Secondary Education for Males.*
- *Female Income Ratio.*
- *Gross Domestic Product per Capita (in Dollars).*

The Male related variables and per Capita GDP are not part of the statistical study, but they are used in the calculation of the GDI. It has taken a lot of effort to find data for these variables for the three countries of interest (Algeria, Morocco, Tunisia) and the four dates of interest (1970, 1980, 1990, 2000). To this effect, I had to look up several references, including: [Bollen, 2001]; [UNDP, 2005]; [Bleas, 2005]; [Globalis, 2005]; [HDR, 1998]; [HDR, 2006]; [IDEA, 2006]; [Kaidbey, 2003]; [Rubin, 2007]; [CEDAW, 2004]; [Nabli, 2004]; [Ross, 2000]; [POGAR, 2005]; [UNSECO, 2005]; [Ourzik, 2005]. Table 1 below shows the evolution of the GDI by country; the computed values appear to provide a continuous evolution with the collected values.

Country	Year	GDI
Algeria	1970	0.421
Algeria	1980	0.587
Algeria	1990	0.627
Algeria	2000	0.706
Morocco	1970	0.387
Morocco	1980	0.496
Morocco	1990	0.511
Morocco	2000	0.616
Tunisia	1970	0.448
Tunisia	1980	0.616
Tunisia	1990	0.670
Tunisia	2000	0.743

Table 1. GDI Values Sorted by Country, 1970-2000

Because this data comes from so many different sources, it is not totally coherent: for examples, in the absence of data for a specific year (say, 1970) I use data from the closest year I find (1972). Also, if I find data from 1975 and from 1985, I can infer 1980 data by taking the average of the data values I find. All the data values I have collected for gender equality is captured in Appendix A.

3.3 Data on Democratic Standards

To reflect the level of democratization of each country at each year, I have tentatively selected the three main variables of Freedom House, which are: PR (Political Rights), CL (Civil Liberties) and ST (Status). Because status (ST) is derived from PR and CL (it takes its value according to the sum PR+CL), I do not record it as a separate measure. The results are given in the following table:

Country	Year	PR	CL
Algeria	1970	6	6
Morocco	1970	5	4
Tunisia	1970	6	5
Algeria	1980	6	6
Morocco	1980	4	4
Tunisia	1980	6	5
Algeria	1990	4	4
Morocco	1990	4	4
Tunisia	1990	5	4
Algeria	2000	6	5
Morocco	2000	5	4
Tunisia	2000	6	5

Table 2. Freedom House Scores, 1970-2000

Note that the scores in this table are inverted, in the sense that the lower the score, the better. If, for the sake of argument, we define a composite score that is the sum of the two existing scores, we find the table 3.

Country	Year	<i>PR+CL</i>
Algeria	1970	12
Algeria	1980	12
Algeria	1990	8
Algeria	2000	11
Morocco	1970	9
Morocco	1980	8
Morocco	1990	8
Morocco	2000	9
Tunisia	1970	11
Tunisia	1980	11
Tunisia	1990	9
Tunisia	2000	11

Table 3. Composite Democracy Index, 1970-2000

We can make two immediate observations: the first is that while the GDI increases with time for each country, the composite democracy index does not. The second observation is that the score *PR+CL* is not commensurate with the gender equality indicators: The democracy index ranks the countries in the following order: Morocco,

then Tunisia, then Algeria. By contrast, the gender equality indices consistently rank the countries in the following order: Tunisia, then Algeria, then Morocco.

4. Statistical Analysis

4.1. Recoding Variables

To simplify the subsequent analysis I recode all the gender variables so that they increase with gender standards and I recode all the democratic variables by taking their complement to 7, so that they increase with democratic standards. Furthermore, in order to reduce the number of variables under consideration, I start by computing correlations between variables of each category (gender, democracy), and select for each category representative variables, i.e. variables that have a high correlation with all the other variables of the same category. This yields the following correlations matrix:

Correlation matrix (Pearson):

Variables	school1pc	school2pc	EcoAct	EcoFem	MarAge	FertRate	Parlmnt	GDI	LifeExpect	Literacy	Enrollment	Income
school1pc	1	0.099	-0.249	0.068	0.496	0.163	0.06	0.50	0.37	0.42	0.42	0.21
school2pc	0.099	1	0.200	0.121	0.606	0.726	0.42	0.58	0.79	0.71	0.62	0.52
EcoAct	-0.249	0.200	1	0.922	0.356	0.599	0.16	0.25	0.44	0.30	0.06	0.86
EcoFem	0.068	0.121	0.922	1	0.384	0.600	0.19	0.33	0.48	0.35	0.02	0.74
MarAge	0.496	0.606	0.356	0.384	1	0.781	0.51	0.90	0.85	0.91	0.77	0.53
FertRate	0.163	0.726	0.599	0.600	0.781	1	0.58	0.75	0.91	0.81	0.60	0.72
Parlmnt	0.061	0.421	0.167	0.197	0.510	0.583	1	0.72	0.51	0.74	0.81	0.44
GDI	0.506	0.584	0.254	0.339	0.909	0.752	0.72	1	0.86	0.97	0.87	0.51
LifeExpect	0.371	0.799	0.447	0.484	0.852	0.919	0.51	0.86	1	0.89	0.68	0.66
literacy	0.421	0.711	0.304	0.354	0.911	0.813	0.74	0.97	0.89	1	0.86	0.56
Enrollment	0.420	0.624	-0.067	-0.020	0.771	0.604	0.81	0.87	0.68	0.86	1	0.28
Income	-0.212	0.520	0.861	0.743	0.535	0.721	0.44	0.51	0.66	0.56	0.28	1
Importance	1	7	4	3	7	11	5	8	8	8	8	5

Values in bold are significantly different from 0 with a significance level alpha=0.05

Summary statistics:

Variable	Observations	Obs. With missing data	Without missing data	Minimum	Maximum	Mean	Std. deviation
school1	12	0	12	34.000	90.700	55.075	19.552
school2	12	0	12	15.700	48.000	33.917	11.806
ecoact	12	0	12	10.200	27.770	19.267	6.103
ecofem	12	0	12	4.260	25.510	15.313	7.340
marage	12	0	12	19.300	25.000	22.383	2.021
fertrate	12	0	12	5.110	9.700	7.520	1.557
parlmt	12	0	12	0.000	11.000	3.869	3.101
gdi	12	0	12	0.387	0.743	0.569	0.115
lifeexp	12	0	12	51.800	72.400	63.007	8.146
literacy	12	0	12	9.800	60.100	30.388	16.744
enrollment	12	0	12	28.200	76.000	53.371	15.006
income	12	0	12	15.290	39.900	27.088	6.855

Table 4. Correlations, Representative Gender Variables

In the row labeled *importance*, I record the number of variables that XLSTAT finds highly correlated with the current (column) variable. Interestingly, this table shows that the single most representative variable is the fertility rate. Other highly representative variables include the Life Expectancy, Enrollment Percentage, Literacy Rate, and (not surprisingly) GDI.

For completeness, I also briefly review the correlation between variables of democratic standards, even though the identification of a representative variable is not important. Not surprisingly, PR and CL are very highly correlated.

Variables	PR	CL
PR	1	0.810
CL	0.810	1

Values in bold are significantly different from 0 with a significance level alpha = 0.05

Summary statistics:

Variable	Observations	Obs. With missing data	Without missing data	Minimum	Maximum	Mean	Std. deviation
pr	12	0	12	1.000	3.000	1.750	0.866
cl	12	0	12	1.000	3.000	2.333	0.778

Table 5. Correlations, Representative Democracy Variables

The high correlation between them suggests that political rights and civil liberties go hand in hand, for my sample. I can use either as a representative factor for democratic standards; I may in fact use their sum, to which I refer as DI (democracy index).

4.2 Cross Correlations

In this section I review and analyze the correlations between variables of gender equality and variables of democratic standards. Using the Pearson Correlation function of XLSTAT, I compute the correlations between these two sets of variables, and find the following table.

Variables	PR	CL
school1pc	0.185	0.116
school2pc	0.111	0.254
EcoAct	0.347	0.633
EcoFem	0.386	0.618
MarAge	0.081	0.287
FertRate	0.154	0.326
Parlmt	-0.614	-0.355
GDI	-0.164	0.023
LifeExpect	0.187	0.332
literacy	-0.138	0.082
Enrollment	-0.450	-0.232
Income	0.172	0.540

Values in bold are significantly different from 0 with a significance level alpha = 0.05

Summary statistics:

Variable	Observations	With missing data	Without missing data	Minimum	Maximum	Mean	Std. deviation
school1	12	0	12	34.000	90.700	55.075	19.552
school2	12	0	12	15.700	48.000	33.917	11.806
ecoact	12	0	12	10.200	27.770	19.267	6.103
ecofem	12	0	12	4.260	25.510	15.313	7.340
marage	12	0	12	19.300	25.000	22.383	2.021
fertrate	12	0	12	5.110	9.700	7.520	1.557
parlmt	12	0	12	0.000	11.000	3.869	3.101
gdi	12	0	12	0.387	0.743	0.569	0.115
lifeexp	12	0	12	51.800	72.400	63.007	8.146
literacy	12	0	12	9.800	60.100	30.388	16.744
enrollment	12	0	12	28.200	76.000	53.371	15.006

income	12	0	12	15.290	39.900	27.088	6.855
Pr	12	0	12	1.000	3.000	1.750	0.866
Cl	12	0	12	1.000	3.000	2.333	0.778

Table 6. Correlations, Gender versus Democracy

The first column of this correlation table allows us to dismiss completely any notion that political rights have any meaningful correlation with gender equality. Indeed, many of the entries in this column are negative, and most of those that are positive have small to negligible absolute values. The only value that has a relatively high absolute value (Parlmnt vs PR) seems to be saying that the higher the percentage of women in national legislatures, the less political rights people have. The second column (gender equality vs CL) is only marginally better, providing small or negative correlation values, except for two variables, EcoAct and EcoFem. Yet, as table 5 shows, these two variables are very unimportant gender equality variables, as they are very poorly correlated with other gender variables.

I had found, in table 11.4 that the most representative variable among the gender equality variables is FertRate, followed by GDI, LifeExpect, Literacy, and Enrollment. In table 7, I consider the correlations between these representative variables and the variables of democratic standards.

Variables	PR	CL
FertRate	0.154	0.326
GDI	-0.164	0.023
LifeExpect	0.187	0.332
literacy	-0.138	0.082
Enrollment	-0.450	-0.232

Table 7. Correlations, Representative Gender Variables versus Democracy

This table clearly shows that one has no basis for claiming that democratic standards raise with gender equality standards. Not only are some of these variables negative (paradoxically), but even those that are positive have on average very small values, the largest being 0.332.

4.3 Linear Regressions

In the absence of conclusive results concerning correlations, I turn my attention to linear regression, and use DI (the value of expression $13-(PR+CL)$) to represent democracy index. I perform linear regression of DI with respect to gender factors, such as GDI, Female Fertility Rate, Female Life Expectancy, Female Literacy Rate, and Female Enrollment Rate. All these regressions yield inconclusive results, with very small R-square values (which represent the amount of variance of the dependent variable explained by the independent variable). R-square values that I find in these regressions range between 0.001 (DI as a function of Female Literacy Rate) and 0.133 (DI as a function of Female Enrollment Rate).

4.4 Human Development

The absence of correlation between GDI and DI raises the question of how does the Human Development Factor (HDI) intervene in this situation: If GDI is not

correlated with DI, is it because in Maghrebian societies Human Development (HDI) is not correlated with Gender Development (GDI), or is it because Human Development (HDI) is not correlated with democratic standards. To resolve this question, I compute the correlations between GDI, HDI, and DI, over the sample of three countries and four date. I find the following results:

Variables	GDI	DI	HDI
GDI	1	-0.079	0.950
DI	-0.079	1	-0.090
HDI	0.950	-0.090	1

Table 8 Correlation Matrix for GDI, HDI and DI, for the Maghreb, 1970-2000

It is clear from this matrix that GDI and HDI are highly correlated (0.950), hence it is unlikely that HDI gives a different outcome from GDI. This analysis suggests that GDI and HDI are highly correlated to each other, and have little or no correlation to indices of democracy; we represent this by the following figure. In other words, if there is an analytical explanation to the lack of correlation between GDI and DI, it is unlikely to be a gendered explanation. Instead, because GDI and HDI appear to be evolving in step, the explanation must be found in the fact that a people may have a high human development index but a low democratic index.

5. Implications

5.1 GDI versus DI

The failure of the correlation analysis and the regression analysis to yield a significant result regarding the statistical relation between GDI and DI leads me to revisit the question of whether there is any correlation between these two factors worldwide. To this effect, I collect data on HDI and GDI from the UNDP statistics database, and I use the democracy index of *The Economist*. This produces a table of HDI and GDI for the year 2005, and a table of DI for the year 2007, each containing about 170 entries (there is a two year gap between the year HDI and GDI are taken and the year DI is taken, but I will assume that these values do not change drastically over the two year period). I put these tables side by side to eliminate any possible mismatch in the names of the countries or in their alphabetical orders. The resulting table (which covers a total of 162 countries) is given in [Mili 2009]. Some countries have been eliminated when I did not have complete up to date information for them.

I use XLSTAT running on Microsoft Excel to compute the Pearson correlations between HDI, GDI and DI. Because some values of GDI are missing, the correlations involving GDI will be run on the rows where values are available. The correlations are given in the table below.

Correlation matrix (Pearson):

Variables	HDI	GDI	DI
HDI	1	0.999	0.645
GDI	0.999	1	0.651
DI	0.645	0.651	1

Table 9 Correlation Matrix for HDI, GDI, DI, all 162 countries

This correlation matrix is very revealing.

- First, it shows a very highly correlation between HDI and GDI, and puts into question why we need two variables.
- Second, it shows a significant correlation between GDI and DI, meaning that the lack of correlation between these two variables in the Maghreb requires a specific explanation.

5.2 Dimensions of Identity

Because GDI and DI have a significant correlation worldwide but not for the Maghreb, I ask the question: what aspect of the Maghreb’s identity accounts for this discrepancy. As I have discussed in section 2, the Maghreb can be seen to have four overlapping identities:

- Arab,
- Muslim,
- African,
- Mediterranean.

I consider correlations between GDI, HDI and DI for all four sets of countries, extracted from the list of countries used in the previous section.

5.2.1 Islamic Countries

As shown in the table below (obtained from winStat), the correlation between GDI and DI is 0.0292; this is a very small value, suggesting these quantities are nearly independent.

Pearson Correlation

	HDI	GDI	DI
HDI			
Correlation coefficient	1	0.998611346	-
valid cases	43	38	43
one-sided significance	0	6.31131E-48	0.490329746
GDI			
Correlation coefficient	0.998611346	1	-
valid cases	38	38	38
one-sided significance	6.31131E-48	0	0.430884991
DI			
Correlation coefficient	-	-	1
	0.003809121	0.029216201	

valid cases	43	38	43
one-sided significance	0.490329746	0.430884991	0

	-
Cronbach's Alpha	0.017603714
Scott's Homogeneity-Quotient	-
	0.029174862

5.2.2 African Countries

The correlation between GDI and DI for African countries is very low at 0.0364, suggesting only the slightest statistical link.

Pearson Correlation

	HDI	GDI	DI
HDI			
Correlation coefficient	1	0.998834442	0.019191069
valid cases	47	46	47
one-sided significance	0	7.21174E-60	0.449060144

GDI			
Correlation coefficient	0.998834442	1	0.036468465
valid cases	46	46	46
one-sided significance	7.21174E-60	0	0.404927082

DI			
Correlation coefficient	0.019191069	0.036468465	1
valid cases	47	46	47
one-sided significance	0.449060144	0.404927082	0

Cronbach's Alpha	0.063859735
Scott's Homogeneity-Quotient	0.129578759

5.2.3 Arab Countries

The correlation between GDI and DI for Arab countries is -0.3038, which is fairly significant but not very high.

Pearson Correlation

	HDI	GDI	DI
HDI			
Correlation coefficient	1	0.998106105	-0.296992581
valid cases	18	16	18
one-sided significance	0	1.16584E-18	0.115689674

GDI			
Correlation coefficient	0.998106105	1	-0.30382703
valid cases	16	16	16
one-sided significance	1.16584E-18	0	0.12630569

DI			
Correlation coefficient	-0.296992581	-0.30382703	1
valid cases	18	16	18
one-sided significance	0.115689674	0.12630569	0

Cronbach's Alpha	-	0.661557177
Scott's Homogeneity-Quotient	-	0.673947627

5.2.4 Mediterranean Countries

The correlation between GDI and DI for Mediterranean countries (North Africa, the Middle East, Southern Europe) is very significant, at 0.7126.

Pearson Correlation

	HDI	GDI	DI
HDI			
Correlation coefficient	1	0.999112741	0.700286932
valid cases	18	16	18
one-sided significance	0	5.78958E-21	0.000605573

GDI			
Correlation coefficient	0.999112741	1	0.712588123
valid cases	16	16	16
one-sided significance	5.78958E-21	0	0.000974728

DI			
Correlation coefficient	0.700286932	0.712588123	1
valid cases	18	16	18
one-sided significance	0.000605573	0.000974728	0

Cronbach's Alpha 0.243136977
Scott's Homogeneity-Quotient 1.007236775

11.7.5. Conclusion and Assessment

We can easily dismiss the discussion of HDI and GDI, as they appear to be virtually identical, worldwide. Hence I focus exclusively on the discussion of statistical relations between GDI and DI, which I summarize below:

Country Set	Sample Size	Correlation GDI vs DI
Maghreb	12 (3 countries, 4 dates)	-0.079
Muslim countries	43	0.0038
African countries	46	0.0364
Arab countries	16	0.3038
Mediterranean countries	16	0.7126
Worldwide	162	0.645

The value of the correlation between GDI and DI is closer to the values of Muslim countries and African countries than to the values of Arab countries and European countries.

6. Conclusion

6.1 Summary

In this paper, I have explored the relation between gender equality and democratic standards, as it applies to countries of the Maghreb, namely Tunisia, Algeria, and Morocco. To this effect I collected quantitative data on these two aspects then analyzed this data by means of correlations and regression, to find that in the Maghreb, these quantities are virtually independent. In the absence of conclusive evidence supporting this correlation, I revisit this correlation for various sets of countries, including Arab countries, Muslim countries, African countries, Mediterranean countries, and all countries worldwide.

6.2 Assessment

Despite all their commonalities, Tunisian Algeria and Morocco have experienced different evolutions with respect to post-colonial gender policies.

- Tunisia's experience can be characterized as being *Top Down*. I call it *Liberalization by Decree*, or perhaps to highlight its paradoxical nature, *Revolution by Decree*. Women have achieved significant gains by virtue of the

- laws enacted in Tunisia in the late fifties, yet had little input into the legislative process that produced these laws.
- Algeria's experience provides an example of conflict between democratization and gender equality. As the forces of this conflict sway one way then another, Algeria moved from one orientation to another, creating unfavorable condition for long term advances in women's rights.
 - In the case of Morocco, the policies of successive governments have been deliberately traditional, due to the power structure of the country. The successive Kings (Mohamed V, Hassan II, Mohamed VI) owed their legitimacy to the acceptance of tribal leaders. In exchange for their support, the King has to make concessions on issues that matter to them, including the status of women.

This brief discussion shows how, each in its own way, Tunisia, Algeria, and Morocco have followed historical paths where gender equality and democratic standards were evolving in opposite or at least independent directions.

6.3 Lessons Learned

While the discussion above explains why, in the case of the Maghreb, gender equality and democratic standards are not correlated, it does not answer all my questions. In this section, I try to discuss what lessons this study teaches us about the correlation between gender equality and democratic standards.

- ***Decisions made by the political elite matter the most.*** Even though progress in gender equality has usually been driven bottom up, by demands from the base, the situation in Tunisia was determined exclusively by policy decisions taken at the top of the political hierarchy. What has made it possible for Tunisia to achieve great advances in gender equality is the small scale of the country, and its social cohesion; this has made it possible for a central power in Tunis to control the whole country, and to effect concrete change. I argue that a major difference between Tunisia and Morocco, for example, is the geographic and social cohesion. While the power structure of Tunisia has been centralized, the power structure of Morocco has been decentralized, leading the King to govern by cutting deals with tribal chiefs, and thereby ceding part of his influence.
- ***Affirmative Action as Model of Development.*** I argued above that in Tunisia gender liberalization came in part at the expense of democratization, by creating a sense of loyalty and dependence in half the population. I argue that this sense of indebtedness is temporary, but the effect of the gender policies is permanent. The loyalty that this policy has engendered is bound to be temporary, as it vanishes with the passage of time, an increasing sense of entitlement, a change of generations, a change in political leadership, etc. But the gains achieved by the policy are permanent, and in fact increase with time; if these gains make it possible for women to occupy positions of power and influence, then they can use these positions to further their gender related goals and make it easier for successive generations of women/ girls. In other words, if on a first analysis women find that gender policies came at the cost of political autonomy they need

- to remember that gender policies have long term benefits while political autonomy are short term burdens.
- ***Human Development as a Substitute for Political Development.*** My statistical analysis shows that the weakness of correlation between gender equality and democratic standards is not a gendered feature --- in the sense that what is weak in the case of the Maghreb is the correlation between human development (HDI) and democratic standards (Freedom House). Indeed, because I find that gender equality (GDI) and human development (HDI) are highly correlated between them and poorly correlated to democratic standards, the issue is not that we can have high standards of gender equality but low democratic standards; rather the issue is that we can have high human development standards but low democratic standards. My field observations support the following explanation: whereas people used to get involved in politics as an intellectual/ political exercise (debate of ideas), nowadays (perhaps due to the collapse of communism and the Soviet Union, or to globalization) political activity centers primarily on economic grievances. Hence as long as the economy is going well, people tend to stay away from politics, and even get uninterested in politics. What defines citizenship as the right to vote is moving away from politics to economics. Is it a direct effect of globalization? Is-it related to the emergence of a new citizenship? A displacement of the public sphere? An internationalization of the political question? Future investigations will probably be needed to answer these questions. For now, we can observe that an increase in human development (HDI) due to economic advances is paralleled by a decline in democratic standards in the Maghreb. This is completely at odds with the traditional common wisdom, which provides that human development is linked to political freedoms.
 - ***GDI: a Western Standard of Gender Equality.*** The finding of my empirical study calls into question the premise that gender equality and democratic standards are correlated; I argue that it may also call into question how gender equality and democratic standards are measured. Formal democracy has many shortcomings and democratization needs to be approached from structural prospects. The mere right to vote does not equate to democracy. An extension of this research may consist of exploring cultural dimensions of measures of gender equality and democratic standards.

Among other findings of my research is the observation that GDI and HDI are so tightly correlated (0.99911) that one is left to wonder why do we have two measures at all; perhaps the UNDP ought to revise these metrics.

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Appendix: Raw Data

Country	Year	remun tPc	school pc	school pc	% EcoAct	emal active	marria g	fertit y Rate	parimn t	LIFEEX pect	literacy	Enrou ment	Income
Algeria	1970	87.4	38	28	10.2	4.26	19.3	7.38	3.83	55.56	12.6	45.3	15.29
Morocco	1970	90.2	34	28	20.9	15.2	19.4	6.89	0	51.8	9.8	28.2	27.2
Tunisia	1970	89.4	39	28	14.1	6.07	20.9	6.21	3.17	52.1	10.6	5	23.2
Algeria	1980	74.1	70.7	24.2	11.1	8.89	21	6.35	3.83	58.12	5	8	19.2
Morocco	1980	84.5	47.4	15.7	24.1	12.6	22.3	5.1	0	57.3	15.6	9	27.9
Tunisia	1980	67.7	71.8	17.3	20.1	20.0	8	4.9	5.6	60.6	32.4	3	4
Algeria	1990	60.9	86.5	47.5	12.1	9.21	23.7	4.3	2.4	62.5	39.1	62	5
Morocco	1990	75.1	47.8	41	25.9	22.1	22.2	3.33	0.6	67.4	24.9	3	4
Tunisia	1990	53.6	90.7	39.3	20.7	20.2	25	3.13	4.3	62.1	46.4	7	3
Algeria	2000	48.8	46	48	18.8	4	9.52	25	3.32	72.4	51.2	72	31.1
Morocco	2000	64	42	42	21.1	7	22.2	2.55	6.4	71.9	36	54	39.9
Tunisia	2000	39.9	47	48	23.3	21.7	25	2.3	11	71.2	60.1	76	37.1

Table A. 1 Gender Equality Variables, 1970-2000

Country	Year	<i>PR</i>	<i>CL</i>	<i>PR+CL</i>	<i>13-(PR+CL)</i>
Algeria	1970	6	6	12	1
Algeria	1980	6	6	12	1
Algeria	1990	4	4	8	5
Algeria	2000	6	5	11	2
Morocco	1970	5	4	9	4
Morocco	1980	4	4	8	5
Morocco	1990	4	4	8	5
Morocco	2000	5	4	9	4
Tunisia	1970	6	5	11	2
Tunisia	1980	6	5	11	2
Tunisia	1990	5	4	9	4
Tunisia	2000	6	5	11	2

Table A. 2 Combined Democracy Indices, 1970-2000

Acknowledgement

I wish to thank my PhD advisor Dr Jyl Josephson, director of Women Studies at Rutgers University, for her priceless assistance in doing my doctoral research, and for her thorough review of my dissertation. I also wish to thank Professor Diana Fox, from Bridgewater State College, and the anonymous reviewers, for their valuable feedback on an earlier version of this paper.