Appendix A Perceptions and Female Employment: Methodology and Empirical Results

1. Introduction

This analysis studies the relationship between people's perceptions and female employment and self-employment using a large social science dataset. We compare the Middle East and North Africa (MENA) region with other regions of the world and find that attitudes toward the value of work and gender equality are related to employment outcomes. This section illustrates that social norms and traditions may have a bearing on women's economic participation and entrepreneurship.

For the purpose of this study, we use the World Values Survey (WVS), which has been conducted in four waves in more than 70 countries around the world. The survey includes detailed demographic information on a random sampling of individuals, including age, employment, marital status, and so on, as well as psychological traits and sociological insights. For instance, questions are asked about individuals' perception of government efficiency, job satisfaction, working mothers, and the stigma of unemployment. This unique survey allows a large, cross-country comparison of people's perceptions around the world and of the relationship between these perceptions and economic development, legal enforcement, and gender equality. We include the fourth wave of the WVS, 1999–2004, which is the only wave that includes MENA countries: Algeria, Egypt, Iran, Iraq, Jordan, Morocco, and Saudi Arabia.[55] We include in our sample a total of 64 countries in 8 regions around the world, including 6 MENA countries.

We create a series of indices disaggregated by gender, which measure demographic characteristics, perceptions of gender, and attitudes toward work and entrepreneurial qualities. The main reason for constructing these indices is to condense an otherwise large amount of data into a single number that can be compared across different countries.[56] Following Berkowitz and others (1999) and Tonoyan (2003), we use factor analysis to construct our indices.[57]

[55] We exclude Iraq because of its small sample size and some additional countries that are missing the key questions for our analysis.

[56] For examples of studies that use the WVS to construct composite indices, see Tonoyan (2003), Flanagan and Lee (2003), Lee (2006).

[57] We use Cronbach's alpha and principal components analysis (PCA). Cronbach's alpha measures how well a group of variables reliably measures a single latent variable. When the alpha is high, the variables are scaled based on their one-dimensional interitem covariance. However, in cases where variables have a multidimensional structure, Cronbach's alpha would provide unreliable results. In this case, we have used principal components analysis, a multivariate technique that reduces data to lower dimensions based on their variance. Following Berkowitz and others (1999), we employ PCA to derive the most common factors among a group of variables using the covariance matrix. We then take a weighted average of the variables to form a new index. We use the eigenvector of the first component as weights because it accounts for the highest variation among the variables used.

2. World Value Survey data on individual characteristics

We begin by using a principal components analysis (PCA) to create an aggregated "*Work Preference Index.*"[58] We include indices for age, education, optimism, and value of work, as well as the composite male and female indices on attitudes toward working women. Our variables are defined as follows:

- ***Age:*** This is defined as the working-age population, between ages 15 and 64. For the purpose of analysis, we normalize age to create an age index to facilitate comparison across countries.[59]

- ***Education***: This is a dummy variable which takes on the value 1 for individuals with at least a primary education and 0 for those with only a primary education. This variable measures the educational level attained by the working-age population (15–64).

- ***Value of Work:*** This index captures how people view work in their daily lives. Our hypothesis is that countries that attach more importance to work have a higher female employment rate than do other countries. The index is based on responses to several statements:

  - Work is more important than leisure.
  - Work is a duty towards society.
  - It is humiliating to receive money without having to work for it.
  - To develop talents, you need to have a job.
  - Work should come first, even if it means less spare time.

- ***Optimism***: The ability to take initiative, imagination, and independence are characteristics associated with an entrepreneurial spirit.[60] Our index of optimism is based on responses to the questions:

  - How satisfied are you with your life?
  - How much degree of freedom and choice do you have?

- ***Attitude toward working women***: We examine how perceptions of working women affect women's workforce participation, because women may have fewer job opportunities in countries where men (and women) disparage working

[58] For a detailed description of each variable, see appendix C, table C1.

[59] The Human Development Index (HDI) is composed of three separate indices: life expectancy, education, and gross domestic product. We use the method defined in the HDI for scaling age, using 15–64 as minimum and maximum cutoffs for employment age. We normalize age on a scale of 0–1 for ease of comparison.

[60] For examples in both developed and developing countries see Klapper, Demirguc-Kunt, and Panos (2007), Arabsheibani and others (2000); Puri and Robinson (2005); Heaton and Lucas (2000); Moskowitz and Vissing-Jorgensen (2000); Hamilton (2000); Gentry and Hubbard (2001); Parker (2006); Fraser and Greene (2006).

women. We construct this index by gender and for the total population. A high value on the index represents a more positive attitude toward women working. Our index is based on responses to the following statements:

– A working mother can have as warm a relationship with her children as a woman who does not work.
– A husband and wife should both contribute to the household income.

We compare these perception measures to a number of country-level statistics, shown in table A1. First, we calculate country-level female and male employment rates from the WVS data, defined as the percentage of surveyed individuals who identify themselves as formally employed or self-employed.[61] Second, we use official formal labor force participation rates from the *World Development Indicators* (World Bank 2003). Third, we use a measure of formal self-employment rates from the International Labour Organization "Key Indicators of the Labor Market" survey (KILM). KILM data define self-employment as the sum of employers, own-account workers, and producers cooperatives. For the purpose of our analysis, we focus on the "employers" category, which is most likely to reflect the formal entrepreneurial sector. We include as measures of governance two indicators from Kauffman, Kraay, and Mastruzzi (2007).[62]

Table A1 Key employment statistics and governance measures

Country/Region	WDI labor force participation (% of population)		WVS total employment (% of population)		KILM employers (% of total employment)		Governance (Kauffman and others)	
	Female	Male	Female	Male	Female	Male	Rule of Law	Control of Corruption
Algeria	36	83	50	72	2	6	–0.71	–0.43
Egypt	22	75	17	82	6	20	0.02	–0.42
Iran[a]	38	76	20	65	1	4	–0.76	–0.47
Jordan	27	79	5	63	…	…	0.43	0.33
Morocco	28	83	51	76	1	3	–0.10	–0.09
Saudi Arabia	18	81	18	78	…	…	0.20	0.23
Regional Comparisons:								
MENA	28	80	30	87	2.4	8.5	–0.15	–0.14
SAR	42	87	14	73	…	…	–0.53	–0.83
EAP	61	84	50	75	1.9	5.7	–0.25	–1.04
ECA	61	74	65	82	1.9	4.4	–0.17	–0.16
LAC	51	83	39	75	2.4	6.3	–0.56	–0.23
Western Europe	62	79	62	82	5	8.8	1.41	1.60
North America	71	82	65	81	…	…	1.70	1.74

Source: *World Development Indicators* (World Bank 2003); ILO (2003); Kauffman and others (2007).

[61] An important caveat is that the WVS data may not be a completely representative sample, because many country surveys focus only on urban areas. However, in general, the rankings of female and male employment are consistent with official data.
[62] The complete Kauffman and others (2007) database is available at www.worldbank.org/governance.

Cross-regionally, we find very low official and WVS female labor force participation rates (and high unemployment rates) in MENA compared with those of men and with those in other regions. But self-employment rates in MENA are about average, with significantly more men than women as employers.

6. Multivariate analysis

In this section we conduct a multivariate analysis to determine the explanatory power of our constructed indices on employment. We find that attitudes and preferences, such as the value placed on work (and the shame of unemployment) and opinions about women working, affect female labor force participation rates. These preferences also affect male employment, but not to the same degree, or necessarily in the same direction.

We use the WVS data on more than 55,000 individuals. Our dependent variable is a dummy (0/1), equal to 1 if the individual is employed and equal to 0 if the individual is involuntarily unemployed (actively searching for a job).[63] We use a logit model to test the following model:

$$\text{Employed} = \alpha + \beta_i [X_i] + \ldots + \beta_j [\text{Index}]_j + \gamma$$

where "X" is individual demographic characteristics, such as wealth, age, education, marital status, and number of children and "Index" are our measures of cultural perceptions (*Value of Work*, *Attitude Toward Working Women*, and *Optimism*). In all regressions we include country dummies (to control for all omitted country-level effects). We test our model for all individuals and for the subsamples of women and men. Furthermore, we test all countries, and the subsamples of high-income, middle-income, and MENA countries.

Table A2 shows results for the relationship between labor force participation and our *Value of Work* and *Attitudes Toward Working Women* indices. *Value of Work* has a significantly positive influence on female and total employment. For the complete sample and in high-income countries (not shown), the relationship between the *Value of Work* and male employment is insignificant. This suggests that men in most countries work regardless of their personal attitudes. It might also be the case that in countries with lower unemployment, the social stigma of not working might be higher, so that all individuals, regardless of employment status, report a higher *Value of Work*. In comparison, for middle-income countries with higher unemployment rates, individuals that value work more highly are significantly more likely to be employed (not shown). Furthermore, *Value of Work* has greater explanatory power for female employment than male employment. This might be interpreted to suggest that in countries with fewer job opportunities, individuals with the greatest personal motivation to find paid employment are most likely to work. This result holds true for both middle- and high-income countries.

[63] We exclude from the unemployed category housewives, students, and other individuals that are "voluntarily" unemployed.

Similarly, *Attitude Toward Working Women* is very significant for both women and men in all countries, across income levels. Interestingly, although the *Value of Work* index was insignificant for men in high-income countries, the *Attitude Toward Working Women* is significant. As previously discussed, the perception and opinion of women in the workforce is very similar across both men and women within countries. This suggests a relationship between overall employment levels and greater inclusion of women in the workforce. We speculate that it might be the case that in countries with high unemployment, women are discouraged from working (to create more employment for men); alternatively, countries that encourage women to contribute to economic productivity might have overall more job opportunities. We find a similar, significantly positive relationship between *Optimism* and employment (not shown).

Table A2 Employment and perception indices

Independent/explanatory variables	**R1: *Value of Work***		**R2: *Attitude Toward Working Women***	
	Women	Men	Women	Men
Age (natural log)	–0.376	–1.521	–0.383	–1.485
	(0.057)**	(0.073)**	(0.058)**	(0.074)**
University educated	1.232	0.736	1.276	0.787
	(0.051)**	(0.048)**	(0.051)**	(0.048)**
Married/living together	–0.223	0.551	–0.232	0.553
	(0.039)**	(0.056)**	(0.040)**	(0.058)**
Number of children (natural log)	–0.278	–0.02	–0.264	0.004
	(0.031)**	(0.034)	(0.032)**	(0.034)
Low-income households	–0.79	–0.693	–0.764	–0.612
	(0.038)**	(0.043)**	(0.039)**	(0.042)**
Middle-income households	–0.266	–0.016	–0.25	–0.008
	(0.035)**	(0.039)	(0.036)**	(0.039)
Value of Work	**0.067**	**–0.008**		
	(0.011)**	**(0.013)**		
Attitude Toward Working Women			**0.107**	**0.047**
			(0.022)**	**(0.022)***
Constant	1.017	5.188	0.368	4.912
	(0.208)**	(0.271)**	–0.223	(0.284)**
Observations	*56,554*	*56,554*	*55,876*	*55,876*

Source: WVS 1999–2004. Standard errors are in parentheses; *, ** indicate 5% and 1% significance, respectively; all regressions include country dummies.

Table A3 examines these same regressions for the subsample of MENA countries. As shown, all perception indices are significant for female and male employment. In addition, the coefficients—and relationships—are economically larger for women then for men (except for *Optimism,* where the effects are larger for men than for women; not shown). Moreover, the effect is stronger for MENA countries than for both high- and middle-income countries. This suggests that in the context of MENA, female behavior in

the labor market is governed to a larger extent by preferential attitudes, especially when compared with the rest of the world.

Table A3 Employment in the Middle East and North Africa region

Independent/Explanatory Variables	**R1:** ***Value of Work***		**R2:** ***Attitude Toward Working Women***	
	Women	Men	Women	Men
Age (natural log)	-0.025	-1.084	0.21	-0.954
	(0.051)	(0.067)**	(0.050)**	(0.066)**
University educated	1.208	0.681	1.154	0.667
	(0.047)**	(0.046)**	(0.046)**	(0.046)**
Married/living together	-0.295	0.407	-0.36	0.362
	(0.038)**	(0.053)**	(0.038)**	(0.054)**
Number of children (natural log)	-0.476	-0.223	-0.585	-0.25
	(0.028)**	(0.031)**	(0.028)**	(0.030)**
Low-income households	-0.722	-0.671	-0.766	-0.655
	(0.036)**	(0.040)**	(0.036)**	(0.039)**
Middle-income households	-0.237	-0.026	-0.257	-0.044
	(0.033)**	(0.037)	(0.033)**	-0.037
Value to Work	**0.142**	**0.079**		
	(0.007)**	**(0.007)****		
Attitude Toward Working Women			**0.255**	**0.113**
			(0.020)**	**(0.020)****
Constant	0.275	4.327	-1.203	3.607
	(0.193)	(0.254)**	(0.199)**	(0.263)**
Observations	*56,554*	*56,554*	*55,876*	*55,876*

Source: WVS 1999–2004. Standard errors in parenthesis; *, ** indicate 5% and 1% significance, respectively; all regressions include country dummies.

7. Future Work

It is important to note that we have not proven causality at this stage of the analysis. We have only spotlighted the simultaneous relationship between perceptions and labor force participation of women. For instance, negative attitudes toward women working might impact female labor force participation or, alternatively, low female labor force participation might lead to negative attitudes about women in the workforce. This is a subject for future study.

8. Conclusions

Our main conclusion is that country-level perceptions and attitudes of both men and women about the value of work and working women play a role in (or are influenced by) female labor force participation and entrepreneurship.

Within the MENA region there are strong perceptions about women's role in the economy. To make a sustainable change in the composition of the labor force and encourage greater female entrepreneurship, these cultural attitudes should be included in the policy dialogue.