



No. 41-2012

Tobias Caris and Bernd Hayo

**Female Labour Force Participation in Arab Countries:
The Role of Identity**

This paper can be downloaded from
http://www.uni-marburg.de/fb02/makro/forschung/magkspapers/index_html%28magks%29

Coordination: Bernd Hayo • Philipps-University Marburg
Faculty of Business Administration and Economics • Universitätsstraße 24, D-35032 Marburg
Tel: +49-6421-2823091, Fax: +49-6421-2823088, e-mail: hayo@wiwi.uni-marburg.de

Female Labour Force Participation in Arab Countries: The Role of Identity

Tobias Caris and Bernd Hayo

Philipps-University Marburg

This version: 30 August 2012

Corresponding author:

Bernd Hayo
Faculty of Business Administration and Economics (FB 02)
Philipps-University Marburg
D-35032 Marburg
Germany
Tel.: +49(0)6421-2823091
Fax: +49(0)6421-2823088
Email: hayo@wiwi.uni-marburg.de

* Thanks to Boban Aleksandrovic, Shima'a Hanafy, Evelyn Korn, Florian Neumeier, Johannes Fleck, and Matthias Uhl for their helpful comments on an earlier version of the paper. The usual disclaimer applies.

Female Labour Force Participation in Arab Countries: The Role of Identity

Abstract

We investigate why female labour market participation is low in the Arab region. Utilising Akerlof and Kranton's (2000) 'identity economics' approach, we show in a simple game-theoretic framework that women socialised in a traditional family environment violate their identities by taking a job. In the empirical analysis, we study the respective impact of two determinants of identity in the Arab region, Islam and cultural tradition. Employing two waves of the World Values Survey, we find significant evidence that identity affects female labour market participation. Moreover, our estimates suggest that in the Arab region, Muslim women do not participate in the labour market less than non-Muslim women, whereas those with strong traditional identities have a 7 percentage point lower probability of entering the labour market.

JEL: J16, J21, Z12, Z13, O53

Keywords: Female labour market participation, Arab region, Islam, Identity, Religion

Dear Christian woman of my country,

... women have become so competent and independent that they consider themselves equal to men in all aspects of daily life and act accordingly. More specifically: equal according to public law, equal in professional life, equal in all realms of daily life, etc.

In conclusion, a problem arises. The above mentioned gives rise to a liberal type of woman who has all it takes to be equal to men, of course, but also poses a threat to intrinsic family values. I count on your intelligence and clear-sightedness to understand that, seen impartially, such a system, which I shall call individual, contradicts the family system that was adopted here more than 2000 years ago, (El-Cham 2011, our translation)¹

1. Introduction

The above letter was published on the op-ed page of the Lebanese French-language daily *L'Orient-Le Jour*. The letter argues in favour of a traditional family system, in which husband and wife follow a clear division of labour, where the husband is active in the labour market and the wife is responsible for household work and child care. There are reasons why this letter is instructive for our analysis. First, it refers to a social institution that has evolved over time in a certain area, namely, the 'traditional' family. Second, the critique of women's equality touches also on the work sphere. Third, it addresses a particular religious group among Lebanese women, namely, Christians. Thus, one could interpret the letter as a behavioural prescription implying that Arab Christian women ought not to work outside their homes.

The general sentiment expressed in this letter is consistent with conclusions in a report by the United Nations Development Programme (UNDP 2009), to wit, that the Middle East and North Africa is characterised by the lowest share of females in the workforce worldwide. The report goes on to argue that 'labor markets in Arab countries display the imprint of social norms that, either implicitly or explicitly, condones gender segregation in the workforce and encourages females to concentrate on child-bearing and child-rearing activities' (UNDP 2009, 46). Thus, when addressing the question of why female labour participation rates are

¹ 'Chère femme chrétienne de mon pays, ... C'est ainsi que, femme devenue aussi compétente et indépendante, elle se considère et se veut l'égal de l'homme, dans tous les domaines. Je cite: égales dans les droits publics et officiels, égales dans la vie professionnelle, égales dans la vie quotidienne, etc. En conclusion, un problème. Puisque, ce qui précède donne naissance à une femme libérale qui a tout pour être l'égal de l'homme, bien sûr, mais porte préjudice à la valeur intrinsèque de la famille. Je compte sur votre intelligence et votre lucidité pour remarquer, en toute objectivité, que ce système que j'appellerai individuel est en contradiction avec le système familial, adopté chez nous depuis plus que deux mille ans, ...' (El-Cham 2011).

particularly low in Arab countries, one might conclude that it is the dominant social norms in this region that are keeping women from engaging in paid work outside the home.

From a theoretical perspective, this kind of reasoning is in line with Akerlof and Kranton's (2010) 'identity economics' approach. They argue that norms are a missing factor in the standard economic discourse and introduce a central concept of sociology into economics, namely, identity. They perceive identity as a reflection of the person's sense of self placed in a social context. From the social context, prescriptions about personal behaviour can be derived, which define individual identity. Deviating from said prescriptions regarding their place in society causes individuals to feel distressed. Thus, on the one hand, we have social norms for responses to individual behaviour; on the other hand, individuals act according to their identity, which is itself shaped by these social norms during the process of 'socialisation' (Berger and Luckmann 1966).

The analysis to this point suggests that women's labour market participation decision will be influenced by the importance they attach to their identity, parts or all of which could be lost by taking a job outside the home. An important follow-up question is: Which factors affect a person's identity? Two important factors determining identity are cultural tradition and religion (Turner and Reynolds 2010). In their attempt to develop a revised version of modernisation theory, Inglehart and Norris (2003), in the empirical part of their study using the World Values Survey (WVS), find that gender equality (in education, the public sphere, and the family, as well as in the workforce) is negatively influenced by an Islamic religious heritage. Addressing the specific issue of labour market participation, also in the framework of the WVS, H'madoun (2010) argues that religion is the main driving force behind the low female labour market participation rates. Muslim or Hindu women have a significantly lower participation rate than those with a different religious background. The argument that religion is a major determinant of labour market participation is a frequent one in the literature (see, e.g., Psacharopoulos and Tzannatos [1989] for a worldwide sample, Lehrer [1995] for the United States, and Heineck [2004] for Germany). However, discussion of this issue in the extant literature also tends to include cultural aspects (see, e.g., Reimers 1985; Read 2004a). Antecol (2000) shows that home country influences explain a significant part of labour market participation rates of migrants in the United States, which can be interpreted as reflecting identity factors. Read (2004b) studies the impact of families on the work decisions of Arab women in the United States. Fernández (2008) provides a general survey of the influence of culture on economics and contains a number of relevant references.

As is apparent from the op-ed piece reproduced above, there is a cultural tradition in the Arab region that goes back much farther than the rise of Islam as the dominant religion in that region. The traditional family is characterised by a clear division of labour, where the

wife's role is characterised by responsibility for household work and child raising. It is likely that this tradition influenced the way Islam views the role of women, and also that Islam may have reinforced the traditional role of women, which implies that the two influences are not fully independent. Of interest, however, is the discovery of which is the stronger influence on today's women's labour market participation—religion or tradition.

Our contribution to the extant literature is twofold. First, following Akerlof and Kranton (2010), we show in a game-theoretic model the importance of identity for female labour market decisions in traditional societies. Second, we then investigate the importance of identity empirically using a microeconomic approach based on two waves of the WVS. Hence, we investigate whether low female participation rates in the Arab region are mainly due to women's adherence to the Islamic faith or whether they are chiefly due to a reluctance to deviate from traditional family roles.

The remainder of the paper is organised as follows. In Section 2, we discuss the 'identity economics' approach and apply it to our question of interest. In Section 3, we explain the underlying data and our empirical methodology. In Section 4, we discuss the estimation results. We conclude in Section 5 by discussing the policy implications of our findings.

2. The Impact of Identity on Female Labour Market Participation

Akerlof and Kranton (2000) define identity as 'a person's sense of self' and argue that it can be incorporated into a standard utility function as l_i

$$U_i = U_i(\mathbf{a}_i, \mathbf{a}_{-i}, l_i), \quad (1)$$

where \mathbf{a}_i is a vector of person i 's actions and \mathbf{a}_{-i} is a vector of other's actions. Standard economic results of own actions and externalities can be obtained by taking into account only $U_i(\cdot)$, \mathbf{a}_i , and \mathbf{a}_{-i} . However, l_i can increase or decrease utility and is itself a function of \mathbf{a}_i and \mathbf{a}_{-i} :

$$l_i = l_i(\mathbf{a}_i, \mathbf{a}_{-i}, \mathbf{c}_i, \boldsymbol{\varepsilon}_i, \mathbf{P}) \quad (2)$$

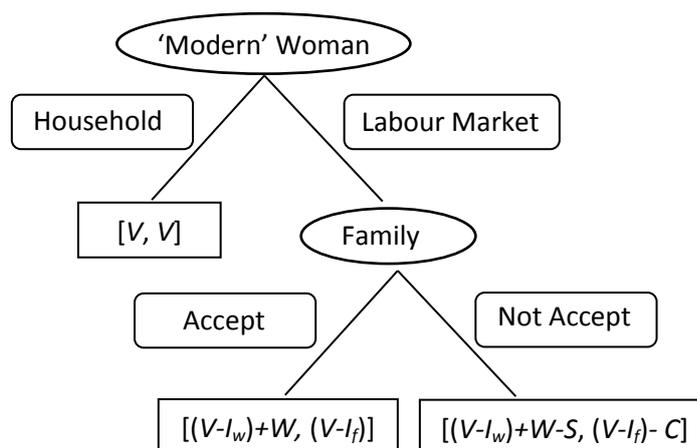
In addition, l_i depends on person i 's assigned social categories \mathbf{c}_i , on his or her own given characteristics $\boldsymbol{\varepsilon}_i$, and on prescriptions of socially determined behaviour indicated by \mathbf{P} . Gender is one aspect of identity and a source of social difference. For instance, in the Arab region, each of the two categories 'man' and 'woman' is associated with different socially prescribed behaviour: typically, men are supposed to pursue a career and women are expected to stay at home. Living up to the relevant behavioural prescriptions affirms one's

self-image or ‘identity’ within a society, whereas deviation creates discomfort both in oneself and in others (Akerlof and Kranton 2000).

We apply this approach to the context of female labour market participation. Assuming that a social prescription for women is that they ought not to work outside the home, then the payoffs from various labour market participation choices are affected, among other things, by changes in identity. Figure 1 translates these considerations into a formal game. The figure is a (partial) decision tree containing only subgame perfect equilibria, where we model the labour market decision of a ‘modern’ woman, that is, a woman who desires a working career but is otherwise part of the traditional society. The influence of social prescriptions is modelled by ‘family’ for reasons of simplicity, although other segments of society may also influence the woman’s decision. For instance, as argued by Carvalho (2010), there may be ‘peer effects’.

Living up to the relevant social prescription results in a utility-based payoff V for all actors. The woman’s labour market participation choice depends on the values of the payoffs W , I_f , I_w , C , and S . Working reflects her ‘modern’ preference and yields a utility payoff of W . For reasons of simplicity but without loss in generality, we do not consider the actual wage earned in the labour market or any implicit value-added derived from home production. If, in spite of her preferences, she refrains from pursuing a career, she earns positive utility V from following the social prescription and does not experience an identity loss. However, she cannot enjoy W , the additional utility that she would obtain if she was working. A woman acting according to the social prescription also yields a payoff of V for the ‘traditional’ family.

Figure 1: Game Tree and Interaction Between ‘Modern’ Woman and ‘Traditional’ Family



Note: Payoffs are given as [woman, family].

If the woman decides to enter the labour market and her family does not accept her decision, her ‘traditional’ family can impose a negative sanction on her, causing a utility loss of S , which makes the choice of staying home relatively more attractive. The family’s costs of not

accepting the woman's choice are an additional utility loss of C , which could reflect discontent at home due to the woman's frustration in not being able to pursue her 'modern' preferences.

In addition, if the woman pursues a career, irrespective of whether the family does or does not accept her choice to participate in the labour market, the family suffers an identity loss, causing a utility reduction of I_f . The family could choose to accept the woman's labour market participation, in which case its payoff would equal $(V-I_f)$. Even if the family does not respond by imposing sanctions S , the woman still does not receive the full utility payoff $V+W$: she always suffers a loss I_w due to the violation of her identity from engaging in socially deviant behaviour.

Solving the model shows that there are two subgame perfect Nash equilibria, which entirely depend on the payoff values W and I_w :

(1) If $W < I_w$, the woman will stay home, despite her 'modern' preference, as the identity loss is larger than the utility gain from working. This outcome characterises situations where female labour force participation is low because of the costs associated with an identity loss, as the prescription that women should be homemakers is deeply interwoven with female identity.

(2) If $W > I_w$, the woman will take a job, even though both she and her family experience an identity loss by doing so. Thus, moving away from traditional gender roles concerning the workplace is possible in this equilibrium, but at potentially high utility loss.

Note that in this setup the family will always accept the woman's decision and, therefore, the outcome of the game is dependent only on the difference between utility gain from working and utility loss from violating social prescriptions. This core result is driven by two crucial assumptions: (i) that the woman has free choice, in the sense that the 'traditional' family cannot simply force her to stay home and (ii) that imposing negative sanctions in the event the woman decides to take a job does not circumvent the family's identity loss. Changing assumption (i) would require substantial adjustments to the game tree, as we would have to allow for the possibility that the woman does not have the choice of working in the first place. Modifying assumption (ii) would change the payoff for the family in the case of 'not accept' to $(V-C)$ and create a third Nash equilibrium, which could materialise if $C < I_f$. This equilibrium describes a situation where the woman would work and the family would react by imposing sanctions, since doing so avoids identity loss. Thus, in our framework, we can show theoretically that identity negatively affects female labour market participation. This is the hypothesis that we test with empirical data. In the empirical applications below, we focus on two important determinants of identity, cultural tradition and identity, but, due to data constraints, we cannot take into account the issues just discussed.

3. Data and Empirical Approach

In addition to testing whether identity matters in determining women's labour market participation, we investigate whether it is women's cultural tradition or their religion that is the more important determinant of their labour participation decision. In our analysis, we use a microeconomic approach and rely on two waves of the WVS, concentrating on answers from women aged 18 to 55. Although H'madoun's (2010) results are based on analysing a large sample of women from 48 countries, there are at least two potential problems with her analysis: (i) in her dataset—the 2005 wave of the WVS—only two Arab countries, Egypt and Iraq, contain all the relevant questions, and (ii) she does not control for the impact of women's traditional role on labour market participation. Rather than relying exclusively on the fifth wave of the WVS, we also incorporate the fourth wave, which was collected in 2000. This raises the total number of countries covered in our database to 56. Even more importantly, the database now contains more countries from the Arab region, namely, Algeria, Egypt, Iraq, Jordan, Morocco, and Saudi Arabia. Earlier waves of the WVS do not cover Arab countries. Thus, our dataset includes six Arab countries, two of which are sampled in both 2000 and 2005.²

Coding answers given to the questions asked in the WVS is not always straightforward and sometimes requires making rather arbitrary decisions to prevent substantial loss in the number of observations. Below, we describe the coding scheme of our final specification, which we believe to strike the best balance between plausibility and preservation of observations. However, note that we did conduct a series of robustness checks and none of our core results appear to depend on this particular form of coding.

Our dependent variable is a dummy variable for employment status, which takes the value 1 in case the respondent is full-time, part-time, or self-employed and the value 0 when she is retired, a housewife, student, unemployed, or other. We focus the analysis on the age range 18 to 55, which is the most relevant group for labour market participation in Arab countries. By using this variable, we cannot really differentiate between labour supply and demand factors. In principle, we are assuming that all women could have chosen to take a job if such was their desire.

² In the 2005 wave of the WVS, for Morocco the question referring to the frequency of attending religious services is missing and for Jordan the employment status is not recorded.

To indicate differences in human capital, two dummy variables are generated for higher levels of educational attainment: one for secondary education and one for tertiary education.³ A dummy variable is created to indicate the presence of a chief wage earner other than the respondent.⁴ The self-proclaimed indicator for social class ranges from 1 'upper class' to 5 'lower class'. To incorporate the influence of poor health, a binary indicator is computed, where 1 indicates that the respondent reports fair or poor health and 0 indicates good or very good health.⁵ A dummy variable controlling for marital status takes the value 1 if a woman is married; 0 otherwise. The variables 'number of children' and 'age' are coded in a straightforward way. To capture a potentially nonlinear influence of age on labour market participation, 'age' is centred around its mean and then squared, yielding 'age squared'.

About 50 different religious denominations are mentioned in the WVS. For our purposes, these are grouped as 'Buddhist', 'Hindu', 'Muslim', 'Orthodox', 'Protestant', 'Roman Catholic', 'other Christian groups', 'other Muslim groups' and 'other denominations'.⁶ 'Other Christian groups' and 'other Muslim groups' capture the main divisions of these two faiths that fall outside their traditional "world religion" definition. For example, adherents of smaller Islamic fractions and respondents who explicitly declared to be Shia or Sunni constitute the category 'other Muslim groups'. Women answering 'not applicable' make up the 'no denomination' category, which we use as a reference category.⁷

The impact of religion is measured with a range of indicators. A dummy variable takes the value 1 in case the respondent declares herself as religious. Two more dummy variables are created to indicate the intensity of the belief. The first dummy variable equals 1 if religion is very important for the respondent, the second variable equals 1 when religion is 'rather important'. Women who declare that religion is unimportant or rather unimportant comprise the reference group. Respondents answering 'Not applicable' or 'Don't know' or who refused

³ In addition to the reference category of incomplete secondary schooling or less, we add answers 'don't know', 'not applicable', or refuse to answer to preserve degrees of freedom.

⁴ This is done in a three-step process. First, in addition to the yes/no answer to the question 'Are you the chief wage earner in your household?', the answer 'Don't know' is coded as 'yes' (assuming that women earn at least as much as other household members in case they are unsure), whereas respondents refusing to answer are coded as 'no' (the reason behind this choice is that the overwhelming majority of women who refused to answer this question are from Iran, where women constitute 15 per cent of the formal sector paid labour force (Moghadam 2009)). Second, in addition to the yes/no answers to the question 'Is the chief wage earner employed now?' the categories 'No answer', 'Don't know', and 'Not applicable' were coded as 'no' (assuming for the first two that respondents were ashamed to admit that the chief wage earner was unemployed and for the latter that if this question was applicable, a chief wage earner did not exist, i.e., the household received only nonlabour income). Third, a dummy variable is created that takes the value 1 if the household includes a chief wage earner other than the respondent who is employed, and 0 if this chief wage earner is unemployed.

⁵ For women who refused to answer, we assume their health was rather poor, whereas women who replied 'Don't know' were coded as being in good health.

⁶ The classification was made based on the information about religion provided by the BBC (<http://www.bbc.co.uk/religion>) [accessed on 21 June 2012].

⁷ Respondents indicating 'No answer' or 'Don't know' are dropped from the sample.

to answer are coded as 0 for both dummies. The second indicator for the intensity of religious beliefs is based on two dummies capturing whether a respondent 'regularly attends religious services' or 'rarely attends religious services'.

Our second variable of interest, traditional identity, is a dummy variable based on responses to the statement 'Being a housewife is just as fulfilling as working for pay'. In our view, this statement nicely summarises the traditional view of women's labour market participation. This indicator takes the value 1 if the respondent agrees that being a housewife is just as fulfilling as working for pay, and 0 if she disagrees.⁸

A regional dummy is added to each observation. For low-income and middle-income economies, the World Bank geographic classifications are used.⁹ These are 'East Asia & Pacific', 'Europe & Central Asia', 'Latin America & Caribbean', 'Middle East & North Africa' (comprising Algeria, Egypt, Iraq, Jordan, Morocco, and Saudi Arabia), 'South Asia', and 'Sub-Saharan Africa'. In addition, we add the categories 'The West' and 'Asian Tigers' (Hong Kong, Singapore, South Korea, and Taiwan), which captures most of the high-income countries and/or territories.

In Table 1, we present descriptive statistics of core variables, contrasting average results across all countries with those from Arab countries.

Table 1: Descriptive Statistics of Female Responses (share of positive answers in %)

	All Countries	Arab Countries
Labour market participation	44	18
Muslim	28	86
Religious person	75	83
Regular attendance at religious services	39	32
Rare attendance at religious services	32	22
Religion very important	59	95
Religion rather important	20	4
Traditional identity	62	79

Source: Own computations based on WVS 2000 and 2005.

Reflecting the findings of the UNDP (2009), female labour market participation rates are less than half as high in Arab countries as in other countries and more than 85 per cent of female respondents from the Arab region are Muslims. The share of religious persons is much higher in Arab countries than in the rest of the world, as 95 per cent of Arabs say that religion is very important for them, but this stronger focus on religion is not reflected in the

⁸ Women who refuse to answer are assumed to disagree with the statement.

⁹ <http://siteresources.worldbank.org/DATASTATISTICS/Resources/CLASS.XLS> [accessed 21 June 2012].

importance of attending religious services. This negative finding can be explained by the fact that women do not regularly participate in the Friday Mosque prayers and thus are not as focussed on these religious services compared to men. Another explanation might be that the term 'religious service' carries a Western / Christian connotation and thus does not directly correspond to the five daily prayers prescribed by Islam.

Traditional identity is relatively more important in the Arab region, too. Thus, on an aggregate level, we observe both a lower labour market participation rate for women and a greater importance of religion and traditional identity in the Arab region compared to the rest of the world. To avoid the 'ecological fallacy', the next step is to analyse the respective influence of religion and traditional identity on labour market participation at the individual level.

4. Explaining Female Labour Force Participation

In this section, we test whether identity affects female labour market participation and study the relative impact of religion and identity on such participation in a multivariate regression model. Given that the dependent variable, female employment, is a dummy, we use a pooled probit model. To account for possible heterogeneity across countries, we include country dummies. A dummy for 2005 controls for systematic variations between the two sample periods. The general specification is as follows:

$$y_i^* = \text{Identity}_i \gamma + \text{Controls}_i \beta + \mu \text{Wave 2005}_i + \text{Regions}_i \varphi + \text{Countries}_i \kappa + \varepsilon_i,$$

$$\text{with: } y_i = \begin{cases} 1, & \text{if } y_i^* > 0 \\ 0, & \text{if } y_i^* \leq 0 \end{cases}, \quad \varepsilon_i \sim N(0,1),$$

where: y : Dummy indicating female employment,
 Identity: Vector of indicators for identity (religion and tradition),
 Controls: Vector of sociodemographic control variables,
 Countries: Vector of country dummies,
 Wave 2005: Dummy for observations from the 2005 wave of WVS,
 Regions: Vector of regional dummies.

Methodologically, we apply a general-to-specific modelling approach, which takes into account possible collinearity between variables and maximises estimation efficiency (Hendry 2000). Since we have more than 40,000 observations, making statistical tests extremely sensitive to even slight violations of the null hypothesis, we choose a significance level of 1

per cent. The large sample size allows using heteroskedasticity-robust standard errors, which are only consistent but not unbiased.

Table 2 contains the estimation results for the two models, general and simplified. The included variables are jointly significant (see line (6)). Given that we are dealing with micro-level data, the fit is quite good, with a pseudo- R^2 of almost 0.24 and 74 per cent of the observations classified correctly (see lines (4) and (5), respectively). Concentrating the test on the variables other than country and regional dummies still shows highly significant estimates (see line (8)).

Table 2: Explaining Female Labour Market Participation (Probit Model)

Variables	General model		Reduced model	
	Coefficients	Standard errors	Coefficients	Standard errors
A) Religion				
Religious person	-0.012	0.0198		
Religion very important	-0.160*	0.0252	-0.160*	0.0232
Religion rather important	-0.076*	0.0242	-0.075*	0.0231
Rare attendance at religious services	0.051*	0.0199	0.061*	0.0161
Regular attendance at religious services	-0.015	0.0221		
Buddhist	0.085	0.0637		
Hindu	-0.159	0.0758		
Jewish	0.040	0.1992		
Orthodox	0.130*	0.0462	0.115*	0.0429
Other Christian groups	0.122*	0.0413	0.109*	0.0368
Other Muslim groups	-0.030	0.0937		
Other denominations	0.087	0.0636		
Protestant	0.102*	0.0335	0.088*	0.0274
Roman Catholic	0.032	0.0293		
Muslim	-0.198*	0.0404	-0.208*	0.0361
Interaction: Muslim x Arab region	0.250*	0.0979	0.277*	0.0733

B) Traditional Identity

Traditional identity	-0.093*	0.0162	-0.096*	0.0160
Interaction: Trad. Identity x Arab region	-0.135*	0.0473	-0.137*	0.0472

C) Sociodemographic Indicators

Age	0.032*	0.0009	0.032*	0.0009
Age squared	-0.003*	0.0001	-0.003*	0.0001
Secondary education	0.341*	0.0169	0.341*	0.0169
Tertiary education	0.768*	0.0247	0.765*	0.0246
Married	-0.020	0.0180		
Chief wage earner	-0.508*	0.0162	-0.513*	0.0157
Number of children	-0.070*	0.0053	-0.071*	0.0051
Poor health	-0.120*	0.0162	-0.118*	0.0162
Social class	-0.073*	0.0077	-0.073*	0.0077

D) Time Dummy

Survey from 2005	-0.052	0.0219		
------------------	--------	--------	--	--

E) Region and Country Dummies

Arab Region	-0.132	0.1181	-0.244*	0.0880
East Asia and Pacific	1.564*	0.1025	1.527*	0.0809
Eastern Europe and Central Asia	0.785*	0.0967	0.728*	0.0816
Latin America	0.729*	0.0984	0.627*	0.0859
South Asia	-0.357*	0.1083	-0.446*	0.0761
Sub-Saharan Africa	0.185	0.0859		
Western Countries	1.063*	0.0944	1.006*	0.0782

Country Dummies	Included	Included
-----------------	----------	----------

(1) No. of observations	42,353	42,353
(2) No. of country dummies	55	55
(3) Log likelihood	-22177	-22188

(4) Pseudo-R ²	0.235	0.235
(5) Correct classifications (in %)	74.1	74.1
(6) Test: joint significance	Chi ² (90) = 10188*	Chi ² (79) = 10171*
(7) Test: all variables except country dummies	Chi ² (24) = 5558*	Chi ² (24) = 5882*
(8) Test: all variables except country and region dummies	Chi ² (16) = 4678*	Chi ² (16) = 4709*
(9) Testing-down restriction		Chi ² (11) = 21.0

Notes: Standard errors are robust to heteroskedasticity. * indicates significance at a 1 per cent level. Reference categories are: Importance of religion: religion unimportant; Frequency of attending religious service: seldom or never; Type of religion: none or other; Education: incomplete schooling or less; Region: Asian Tigers.

Applying general-to-specific modelling allows removing 11 variables and yields the reduced model shown in the right part of Table 2. Ensuring that the testing-down restriction in line (9) is not rejected by the data implies that the reduced model is a more efficiently estimated, congruent representation of the general model. We find that after controlling for other influences and focussing on the reduced model, women from the Arab region have a significantly lower probability of labour market participation than do women from all other regions except South Asia. However, while the coefficient estimates suggest that female South Asians participate even less in the labour market than do women from the Arab region, this difference is not statistically significant at a 1 per cent level (Chi²(1) = 4.2). Thus, after controlling for many individual characteristics, as well as regional and country controls, we support the observation of a particularly low female labour market participation rate in the Arab region.

Before proceeding to the analysis of the effects of our variables of interest, note that interpreting probit coefficients is not straightforward and we therefore prefer computing marginal effects for the discussion of the model outcome. Hence, Table 3 provides average marginal effects, which means they are based on the average value of all marginal effects computed for all observations in the sample.

As noted above, we cannot strictly distinguish between labour supply and demand effects. However, the model's adequacy as a rough description of the labour supply can be supported by assessing the plausibility of the effects estimated for the sociodemographic indicators. We find that many results correspond to those found in the extant literature (see, e.g., the survey by Killingsworth and Heckman 1987). Factors decreasing the likelihood of taking a job are: (i) bad health, (ii) children in the household requiring child-minding activities, (iii) chief wage earner is another person in the household (typically the husband), (iv) low

social class as an indicator of labour market barriers, (v) the nonlinear effect of age, which is a negative effect for the age group considered here, and (vi) the increased likelihood of working as level of education increases due to higher expected wages.

Table 3: Average Marginal Effects of Reduced Model from Table 2

A) Religion		C) Sociodemographic Indicators	
Religion very important	-0.047*	Age	0.009*
Religion rather important	-0.022*	Age squared	-0.001*
Rare attendance at religious services	0.018*	Secondary education	0.101*
Other Christian groups	0.032*	Tertiary education	0.227*
Protestant	0.026*	Chief wage earner	-0.152*
Orthodox	0.034*	Number of children	-0.021*
<i>Muslim</i>	<i>-0.062*</i>	Health status	-0.035*
<i>Interaction: Muslim x Arab region</i>	<i>0.082*</i>	Social class	-0.022*
B) Traditional Identity		E) Region and Country Dummies	
<i>Traditional Identity</i>	<i>-0.029*</i>	<i>Middle East & North Africa</i>	<i>-0.072*</i>
<i>Interaction: Trad. Identity x Arab region</i>	<i>-0.041*</i>	East Asia and Pacific	0.453*
		Eastern Europe and Central Asia	0.216*
		Latin America and Caribbean	0.186*
		South Asia	-0.132*
		Western Countries	0.298*

Notes: * indicates significance on a 1 per cent level. Reported figures are averages of marginal effects estimated for all existing values of the explanatory variables. Main effects of interest are in italics.

Identity, as our main variable of interest and represented by Islam and traditional identity, has a significant influence on labour market participation. Focussing the testing on adherence to Islam, traditional identity, and their respective interactions with Arab region, we easily reject the null of no influence at any reasonable level of significance ($\text{Chi}^2(4) = 98$). Moreover, the net effect of these influences is significantly negative ($\text{Chi}^2(1) = 55$). Thus, our first important conclusion is that identity is a significant factor in deterring women from entering the job market. The next step is analysing the respective influences of religion and traditional culture.

Looking first at the influence of religion, we discover that some of our indicators have a significantly negative effect on female labour market participation. As Table 2 shows, the

question about whether a person is religious does not generate a significant effect; however, the reverse is found for the indicator measuring the *importance* of religion. Women for whom religion is important are significantly less likely to take a job. Moreover, this probability is significantly lower for those who say that religion is *very* important compared to those who say *rather* important ($\text{Chi}^2(1) = 18.5^*$). The estimated marginal effects in Table 3 suggest that the likelihood of entering the labour market for women who find religion to be rather important declines by more than 2 percentage points. For women claiming that religion is very important, we estimate a reduction of almost 5 percentage points. Regarding the frequency of attending religious services, 'going rarely' increases the likelihood of employment compared to 'going frequently' by almost 2 percentage points.

Thus, religious orientation appears to affect labour market participation across all religious groups. However, comparing the influence of different religions shows that female Muslims are least likely to enter the labour market.¹⁰ Roughly, the probability of labour market participation for this group is up to 10 percentage points lower than that of Christian women. Thus, we find clear evidence that in our world sample adherence to the Islamic faith has a statistically significantly negative and economically sizeable effect on the female labour supply.

Does this imply that religion alone captures the impact of identity and thereby explains the low labour market participation rate of women in the Arab region? Based on a scrutiny of the interaction term between Arab region and Muslim faith, the answer to this question is 'no'; the significantly positive coefficient on this interaction variable does not support drawing such a conclusion. Although Islamic respondents from all parts of the world as well as Islamic respondents from the Arab region show a significantly lower probability of taking a job, in contrast, Muslim women from the Arab countries are characterised by a significantly higher probability (more than 8 percentage points) of doing so. Checking the estimation result for Muslim women from the Arab region against the one for all other female respondents from that region suggests that they have a 2 percentage points higher probability of participation, although this effect is not statistically significant ($\text{Chi}^2(1) = 1.1$). Hence, in contrast to the first impression, it seems unlikely that adherence to Islam is the driving force behind the low female labour participation rate in the Arab region.

¹⁰ A possibility not covered in the estimates shown in Table 2 is that the degree of importance of religion in people's lives may affect the impact of Islam in the Arab region. Investigating this potential channel using a three-way interaction variable does not yield significant results, neither when concentrating on those for whom religion is *very* important ($\text{Chi}^2(1) = 3.7$) nor when also considering those for whom religion is *relatively* important ($\text{Chi}^2(2) = 5.4$). Thus, we conclude that the stated importance of religion does not affect female labour market participation. Omitted results are available on request.

Next, we investigate the influence of traditional culture—our second indicator of identity—on women’s labour market participation. We find that, across the globe, women who are characterised by a traditional identity have a statistically significantly lower probability of entering the labour market of about 3 percentage points. Focussing on traditionally-oriented women in the Arab region shows that compared to non-traditionally-oriented women from the rest of the world, their probability of entering the labour market is about 14 percentage points lower, which is a large economic effect. Combining regional background and traditional orientation, we show that traditionally-oriented women from the Arab region have a more than 7 percentage point lower probability of participating in the labour market than other women from that region. This effect is easily significant at the 1 per cent level ($\text{Chi}^2(1) = 34^*$). Hence, reflecting the theoretical model, traditional identity emerges as an important factor in explaining the low degree of female labour market activity in the Arab region.

Given that we have identified that both being Muslim as well as adhering to a traditional identity have a negative effect on female labour supply in general, the question arises as to which effect is larger. In a first attempt to answer this question, we look at the world sample and test whether traditional culture or being a Muslim has a greater effect on the participation decision. We find that being a Muslim has a statistically larger effect than having a traditional identity ($\text{Chi}^2(1) = 8.0^*$). Hence, worldwide, an Islamic religious identity appears to explain a larger share of the female labour market participation decision than does traditional identity.

However, as noted above, based on the point estimates, Muslim women are more likely, and tradition-oriented women less likely, to take a job than other Arab women. Is this difference in probabilities also statistically significant? We answer this question by testing whether the sum of the respective combined effects, on the one hand, traditional identity and interaction effect of traditional identity with Arab region, and, on the other hand, Muslim and interaction effect of Muslim with Arab region, is also statistically different from zero. The test easily rejects this restriction at the 1 per cent level of significance ($\text{Chi}^2(1) = 14.6^*$) and we conclude that tradition-oriented women in the Arab region have a significantly lower probability of participation than female Muslims. Thus, the effect of identity on women’s labour market activities is driven more by cultural tradition than by religion.

5. Conclusion

In this paper, we investigate whether women’s social identity explains the low female labour participation rate in the Arab region. Our approach builds on work by Akerlof and Kranton (2000), who emphasise the importance of identity in economic decisions. Developing a simple game-theoretic framework, we show that the strength of this identity-constituting norm

has an important influence on women's decisions to start working. In an attempt to investigate the significance of identity for explaining the low female labour market participation rate in Arab countries, we employ a large survey dataset based on two waves of the World Values Survey (2000 and 2005). We operationalise the influence of identity by two important determinants: traditional culture and adherence to Islam. Furthermore, in our analysis we differentiate between traditional culture and religion and provide an assessment of their respective influence. On the one hand, the basic argument is that it is the teaching of a particular religious faith that creates norms prohibiting women from entering the labour market. On the other hand, the argument is that low female participation rates can be attributed to the historically dominant cultural environment in Arab countries, irrespective of the actual religion adopted. We test these hypotheses empirically using probit models.

First, we find empirical evidence at any reasonable level of significance that identity matters for women's job market decisions and thus support our theoretical model. Moreover, we find not only highly significant statistical evidence, but also substantial economic effects, that go some distance toward understanding the relatively low level of female labour market activity in this region. In a second step, we separate out the respective impact of religion and traditional culture as identity-generating factors. Looking first at religion, we find that across all countries in our sample, women of Muslim faith have a 6 percentage point lower probability of working. However, concentrating on Arab countries, we discover that female Muslims have a slightly positive, but statistically insignificant, likelihood of taking a job compared to Arab women adhering to different religions. We operationalise 'traditional identity' based on affirmative answers to the question of whether the respondent agrees that being a housewife is just as fulfilling as working for pay. Across the world we find that identity-oriented women have a 3 percentage point lower probability of labour market participation. Comparing identity-oriented women in the Arab region with all other women in the world suggests that the former have a 14 percentage point lower probability of taking a job. Within the group of Arab women, a traditional-oriented identity reduces the likelihood of working by about 7 percentage points. We find evidence at the 1 per cent level of significance that traditional cultural identity reduces female labour participation more than does adherence to Islam.

Thus, we interpret our results as suggesting that while identity is an important explanation of low female labour market participation rates in the Arab countries, its traditional culture manifestation is a more meaningful explanation than religious identity. This result contradicts H'madoun (2010), who argues that religion is the main driving force of women's job market participation decision.

What are the policy implications of these findings? First, at the analysis stage of policy formation, economists should focus much more attention on how identity influences economic decisions; indeed, we recommend, in general, introducing more social-science-based approaches into economic analysis. Second, and more specifically, our results raise questions about whether it is helpful to view the current social situation in the Arab region from a purely Islamic point of view. Although a majority of citizens in Arab countries are Muslims, at least in the, admittedly limited, context of female labour market participation, we find that there is a regional cultural unity that goes far beyond religion. Thus, reforms directed at modernising cultural norms are likely a more promising avenue for change than condemning people's adherence to Islam.

Third, labour market reforms aimed at increasing female labour market participation rates should take into account two dimensions of female decision making on this issue: the benefits of working and the costs of violating a traditional identity. Hence, reforms have to be both economic and social in nature. Economic reforms should be aimed at increasing the benefits women obtain from working. A natural target here would be to ensure that there are effective and enforceable nondiscrimination policies at the workplace. However, as the experience of even highly-developed countries demonstrates, in reality, such policies take a long time to become the status quo. Improving job-market-oriented education for women could be another channel of reform, as it would improve female employability and productivity.

Fourth, our analysis suggests that economic reform must be complemented by social reform. Reducing the costs of labour market participation for women in terms of identity violations requires social change. It is important that women continue to feel accepted socially when engaging in paid employment. Moreover, families must allow women free choice in this matter. At the same time, society at large needs to become more tolerant of different ways of organising life and start to give more weight to the wishes of individuals rather than clinging to centuries-old norms. Maintaining a strong and healthy link between family (the private sphere) and society (the public sphere) is crucial for societal change in a region where Islam is the predominant religion (Kuran 1997): preference falsification—to avoid punishment for deviating from tradition—may be a key explanation for the Arab region's low economic development compared to the rest of the world. It will be interesting to observe whether the recent 'Arab Revolutions' will be a tipping point in this respect. Perhaps it is now more possible for citizens of these regions to begin publicly questioning social inefficiencies and working toward changes that will benefit both society and individuals.

Our analysis suffers from a number of shortcomings that could be addressed by future research. (i) A first important aspect is related to the interaction of traditional culture and

religion as determinants of identity. It is certainly conceivable that cultural norms observed in the Arab countries across all religions are the result of the dominance of Islam over the last centuries (Inglehart and Norris 2003). At the same time, the development of Islam took place under the influence of such traditions. So, arguably, core aspects of Islam were influenced by the cultural tradition existing in pre-Islamic times. Over time, the inclusion of these aspects into the dominant religion likely contributed to their preservation. Still, we believe that this interaction does not make it completely impossible to determine the respective influence, as we have Christians as a control group in the region, who turn out to be much more affected by the cultural tradition than by Muslim faith. (ii) Another potential problem of the theoretical analysis lies in the assumption that we can apply a model of free choice to the question of female labour market participation. If this assumption does not hold, the theoretical model loses its explanatory power. However, even allowing for only a limited degree of free choice implies that the empirical analysis is still meaningful. (iii) The assumption that imposing negative sanctions on a woman who chooses to work outside the home does not mitigate the family's identity loss is also problematic to some extent. This issue could be addressed in a more complicated game-theoretic setup but the core conclusion would not change in a notable way. (iv) Modelling the decisions of a 'modern' woman, that is, a woman who desires a career but who is otherwise content with traditional society, is somewhat artificial. Future research could investigate how exactly women acquire such 'modern' preferences within a traditional society. Likely channels include international mass media and intercultural experiences, for example, visits to Western countries. (v) The theoretical model focuses on the 'family', although other segments of society may also influence a woman's labour participation decision. One example of such influence is 'peer effects', as argued by Carvalho (2010). However, we do not think that modifying this assumption invalidates our argument. (vi) We do not consider actual wages earned in the labour market or any implicit value-added derived from home production. In the theoretical model, taking these aspects into account would influence the equilibrium outcome but not invalidate the main argument. However, since their consideration could also affect our empirical estimates, a more comprehensive dataset including information on wages and benefits derived from home production would be highly useful to future research.

References

- Akerlof, G. A. and R. E. Kranton (2000), Economics and Identity, *Quarterly Journal of Economics* 115, 715–753.
- Akerlof, G. A. and R. E. Kranton (2010), *Identity Economics*, Princeton: Princeton University Press.
- Antecol, H. (2000), An Examination of Cross-Country Differences in the Gender Gap in Labor Force Participation Rates, *Labour Economics* 7, 409–426.
- Berger, P. L. and T. Luckmann (1966), *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, New York: Anchor Books.
- Carvalho, J.-P. (2010), Veiling, *Discussion Paper Series* 491, Department of Economics, University of Oxford, June.
- El-Cham, R. (2011), Chrétienne de Mon Pays, *L'Orient-Le Jour* (25 January 2011). <http://www.lorientlejour.com/archives/overview.php?id=A686396>
- Fernández, R. (2008), Culture and Economics, in S. N. Durlauf and L. E. Blume (eds.), *New Palgrave Dictionary of Economics*, 2nd ed., Basingstoke: Palgrave Macmillan.
- Heineck, G. (2004), Does Religion Influence the Labor Supply of Married Women in Germany? *Journal of Socio-Economics* 33, 307–328.
- Hendry, D. F. (2000), *Econometrics: Alchemy or Science? Essays in Econometric Methodology*, Oxford: Oxford University Press.
- H'madoun, M. (2010), Religion and Labor Force Participation of Women, *Research Paper* 2010-007, Faculty of Applied Economics, University of Antwerp, May.
- Inglehart, R. and P. Norris (2003), *Rising Tide: Gender Equality and Cultural Change Around the World*, Cambridge: Cambridge University Press.
- Killingsworth, M. R. and J. J. Heckman (1987), Female Labor Supply: A Survey, in O. Ashenfelter and R. Layard (eds.), *Handbook of Labor Economics*, North Holland: Elsevier.
- Kuran, T. (1997), Islam and Underdevelopment: An Old Puzzle Revisited, *Journal of Institutional and Theoretical Economics* 153, 41–71.
- Lehrer, E. L. (1995), The Effects of Religion on the Labor Supply of Married Women, *Social Science Research* 24, 281–301.

Moghadam, V. M. (2009), Where are Iran's Working Women? *Middle East Institute Viewpoints: The Iranian Revolution at 30*, 50–54.

Psacharopoulos, G. and Z. Tzannatos (1989), Female Labor Force Participation: An International Perspective, *World Bank Research Observer* 4, 187–201.

Read, J. G. (2004a), Cultural Influences on Immigrant Women's Labor Force Participation: The Arab-American Case, *International Migration Review* 38, 52–77.

Read, J. G. (2004b), Family, Religion, and Work Among Arab American Women, *Journal of Marriage and Family* 66, 1042–1050.

Reimers, C. (1985), Cultural Differences in Labor Force Participation Among Married Women, *American Economic Review* 75, 251–255.

Turner, J. C. and K. J. Reynolds (2010), The Story of Social Identity, in T. Postmes and N. Branscombe (eds.), *Rediscovering Social Identity: Core Sources*, Hove: Psychology Press.

UNDP (2009), *Development Challenges for the Arab Region*, New York: United Nations.