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Women's labour market participation in Egypt, Jordan, Morocco, Syria & Tunisia: A three-level analysis

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Abstract

Women's participation in the economy, as integral part of their empowerment, is a major challenge facing the MENA-region, since women's labour market participation (LMP) is among the lowest throughout the world in these countries. Nonetheless, on a broad comparative scale, the determinants of women's LMP in this region are understudied, especially the interplay between them. We use representative data covering over 50,000 women and over 65 districts within five MENA-countries (Egypt, Jordan, Morocco, Syria and Tunisia). On these data we apply multilevel logistic regression analysis with women's formal LMP as dependent variable and individual level characteristics (e.g. age, education), household information (e.g. husband's education and occupation, number and age of children), district characteristics (e.g., level of development, labour market structure, culture) and account for differences at the national level. By doing this we show the importance of encompassing views; in understanding women's LMP different levels, domains and conditions are important. And interactions between these levels and factors give more insight in the complex matter.

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Introduction

In the Arab Human Development Reports, women's empowerment is emphasised as one of the main targets of human development in the Arab world. In most Arab, or more specific MENA countries, serious impediments to public participation for women are found (UNDP RBAS 2003, 2006). An important aspect of women's empowerment concerns their economic participation (World Bank 1994). Women's formal labour market participation (LMP) fosters their participation in society and "creates a new social and political constituency -women- empowered to question the bases of both patriarchal gender relations and the political-economic order" (Moghadam 1998: 3). On top of that, child health is supported by women's empowerment and the rising involvement of women in development and the economy is central to economic growth (Moghadam 1998; World Bank 1994). Despite these understandings, participation rates of women in MENA-countries are still among the lowest around the world (UNDP RBAS 2006; Moghadam 1998; World Bank 1994); "Women are the Arab world's unutilized and unrecognized human reserve" (Azzam, Abu Nasr and Lorfing 1985).

Notwithstanding the acknowledged urgency to provide insight in restrictions and incentives for women to enter the labour force in the MENA, the theories and (empirical) analyses in this field of study are limited – in opposite to the plentiful studies on Westerns countries. Theoretically, it seems that women's LMP is only determined at one level, and often the focus is on one type of factors (e.g. culture, economics, needs, opportunities, etcetera). Whereas we acknowledge that for example culture is important, economic factors or the political dimension of life influence women's LMP as well. The same can be said for different levels; of course education or the number of children is important but simultaneously women are influenced by the labour market structure or economic development. In this study, a new theoretical framework is used that structures factors along different conditions at different levels. Characteristics at the level of the individual women and of her context are considered, which also allows us to including the possibility of interaction effects. In other words, the effects of factors are allowed to differ by context. These theoretical steps forward are tied up to the dissemination of unique empirical material. In this comparative study, we look at five MENA-countries using data that cover 69 districts and over 50.000 women. To gain insight in what determines women's formal LMP we will use bivariate cross tabulations and multilevel logistic regression analyses. The exploration of interaction effects is based on multilevel analyses in which interaction terms are included.

We show that different types of factors at different levels affect women's LMP simultaneously. The found effects show general patterns across countries and sub-national regions, but these differ by context, an important insight for example for policy-making. Whereas the total number of context factors that influence women's chances to participate on the labour market is limited, the context a woman lives in seems highly relevant for the effects of the individual level factors.

Different level Needs, Opportunities and Attitudes

Partly due to data limitations, most studies on women's labour market participation compare the labour market position of women at the (sub-)national level (e.g. Abu Nasr, Khoury & Azzam 1985; Bahramitash 2002, 2003; Hijab 1988, 2001; Moghadam 1990, 1998; Spierings, Smits & Verloo 2006; Tansel 2002; World Bank 1994).

However, to truly understand why women do or do not enter the formal labour market, looking at the national level only is not enough. The personal situation of women (individual and household) needs to be incorporated in the analyses as well. Existing studies that look at the individual level, however, mostly have a narrowed down focus on specific factors (Pettit & Hook 2005; some examples: Assaad & Arntz 2005; Glick & Sahn 1997, 2005; Miles 2002). In this paper, we take the complexity of the matter as our starting point and we use a multilevel and multidimensional framework that enables us to place different important factors within a broader theoretical setting. The used framework also incorporates the idea of different effects in different contexts.

Our structuring of factors is partly inspired by a schedule of Hijab (1988, 2001), in which she isolates 'need', 'opportunity' and 'ability' as the three conditions that must be met if women are expected to enter the paid labour force. In Hijab's version, need refers to 'manpower' requirements at state level and economic need at the personal level. Opportunity is about proper national legislation and cultural and social norms at the personal level. Last, ability refers to whether the government facilitates training and whether women have the proper skills to obtain a job (1988; 2001).

We prefer not to conceptualise national legislation and norms/culture as one condition, since they are of quite a different nature. Laws could reflect culture, but for example equal pay legislation or legislation prohibiting women to enter certain sectors of the labour market could be conflicting with culture as well. We use the conditions 'needs', 'opportunities' and 'attitudes' (Figure 1). Needs refer to socio-economic and demographic factors that make it necessary for women to enter the formal labour market or stay at home. In comparison to Hijab's scheme we add the need for care,

which women can supply. Second, opportunities encompass the abilities Hijab mentioned and the non-attitude opportunities (legislation). In short, opportunities are socio-economic and demographic factors that construct a web of physical, intellectual and policy-based circumstances that enables women to become economically active, such as the child-care facilities or education. Last, attitudes are both societal/extern and internalised norms. In addition, we add an intermediate level between the national and individual level. More than one level of context is important in shaping women's labour market position. The context of the sub-national level is closer to a woman than the national level's context. This geographical distance could be important for the influence of for example norms or facilities, that have little effect if they are present but not in the vicinity of women. On the other hand, legislation is a typical factor that manifests itself at the national level. Theoretically, this line of thought could be extended including the household, international and more sub-national levels. Partly because of the data availability, partly because of comprehensibility of this paper, we will limit ourselves to three levels here.

As is shown in Figure 1, the lower levels are embedded in the higher levels, which indicates that the relationship at for example the individual level are influenced by the context (sub-national or national level). Interactions can also take place at the same level, in the figure indicated by the 'gaps' in the lines distinguishing the different conditions. While several authors hint at the existence of interaction effects (e.g. Miles 2002; Tansel 2002; Pampel & Tanaka 1986; Pettit & Hook 2005; Aromolaran 2004; Vijverberg 1993), few concrete ideas are incorporated in theories.

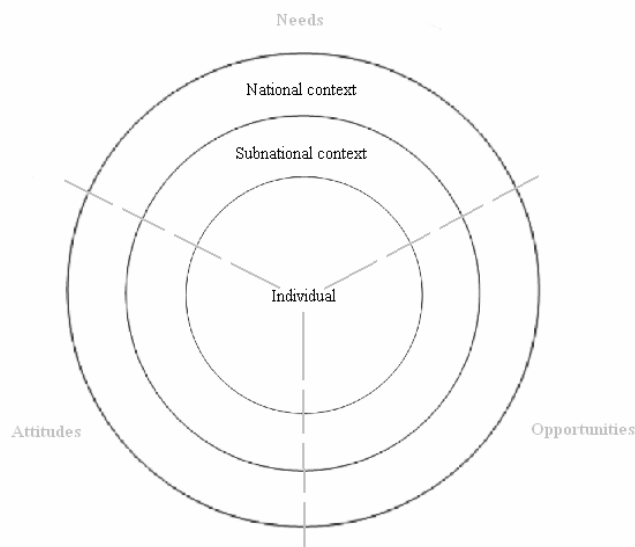


Figure 1. A general multilevel model

Below, we shall discuss some ideas and factors that could influence women's LMP organised by the three conditions distinguished, and some general ideas on interaction effects are formulated.

Needs

The labour market can need women and women can need a job at the labour market. At the higher levels, it is the labour market that does or does not need women, depending on the economic climate. When an economy is thriving, labour is demanded and a depletion of the (qualified) supply of males is expected to raise the demand for qualified women (Eviota 1992, 8-18; Moghadam 1990: 21). The need also depends on the economic structure. A labour market characterised by low levels of formal labour does need or demand fewer people to fill in the formal labour market positions. In these situations men are often preferred and women are considered as secondary workers needed foremost when no males are available. Fewer formal labour market positions would then mean fewer chances for women.

At the individual level the question rises whether women need the labour market. The need for women to work is expected to be strongly dependent of the composition of the household they live in (Assaad & Arntz 2005; Glick & Sahn 1997, 2005; Gündüz-Hosgör & Smits 2006, 2007; Pettit & Hook 2005). How many mouths need to be fed and whose responsibility is it to feed them? More mouths raise the need for income, but on the other hand the need for care is higher as well. Which need dominates could depend on the situation and is to be seen. For example, when these 'mouths' grow somewhat older the amount of physical care they need decreases, as of which the economic need could dominate. If the youngsters are still quite young, it could be the other way around. Furthermore, not only children can raise the need for caretakers, but the presence of elderly people is expected to have a similar effect and could thereby withhold women from formal LMP. Regarding economic need, we can also expect that women with a partner can rely on this partner for some household income. If she has no partner, a woman is probably more enticed to go out and work.

Opportunities

If women need to enter the formal labour market, then there still have to be opportunities present for them to find a fitting job or get the qualifications needed. Socio-economic, demographic and policy-making factors structure the web of opportunities. At the higher levels two main factors seem important: the supply of

suitable jobs and whether this supply of jobs is found in the vicinity of the women. In governmental bureaucracies and clerical and other non manual service jobs better day-care facilities, better terms of employment and educational and occupational segregation often lead to overrepresentation of women (Assaad & Arntz 2005; Hijab 1988, 2001; Moghadam 1990). The presence of larger bureaucracies and non-manual sectors is therefore expected to facilitate women and offer suitable jobs.

At the individual level several socio-economic and demographic characteristics shape the qualifications and opportunities of women. Often confirmed is the pivotal role of education (Aromolaran 2004; Bullock 1994; Gesthuizen, Scheepers & Verloo 2002; Glick & Sahn 1997; Gündüz-Hosgör & Smits 2006; Moghadam 1990; Weiss, Ramirez & Tracy 1976; Worldbank 1994). Women with a higher level of education see their opportunities rise as well as the returns to secondary or higher education. Because of the restricted mobility of many women, facilities also need to be in the vicinity of women. This is often linked to living in a city regarding formal employment (Assaad & Arntz 2005). Furthermore, the access to employment opportunities is expected to be higher for women in higher classes, since they have the connections and standing that opens up more doors that stay closed for others (Moghadam 1990). If fitting jobs exist in the geographic range of women, they can furthermore be enticed to work by facilities that lessen their household tasks. In this regard, an opportunity-factor is the household composition with respect to the care dispersal. The presence of relatively more persons responsible for the care duties (generally speaking eligible women) in relationship to the number of people that have to be taken care of, offers women in such a household more opportunities to go out for a job, since less time has to be devoted to care duties.

Attitudes

Attitudes have to do with whether the general norms in a country or district socially permit women to work (outside the home). Societal norms are not the same throughout a country and therefore we expect them to manifest themselves mostly on the sub-national level. At the national level, however, attitudes can be intertwined with state-bodies, and (implicit or explicit) governmental or state propagation. At this level, patriarchy in combination with authoritarian governments is expected to be a restricting factor for women (Kandiyoti 1991, 2001), and especially orthodox interpretations of religions are often mentioned in dampening women's opportunities. At the district level it are generally societal attitudes that shape women's activities. One can distinguish then at least two types of attitudes regarding women. First, quite specific norms on

women's participation in public life are expected to be of importance, for example ideas on segregation or the view that the public domain is reserved for men. If these attitudes are more withholding, women are (subconsciously) less enticed to enter the labour market and employers could give preference to male employees. Second, general traditionalism could be an important restricting factor. This attitudinal factor does not so much focus on women in public life, but on women's role in society, and according to traditional attitudes this role is that of being a housewife. Stronger traditionalism is expected to lead to the idea that other things are more important than participating on the labour market.

Besides societal pressure to work or not to work, ideas and norms also manifest themselves at the individual and household level. If more traditional values prevail, we expect that the chance of a woman to be active on the formal labour market is lower. Women, however, do not make the decision to go out and work alone. The ideas of husbands, male relatives and elders are important as well, especially in patriarchal or hierarchal societies (Aromolaran, 2004; Hijab 2001; Joseph & Slyomovics 2001).

Interactions

Above several ideas on main effects are discussed, that are needed to understand the interplay between factor on which this study focuses. In this section we shall discuss some possible interaction effect, whereby we limit ourselves to discussing three general groups of interaction patterns. First, whereas the framework given above is expected to be applicable to more countries, we do expect that the effects can differ by country as well. After identifying the significant differences, national or international level factor could be brought into relationship with them.

Second, different effect across sub-national regions can be expected as well (Pettit & Hook 2005), but some less general and ore insightful ideas can be formulated as well. Pampel & Tanaka (1986) mention an expectation on interactions: in places where less opportunities for female LMP are found, or the discrimination is stronger, variation in personal level factors (such as family size and education) makes less difference. In this line of thought, for example, a higher supply of educated women could reduce the chances of (educated) women that aim at getting the same job, or in less urbanised district is does not matter so much whether a women is educated, since little opportunities exist .

Third, we focus on education. When women are in a position that their chances of participating on the labour market is already larger, the added value of education is

probably lower than for women with smaller chances. Women in 'backward' positions, either at the context or individual level, profit more from a higher education level, because it offers them more new opportunities than it offers women in relatively advantaged positions (Tansel 2002). The effect of education is also expected to interact with her partner's (if any) characteristics, by what is called a 'ceiling effect'. A male partner sees his occupational status as the upper limit for his wife. A partner with a higher occupational level leads to larger effects of education since more room for improvement is open to women (Smits, Ultee & Lammers 1996).

Some of these expectations derived from the literature are contradicting each other. In the analyses we will see whether and which of these expectations hold and after the explorative analyses we shall try to discern other patterns as well.

Data and Methods

We used data from the Pan Arab Project for Family Health (PaPFam) surveys for Syria (2001), Tunisia (2001) and Morocco (2004, in cooperation with DHS) and the Demographic and Health Surveys (DHS) for Egypt (2003) and Jordan (2002). These surveys use nationally representative samples of households and provide data on population, education, labour, health and demographics. DHS women surveys contain information on women aged 15 to 49 and of the PaPFam surveys the same group of women is selected. The total number of women with which we started was 53,247 for 69 districts (Egypt: 9,159 respondents and 21 districts; Jordan: 6,006 and 12; Morocco: 16,798 and 15; Syria: 12,455 and 14; and Tunisia: 8,829 and 7). After processing the data 50,643 cases (95.11%) remained. The respondents removed all had missing values on either the dependent or independent variables. In order to prevent excluding women without a partner from the analysis, these women were given the mean scores of the women with partner on the involved variables and are the base category on the variable 'partner'.

The cases were weighted according to the weight factors provided in the surveys, which results in a weighted sample of 50,574 cases. To be able to draw general conclusion for the five countries together in the bivariate analyses, a second weight was used that took populations sizes of the countries into account. The second weight brings the number of cases to 50,584.

The effects of all variables on the labour market participation of women were studied using bivariate cross tabulations and a three level multilevel logistic regression analyses in MLWin. The dependent variable was whether a woman works in the formal

sector or not. Not working in the formal sector means that a woman is either a housewife, not working at all, or is active in the agricultural sector (which consists mainly of informal family farm labour).

In line with theoretical substantiation of the framework, here the used indicators for the different factors are discussed. An overview of variables is found in Table 1. At the individual level, for needs the presence and age of children (none, 1 or 2 with children below six, 1 or 2 with children over 5 only, 3 or 4 with children below six, 3 or 4 with children over 5 only, 5 or more with children below six, and 5 or more with children over 5 only), whether a woman has a partner, and whether a woman lives in an extended family where elderly people are present were used. For opportunities, women's education was measured in four categories: less than primary education, completed primary, secondary completed, and at least some tertiary. We included the care ratio in a household (the household size divided by the number of women between 15 and 49) and four categories were constructed: 1, 1 to 3, 3 to 6, and more than 6. Furthermore, a variable was included that indicated whether a woman lives in the city or not, and we used the occupation of the household head as a proxy for class: agricultural, blue collar, lower white collar, and upper white collar. The attitude of the woman herself is measured using the difference in age between a woman and her partner (partner minus women: < -4, -3 thru 3, 4 thru 8, 9 thru 15, >16) as well as the age of the woman at the moment she delivered her firstborn. The partner's and household attitudes were included by using the partner's education level (with the same categories as for the women) and whether a polygynous relation was present in the household. Besides the variables representing needs, opportunities and attitudes, we include age and its quadratic term (to account for an inversed U-shape effect) as controls.

At the district level we used the level of modernisation to measure the economic development, the percentage of males not active in the formal labour market to measure the formal labour market demand, and the percentage of women with at least secondary education to measure the 'supply of educated women'. As all other district variables, these were created by aggregating the information of the individuals in the surveys used. For modernisation we took the mean of the standardised values on the percentage of households in a district that possessed a car, possessed a fridge, a telephone, electricity, a television and running water. For district opportunities we used the degree of urbanisation (the percentage of a district's population living in a city) as a proxy for the presence of job opportunities in the geographical vicinity, and the share of

people active in the upper white collar sector compared to all active people as a measure for the labour market structure with regard to women's opportunities. The attitudes variables at the district level were the female/male (gender) ratio of people with at least secondary education completed to represent the attitudes on women's public participation, and a scale on traditionalism that was constructed by taking the mean of standardised values on the percentage of polygynous households in a district and the average household size.

Table 1. The factors included in the analyses explaining women's formal labour market participation

<i>Condition</i> <i>Level</i>	Needs	Opportunities	Attitudes
National	Country dummies (deviation from mean)		
District	Modernisation (+) Men not active in formal sector (-) Educated women (int.act.)	Size upper white collar sector (+) Urbanisation (int.act.)	Secondary education gender ratio (+) Traditionalism (-)
Individual	Presence of (young) children (-) Partner (-) Extended Family (-)	Education (+) Care ratio (-) Urban (+) Occupation partner (+)	Marital age difference (-) Age first delivery (+) Education partner (+) Polygynous household (-)

Regarding the country level, in the theoretical section different factors are mentioned that could account for differences between countries but the number of five countries is too limited to draw conclusion that are to some extent robust at this national level. Therefore, in the three-level analysis, we control the analyses for variation among the countries, using country dummies (deviation from mean). These dummies are also used to test for interaction effects among countries; interactions. Other interaction effects tested for are between the district level variables on the one hand and individual level variables on the other, and interactions between women's education level and all other individual and district level variables.

Results

Bivariate analyses

In appendices 1 and 2, the cross tabulation results are shown. Some of these bivariate relationships are highlighted below to illustrate that needs, opportunities and attitudes

seem to play an important role at different levels in women's decision to enter the formal labour market or refrain from doing so.

Figure 2 indicates the importance of economic needs. Of the women with a partner 13.9% is active overall, while this is 20.0% for those without a partner. So the chance for women without partner is about 43% higher. Whereas this percentage differs per country, the pattern is this same in all. Next to economic needs, care duties seem important as well. If women have children and the number of children rises, the participation of women steadily declines. Furthermore, the chance on participating is lower for women with younger children. Especially women in households with more than four children present have a low chance of being active with 6.2% when young children are present and 7.6% when all children have reached the age of six, whereas the other groups all score over 13%. Across the countries the differences between having no children and one, shows no clear pattern, which could indicate that in some circumstances economic needs prevails (extra income is needed to provide for the child) and in others care duties (the child has to be nurtured).

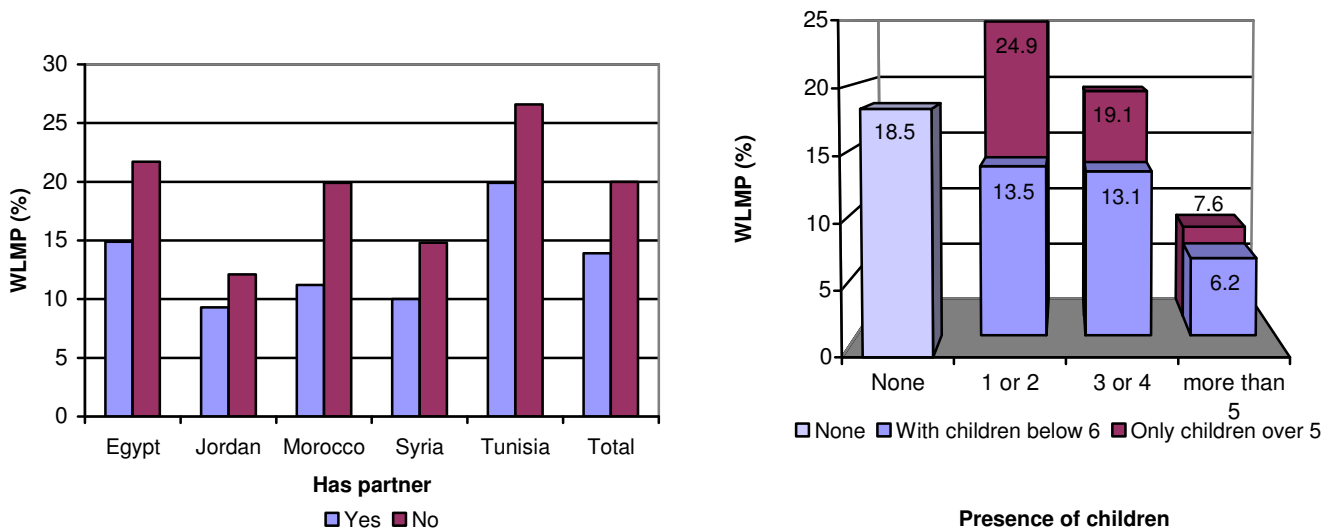


Figure 2: Women's LMP by individual level needs: having a partner and the presence of children

Figures 3 and 4 show how opportunities and attitudes are entangled with women's labour market participation. In Figure 3 we see the enormous difference between regarding LMP for women with at least tertiary education (49.7%) and the rest (7.9 to 19.6%), a pattern unequivocal for all countries. The same counts for care ratio. In households with women aged 15-49 only, over a third of the women participates on the labour market (even over half in Tunisia), whereas this rate declines to 7.5% in

Women's LMP in 5 MENA countries

households where six or more people are present per women aged 15-49. Regarding attitudes, Figure 4 shows that in relationships in which the woman is at least 4 years older, 19% of the women participate. This declines steadily to 6.3% for couples where the partner is at least 16 years older. Not only overall, but for every country an approximately similar trend is found.

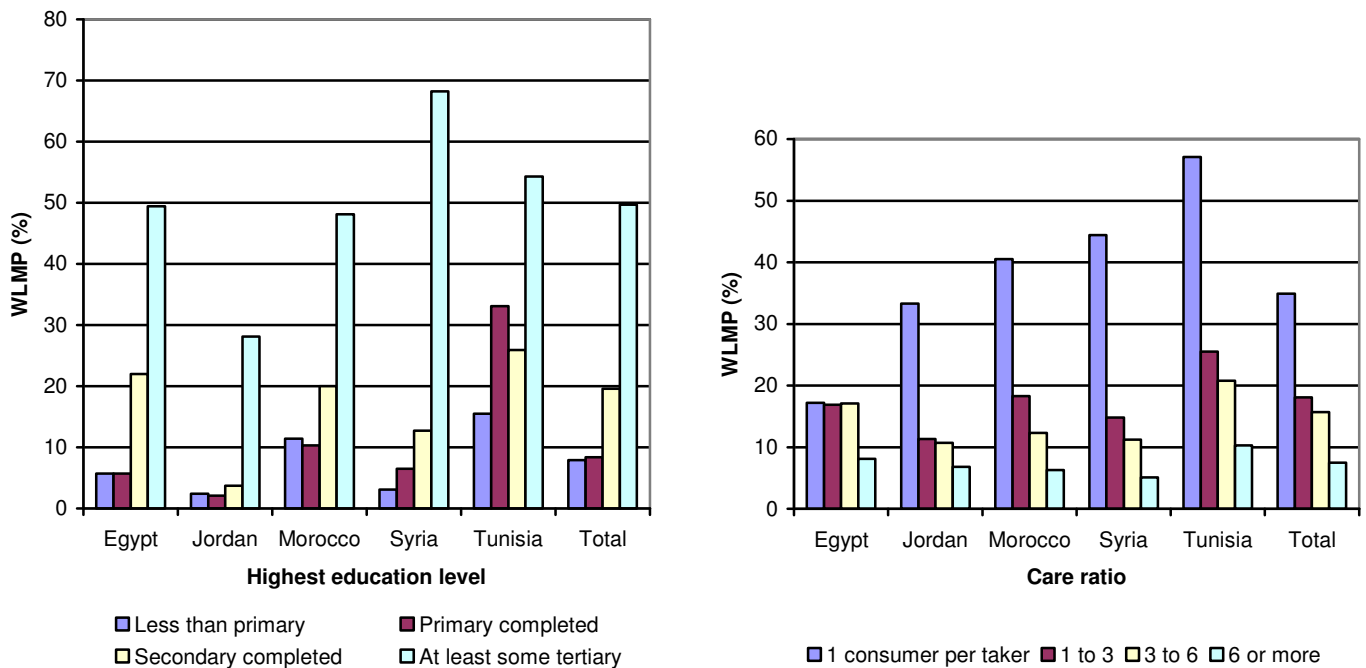


Figure 3: Women's LMP by individual level opportunities: women's education and the care rate in a household

At the district level all variables show quite a clear pattern (Appendix 2), except the percentage of men not active on the formal labour market. Three variables show a deviation between the upper and lower quartile of about 10 percent or more. Of the quartile of women living in the highest scoring districts on modernisation 23.1% is active and in the lowest quartile this is 10.3% of the women. For the size of the upper white collar sector these figures are respectively 17.2% and 12.0%. In the most traditional quartile 9.3% participates, in the least 22.0%,

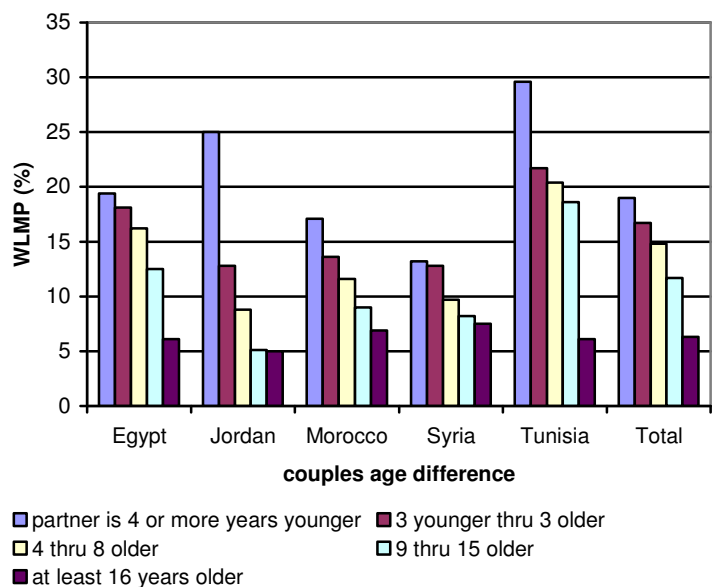


Figure 4: Women's LMP by individual level attitudes: couples age difference

and in the highest gender ratio districts 19.9% of the women work in comparison to 10.1% in the opposite districts.

Important variation between the nations is shown as well (Appendix 1). Overall, the formal labour market participation is about 15%, but a variation is found ranging from just over 9% in one country towards 24% in Tunisia.

Multivariate analyses

Because many of the variables studied so far may be related to each other, the percentages presented do not reveal which factors are most important, or how the effects differ in various contexts. For explaining women's labour market participation, we now turn to multilevel logistic regression analyses. Table 2 presents three models with main effects at the individual, district, and country level respectively. The fourth model in this table estimates the effects of the factors simultaneously. The model with interactions is discussed separately in the next section.

Micro-level variables

The micro-level effects in Model 1 and 4 are discussed together, since no substantial differences are found. The relationships are furthermore to a large extent in line with our expectations and the results from the bivariate analyses. A few exceptions are that living in a polygynous household does not seem to matter; education is only significantly related to women's LMP from the tertiary level; and the influence of the presence of children start from three children among which some below six years of age. Besides, living in an extended household is not found to be of importance.

The significance of economic needs is indicated by the effect of having a partner: women without one are have a far greater chance to be active. Together with the effect of having children this indicates the importance of the needs condition.

Of the opportunities, tertiary education is clearly the most important factor, with a positive influence on women's LMP. Living in a city and having a partner with a higher valued occupation facilitate women as well. Interestingly, women with an unemployed partner seem to have a larger chance to participate on the labour market. This could be due to economic need in stead of an opportunity: the loss in household income has to be substituted. A negative relationship was found for the care ratio in a household. Women living in households with relatively more eligible women have a higher chance to be active.

Women's LMP in 5 MENA countries

Table 2. Coefficients of multilevel logistic regression models predicting women's formal labour market participation aged 15-49 in five MENA countries.

	Model 1	Model 2	Model 3	Model 4
Intercepts				
Country level	0.079	0.044*	(0.000)	(0.000)
District level	0.143***	0.101***	0.234***	0.109***
Individual level	- 9.416***	- 3.148***	- 1.772***	-11.127***
Individual Needs				
Number of children				
None	Reference			Reference
1 or 2, with children below 6	- 0.065			- 0.066
1 or 2, only children above 5	0.065			0.063
3 or 4, with children below 6	- 0.499***			- 0.451***
3 or 4, only children above 5	- 0.105			- 0.105
5+, with children below 6	- 0.553***			- 0.555***
5+, only children above 5	- 0.403			- 0.412
Has partner	- 0.973***			- 0.988***
Extended Family	- 0.034			- 0.034
Individual Opportunities				
Education				
Less than primary	Reference			Reference
Primary completed	0.181			0.183
Secondary completed	0.458			0.445
At least some tertiary	1.489**			1.552**
Care rate				
1 care consumer per taker	Reference			Reference
1 thru 3	- 0.599***			- 0.634***
3 thru 6	- 0.683***			- 0.715***
6 or more	- 0.959***			- 1.014***
Living in city	0.670***			0.670***
Class/occupation partner				
Agricultural	Reference			Reference
Blue collar	0.410**			0.399**
Lower white collar	0.555**			0.548**
Upper white collar	0.907***			0.921***
Unemployed	0.638***			0.547**
Individual Attitudes				
Age difference; partner is ...				
At least 4 years younger	0.458***			0.466***
3 younger thru 3 older	Reference			Reference
4 thru 8 years older	- 0.099			- 0.106
9 thru 15 years older	- 0.260***			- 0.273***
At least 16 years older	- 0.453***			- 0.469***
Age at first delivery	0.054***			0.057***
Education partner				
Less than primary	Reference			Reference
Primary completed	0.046			0.036
Secondary completed	0.586***			0.600***
At least some tertiary	0.709***			0.743***
Polygynous household	- 0.328			- 0.328
Individual level control				
Age	0.352***			0.356***
Age (Quadratic term)	- 0.005***			- 0.005***
District Needs				
Modernisation		0.204*		- 0.076
Men not active in formal sector		1.013		1.095
District Opportunities				
Size upper white collar sector		0.887		0.694
District Attitudes				
Gender ratio secondary education		0.934**		1.310**
Traditionalism		- 0.147*		0.058
Country dummies¹				
Egypt			0.061***	0.285**
Jordan			- 0.228***	- 0.980***
Morocco			- 0.059***	0.298
Syria			- 0.165***	0.011
Tunisia			0.392***	0.386*

*p<0.05 **p<0.01 ***p<0.001
1) Deviation from mean

Three variables probing attitudes show significant effects. The older a woman is when she gives birth to her first child, the higher her chance on participating on the formal labour market. This chance also rises when her husband has secondary or tertiary education. Regarding the age difference between partners, women with a husband that is three years younger to eight years older have about the same chances, but when the partner becomes more older her chance declines, and when she is more older her chance rises.

Overall, if we look at the size of the coefficients, having at least tertiary education seems to be the most important factor in influencing women's LMP positively, followed

by having a partner with an upper white collar sector job. Having a partner and living in a household with six or more persons per eligible women have about the same strength as the latter but they restrict women.

Macro-level variables

In Model 2, we see that three district level factors are significantly related to women's LMP. Traditionalism has the expected negative effect, while modernisation is positively related to women LMP, as is the gender ratio in education (which is used to probe the attitudes towards public participation of women). The two factors measuring an aspect of the labour market structure do not seem to play a role. For the percentage of men active in the formal sector this is congruent with the bivariate analysis and regarding the size of the upper white collar, we saw in the bivariate analyses that this was the factor with the least difference between the quintiles. Since the size of the tertiary sector is often linked to the level of modernisation, this could be why we do not find a significant relationship with it, when the effects of the different factors are tested simultaneously.

That major differences between the countries exist is shown in Model 3: all countries' levels of LMP deviate from the mean level, with Tunisia scoring highest and Jordan lowest, as was the case in the bivariate analyses. However, the overall order of countries differs in respect that Egypt and Morocco swapped places, but after control for the other level variables (Model 4) the order is completely the same as in the bivariate analysis. However, in Model 4 not all levels of women's formal LMP differ significantly from the average. Only Egypt and Tunisia score relatively high, while Jordan has a significantly lower level. The earlier found differences are probably compositional effects, caused by differences in characteristics of the districts or of the women at the micro level.

The same composition argument could be used regarding the district effects which fail to be significant in Model 4. Only the gender ratio in secondary and higher education stays significantly and positively related to women's formal LMP. The effects of modernisation and traditionalism, probably work through micro-level factors such as attitudes, the number of children, and education levels.

Interaction Model

Table 3 shows us Model 5, which includes the interactions between the country dummies and micro-level factors, the interaction effects between district context and micro-level factors, and the interactions of education with other micro-level characteristics. Under 'Mean' we see the average effect of micro-level factors for all five countries together and the five columns to the right show the coefficients of the different factors in the different countries – coefficients between brackets indicate that

no statistically significant deviation from the mean effect is found. The other two types of interactions are found in Table 3 continued. Below, the three groups will be discussed subsequently.

When these interaction terms are added, the main effects of the country dummies change in order, due to the interactions between country dummies and micro-level factors. The fact that that some dummies are still significant, means that factors at the national level do influence women's formal LMP after control for other level factors. With regard the district level main effect, no substantial differences are found in comparison to Model 4. On the main effects of the micro-level variables the relationships found in Model 4 are all still significant and have the same sign, with exception of partners' unemployment (a factor with which no country-dummy interactions were tested, since in some countries' surveys unemployment was no valid answer). Noteworthy is that the leading importance of tertiary education is stressed even more. Factors not significant in Model 4 have become significant in Model 5, but for most factors the effects differ in sign by country, as will be discussed below.

Country-level differentiation

Regarding the differentiation effects, the large number of significant interactions shows that the main effects differ quite much by context. Tertiary education for example is the most important factor in each country, but in Syria the effect of education is far stronger than in the other four countries. Other variables for which the coefficients of each country have the same sign, either positive or negative, are having 3 or 4 children, including some below 6 (-); having a partner (-); living in a city (+); having a partner working with an upper white collar profession (+); being at least 4 years older (+) or 16 years younger than your partner (-); and the age of the women (+). This list show almost a perfect overlap with the factors that are significant in Model 4, meaning that in general models which do not differentiate effects between different countries (or other higher level constituencies) only relationships are found that are roughly the same in each country, while relationships that are important in a certain country (or constituency) or show different patterns in different countries (or constituencies) are overlooked. For example, primary education has no significant effect in the non-differentiated Model 4, while in model 5 we see that in Egypt and Morocco it clearly lowers women's chance to be active on the labour market and in Syria and Tunisia it is clearly association positively with women's LMP. These two conclusions give quite a

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different picture of reality. This again indicates the importance of the context in determining and understanding the size and sign of effects on women's formal LMP.

Table 3. Coefficients of multilevel interaction logistic regression model predicting women's formal labour market participation aged 15-49 in five MENA countries.

	Mean	Model 5 ¹				
		Egypt	Jordan	Morocco	Syria	Tunisia
Intercepts						
Country level	(0.000)					
District level	0.072***					
Individual level	- 9.647***					
Individual Needs						
Number of children						
None	Reference					
1 or 2, with children below 6	- 0.065***	- 0.112***	- 0.019*	- 0.174***	- 0.163***	0.143***
1 or 2, only children above 5	- 0.156***	(0.150)	0.252*	0.549***	- 0.158***	- 0.013***
3 or 4, with children below 6	- 0.508***	(- 0.498)	(- 0.510)	(- 0.464)	- 0.641**	- 0.427**
3 or 4, only children above 5	- 0.159***	(- 0.203)	- 0.266***	0.023***	- 0.019***	- 0.330***
5+, with children below 6	- 0.544***	- 0.975***	- 0.768***	(- 0.522)	- 0.141***	- 0.313***
5+, only children above 5	- 0.499***	- 0.849***	- 0.650**	- 0.683***	0.191***	(- 0.505)
Has partner	- 1.094***	(- 1.098)	(- 1.002)	(- 0.965)	- 1.479***	- 0.925*
Extended Family	- 0.099***	- 0.325***	- 0.190***	- 0.145***	0.114***	0.051***
Individual Opportunities						
Education						
Less than primary	Reference					
Primary completed	0.076*	- 0.222***	- 0.003***	- 0.377***	0.322***	0.651***
Secondary completed	0.627***	(0.677)	- 0.075***	(0.501)	1.419***	0.612***
At least some tertiary	2.104***	(1.965)	1.814***	1.497***	3.541***	1.703***
Care rate						
1 care consumer per taker	Reference					
1 thru 3	- 0.429***	0.662***	- 0.720***	- 0.827***	- 0.677***	- 0.583***
3 thru 6	- 0.594***	0.560***	- 0.852***	- 1.040***	- 0.832***	- 0.806***
6 or more	- 0.702***	0.600***	- 0.909***	- 1.298***	- 0.995***	- 0.909***
Living in city	0.665***	(0.541)	0.463**	1.096***	(0.664)	(0.561)
Class/occupation partner						
Agricultural	Reference					
Blue collar	0.146	-	-	-	-	-
Lower white collar	0.244	-	-	-	-	-
Upper white collar	0.610***	0.302***	0.502***	0.408***	1.057***	0.781***
Unemployed	0.355	-	-	-	-	-
Individual Attitudes						
Age difference; partner is ...						
At least 4 years younger	0.679***	(0.651)	1.112***	0.571***	(0.601)	0.459***
3 younger thru 3 older	Reference					
4 thru 8 years older	- 0.082**	0.196***	(0.006)	- 0.047***	(0.102)	- 0.463**
9 thru 15 years older	- 0.209***	0.065***	- 0.520***	(- 0.203)	(- 0.197)	(- 0.190)
At least 16 years older	- 0.336***	- 0.358***	(- 0.308)	(- 0.317)	- 0.143***	- 0.553***
Age at first delivery	0.050***	0.031***	0.060***	(0.045)	0.054*	0.060*
Education partner						
Less than primary	Reference					
Primary completed	- 0.062*	- 0.308***	- 0.161**	0.048**	0.042**	0.068***
Secondary completed	0.134**	(0.090)	0.363***	- 0.016***	(0.157)	(0.076)
At least some tertiary	0.253***	0.477**	(0.206)	0.971***	- 0.310***	- 0.079*
Polygynous household	- 0.321	-	-	-	-	-
Individual level control						
Age	0.342***	0.378***	0.295***	(0.341)	(0.346)	0.349***
Age (Quadratic term)	- 0.005***	-	-	-	-	-
District Needs						
Modernisation	- 0.006					
Men not active in formal sector	0.231					
District Opportunities						
Size upper white collar sector	0.074					
District Attitudes						
Gender ratio secondary education	0.973*					
Traditionalism	- 0.089					
Country dummies²						
Egypt	- 1.423***					
Jordan	0.997***					
Morocco	0.588**					
Syria	- 0.423**					
Tunisia	0.261*					

*p<0.05 **p<0.01 ***p<0.001

1) For the individual level factors interactions with the country dummies were used and the coefficients in the five columns at the right represent the coefficients for each country corrected with the significant interaction effect, if any.

2) Deviation from mean

District-level interactions

Table 3 continued.

Model 5	
District* Individual Interactions ³	Individual*Individual Education Interactions ³
Urbanisation with with Primary education completed
3 or 4 children, also below 6 - 0.024***	Has partner - 0.059***
5+ children, also below 6 - 0.069***	Living in city - 0.039**
5+ children, only above 5 - 0.045*	Partner 9 thru 15 years older 0.038***
Has partner - 0.123**	... with Secondary education completed
Extended Family 0.036***	3 or 4 children, also below 6 - 0.029*
Secondary education completed - 0.096***	5+ children, also below 6 - 0.084**
At least some tertiary education - 0.048***	5+ children, only above 5 - 0.093***
Men not active in formal sector with ...	Has partner 0.160***
3 or 4 children, also below 6 0.078***	Extended family 0.054***
Secondary education completed 0.088***	Living in city - 0.131**
Living in city 0.121***	Partner at least 4 years younger - 0.024**
Partner 4 thru 8 years older 0.098*	Partner 9 thru 15 years older - 0.057***
Partner at least some tertiary edu. 0.125***	Partner at least 16 years older - 0.028*
Size upper white collar sect. with ...	Age at first delivery 0.106*
3 or 4 children, also below 6 0.090***	Partner secondary edu. completed 0.056*
Has partner 0.059*	Age 0.402***
Secondary education completed 0.098**	... with At least some tertiary education
Partner at least some tertiary edu. 0.111***	Has partner 0.128***
Traditionalism with ...	Living in city - 0.114***
1 or 2 children, only above 5 0.076***	Age 0.305***
At least some tertiary education 0.103***	
Gender ratio secondary edu with ...	
1 or 2 children, only above 5 0.033***	
Primary completed 0.038***	
Modernisation with ...	
Partner 4 thru 8 years older 0.064*	

3) The coefficients in table 3 continued are based on z-values of the factors used, these coefficients therefore cannot be added to or subtracted from the main-effect coefficients

That the influences of micro-level variables on women's formal LMP depend on their context is also shown by the significant interaction effects found in Table 3 continued. Some general pattern can be derived from these results. Firstly, it seems that the importance of need

constraints (either being it care or economic need) is larger in circumstances where a woman cannot fall back on her environment. In more urbanised districts women have probably less family living in the vicinity (for example the same village) and then they cannot fall back on family members to take care for their children or to support them when they have no partner. This could explain why in more urbanised districts, having a partner and having children has an even larger negative effect on women's LMP than in other districts. The same line of reasoning applies to positive interaction between urbanisation and living in an extended family. In more urbanised district it is more important to fall back on family members in the same household since other family members are not around. Perchance, this also explains that in districts with fewer men active in the formal economy, having children has a less negative effect on women's LMP. In these districts probably more men work in agricultural or are unemployed and they could take account for some care duties enabling the women to work.

A second patters that seems to occur, is that the influence of education on women's LMP is larger for women living in districts with worse conditions. For example, we see that the influence of tertiary education is larger in more traditional districts and

secondary education has stronger influence in district with a smaller formal sector, whereas the effects of secondary and tertiary are smaller in more urbanised districts. At the same time, however, in districts with a larger upper white collar sector the influence of secondary education is larger, which in its turn could be due to the greater number of opportunities in such district, which indicates that the effects of education are both stronger in districts with more direct job opportunities, and in district with more general withholding characteristics, or in other words more room for improvement.

Interaction at the micro level with education

A last group of interactions we tested for are interactions between the education level of women and other micro-level characteristics (Table 3 continued, right panel). The effect of education depends on several different factors. For example, having a partner increases the effect of education. This could be so, because women without a partner profit less from secondary and tertiary education, because they are already forced economically to go out and work. In the same line of thought women living in cities already have more opportunities, leading to a larger effect of education on women's LMP for women not living in a city. In addition, we see that women with many or young children around can profit less from their secondary education, which we could attribute to the fact that these women still have to take care for their children, which hampers the effect of education. In sum, the influence of education is therefore tied up to whether a woman was already forced to go out and work, to what extent education creates an increased amount of suitable jobs and whether there are constraints that are not taken away by education. Generally speaking, education depends on the room for improvement; with more room the effects of education are larger. This idea could also be tied up to the interactions whereby, women are found in micro-level surroundings with more positive attitudes towards women's LMP or gender equality. The effect of secondary education is for example smaller for women that have a partner that is older, and larger for women that gave birth to their first child at an older age, and that have a partner with secondary education. The latter could however be explained with the ceiling effect as well, according to which the husband status forms an upper limit to the wife's achievement (Smits, Ultee & Lammers 1996), but then we would expect to find the same interactions for women's tertiary education and for partners with tertiary education.

Overall, this section on the interaction model, on the one hand supports the results from the models with the main effects, but on the other it draws attention to the importance of the context in determining the size and sign of relationships in different contexts.

Conclusion

In fostering women's formal labour market participation (which empowers them, helps to develop a country economically and supports child health) or understanding it, this study draws attention to how factors from different levels, domains and conditions affect women's formal LMP. Besides adding this general notion that unidimensionality comes short in grasping the complexity of women's LMP, some more specific theoretical ideas are stressed here, which are supported by our empirical study on fifty thousand women from five MENA countries.

Firstly, this study denounces the 'cultural thesis' that puts emphasis on cultural factors only, often conceptualised in terms of 'Islam'. At the micro level, needs, opportunities, and conditions are important in determining women's chances, without a clear dominance of one of these conditions. Notwithstanding, tertiary education seems unequivocally the most important factor for increasing women's LMP. At the macro-level, only an attitudinal factor is related significantly to our dependent variable in the multilevel models, which bring us to the second theoretical conclusion of this paper; most macro-level factors seem important (as we can see in the macro-level factors only models) but their influence seems to work through micro-level characteristics, and further specification of how the processes are shaped would benefit science.

Thirdly, macro-level factors, or in other words the context, are quite important in shaping the effects micro-level factors have. On interactions effects little theoretical (or empirical) research exists. In our theoretical framework we formulated some expectations regarding these interactions effects. Of these, the idea of diminished influence of micro-level factors such as the number of children, if fewer opportunities are found in a district is hardly supported, whereas we do find indications that regarding micro-level effects of education women in a position with more room for improvement profit more from higher education levels. Furthermore, some pattern on interactions with higher level context are distinguished. In districts with more direct job opportunities, the effect of education seems to be more positive, whereas the room-for-improvement thesis is also found for these cross-level interactions. The last pattern

distinguished is that the effect of need constraints seems to be larger in circumstances where a woman cannot fall back on her environment.

In sum, we have shown that micro-level effects differ by context and macro-level factors shape the relationships between micro-level factors. The different effects we found for the five countries beg for further research in which the country-level factors are given content (in stead of differentiating between countries, characteristics of countries should be used) and for studies including more countries. These effects are also highly relevant for policy-making; over a dozen factors determine what the returns are on increased secondary and tertiary education and supporting measures could be implemented such as childcare facilities or attitudinal campaigns.

Women's formal labour market participation in the MENA region is complex, and using a more encompassing approach, including different levels, domains, conditions, and interactions among and between those, broadens our understanding of it and offers chances to enhance women's labour market participation.

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Appendices

Appendix 1

	Women's formal labour participation (%)					Total
	Egypt	Jordan	Morocc	Syria	Tunisia	
Individual Needs						
Number and age of children						
None	12.7	9.8	18.2	26.3	37.4	18.5
1 or 2, with child below six	12.8	10.6	12.6	12.5	30.7	13.5
1 or 2, without child below six	27.7	14.8	27.7	16.4	24.7	24.9
3 or 4, with child below six	14.6	10.6	8.0	9.7	16.8	13.1
3 or 4, without child below six	22.2	11.3	15.7	11.7	15.8	19.1
5 or more, with child below six	6.6	7.3	5.1	5.0	9.4	6.2
5 or more, without child below six	8.1	5.0	5.4	7.8	9.5	7.6
Partner status						
No partner	21.7	12.1	19.9	14.8	26.6	20.0
Has partner	14.9	9.3	11.2	10.0	19.9	13.9
Family type						
Nuclear	18.8	10.0	16.7	12.1	23.4	17.3
Extended	8.1	6.5	13.6	13.1	24.0	10.7
Individual Opportunities						
Education						
Less than primary	5.7	2.4	11.4	3.1	15.5	7.9
Primary completed	5.7	2.1	10.3	6.5	33.1	8.4
Secondary completed	22.0	3.7	20.0	12.7	25.9	19.6
At least some tertiary	49.4	28.1	48.1	68.2	54.3	49.7
Care ratio						
1 care consumer per taker	17.2	33.3	40.5	44.4	57.1	34.9
1 thru 3	16.9	11.3	18.3	14.8	25.5	18.1
3 thru 6	17.1	10.7	12.3	11.2	20.8	15.7
6 or more	8.1	6.8	6.3	5.1	10.3	7.5
Living environment						
Countryside	8.9	10.0	4.8	7.6	9.6	8.0
City	24.4	9.3	22.6	16.6	30.6	22.6
Class/occupation partner						
Agricultural	2.8	4.1	2.3	3.4	8.2	2.9
Blue collar	8.5	5.4	8.9	5.0	12.0	8.2
Lower white collar	16.2	7.7	13.5	6.5	18.6	14.3
Upper white collar	29.7	18.6	29.7	25.3	44.3	29.4
Unemployed	9.1	6.3	na	na	0	6.4
Individual Attitudes						
Age difference; partner is ...						
At least 4 years younger	19.4	25.0	17.1	13.2	29.6	19.0
3 younger thru 3 older	18.1	12.8	13.6	12.8	21.7	16.7
4 thru 8 years older	16.2	8.8	11.6	9.7	20.4	14.8
9 thru 15 years older	12.5	5.1	9.0	8.2	18.6	11.7
At least 16 years older	6.1	5.0	6.9	7.5	6.1	6.3
Age at first delivery						
10-16 years old	2.0	0.0	12.0	2.8	11.1	3.4
17-23 years old	7.4	4.9	9.7	5.9	12.0	7.6
24-30 years old	15.6	7.9	11.7	24.8	25.4	15.5
31-40 years old	21.6	12.5	15.8	30.7	33.9	20.0
41-49 years old	13.9	7.8	10.9	0	100	12.8
Education partner						
Less than primary	5.5	3.2	6.4	2.1	9.6	5.8
Primary completed	6.7	4.2	5.6	4.0	16.1	6.0
Secondary completed	16.4	9.0	17.2	13.6	29.4	16.3
At least some tertiary	38.6	17.3	44.2	31.2	46.2	36.6
Polygynous household						
No	15.5	9.5	15.7	12.2	23.5	15.5
Yes	2.6	0.0	4.2	10.3	-	4.5
Individual level control						
Age						
15-19	1.0	2.1	7.4	5.2	9.2	5.9
20-24	6.3	4.4	14.5	11.8	26.6	10.8
25-29	11.1	6.8	17.9	15.0	32.9	14.1
30-34	16.0	11.6	18.2	17.4	30.0	17.2
35-39	20.9	12.4	20.3	17.6	8.0	20.5
40-44	24.0	13.1	20.0	14.1	20.6	21.8
45-49	17.3	6.8	16.3	11.7	20.5	16.6
Total	15.4	9.4	15.6	12.2	23.5	15.4
na = not a response option in the survey						

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Appendix 2

	Women's formal labour participation (%)		
	Lowest scoring quarter of respondent on explanatory factor	Middle scoring half of respondent on explanatory factor	Highest scoring quarter of respondent on explanatory factor
<u>District Needs</u>			
Modernisation	10.3	14.1	23.1
Men not active in formal sector	20.9	13.0	14.7
<u>District Opportunities</u>			
Size upper white collar sector	12.0	16.1	17.2
<u>District Attitudes</u>			
Gender ratio secondary education	10.1	15.8	19.9
Traditionalism	22.0	15.0	9.3