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**Two myths about contextual effects on Middle
Eastern women's employment: a multilevel
analysis of trends in Egypt and Jordan**

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Abstract

In studies on the influence of contextual factors on women's employment in the Middle East, two myths figure regularly, which both seems to be related to the disentanglement of micro and macro levels. By applying a more comprehensive view and using multilevel models, we provide a more nuanced view of the relationship between the contextual and individual level regarding women's non-agricultural employment in Egypt and Jordan. First, we show that large uniform contextual processes such as globalization and modernization are not satisfying in explaining women's employment. The processes are more complex. Egypt and Jordan seem to modernize rather linearly, but if we look more closely at the processes and also take individual-level data in to account, women's employment does not show the same pattern. Globalization and modernization are no panacea to gender equality. Second, we focus on the myth of 'micro-level stability' and have shown that the effect of individual and household factors has changed over time. The influence of education, the most important explanatory factor of women's non-agricultural employment, has a declining effect. Furthermore, having (young) children seems to become a less restricting influence on women's employment.

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Introduction

Scholars exploring women's employment in the Middle East often focus on the context these women live in (e.g. Bahramitash, 2003; Hijab, 2001; Miles, 2002; Moghadam, 2003; Tansel, 2002; UNDP, 2005). However, to understand the importance of context, micro- and macro-level factors should be considered together (see Spierings & Smits, 2007; Van der Lippe & Van Dijk, 2002). In this paper, we set out to deepen our knowledge of the effects of the economic, political and social context and to surpass two myths about Arab women's employment.

First, we will zoom in on the myth of major change. Several theories focusing on women's position could be called grand theories: they formulate a generally applicable idea on how some process that has been taking place for several decades improves women's position (Hakim, 1995). These processes are often seen as single contextual forces leading to gender equality and rising employment, no matter what (Chen, 1999; Meyer, 2002; Posusney & Doumato, 2003; Scholte, 2001; Spierings, Smits & Verloo, 2008). The two most notable examples of this are the related concepts of modernization and globalization (see Cheng, 1999). However, the absence of a steadily rising trend in Middle Eastern women's employment indicates the indicators the limitations of this perception of reality.

Evidently, globalization and modernization are part of the context in which women live and thus they influence women one way or the other (e.g. Benería, 2003; Brand, 2003; Posusney & Doumato, 2003; Pyle & Ward, 2003; Walby, 1996), but we argue that the impact they have is not univocal. As Moghadam says: "globalization has given rise to contradictory tendencies and trends" (2007, p.2).

Second, we focus on the myth of micro-level stability. Studies focusing on micro-level factors have contributed much to the knowledge on what are the determinants of women's employment, such as education (Gündüz-Hosgör & Smits, 2008; Lincove, 2005; Pettit & Hook, 2005; Spierings & Smits, 2007). However, we know relatively little about how for instance the effect of educational attainment differs by (geographical or temporal) context. It often seems assumed that effects at the micro-level are rather stable regarding their importance and size.

Contradictory to this assumption, we hypothesize that not only women's employment is influenced by its context, but also the relationships at the micro-level are. This means that contextual processes, such as globalization and modernization, influence the magnitude of the determinants of women's employment. For example, the returns to education might decline when labor markets change and employers request new skills, while the educational system does not adapt (Spierings & Smits, 2007).

To emasculate these two myths and gain more insight into Middle Eastern women's employment and contextual effects, we apply multilevel modeling to data on over 60,000 women from the DHS Surveys of Egypt (1992, 2000, 2005) and Jordan (1990, 1997, 2002). First, these data enable us to see whether continuous processes of modernization and globalization have been taking place in Egypt and Jordan. Second, by combining these datasets, we have over 100 measurements at the sub-national level. By combining those with the micro-level factors in multilevel models, we can test the influences of contextual factors related to globalization and modernization more systematically and robustly. Additionally, the inclusion of micro-level variables gives us better insight into the mechanisms through which the contextual factors affect women's employment. Third, we include cross-level interaction terms to test whether influences have significantly changed over time. Whereas our model include sub-national macro-level determinants, the (intern)national context should not be ignored, therefore we embed the statistical results in a description of the political and economic processes Egypt and Jordan have gone through the last two decades.

Theoretical framework

Since women's non-agricultural and women's agricultural employment have quite distinct dynamics (Bullock, 1994; Glick & Sahn, 2005; Gündüz-Hosgör & Smits, 2008; Nassar, 2003), here we focus on women's non-agricultural employment. Arguably, this is the most important form of employment for women's empowerment in today's society, where the agricultural sector seems to decline day by day (Bullock, 1994; Moghadam, 2007).

1. The myth of major change

Globalization and modernization are two of the most notorious contextual processes influencing women's employment. The causal reasoning behind them strongly overlaps (Abu-Radia Queder, 2007). Several theorists argue that overall globalization leads to higher levels of women's non-agricultural employment. Industrialization, economic liberalization and a shift towards secular values drive women to enter the paid labor force; job opportunities are created and cultural barriers overcome (Jaquette, 1992; Posusney & Doumate, 2003; see for example Inglehart, 1997, Inglehart & Norris, 2003; Krugman & Obstfeld, 2003, Lerner, 1966; Meyer, 2003). In sum, globalization and modernization are said to lead unequivocally to a better position of women.

This view leaves little room for counter(re)actions and depicts the process as a single driving force; however, modernization and globalization should be seen as multidimensional processes with multiple causal mechanisms (see Arjomand, 2004; Bergeron, 2001; Moghadam, 2007; Pyle & Ward, 2003). For example, globalization is described in terms of liberalization, westernization, universalization, deterritorialization, and internationalization (Scholte 2001, see also Moghadam, 2007). Modernization is linked to processes of industrialization, economic liberalization, value shifts away from traditionalism, democratisation, and economic development (Inglehart, 1997; Moghadam, 2007; Posusney & Doumato, 2003).

We expect that not all dimensions are of the same importance. In addition, we expect to find contradictory influences for the different factors related to them. To gain insight in this complexity, we shall zoom in on different factors found in the causal processes of modernization and globalization.

a. Political liberalization

Political liberalization creates opportunities for women and women's movements to influence policies and demand more equality. Either women can elect (some) representatives in favor of their views, or incumbents will listen to them because they will not be re-elected when too many people (women in this case) are dissatisfied. This is expected to bring about gender friendly policies, which will create more opportunities for women, and societal norms restricting women's employment become less dominant (Huber, Reuschmeyer & Stephens 1997; Posusney & Doumato 2003; Rathgeber 1990; Spierings, Smits & Verloo, 2008; Yousef 2004).

b. Economic reform

Several Middle Eastern countries have received loans of the IMF and World Bank, which in return demand structural adjustment programmes (SAPs). Economic privatization and economic liberalization are part of these SAPs.

Privatization: SAPs entail, amongst others, cuts in expenditures and shrinking down public sectors to reduce budget deficits, and opening up the economy for private entrepreneurs to increase economic development. In most Middle Eastern countries, horizontal job segregation has led to a feminized public/governmental sector, because of better facilities for women and less gender discrimination in those sectors. Dismantling the public sector then disproportionately decreases women's opportunities (Amin & Al-Bassusi, 2004; Assaad & Arntz, 2005; Hijab, 1988, 2001; Moghadam, 1990, 1998; Nassar, 2003; Pyle & Ward, 2003; Posusney & Doumato, 2003; UNDP RBAS, 2006; Yousef, 2004).

Liberalization: Protagonists of the SAPs focus on the infusion of the developing economies by transnational companies which replace their production facilities to countries with low labor cost and less protection for employees. Especially women, with their "nimble fingers" and docile attitudes, are expected to benefit from this, because they are considered better suited for most of these new jobs (Bergeron, 2001; Clark, 1992; Pfeifer & Posusney, 2003; Walby, 1996).

More generally, of both privatization and liberalization it is said that they foster economic development, which will be discussed below.

c. Industrialization

In the broad sense industrialization means occupational specialization, growing organizational complexity and rising educational levels, which altogether make women enter the (non-agricultural) labor market (Inglehart, 1997; Inglehart & Baker, 2000; Inglehart & Norris, 2003). In a more narrow sense, it indicates the decline of the agricultural sector in favor of the industrial sector. Following this phase of industrialization, the service sector expands during what is called postmodernization (Inglehart, 1997). A decline of the agricultural sector decreases women's opportunities, since many women in developing countries are active in agriculture. However, with regard to women's non-agricultural employment, the relative decline of the agricultural

sector favors women, because more non-agricultural jobs become available and more women can get employed. Following industrialization, growth of the service sector and the number of white collar jobs benefits women even more; society considers these jobs better suited for women compared to manual labor in the industrial sector (Amin & Al-Bassusi, 2004; Assaad & Arntz, 2005; Hijab, 2001; Moghadam, 1990).

d. Economic development

In general economic development is often seen as the main indicator of modernization, but this does not say anything about the (causal) influence of economic development. Economic development creates an extra demand of labor, which directly increases women's opportunities. In addition, it indirectly affects employment through increasing educational levels, changing value patterns and the declining fertility rates since children are less needed as an old-age provision (see Cairoli, 2007; Gündüz-Hosgör & Smits, 2007; Olmsted, 2003).

e. Urbanization

When families and women move to more urbanized areas or when rural areas become more urbanized, it is easier for women to find a job, since labor is demanded in the vicinity (Assaad & Arntz, 2005; Spierings & Smits, 2007). Besides this, social and family networks become less tight in more urban surrounding and people are often more dependent on themselves regarding their subsistence; declining traditional values lower cultural barriers to enter the labor market, and increasing needs to provide for an income pushes women into employment (Amawi, 2007).

f. Value change

Changing societal norms are interrelated with many of the processes discussed above. Two important shifts can be expected. First, traditional values shift to modern or secular values. The role of the traditionally large family as mainstay of society declines and individualization takes place. Since women are the main caretakers in society, they benefit most from this shift; they become less tied down to the household. Second, the importance of traditional authority declines while rationalism and merits become more important. This could lead to less direct gender-based discrimination of women: getting educated and having a job becomes easier and more accepted (Spierings & Smits, 2007; cf. Inglehart, 1997; Lenski & Nolan, 1984)

2. The myth of micro-level stability

At the micro level, we find many micro-level factors influencing women's employment chances. Several studies on these micro-level factors exist and they tell us, for example, that education is one of the most important determinants of Middle Eastern women's employment. But what shapes the magnitude of these is hardly known. In the literature it seems to be assumed that these relationships are rather stable and of about the same strength everywhere and at every moment of time (notable exceptions are Assaad 2003; Rani & Schmid 2007; Spierings & Smits, 2007).

In this paper, we expect the micro-level factors to show different influence according to their spatial and temporal context in which they are embedded (see Spierings & Smits, 2007). To gain some understanding of these processes, we formulate two general expectations about how globalization and modernization could influence the effects on women's employment. Since the literature contains few ideas on these very general relationships, we also focus on two ideas from the literature regarding the effects of educational attainment and how this could change due to globalization/modernization.

It can be expected that in politically more liberal surroundings, the individual and household are emphasized more in comparison to the collective or state level. Since a democratic system leaves less room for authoritarian values, communal norms and needs could become less important in comparison to the preferences and choices of individuals and households. The system will leave more room for diversity and choice. This would mean that the effects of individual- and household-level factors grow, if political liberalization has taken place.

To modernization, and especially the associated value change, a similar reasoning is applicable. At the moment the value patterns shift away from traditionalism, more room will be created for women's individual choices. The emphasis on traditional family-values will decrease, and we may expect that restricting factors such as a husband's view or the presence of children becomes less important, whereas for example the influence of women's own values and education will increase.

Regarding modernization and education, Abu Lughod's Middle Eastern field research indicates that in this process educational levels of women do indeed rise, but that its

effect on employment might decrease. This has to do with the concept of ideal wifehood, which seems to modernize, but in a hybrid way. The preferred wife is ‘modern’, ‘scientific’ and educated, but in the traditional societal framework these qualities are seen as beneficial to the role as mother and care taker. The principal duty of women remains running the household. If this hybrid modernization has taken place, the effect of education on women’s employment should have declined.

Labor market restructuring is the second factor of which it is said that it could lead to lower returns to education. Since different skills are needed for being a civil servant than being employed in the industrial sector, economic liberalization and privatization could lead to a shift in skills employers seek. If the educational system does not mirror the changes in the labor market, education gives women fewer opportunities than before and consequently the effect of being educated decreases (see Assaad, 2003; Clark, 1992; Yousef, 2004).

Clearly, this overview of interaction effects does not exhaust all possibilities. Well articulated ideas on interactions are a scarcity. Above we formulated some to illustrate our main point that effects can differ by their context. Below, the specific changes in effects are given more attention where we come across them.

Data & Methods

We pool six datasets with individual- and district-level data and apply multilevel regression modeling. First, the pooling allows us to assess the causal pathways of district-level determinants, since we have 105 unique measurements at that level.¹ Second, the inclusion of micro-level factors enables us to control for compositional effects. Third, including three datasets for each country makes it possible to test whether differences between countries or years exist and whether they are significant (see Jaccard 2001).

The datasets are Demographic and Health Surveys (DHS): national representative (clustered) samples of households. For Egypt we use the surveys for 2005, 2000 and 1992, and for Jordan the 2002, 1997 and 1990 data are used. In total, the surveys contain information on 62,926 (ever married) women aged 15 to 49, living in 105 districts (the

¹ Robust or ‘sandwiched’ standard errors were used, in order to control for autocorrelation, since the use of three surveys for each country means that we have 3 measurement for each district (see Allison, 1999). Weights are used as supplied by DHS, corrected for different sample size; each sample was weighted so that the number of weighted respondents equaled the number of respondents of the smallest sample (5.266).

administrative province-level units). After resolving missing data issues, 61,620 cases (98%) remained. More detailed information on the data can be found in Appendix A.

The macro level is divided in a national- and a district-level context. The statistical analyses, including district- and micro-level factors, are embedded in qualitative descriptions of the economic and political developments at the country level.

The country-level developments and events are derived from an examination of the literature on Egypt and Jordan. In correspondence with our theoretical framework, we focus on developments and ‘shocks’ regarding economic liberalization and privatization, and political liberalization in Egypt and Jordan from the end of the 1980’s to the past few years. Economic liberalization is defined as opening up the market for foreign investors and decreasing state regulation. Economic privatization is associated with the shift from public-owned companies and public employment towards private-owned companies and private employment. Liberalization in the political sphere entails increased popular political participation and opening up the governmental structure of decision-making and an increase in de jure and de facto freedom of speech and association.

At the district level, we aggregated data to include six variables measuring the theoretical factors industrialization, economic development, urbanization and value change. Regarding industrialization, we measured the percentage of men older than 25 working in *agriculture* and the size of the *white collar sector* was measured by the percentage of women and men with a non-manual job as a percentage of all employed people. To measure *economic development* we took the mean of the standardized percentages of households in a district that possessed a car, a refrigerator, a television, had access to electricity and had running water. The percentage of people living in a city reflects the degree of *urbanization*. For values we used two constructs. The first is the *gender ratio in secondary or higher education*. Second, we created a scale of *traditionalism* by taking the mean of the standardized values of the percentage of households including polygynous marriages, the percentage of households with extended families, and the average household size.

At the micro level we included the most important variables identified by previous research (Spierings & Smits, 2007; see also: Aromolaran, 2004; Assaad & Arntz, 2005; Glass & Nath, 2006; Gündüz-Hosgör & Smits, 2008; Hakim, 2002; Hijab, 2001; Joseph

& Slyomovics, 2001; Lincove, 2005; Pettit & Hook, 2005): *educational attainment, marital status, number and age of children, household care ratio, occupation of the partner, living in a city, age at delivery of the woman's firstborn, couple's age difference, partner's educational attainment, polygynous household, extended family, and age*. For more information see appendix B.

To test how the influences of these micro-level variables have changed, we included interaction terms of these with dummies for the different years of the different countries. With Chi-squares we tested whether the coefficient differ significantly from each other ($p < 0.05$).²

The economic and political context

Egypt

State control is the buzzword for Egypt during Nasser's (president from 1954 to 1970) Arab Socialism. Economically this meant state led development (Jamal 2006; Mitchell 2001; Pfeifer & Posusney 2003), and politically it is associated with the 'authoritarian bargain' as Yousef (2004) calls it; political participation was restricted, but the people accepted this in trade for economic security and social services. After succeeding Nasser, Sadat (1970-1981) made some steps towards liberalization. Allegiance switched from the SU to the US, a multiparty system was allowed, Foreign Direct Investments (FDI) were encouraged, and the policy of *infatih* "opened" the economy to some extent (Assaad & Arntz 2005; Mitchell 2001; Owen 2000). Throughout Sadat's reign, governmental employment and occupational participation rates of women were relatively high (Moghadam 1998).

In the early eighties, the first oil boom stimulated the economy and financially supported government expenditures (Yousef 2004). Many men, especially the ones working in agriculture, went to work abroad and in Egypt many women filled in the vacancies (Nassar 2003; Pfeifer & Posusney 2003).

At the end of the 1980s and in the early 1990s the economic situation changed. The end of the Gulf War led to the return of migrants from Iraq in 1991. After 1985 the oil

² All variables are centred around their mean so that the main-effect coefficients resemble the effects for the average women. Consequently, the interaction coefficients should not be simply added to or subtracted from the reported main coefficients.

prices collapsed and the international economic environment became more competitive (Assaad & Arntz 2005; Moghadam 1998; Yousef 2004). Unemployment and poverty increased during these years (Assaad 2003; Moghadam 1998; Nassar 2003), and loans were needed to refinance obligations, for example caused by arms purchases during the past war with Israel (1973) (Mitchell 2001). Consequently, structural reforms were implemented; the first starting officially in 1987 (Kienle 1998; Nassar 2003). The continuous shocks led to new and more substantial structural reforms (SAPs) in 1991 and 1996: from a state-led to a market, privatized and outward oriented economy (Assaad 2003, Assaad & Arntz 2005; Moghadam 1998; Pfeiffer & Posusney 2003; Yousef 2004).

To secure popular support for the economic reforms in early 1990s, Mubarak encouraged the opposition to participate in the political process (Owen 2000; Yousef 2004). However, under suppression several groups had turned radical, and Mubarak tried to isolate the extreme offshoots of the Muslim brotherhood (Owen 2000). In the 1990 elections, all remaining barriers to independent candidates were removed but government could still constrain activities in the electoral campaign and the Muslim brotherhood was prohibited to run as a party. Tensions rose, resulting in political violence, such as the 1991 attacks on tourist sights – ‘a symbol of Egypt’s corruption by the West’ (Mitchell 2001: 237). Consequently, the tourist sector revenues declined (Assaad & Arntz 2005; Moghadam 1998; Yousef 2004), and in combination with volatile oil prices, incomplete reforms, cuts in the government budget to reduce deficits, and rapid labor force growth (fertility and repatriating expatriate workers), this put severe stress on the economy and withheld it from taking off in the first half of the 1990s (Assaad & Arntz 2005, Kienle 1998; Mitchell 2001; Owen 2000; Yousef 2004).

After the rise in political violence, Mubarak started a policy of a more general attack on all religious organizations, labeling them as terrorists (Kienle 1998; Owen 2000). During the mid-1990s political and economic liberalization did not go hand in hand anymore. Kienle (1998) speaks of the political deliberalization in the late 1990s, and religio-cultural struggles intensified (Owen 2000). However or consequently, political violence continued and had its peak, with the ‘Luxor Massacre’ in which 60 tourist were killed in 1997 (INP/UNDP 2005; Kienle 1998; Mitchell 2001). Towards the 1999 elections the political situation improved hardly (Owen 2000), and it can be argued that

since (9/11) 2001 the situation became worse. For instance, people are held in prison after completing the prison terms, a leading journalist was assaulted in Cairo 2005, new terrorist attacks took place in Egypt in 2004 and 2005 (UNDP RBAS 2006), and Islamic movements cannot operate freely (Jamal 2006). However, in spite of the political deliberalization, broad popular support for democratic governance exists (Inglehart & Norris 2003; Jamal 2006; Yousef 2004).

With respect to the economic position of Egypt, another drop in oil-prices in 1998 was a new blow to the economy (INP/UNDP 2005), but as of 2003, rising numbers of tourists, increasing exports of goods and services (fostered by measures such as tariff cuts in 2003/2004), and growing FDI helped the economy to grow again substantially and poverty is declining (INP/UNDP 2005).

Summarizing, the last decades Egypt seems to have been going through a continuous process of economic reform, which however did not equal continuous economic success. Only the last few years the economy seems to prosper somewhat more. In the early 1990s, some processes of democratization took place, but this process stagnated and it can be argued that it is more accurate to speak of political deliberalization in the last years. Tied up to these economic and political processes are the tensions between the regime and the Islamic opposition, which has resulted in violence throughout the last few decades, with peaks around 1991/2, 1997 and 2004-5.

Jordan

As other Middle Eastern countries, Jordan experienced economic prosperity in the early 1980s, grounded in the oil boom and its consequential remittances and aid grants of oil-rich Gulf States (Andoni 2001; Miles 2002; MPIC/UNDP/JHFHD 2004; Pfeifer & Posusney 2003). Using these resources, the state pursued active policies of increasing (public sector) employment of women and agriculture was modernized (Miles 2002; Pfeifer & Posusney 2003). The oil-crisis in 1985, however, brought an end to these possibilities, but for some years Jordan still made good profit of being Iraq's major transshipper during the Iraq-Iran war. With the end of those hostilities in 1988, the last economic prop was gone for Jordan (Andoni 2001). In the late 1980s and the 1990s, trade diminished and oil prices dropped again (Brand 2003; MPIC/UNDP/JHFHD 2004;

Pfeifer & Posusney 2003). The Gulf War (1990-1991) worsened the situation; refugees flooded the country, partly because other countries expelled Jordanians, since the government refused to join the anti-Iraq coalition. This also led to a drought in aid grants from the US and Arab countries, until Germany and Japan restored the crucial flows in 1992 (Andoni 2001; Pfeifer & Posusney 2003; MPIC/UNDP/JHFHD 2004). In this period, unemployment and poverty both rose to high levels (Pfeifer & Posusney 2003; WorldBank 2005). The economic situation decreased the drive to include women in the labor force (Miles 2002), but during the early 1990s the accessibility of micro credits for women increased (WorldBank 2005).

To counter the negative economic situation, structural adjustments were set on the agenda as of the early nineties, but in the beginning the civil services were still protected (Pfeifer & Posusney 2003). Later on, the size of the government sector declined and state employment was no viable option anymore to reduce unemployment and poverty (Miles 2002; MPIC/UNDP/JHFHD 2004; WorldBank 2005). Consequently, decreasing subsidies increased living costs and especially the poorest of the poor were hit by SAPs (MPIC/UNDP/JHFHD 2004). The economy privatized further under reign of King Abdullah and the export of light manufactured products (clothes and textiles) was stimulated, which paid off from 2000 onwards (Andoni 2001; Miles 2002). These exports were supported by tariff free entry in the US of these products and a FTA to decrease barriers further (Andoni 2001). However, the growth in the late 1990s and early 2000s was weaker than expected (MPIC/UNDP/JHFHD 2004).

The political situation seems tightly knit to the economic developments. In line with the deteriorating economic situation in the 80s and 90s, popular dissatisfaction grew and riots took place. To rebuild his authority king Hussein started a trajectory of political liberalization in 1989 that lasted to 1994 (Andoni 2001; Brand 2003). A ban on political parties was uplifted, parliament was restored and in 1989 the first elections in more than 20 years were held. The surprising victory of the Muslim brotherhood resulted in a place of government for them – but political instability led to eight governments in nine years (Owen 2000). After the first elections, the authority of the royal family was still or even more challenged by economic problems and Islamic and Islamist opposition. Another wave of democratization was promised and pluralism, a multiparty system and the

abolishment of martial law were the results. Nonetheless, the opposition grew stronger mainly because the 1994 peace treaty with Israel did not find national consensus (Andoni 2001) – nor did it bring the expected economic gains (MPIC/UNDP/JHFHD 2004). In the second half of the nineties, the political freedoms stabilized or were turned back partly (Brand 2003). Following the death of King Hussein (on the throne from 1953 to 1999), his son Abdullah ascended the throne. He cracked down the Islamic resistance movement Hamas (Andoni 2001), and it is safe to say that to the end of the 1990s, political and economical liberalization did not go hand in hand anymore.

Only since the early years of the third millennium, democratization gained ground again; the new Ministry of Political Development and Parliamentary Affairs was founded and ambitious plans were drafted (MPIC/UNDP/JHFHD 2004). Furthermore, Islamic movements can operate more freely (Jamal 2006).

The manifestation of Islam in public society during the political liberalized period was also found in the women's movement, that grew stronger in this period; a struggle of power took place between Muslim and non-Muslim women (Brand 2003). As of 1992 Princess Basma became a public figure more and more, especially on women's issues. In 1995, at the moment political openness declined, she 'took control' over the national movement and the organization she led monopolized the foreign donor funds (Brand 2003). Regarding women's participation in decision-making, an increase is found in the number of women in public and private influential positions (e.g. parliament and management) during the second half of the 1990s and the years that followed.

The external shocks at the dawn of the millennium (9/11 and US led occupation of Iraq) seem to break Jordan's positive trend. In 2002 FDI were down to the level of 1998, tourism declined, leading to staff lay offs and the real GDP/c in 2002 was still below that of 1993 (MPIC/UNDP/JHFHD 2004).

The last two decades, Jordan has had its share of economic hardship, but as of about 2000 the economic tide seems to have turned. This turn took place after continuous economic reform. Politically, liberalization was a less continuous process. In the early 1990s liberalization took place, the last half of the 1990s the situation became grimmer, and in the new millennium it seems a new wave of democratization started to take shape. During these developments, continuous presence of Islamic orthodox groups as well as

women's movement existed, which surfaced the most in the more political liberalized period.

Economic and political reform

[Figure 1 about here]

Figure 1 summarizes the broad trends found for Egypt and Jordan and also gives women's non-agricultural employment figures from our data. Both Egypt and Jordan have gone through continuously economic reforms. Sometimes more intense than at other moments, in some years with an emphasis on liberalization, in others on privatization. Regarding political reform the countries show less similarities, and different periods of liberalization, deliberalization and stagnation can be marked. These trends are hardly reflected in the raw country-level aggregate figures of women's employment. Only when we distinguish economic privatization and economic liberalization, some relationship could be indicated: during or following a period of economic privatization women's employed seems to decline (Egypt 1992-2000 and Jordan 1997-2002). More robust conclusions can be drawn after assessing the interrelationship of these developments with the district- and micro-level variables.

Results

Major Change: Recent Developments

[Table 1 about here]

Table 1 shows that major changes related to modernization and globalization seem to have taken place in Egypt and Jordan the last two decades. Looking at the district-level variables we see that in both countries the average level of traditionalism and size of the agricultural sector decreased, whereas the average level of economic development and gender ratio in secondary of higher education have risen. The average percentage of white collar jobs steadily rose in Jordan as well. Only the percentage of white collar jobs in Egypt and the average degree of urbanization show no trend in line with the 'major change' expectations.

At the micro-level, the average figures point in the same direction. In line with the thought of modernization and globalization, the fertility rate, the number of extended families, the percentage of people with less than secondary education, large household with relatively few women, the percentage of husbands active in agriculture, and the age difference within couples all declined. Increased have the percentage of people with secondary or higher education, the percentage of employed partners with a white collar job, and the age at first delivery. In line with the district-level results, the percentage of women living in a city did not steadily rise. Another remarkable result is the spectacular rise in unemployment in both countries³

Most surprising however, probably is that the very broad pattern described above is not reflected in the employment figures of women. Women's non-agricultural employment rose just a little towards 13 percent in Jordan between 1990 and 1997, but in 2002 the employment of women declined to 9.4 percent. In Egypt women's employment declined between 1992 and 2000 and it rose again between 2000 and 2005, but in 2005 it was still below the level of 1992.

Major Change: District-level influences

The descriptives show which trends are present, but these aggregate figures hardly tell anything robustly about which factors influence women's employment. Therefore we turn to the multilevel regression analyses.

To understand how the district-level factors are related to women's non-agricultural employment, we first present the influences of each variables tested separately⁴ (Table 2), then a model including all district-level factors (Table 3, model 1), and last a model including micro-level factors as well (Table 3, model 2). Where relevant, we provide information about additional models in the text. By including dummies for the different countries and years, we can also analyze the development of women's employment over time, controlled for all included variables, by looking at the intercepts and link this to the process described in Figure 1.

[Table 2 about here]

³ On marital status no trend is found either, but this is logical since the surveys are 'ever-married' samples.

⁴ In a two-level model, with controls for the differences between the countries and years.

Table 2 clearly shows for each of the district-level variables a strong statistically significant relationship with women's employment. Moreover, all relationships point in the expected direction: the percentage of white collar jobs, economic development, urbanization and the gender ratio in secondary and higher education are positively related to women's employment, whereas the size of the agricultural sector and the level of traditionalism show negative signs. This seems to support the general idea of an unequivocal positive influence of the major processes of globalization and modernization. However, when we measure the effects controlling for the other macro-level factors, we get a different picture (Table 3).

[Table 3 about here]

The size of the agricultural and the white collar sector as well as the gender ratio in education still show significant effects similar to those from the bivariate analyses. However, because these factors partly overlap, the coefficients are far smaller for all three: the positive effect of white collar jobs declines after control for agriculture and mainly the gender ratio; the negative effect of agriculture declines after inclusion of white collar jobs; and the positive effect of the gender ratio declines mostly when white collar jobs is included. The effect of white collar jobs declines even further when individual controls are added. This decline is mostly due to the inclusion of the partner's occupation and the woman's educational level. This shows that the correlation with the labor market structure at the district level can be ascribed partly to the composition of the districts.

The three other district variables show outcomes quite different to the bivariate analyses. The level of economic development and traditionalism are not significantly related to women's employment, and of urbanization the direction of the relationship changed. The significant effect of economic development disappears after de inclusion of the labor market structure variables and the gender ratio in education. This indicates that the labor market structure and gender norms are more precise aspects or effects of economic development. Economic development is positively related to women's employment, but only through these factors.

Traditionalism had a significant negative effect in the bivariate analyses; however, the effect weakens when the gender ratio in education is added to the model. Both variables

are used to tap into the value change in society; it seems that the gender ratio in education is the stronger variable.

Most unexpected is the found effect for urbanization; it has a significantly negative effect on women's employment after control for the other district-level variables. The significantly positive effect of urbanization found in the bivariate analyses is related to several other variables. It disappears after including the combination of the other district variables and educational attainment and living in a city at the individual level. This indicates several things. First, part of the positive effect seems to be compositional; more higher educated women live in more urbanized district, and these women have a higher chance of being employed. Second, living in a urbanized district seem less important than living in a city. In other words, the shorter the distance, the better. Third, if economic development is not included in the model, urbanization seems to take its place in measuring development in stead of the basic concentration of people. Last, the positive effect of 'uncontrolled' urbanization seems to work through the labor market structure and value change variables. This is comparable with the relationship of economic development with women's employment, as discussed above.

The four points mentioned above explain why the effect of urbanization was not significantly positive in Model 2 and 3. However, it even went a step further. It turned out to be significantly negatively related to women's employment. From Model 3, we can derive that it is not so that urbanization does not stimulate employment: at the individual level living in a city has a positive effect on women's employment. However, urbanization at the district level has a negative effect. We shall discuss this in more detail in the last section of this paper.

After control for individual- and district-level characteristics, the country-year dummies point at a negative effect on women's employment of all not measured country-level factors taken together. In Egypt the 'controlled employment level' was significantly higher in 1992 than in 2000 and 2005, and in Jordan the employment level has declined steadily. Looking at the country-level development described above, this might mean that the continuous economic reforms did decrease women's chances on employment.

Micro-level stability

At the individual level, we found positive effects on women's employment for the educational level of women, the occupational class of the partner, living in a city, age at the delivery of the first child, and the age of women.⁵ Significantly negative effects were registered for having a partner, having younger and more children, having an unemployed husband, having a much older husband, and living in an extended family. Not or hardly significant effects were found for living in a polygynous household, the education of the partner, and the household's care ratio.

[Table 4 about here]

These found effects and coefficients represent the average effects in Egypt and Jordan for all six surveys. The discrepancy between the trends of the most important variables and the trends in women's employment (see Table 1) is one of the clues that the influences of the variables are not constant. For example, take education. It has a very strong positive effect on women's employment opportunities and is the most important factor at the individual level, but Table 4 indicates major shifts in its influence. The figures show that having had at least some secondary or, even more important, tertiary education does increase the chance to be working in both countries at all times. However, through time the chance of being employed for a woman with a higher educational level has decreased. In Egypt, over 70% of the women with at least some tertiary education was employed in 1992. In 2005 this decreases to about half. In Jordan the decline was even more serious: almost thirty percent points between 1990 and 2002.

Model 3 (Table 5) shows for which of the micro-level effects the magnitude of the influences differ significantly by year. At the left, the main coefficient for each variable is given, at the right the difference of the coefficient for 2005/2002 and 2000/1997 with those for 1992/1990. In other words, it is tested whether the temporal context has influenced the effect of individual level variables.

[Table 5 about here]

Compared to Model 2, the main effects have hardly changed. Two exceptions are economic development at the district level and polygynous household at the micro level. For economic development we see only just a significantly negative relationship with women's employment. This goes against our expectations, but is comparable to the effect

⁵ The significance of the quadratic term indicates that the relationship between age and employment is curvilinear.

found for urbanization, which will be discussed in more detail in the next section. On polygyny more will be said below, when we interpret the changing effects at the micro-level.

The results from the interaction analyses divide the explanatory factors in three roughly equal sized groups. First, occupation of partner, living in a city, education of partner, and age show no significant differences over time. Having a partner, the care ratio, age at first delivery, age difference and extended family make up the second group. On these factors at most two significant differences are found. These found differences, however, do not point to certain trends or patterns. For example, the effect of having a partner is stronger in Egypt in 2000 than in 1992. For 2005 the effect does not differ significantly from 1992 or 2000, and in Jordan no significant difference is found. The pattern is clearly irregular and does not fit the economic or political reform track either. From this we can conclude that the mentioned effects are not completely stable, but a substantial interpretation of the instability falls beyond the scope of this study.

The third group comprises the factors on which more clear patterns can be discerned. These are having children, living in a polygynous household and educational attainment. For the number and age of children, the results indicate that the effect of having children has become less strong over the years; in Jordan for three of the six categories on this variable we find that the negative effect in 2002 is smaller than in 1990, and for Egypt five out of twelve coefficients show significantly smaller effects in 2005/2002 than in 1992. The non-significant coefficients support the found effect of a declining negative influence of having children on women's employment.

For living in a polygynous household we see that the effect gets remarkably stronger over the years in both Egypt and Jordan. Due to the large standard errors the effect is only significantly different for Egypt 2005 compared to 2000 and 1992, but the pattern suggests an overall increase in the influence of living in a polygynous household.

The effects of education seem to decrease. For Egypt we find that the effect in 2005 is significantly less strong than in 1992, and for secondary and tertiary education also less strong than in 2000. For Jordan, we find that the effects are smaller in 1997 than in 1990, and in 2002 the effects do not differ significantly from either 1990 or 2002. In

combination with the figures from Tables 1 and 4, this suggests a declining effect of educational attainment over the years.

Conclusion & Discussion

The level of women's non-agricultural employment in Middle Eastern countries is among the lowest throughout the world. In this study, we tried to shed some more light on how context-level factors are interrelated with women's employment and micro-level explanatory factors. We focused on two 'myths' on women's employment. The first being the idea that some grand unequivocal processes exist which push women's employment up and up. Globalization and modernization are the most well-known examples of this. Such an idea disregards the complexity of contextual influences and obscures our knowledge about the true macro-level influences on women's employment. Second, micro-level influences are (implicitly) considered to be unrelated to their temporal and geographical context. This myth withholds us to understand under which circumstances micro-level factors have the most effect.

We applied multilevel logistic regression analyses to data on over 60,000 women from Egypt and Jordan, both at three points in time, roughly 5 to 8 years apart. This way we studied the influence and causal chains of several district-level factors related to globalization and modernization, and by using interaction terms with time variables we tested whether the effects of micro-level factors changed in the last decades. These results were embedded in the economic and political developments of both countries.

Looking at the developments at the individual, household and district level, it seems that a continuous process of modernization is taking place: educational levels rise, characteristics of traditionalism decline, fertility rates decrease, and the labor market structure shifts away from agriculture (and industry). These developments are accompanied by non-stop economic reform at the country level. Whereas economic liberalization and privatization are rather continuous, political liberalization is not an ongoing process. In Egypt and Jordan periods of stagnation and deliberalization were found. More surprisingly, women's (non-agricultural) employment does not show a clearly rising trend in either Egypt or Jordan. These results refute the idea that

globalization and modernization are simple unambiguous processes that steadily fosters women's employment.

Looking at the country-level developments, it is hard to conclude that economic reform and political liberalization have had a (single) positive effect on women's employment. For political liberalization no congruent trend with employment was found at all and it should be considered to dissect such a broad concept as political liberalization in different dimensions (see Spierings, Smits & Verloo, 2008). With regard to economic reform we have seen that the country-level developments might indicate that economic privatization hurts women's employment, which fits the expectation that the public sector offers women more opportunities than the private sector. No positive effect of economic liberalization was found; to be more precise, after control for district- and individual-level influences it seems more likely that economic reform in general has a negative effect. This finding support the critique on liberal economic theories by the GAD literature that economic reform in general and SAPs in particular are not gender neutral and disadvantage women (Forsythe, Korzeniewicz & Durrant, 2000; Rathgeber, 1990).

Following general ideas from globalization and modernization theories, we would expect that industrialization, economic development, urbanization and value change (modernization of values) all have positive influences on women's employment. Simple bivariate analyses do corroborate this idea, but further analyses problematize it. After control for other macro-level factors and many micro-level ones, we see that industrialization (changing labor market structures) and value change (detraditionalisation) are both clearly positively related to women's employment as was expected. However, we have shown that the impact of these factors is substantially smaller after control for the composition of the districts. First, this corroborates the idea that industrialization works partly through educational attainment. Second, it means that studying these macro-level factors without taking account of the composition of the districts could lead to overestimations of their effects.

Analyses with the variables representing economic development and urbanization have shown that these processes have no direct influence on women's employment but have some positive influence through labor market structures, value changes and micro-level characteristics, as was predicted for economic development. After controlling for

intervening effects and whether a woman lives in a city, it even seems that urbanization (and to some extent economic development as well) has a negative effect. Based on Boserup, Jaquette (1982, 270) argues that urbanization ‘cuts women off from their kinship support networks (...) and the jobs that are available are often closed to women because of sex stereotyping.’ However, this can not explain our results, since we have controlled for living in a city at the individual level. A possible explanation for this peculiar finding could be that the availability of jobs for women is larger if more jobs are in the vicinity (living in the city), but if the larger area is also more urbanized the competition is higher; a higher female labor supply reduces women’s chances. In other words, women living in cities with more other women are relatively disadvantaged compared to women living in cities with fewer women (*ceteris paribus*).

Changes in the effects micro-level factors have on women’s employment, or the supposed micro-level stability, was the focus of the second strand of this paper. The multilevel model with ‘temporal interactions’ showed a substantial number of micro-level factors with changing influences. However, on only three of twelve factors a pattern was found in the changes. Overall, the general expectation that micro-level factors become more important or that personal versus household characteristics gain leverage are refuted by our analyses. The changing effects are more specifically tied up to certain micro-level factors.

The weakening negative effect of having children, however, fits the reasoning on declining effects of household levels factors. In more traditional times, women are seen as the primary caretaker and having children implies staying at home with those children. When the traditional norms weaken, it becomes easier for women to diverge from the societal blueprint of women’s role and enter the labor market. The declining level of traditionalism shown by the descriptives supports this idea.

The influence of educational attainment is declining as was predicted by our two more specific expectations. However, based on this study, it is hard to say whether hybrid modernization or a gap between education and labor market causes this effect. Additional models, including interactions between education and the district-level share of white collar jobs or the gender ratio in secondary education, show results confirming both hypotheses.

That women living in polygynous households have become more and more disadvantaged over the years, might be due to a retrenchment of polygynous households. As we have shown, the percentage of polygynous households declined in both countries (especially so in Jordan). These households are probably among the most conservative. When the other household shift towards modernization, but the polygynous ones do not move, the difference between them grows steadily and the effect of the traditional household values on women's employment increases.

In sum, this study underscores the importance of the context Middle Eastern women live in as a determinant of their employment. Studying macro-level characteristics in isolation could clearly lead to simplification, overestimation and underestimation of macro-level influences. The complexity of the context can hardly be underestimated. As we have shown, general processes as modernization and globalization are no unequivocal blessing for women's employment figures, and influences on women's employment are subject to change.

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Figure 1: Economic and political reform trajectories summarized

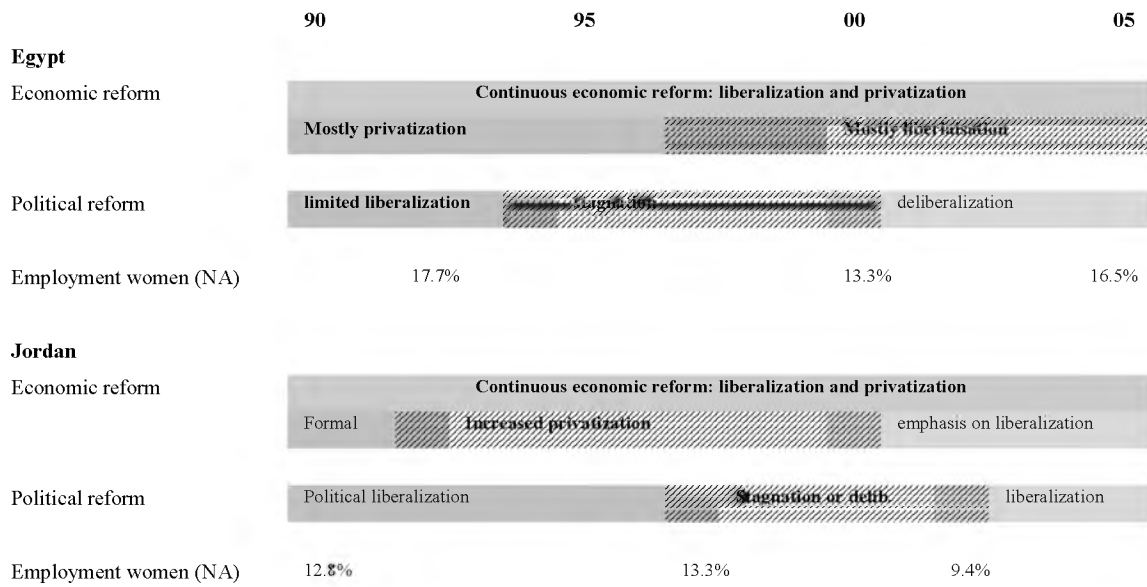


Table 1. Developments in Egypt and Jordan between 1990 and 2005

	Jordan				Egypt	
	1990	1997	2002	1992	2000	2005
Women's non-agricultural employment	12.8	13.3	9.4	17.7	13.3	16.5
Number of Children	4.5	3.9	3.7	3.1	2.8	2.6
Married	95.4	96.0	94.8	92.6	92.3	93.3
Extended families	26.0	18.7	16.0	36.7	31.9	25.2
No Education	23.4	9.3	6.2	48.4	43.3	34.6
At least some primary education	22.6	15.5	11.8	25.7	18.3	15.7
At least some secondary education	43.4	53.2	57.6	21.2	30.3	39.3
At least some tertiary education	10.6	21.9	24.4	4.7	8.2	10.4
Care ratio 1 thru 2	5.0	5.5	5.4	5.2	5.8	6.4
Care ratio >2 thru 3	7.2	7.7	9.1	9.7	11.6	13.2
Care ratio >3 thru 5	21.5	29.8	31.0	37.8	43.5	47.3
Care ratio >5	66.3	57.0	54.4	47.3	39.2	33.1
Living in the city	73.7	83.6	79.6	46.3	44.1	41.4
Occupation partner: agricultural	5.6	3.5	2.6	28.3	20.7	16.2
Occupation partner: Blue collar	55.2	52.2	34.9	32.1	33.0	34.8
Occupation partner: lower white collar	22.6	18.8	25.0	22.5	21.1	20.9
Occupation partner: upper white collar	16.0	25.4	24.3	17.1	24.5	23.9
Occupation partner: unemployed	0.5	0.2	13.1	0.0	0.2	4.2
Age difference (partner-woman)	8.7	6.4	6.2	7.4	7.1	6.9
Age of woman at first delivery	20.2	21.1	21.4	20.3	20.7	21.1
Partner: no education	11.0	4.4	3.1	32.4	28.2	21.6
Partner: at least primary	21.5	17.1	11.4	28.9	22.3	19.9
Partner: at least secondary	47.9	49.5	56.4	28.6	36.0	42.9
Partner: at least tertiary	19.5	29.2	29.1	10.0	13.7	15.6
Polygynous Household	5.8	1.4	0.8	1.2	1.0	1.0
District: Economic Development	4.37	4.64	4.92	3.19	3.88	4.34
District: % Men in agriculture	0.04	0.02	0.02	0.26	0.18	0.15
District: White collar sector	0.30	0.36	0.40	0.26	0.39	0.34
District: Urbanization	0.73	0.83	0.79	0.46	0.44	0.41
District: Gender Ratio sec. education	0.57	0.72	0.77	0.47	0.58	0.66
District: Traditionalism	3.14	1.78	1.47	1.88	1.55	1.37

Note: the figures are based on weighted samples, whereby the weights come from the DHS surveys

Table 2. ‘Bivariate’ effects of district-level variables on women’s non-agricultural employment

	Log odds		s.e.	Odds ratio
Agriculture	-2.733	***	0.211	0.07
White collar jobs	4.276	***	0.281	71.95
Economic development	0.381	***	0.042	1.46
Urbanization	0.800	***	0.145	2.23
Gender ratio higher education	2.565	***	0.207	13.00
Traditionalism	-0.496	***	0.046	0.61

Source: based on data from DHS surveys

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

Note: Coefficients come from two-level models, with no micro-level fixed effects, but including five dummies at the district level for five of the six surveys to control for country and time effects. The coefficients for each independent district-level variable are derived from a model with only that one of the six explanatory variables in the fixed part of the model.

Table 3. Coefficients of multilevel regression on women's non-agricultural employment

	Model 1			Model 2		
	log odds	s.e.	O.R.	log odds	s.e.	O.R.
Intercept	-1.878			-2.429		
District-level variance	0.012 *	0.005	1.01	0.023 **	0.008	
District level						
Economic development	-0.044	0.047	0.96	-0.074	0.058	0.93
%men in agriculture	-1.219 ***	0.346	0.30	-1.291 **	0.413	0.27
White collar sector	2.847 ***	0.531	17.24	1.303 *	0.653	3.68
Urbanization	-0.783 ***	0.138	0.46	-1.329 ***	0.168	0.26
Gender ratio secondary education	1.320 ***	0.275	3.74	1.135 ***	0.317	3.11
Traditionalism	-0.131	0.089	0.88	0.081	0.101	1.08
Country-Year dummies						
Egypt 2000	-0.909 ***	0.090	0.40	-1.070 ***	0.111	0.34
Egypt 2005	-0.751 ***	0.085	0.47	-1.148 ***	0.116	0.32
Jordan 1990	-0.419 *	0.179	0.66	-0.895 ***	0.217	0.41
Jordan 1997	-0.792 ***	0.114	0.45	-1.555 ***	0.138	0.21
Jordan 2002	-1.498 ***	0.121	0.22	-2.447 ***	0.163	0.09
Individual level						
Education						
None	-			Ref		
At least some primary	-			0.091	0.077	1.10
At least some secondary	-			1.338 ***	0.123	3.81
At least some tertiary	-			2.775 ***	0.141	16.04
Partner	-			-0.677 ***	0.063	0.51
Children						
None	-			Ref		
1 or 2, only children above 5	-			-0.258 *	0.111	0.77
1 or 2, with children below 6	-			-0.364 ***	0.072	0.69
3 or 4, only children above 5	-			-0.285 *	0.117	0.75
3 or 4, with children below 6	-			-0.513 ***	0.099	0.60
5+, only children above 5	-			-0.514 ***	0.110	0.60
5+, with children below 6	-			-0.725 ***	0.117	0.48
Care ratio						
1 thru 2 care consumer per taker	-			Ref		
More than 2 thru 3	-			-0.033	0.096	0.97
More than 3 thru 5	-			-0.090	0.091	0.91
More than 5	-			-0.246 *	0.110	0.78
Occupation partner						
Agricultural	-			Ref		
Blue collar	-			0.603 ***	0.092	1.83
Lower white collar	-			0.797 ***	0.099	2.22
Upper white collar	-			0.951 ***	0.095	2.59
Unemployed	-			0.951 ***	0.136	2.59
City	-			0.137 **	0.051	1.15
Age at first delivery	-			0.067 ***	0.007	1.07
Age difference; partner is ...						
Younger	-			0.145	0.098	1.16
Same age thru 3 older	-			Ref		
4 thru 8 years older	-			-0.021	0.045	0.98
9 thru 15 years older	-			-0.247 ***	0.044	0.78
At least 16 years older	-			-0.335 ***	0.093	0.72
Education partner						
None	-			Ref		
At least some primary	-			-0.201 *	0.088	0.82
At least some secondary	-			0.028	0.082	1.03
At least some tertiary	-			-0.016	0.091	0.98
Polygynous household	-			-0.099	0.171	0.91
Extended family	-			-0.139 *	0.065	0.87
Age	-			0.387 ***	0.031	1.47
Age (Quadratic term)	-			-0.005 ***	0.000	1.00

Source: DHS: Egypt 2005, 2000, 1992; Jordan 2002, 1997, 1990;

N=61,620; Employed (1): n=9,258

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

Table 4. The percentage of women non-agriculturally employed according to their educational attainment

		90/92	97/00	02/05
Jordan	No education	4.5	7.1	2.8
	At least some primary	6.3	6.0	2.2
	At least some secondary	9.9	6.3	3.8
	At least some tertiary	57.0	37.9	27.9
Egypt	No education	6.3	4.2	7.1
	At least some primary	8.7	5.4	6.7
	At least some secondary	42.7	23.4	19.5
	At least some tertiary	71.9	55.9	51.6

Source: based on data from DHS surveys

Table 5. Coefficients of multilevel regression on women's non-agricultural employment with time dummies

	Model 3		Difference in coefficient compared to Egypt 1992 or Jordan 1990 ³			
	Main log odds	s.e.	Egypt		Jordan	
			2000	2005	1997	2002
Intercept	-2.386					
District-level variance	0.017 *	0.007				
District level						
Economic development	-0.108 *	0.053	-	-	-	-
%omen in agriculture	-1.232 **	0.412	-	-	-	-
White collar sector	1.379 *	0.627	-	-	-	-
Urbanization	-1.345 ***	0.169	-	-	-	-
Gender ratio secondary education	1.165 ***	0.308	-	-	-	-
Traditionalism	0.045	0.098	-	-	-	-
Country-Year dummies						
Egypt 2000	-1.160 ***	0.125	-	-	-	-
Egypt 2005	-1.133 ***	0.126	-	-	-	-
Jordan 1990	-0.863 ***	0.208	-	-	-	-
Jordan 1997	-1.286 ***	0.154	-	-	-	-
Jordan 2002	-2.547 ***	0.194	-	-	-	-
Individual level						
Education						
None	Ref					
At least some primary	0.044	0.095	-0.031	-0.317*	-0.650*	-0.597
At least some secondary	1.117 ***	0.104	-0.154	-0.998*#	-1.069*	-0.357
At least some tertiary	2.533 ***	0.128	0.136	-0.545*#	-1.268*	-0.509
Partner	-0.748 ***	0.065	-0.473*	-0.309	-0.130	-0.433
Children						
None	Ref					
1 or 2, only children above 5	-0.253 *	0.121	0.619*	0.443*	0.165	0.894*
1 or 2, with children below 6	-0.323 ***	0.076	-0.121	-0.067	0.082	0.416
3 or 4, only children above 5	-0.305 **	0.104	0.974*	1.034*	-0.256	0.386
3 or 4, with children below 6	-0.492 ***	0.078	0.476*	0.299	0.143	0.585*
5+, only children above 5	-0.475 ***	0.123	0.415	0.908*	0.392	0.504
5+, with children below 6	-0.599 ***	0.102	0.331	0.503	0.294	0.733*
Care ratio						
1 thru 2 care consumer per taker	Ref					
More than 2 thru 3	-0.071	0.080	-0.392	-0.322	0.340	-0.693*#
More than 3 thru 5	-0.145	0.089	-0.251	-0.305	0.375	-0.374
More than 5	-0.281 **	0.105	0.016	-0.186	0.700	-0.160
Occupation partner						
Agricultural	Ref					
Blue collar	0.585 ***	0.089	-	-	-	-
Lower white collar	0.771 ***	0.102	-	-	-	-
Upper white collar	0.913 ***	0.098	-	-	-	-
Unemployed	0.936 ***	0.130	-	-	-	-
City	0.142 **	0.050	-	-	-	-
Age at first delivery	0.067 ***	0.005	0.030*	0.006	-0.057*	-0.007
Age difference; partner is ...						
Younger	0.150	0.078	0.085	-0.192	0.249	0.550
Same age thru 3 older	Ref					
4 thru 8 years older	-0.014	0.043	0.113	0.085	0.171	0.111
9 thru 15 years older	-0.252 ***	0.046	0.208	0.186	0.200	-0.128
At least 16 years older	-0.366 ***	0.085	0.745*	0.253*#	-0.037	0.158
Education partner						
None	Ref					
At least some primary	-0.219 **	0.082	-	-	-	-
At least some secondary	-0.026	0.079	-	-	-	-
At least some tertiary	-0.021	0.084	-	-	-	-
Polygynous household	-0.781 **	0.275	-0.184	-2.511*#	-1.189	-1.888
Extended family	-0.152 *	0.046	0.014	-0.195	-0.514*	-0.235
Age	0.410 ***	0.031	-	-	-	-
Age (Quadratic term)	-0.005 ***	0.000	-	-	-	-

Source: DHS: Egypt 2005, 2000, 1992; Jordan 2002, 1997, 1990;

N=61,620; Employed (1): n=9,258

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

- micro-level variables showing no significantly differing coefficients

Appendix A

Country	Year	Number of districts	Number of women	Response rate household survey (%)	Response rate women's survey (%)	Survey Source
Egypt	1992	21	9,864	98	99	DHS
Egypt	2000	26	15,573	99	99.5	DHS
Egypt	2005	26	19,474	98.9	99.5	DHS
Jordan	1992	8	6,461	97.0	89.2	DHS
Jordan	1997	12	5,548	96.6	96.2	DHS
Jordan	2002	12	6,006	99.0	97.6	DHS
Total		103	62,926			

Source: DHS country reports: <http://www.measuredhs.com/accesssurveys/search/start.cfm>, accessed April 2008

Appendix B

<i>Variables</i>		
Name	Description	Categories or range
Macro-level variables		
<i>White collar sector</i>	The percentage of people active in white collar jobs as a percentage of all employed people	A scale with a minimum of 0 and a maximum of 1.
<i>Agriculture</i>	The percentage of men (husbands) aged 25-49 having an agricultural occupation	A scale with a minimum of 0 and a maximum of 1.
<i>Economic development</i>	The level of economic development measured by household assets	A scale with a minimum of 0 and a maximum of 1.
<i>Urbanization</i>	The percentage of people living in cities	A scale with a minimum of 0 and a maximum of 1.
<i>Gender ratio education</i>	The percentage of women divided by the percentage of men aged 25-49 having at least completed secondary education	A scale with a minimum of 0 and a maximum of 1.
<i>Traditionalism</i>	The level of traditionalism based on family structure variables	A scale with a minimum of 0 ranging to 5.12.
Micro-level variables		
<i>Education</i>	Educational attainment: highest level	(1) no education, (2) at least primary education, (3) at least some secondary education, (4) at least completed secondary education
<i>Partner</i>	Marital status	(0) no partner, (1) has partner
<i>Children</i>	Number and age of children	(1) none, (2) 1 or 2 children, including children under the age of 6, (3) 1 or 2 children, only older than 5, (4) 3 or 4, under 6 (5) 3 or 4, above 5, (6) 5 or more, under 6, (7) 5 or more, above 5
<i>Care ratio</i>	Number of household members per women aged 15-49	(1) 1 thru 2 care consumers per caretaker, (2) more than 2 thru 3, (3) more than 3 thru 5, (4) more than 5
<i>Occupation partner</i>	Type of job of partner	(1) agricultural, (2) blue collar, (3) lower white collar, (4) upper white collar, (5) unemployed
<i>City</i>	Whether the woman is living in a city	(0) no, (1) yes
<i>Age at first delivery</i>	The woman's age at the delivery of her firstborn child	Interval measured in years
<i>Age difference</i>	Age difference between partners; the male partner is ...	(1) younger, (2) same age thru 3 year older, (3) 4 thru 8 years older, (4) 9 thru 15 years older, (5) at least 16 years older
<i>Education partner</i>	Educational attainment of partner; highest level	(1) no education, (2) at least primary education, (3) at least some secondary education, (4) at least completed secondary education
<i>Polygynous</i>	Presence of a polygynous relation in the household	(0) no, (1) yes
<i>Extended family</i>	Living in an extended household (not nuclear)	(0) no, (1) yes
<i>Age</i>	Age	Interval measured in years
<i>Age (quadratic)</i>	Age's quadratic term	Interval measured in squared years