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**How Do Women Entrepreneurs Perform?
Empirical Evidence from Egypt**

by

Fatma El-Hamidi*

I. Introduction:

The recent economic and financial crisis is intensely affecting labor markets, earnings stability and occupational opportunities. A global slowdown in GDP growth, drop in household incomes, changing consumption patterns, reduced access to external credit, and stagnating demand on exports have turned the attention to the one sector that is crucial to the survival and maintenance of any local economy. Domestic demand is now perceived as the target for recovering economies worldwide, and Micro and Small Enterprises, thereafter MSEs¹, are viewed as the impulse for domestic demand.

In recent years, developing countries have been undertaking a fundamental shift away from a large governed economy towards an entrepreneurial economy.

Traditional measures of entrepreneurial success in development have always been evaluated in terms of economic contribution to the GDP and employment growth. While the contribution of MSEs in overall

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¹ MSEs are classified according to the number of workers such that “micro” enterprises are the ones that employ less than 10 workers; and “small” enterprises are the ones that employ 10-to-49 workers.

GDP varies across countries, the impact on employment generation is evident. Approximately 97% of firms in Mexico and Thailand are MSEs (Kantis, Angelli, & Koenig, 2004; Simmons, 2004). Mead and Liedholm (1998) verified that MSEs in five African counties generate close to twice the level of employment in large scale businesses, including the public sector. In Latin America, an ILO study (2003) found that MSEs employ a little over half the working population. Yet, these measures do not distinguish between different groups or contexts that may have different criteria for success, especially when access to resources and markets is unequal, and in particular when women are seriously crowded out by this imbalance.

Despite the growing number of women entrepreneurs, their share is still disproportionately low when compared to their participation rate. This lethargic growth in such a promising sector has spurred renewed interest in research concerning the gender dynamics of MSE formation and development. And while the literature does not suggest that women entrepreneurs are destined to fail, gender characterization will definitely debilitate full deployment of their potential. Women are hindered by their domestic and/or caring responsibilities in accumulating credibility and financial assets. Therefore, it is not the genetic make-up that determines entrepreneurial success; rather, it is the values that are attached to gender characterization stereotypes.

Gender models predict that because of differences in their individual characteristics and background brought in to their work, business outcomes of women differ from those of men (Loscocco, 1990). In fact, prior research has concluded that: motivation, starting and continuing a business differ by gender²; and that women perform less well in economic measures such as employment, sales, and profitability. That is because women pursue intrinsic goals such as: independence, flexibility to interface family and work commitments, control over resources, or transferring these benefits to equally important household needs. Women thus assess their success in relation to their achievement in attaining these goals rather than on the usual male model of normative economic or financial measures (Marlow and Patton, 2005). If gender-specific differences do exist and entrepreneurialism differs by gender, then formulating homogenous policies towards their development is irrelevant and inefficient for two sets of entrepreneurs dictate gender-based differentiated policies.

The paucity of accumulated research on gender differences in the performance of MSEs in the MENA region has hindered promoting such a vibrant and promising sector of the economy. This study helps to fill this gap in our knowledge by contributing to the debate surrounding the success or disappointment of female entrepreneurs.

The purpose of this paper is twofold:

1. To explain how women owned MSEs differ from men owned MSEs in terms of human and financial capital.
2. To what extent do these differences/similarities affect the performance of the MSE?

The rest of the paper is planned as follows: Section II provides a brief overview of the literature. Section III presents the data, definitions of variables and preliminary findings. Section IV introduces the methodology and empirical findings. Section V discusses the findings and deduces some policy implications.

² 'Gender-based entrepreneurialism' a term coined by Mukhtar (1996): "the part of the entrepreneurial activity that is associated with, and is explained away by, the gender of the entrepreneur... [thus] advocates that male and female owners/mangers exhibit different forms of entrepreneurialism".

II. Review of the Literature:

The literature on MSEs in Egypt is limited to descriptive and factual evidence on the status of MSEs. El-Mahdi (2006) provides an extensive review on MSEs in Egypt, which ranged from limited, and controlled, to wide range and detailed studies. One study (El-Hamidi and Baslevent, 2010) provides gender based empirical evidences and compares the perception of growth plans, as well as determinants of economic sector, and size of the business in Egypt and Turkey. To the knowledge of the author, there is no study that provides gender based analysis on the performance of the business, and if and to what extent different capitals impact that performance.

For the purpose of this study, the literature review is framed around the questions of interest: the impact of human and financial capital of the owner of the MSE on the performance of the MSEs.

II. 1. Performance of the MSEs:

The most commonly used measures of performance in the literature include profitability, growth in employees, and survival. The literature, in general, suggests that the level of performance of female-owned MSEs' is easily described as "laggards" compared to male owned ones (Zinger et al. 2005). Fewer studies though report less marked sex differences in many performance indicators such as Johnson and Storey 1989 in the U.K.

Profitability (i.e. the excess of revenues over expenses) is an essential indicator of success of the business. As MSEs are privately owned by one person, profits flow directly to the owner. This is widely agreed upon in Coleman, 2007; Haber and Reichel, 2005; Watson, 2002; Du Rietz and Henrekson, 2000; Brush and Chaganti, 1998; Cooper, Gimeno-Gascon, and Woo, 1994; Kelleberg and Leicht, 1991; and Loscocco et al., 1991.

Regionally, Sabarwal and Terrell 2009 find that women owned businesses in the formal sector in 26 transition countries are significantly less profitable than male owned businesses. Nevertheless, they attribute the bulk of this difference to the relatively smaller size of female owned firms. What's interesting is the finding of Goetz and Gupta 1996; and Kabeer 1998 suggesting that women may lose control of resources as they become more significant to the family (i.e. the higher the income/profits).

Recent research has cited firm's growth as an additional measure of performance (Haber and Reichel 2005; Rodriguez et al. 2003; Davidsson et al. 2002; Orser and Hogarth-Scott 2002; Gundry and Welsch 2001; Orser, Hogarth-Scott, and Riding 2000; Rosa, Carter, and Hamilton 1996; Kolvereid 1992). Growth, according to these studies, is likely in the form of higher earnings or employing a larger number of workers. Welter, et al., 2003 shows how women owned MSEs are less likely than male owned MSEs to grow, due to lack of human and financial resources. Rosa, Carter and Hamilton 1996 find considerable differences in growth by gender, and that female owned businesses underperform in terms of number of employees, VAT registration, sales and capital assets.

Amin, 2010³; Rosa et al., 1996, Loscocco et al., 1991, McPherson, 1996⁴; Daniels & Mead, 1998⁵; Mead & Liedholm, 1998; and Daniels, 1999 all confirm that male entrepreneurs, for example, place greater weight on economic outcomes, and are more likely to grow their businesses as far as they could, whereas women entrepreneurs are much smaller and tend to consider factors such as personal enjoyment and independence. As a matter of fact, Sexton, 1989 suggests that women may deliberately choose not to grow their businesses. Likewise, Goffee and Scase, 1985 propose that female

³ in six African countries

⁴ in five African countries

⁵ in Kenya

entrepreneurs view their business as one component of a wider structure including family, community and friends, which is confirmed by Carter and Cannon, 1992 who suggest that there is a tendency among female entrepreneurs to run their business in such a way that does not conflict with the immediate needs of the family. A study by Cooper, Gimeno-Gascon, Woo, 1994 in the U.S., and Honig, 1998⁶, asserts while women owned businesses were likely to survive, they were less likely to grow.

II.2. Human and Financial Capital of the Owner of the MSE

There are two types of capital that are crucial to the success and survival of MSEs: human capital and financial capital. Human capital theory differentiates between general and specific human capital (Becker, 1964). General human capital includes attributes such as age and formal education, while specific human capital pertains to specific knowledge, skills and training essential to the growth and success of the business such as relevant experience and specific training.

Main stream literature reports lower human capital as well as managerial skills in women owned enterprises than men owned businesses (Boden & Nucci, 2000; Hisrich & Brush, 1984; Watkins & Watkins, 1983; Kalleberg & Leicht, 1991). Few studies find equal or similar amounts of education (and sometimes more) for women than men owned businesses Cowling & Taylor, 2001; Birley et al. 1987⁷. The general understanding, however, is that because of cultural expectations of the domestic role of women and their frequent career interruption *Vis a vis* career oriented men, specific human capital may be significantly lower for women owned businesses than men owned businesses. For example, Watkins and Watkins, 1984 find female entrepreneurs are much less likely to have relevant or prior training and experience.

The second type of capital—a resource based one (Barney, 1991) is financial capital or the ability and willingness to secure external debt. While the shortage of financial capital has been reported in the literature to be a major barrier to MSE growth, Brush 1992; and Verheul & Thurik, 2001 confirm that women entrepreneurs have less financial capital than men entrepreneurs; they also make less use of external financing (Greene, Brush, Hart, & Saporito, 2001). Orser, Hogarth- Scott, and Riding, 2000 establish that women entrepreneurs in Canada are more worried about access to credit than any other problem, and more hesitant to apply for credit than men. Coleman, 2002, suggests women may avoid the entire process because of their gloomy expectations. Abor and Biekpe, 2006 provide evidence from Ghana that female-owned MSEs are less likely than their male counterparts to employ debt financing due to disparity in access to loan facilities. Nevertheless, Walker and Joyner, 1999 suggest that women's feeling of discrimination is not empirically supported.

Empirical evidences have documented a consistent and robust relationship between human and financial capital and the performance of the business. Higher levels of general human capital pave the way for a successful and a growing business: they raise the expectations of the businessperson and lower the likelihood of failure, enable the entrepreneur to identify and exploit opportunities, and empower him/her with tools necessary to succeed in securing external capital; Kangasharju and Pekkala 2002; Pena 2002; Schiller and Crewson 1997. Bates, 1990; Honig, 1998; Ucbasaran et al, 2003; Shepherd and DeTienne, 2005; Ucbasaran et al, 2008; Unger et al, 2008.

⁶ in Jamaica

⁷ Hisrich, 1986 went further to relate the field of specialization of women in liberal arts and social science to their concentration in service and retail oriented businesses.

Age, a component of general human capital, contributes to business performance: the older the entrepreneur the greater his/her life experience, maturity, ability to accumulate financial credibility and manage a business; Bertaut and Starr-McCluer, 2000; Kennickell, Starr-McCluer, and Sunden, 1997. Education has a substantial impact on business performance. Box et al, 1993 establish a linear relationship between levels of education and performance in the manufacturing firms of the U.S. A strong relationship between higher levels of education and lower probability of failure has been confirmed by Bates, 1990⁸; Kangasharju and Pekkala, 2002⁹, and Pena, 2002¹⁰.

The impact of specific human capital measures (i.e. relevant experience and specific training) on business performance is consistent in the literature as well. For example, Loscocco et al., 1991 and Bosma et al., 2004 confirm that industry specific experience has a deterministic effect on the performance of the firm in the U.S. and the Netherland respectively. Related experience also suggests increased number of contacts with suppliers, contractors, and customers; (see reviews by Cooper & Gimeno-Gascon, 1992; Rauch & Frese, 2000). In a special study on retail trade and services, Brush and Chaganti, 1998 find that human capital and industry specific experiences have great impact on firm's revenues and employment levels. As Jovanovic (1982), puts it: there is a learning process involved; entrepreneurs with more experience, education and training are more likely to grow their businesses than those with lower stock of human capital.

Testing the impact of human and financial capital on business performance along gender lines is early and sporadic. A study by Manolova, Carter, Manev, & Gyoshev, 2007 finds that human capital increases growth expectations for women owned businesses but not for men owned businesses. Since women in general are at a disadvantage when it comes to capital accumulation and access to financial resources, it is no surprise that human capital is likely to be more important resource to women owned businesses than to men owned businesses. Some researchers went further to establish that human and financial capitals are substitutes, Chandler and Hanks, 1998. They showed how high (low) levels of financial or low (high) levels of human capital may lead to similar performances. It is important in this context to point to the fact that financial institutions take the level of human capital of the owner in account when providing financial capital. In other words, it is considered a signaling tool to lenders and lowers financial constraint (Parker, & van Praag, 2006; Backes-Gellner, & Werner, 2007).

Overall, the literature attests to the importance of general and specific human capital as well as financial capital, in fostering the overall performance of the business. The vast majority of the studies suggest that women-owned MSEs continue to underperform MSEs owned by men. This study trails that line of inquiry by measuring the impact of human and financial capitals on the performance of the MSE along gender lines in Egypt.

III. Data, and Definition of Variables, and Preliminary Findings

III.1. Data

The objective of this paper is to answer two questions:

- 1- How do women owned MSEs differ from men owned MSEs in terms of human and financial capital?
- 2- To what extent do these differences/similarities affect the performance of the MSE?

⁸ in the U.S.A

⁹ in Finland

¹⁰ in Spain

Data for the analysis comes from the largest dataset available on MSEs in Egypt. The Micro and Small Enterprises in Egypt, 2003 is comprehensive in terms of methodology of the sample design, listing of businesses and handling of a wide range of policy related issues.

The main objective of the sample design of the survey was to provide estimates at the national level and three major administrative regions (Metropolitan, Lower Egypt, and Upper Egypt). To represent governorates with different economic characteristics, eight governorates were selected from the three administrative regions. The survey covers information on the individual characteristics of the owner/manager of the business as well as characteristics of the enterprise. The sample size consists of 5000 private MSEs, large enough to provide statistically reliable estimates. The analysis in this paper is limited to urban MSEs¹¹, representing 90% of the total sample. The working sample totaled 4958 MSEs of which 10% (or 519) are women-owned/managed MSEs. Design weights available in the data set are used to ensure a representation of the national distribution of businesses with respect to the gender of the entrepreneur.

III.2. Definition of Variables

Three measures of performance are used in this study: total employment, total revenues, and returns on sales--ROS (the ratio of profits/total sales). Age and four levels of education measure general human capital component—where illiterate is the base category for education tested against primary or read and write, intermediate and secondary, and university and above.

Relevant experience and specific training measure specific human capital, where each variable is coded as 1 if the owner/manager received specific training or relevant experience. Having a family entrepreneur at business is another specific human capital variable and is coded as 1 if the owner/manager answers yes.

Finally, financial capital is measured by two dichotomous variables: the first is whether the owner/manager has been successful in securing some type of formal loan (i.e. bank, credit firm, NGO,...), in the last 12 months; the second records if the owner/manager identifies the need for credit as a major obstacle facing the growth of the business—it is expected that the presumption of shortage of availability of credit or lack of confidence in securing credit may prevent businesses from growing or constrain venturing new products.

Because of their disadvantaged position in the society, cultural expectations of the domestic role of Egyptian women and their frequent career interruption—as compared with career oriented men, it is expected in the context of Egypt to find general and specific human capital attributes significantly lower but have larger impact on the performance of women-owned/managed MSEs than on men-owned/managed MSE, since it may act as a substitute for financial capital.

¹¹ Design weights were not available for rural areas.

III.3. Preliminary Findings:

Confirming the literature, only 10% of the MSEs are owned or managed by women. Delmar & Davidsson, 2000; Reynolds, Carter, Gartner, & Greene, 2004; Arenius & Minniti, 2005; Bosma, & Harding, 2007 all assert the low proportion of female MSEs compared to males MSEs.

Table (1) provides a snap shot of the working sample. The table reveals significant differences between the two genders showing up in a disadvantaged position of women in employment levels, years of education, related experience, relevant training, and having a family member aboard the business.

Table (1): Characteristics of the Entrepreneur/Business; Egypt 2003

Variable	Women	Men	t- Value	P>t
Panel A				
Total Employment				
Mean	1.73	2.26	4.181	0.00
Median	1.00	2.00		
Total Revenues				
Mean	1126 (LE)	3438 (LE)	0.966	0.83
Median	500 (LE)	700 (LE)		
Age				
Mean	41.40	40.39	-0.34	0.74
Median	40.00	39.00		
Years of Education				
Mean	5.73	8.44	10.14	0.00
Median	5.00	9.00		
Experience in Current Job (years)				
Mean	7.47	9.08	6.00	0.00
Median	5.00	5.00		
Panel B				
	% Women	% Men	Chi-Sq.	Pr>Chi Sq.
ROS	29.4	25.7	0.05	0.83
Growth (positive change in employment from one year ago)	22.1	18.80	3.22	0.07
Success (positive change in revenues from one year ago)	12.33	7.55	14.38	0.00
Efficiency (positive change in ROS from one year ago)	35.84	35.53	0.02	0.89
Levels of Education				
Illiterate	43.41	21.20	129.47	0.00
(R+W)&Primary	14.99	18.34	4.71	0.03
Interm&Sec.	33.69	41.22	16.43	0.00
University+	7.92	19.23	25.30	0.00
Have Training (No=0)	10.06	31.75	79.14	0.00
Have Family Member in Business (No=0)	9.82	20.57	20.76	0.00
Have Formal Loans (No=0)	7.38	6.18	0.74	0.39
Need for Credit (No=0)	42.18	38.83	1.91	0.17
No. of Observations	519	4439		

Source: Author's calculations; MSEs in Egypt; 2003

Grey shaded cells indicate significant differences.

Men, in this sample, represent a relatively well-educated group. The fact that close to 60% of women had lower than intermediate education, and a comparable percentage for men had intermediate education or above shows the wide dispersion in general human capital between the two groups. Likewise, women are significantly disadvantaged in specific human capital (i.e. lower years of relevant experience or specific training). Men owned businesses were twice as much to have a family member

on board (21% vs. 10%). In terms of financial capital, descriptive statistics show no significant difference between the two groups in their ability to secure formal loans (7% and 6% respectively), nor in their reporting of the need for credit as a major impediment to their business (42% and 39% respectively). Finally, women owned/managed businesses were significantly smaller in terms of the number of workers, but not significantly different in terms of total revenues from men owned/managed businesses.

Because high growth in general instigates profits and empowers businesses to prevail over liabilities, deviant benchmarks that look at the change in these measures from one year ago are also considered in this analysis. In this context employment growth is a dichotomous variable coded as “1” if the business has experienced positive growth in employment from the previous year. Positive growth is calculated as the difference between the natural logarithm¹² of the number of current employees and the natural logarithm of the number of employees from one year ago¹³. Success is a dichotomous variable coded as “1” if the business experienced positive change in revenues from one year ago. Lastly, efficiency (a measure of ROS)¹⁴ is a dichotomous variable coded as “1” if the business has experienced positive gain in ROS from one year ago.

Since this variable measures how efficient the entrepreneur is in operating the business by managing expenses and revenues, it is dubbed hereafter as a measure of “efficiency”. A complete list of the variables used in this paper is available in Table (A-1) in the appendix.

According to Table (1), men and women reported positive rise in employment and revenues from a year ago. Women, however, proclaimed higher growth in employment and revenues than men and the difference is statistically significant. Both genders reported comparable positive change in ROS from one year ago.

The previous univariate descriptive analysis examines how significantly different or similar measures of human and financial capitals between women and men owned/managed businesses. This type of analysis misses the potential impact other important – omitted—variables may have on each measure. For instance, despite being at disadvantaged position in both types of human capital measures, women owned/managed businesses experience higher growth and success rates than their male counterparts. An outcome that warrants a higher level of investigation into is the link between human and financial capitals and growth, success, and efficiency of the business.

Multivariate analysis examines the simultaneous impact of human and financial capital measures on growth, success and efficiency one variable at a time, holding other variables constant (or at their means). The following section provides the methodology and presents the findings of the multivariate analysis.

IV. Methodology and Empirical Findings:

To pursue further analysis and test the impact of variables of interest on performance measures one variable at a time, holding the rest of variables constant, it is important to control for other variables that may influence these performance measures. The literature on the empirical analysis of differences in performance between women and men owned/ managed businesses consider some influential variables. These variables are included in the analysis to rule out some of the possible impact through which gender may affect performance, which also act as safeguard against omitted variable bias.

¹² To account for skewness.

¹³ McPherson, 1996, used a similar measure.

¹⁴ Coleman (2007)

Holmquist and Sundin, 1988 reported that gender differences mainly manifest themselves in the selection of industry. In fact, a considerable number of studies have confirmed that the concentration of women in highly competitive, low-growth sectors explains their comparative lack of success or underperformance as entrepreneurs (Humphreys & McClung 1981; Kalleberg & Leicht 1991; Loscocco & Robinson 1991). Sectoral differences in this analysis are controlled for by adding two dummy variables for trade and services (leaving industry as the base category).

Freeman, Carroll and Hannan, 1983; and Bruederl et al., 1992, recognized the impact of the number of years the business has been operating which may impact its performance. Aldrich & Auster, 1986 suggest that old age as well as newness of the business appear to be liabilities. Cortes et al., 1987 as well argue that while older businesses are likely to be more experienced than younger ones, they may also be less likely to grow. In this analysis the age of the business is calculated as the number of years between the start of the business and 2003 (the year of the survey).

Research suggests that domestic responsibilities, as reflected in marital status and number of kids under 18 years of age, diminish women's relative success as small business owners (e.g., Hisrich 1989; Loscoco 1991). Two dummy variables are added to reflect if the respondent is married and if s/he has kids under the age of 18. The sample shows that men are more likely than women to be married (75% vs. 45%), suggesting that men may enjoy greater emotional support, as well as more likely to have kids under the age of 18 (61% vs. 45%),

A dummy variable signaling if the business is a sole proprietorship is added to the analysis as well. The assumption is that compared to other legal forms, the low overhead and lower levels of staffing may act as a driving force for additional growth. Women owned/managed MSEs were significantly more likely to be organized as sole proprietorship than men (88% vs. 75%).

Two additional dummy variables are included in women's equation: one dummy variable denoting if the woman entrepreneur needed a permission from any of household members to operate her business; and a second dummy variable signifying if the woman entrepreneur feels empowered by her earnings. The assumption is that both variables may restrict and lower women's ambitions and motivation. There are 69% women with yes for permission and 80% feel empowered by earnings.

IV. 1. Methodology

For the purpose of this study, performance of the MSE is measured by three dichotomous variables: growth, success and efficiency. Conveniently, probit regression is used. Four different models are tested: a pooled model (with gender as a dummy) to test if there are differences in the three measures of performance between men and women. Next, for each measure, separate equations for women and men owned/managed businesses are estimated. These models test whether there are gender differences in the factors that impact the way enterprises perform. Once more, performance is measured by growth (if the business has experienced increase in number of workers from the last year), success (if the business experienced increase in revenues from the last year), and efficiency (if the business has experienced positive growth in return on sale—the ratio of profits/total sales—from one year ago).

Using a probit model where the dependent variable is a dichotomous variable, the following models are estimated:

$$\text{Growth} = \alpha + \beta \text{GHC} + \gamma \text{SHC} + \delta \text{FC} + \phi \text{CV} + u \quad (1)$$

$$\text{Success} = \alpha + \beta \text{GHC} + \gamma \text{SHC} + \delta \text{FC} + \phi \text{CV} + u \quad (2)$$

$$\text{Efficiency} = \alpha + \beta \text{GHC} + \gamma \text{SHC} + \delta \text{FC} + \phi \text{CV} + u \quad (3)$$

Where

GHC: a vector of general human capital variables (age, and levels of education)

SHC: a vector of specific human capital variables (relevant experience, and specific training)

FC: a vector of financial capital variables (availability of loan, and the need for credit)

CV: a vector of control variables (sector of business, age of business, legal status, marital status, kids below age of 18). Two additional control variables are added to women’s equations: need permission to work, and if earnings empower her.

(Note: A recursive simultaneous system of equations is in the works and will be added in a future version).

IV. 2. Empirical Findings:

Table (2) displays estimates of probit regression coefficient on performance measures: growth, success, and efficiency¹⁵. The table reveals insignificant differences between women and men owned/managed MSEs in growth and efficiency measures.

Table (2): Logit Estimates of Performance Measures—Pooled Model, Egypt 2003

VARIABLES	Growth Model	Success Model	Efficiency Model
Women	-0.048 (0.134)	0.680*** (0.158)	0.129 (0.104)
General Human Capital			
Age	-0.004 (0.005)	-0.006 (0.006)	-0.001 (0.003)
Level of Education (Illit=0) (R- W)&Primary	0.425*** (0.153)	0.123 (0.172)	0.155 (0.099)
Intermediate&Secondary	0.136 (0.128)	-0.008 (0.153)	0.088 (0.087)
University and above	0.361** (0.143)	0.214 (0.172)	0.155 (0.101)
Specific Human Capital			
Experience in Current Job (years)	-0.322*** (0.020)	0.015 (0.017)	0.040*** (0.010)
Experience Squared	0.008*** (0.000)	-0.000 (0.000)	-0.001*** (0.000)
Have Training (No=0)	0.063 (0.099)	-0.269** (0.129)	-0.152** (0.070)
Have Family Member in Business (No=0)	0.219 (0.155)	0.425** (0.199)	0.124 (0.115)
Financial Capital			
Have Formal Loans (No=0)	-0.116 (0.187)	-0.424 (0.277)	0.457*** (0.138)
Need for Credit (No=0)	0.090 (0.085)	0.488*** (0.107)	-0.291*** (0.062)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author’s calculations; MSEs in Egypt; 2003

A striking finding is that despite their revenues are one third the value of men owned/managed MSEs, women are significantly better performers than men using revenues as a measure of performance. Specifically, a rise in revenues in a span of one year is likely to be greater for women owned/managed MSEs than men owned/managed MSEs. Primary and university level education, as well as experience, impact employment growth in general. Training and having a family entrepreneur engaged in the

¹⁵ Only variables of human and financial capital are considered in this section. Complete tables are available in the appendix (Tables A-2 and A-3).

business are only significant determinants of success. Whereas experience, training, and the ability to secure a formal loan all are significant factors in managing the business in an efficient way. Particularly, while general human capital is important for growth, specific human and financial capitals are important determinants in the success and efficiency of the business. The last finding endorses the premise that education is more likely to elevate entrepreneurs' confidence whereby they may expand their business by hiring more workers; while financial capital as well as industry specific training/experience expands entrepreneurs' contacts and provide necessary conditions to raise their revenues and run the business in an efficient mode.

IV. 2. 1. Growth Model:

Table (3) provides estimates of the probit regression model on the three measures of performance for each gender separately. While none of general human capital measures has any significant effect on growth of women owned/managed businesses, the Table reveals positive impact on business' growth for men. This result substantiates McPherson, 1996 findings of a positive relationship between education and growth of the business in Zimbabwe, Swaziland, and South Africa, but against the conclusions of a recent study (Manolova, Carter, Manev, & Gyoshev, 2007) which suggest that human capital increases growth expectancies of women businesses but not men businesses.

Table (3): Logit Estimates of Performance Measures, Egypt 2003

VARIABLES	Growth Model		Success Model		Efficiency Model	
	Women	Men	Women	Men	Women	Men
General Human Capital						
Age	0.006 (0.015)	-0.005 (0.005)	0.005 (0.014)	-0.007 (0.006)	-0.018* (0.011)	0.003 (0.003)
Level of Education (Illit=0) (R-W)&Primary	-0.257 (0.481)	0.520*** (0.165)	0.017 (0.479)	0.153 (0.187)	0.305 (0.337)	0.095 (0.105)
Intermediate&Secondary	0.144 (0.391)	0.200 (0.140)	0.344 (0.411)	-0.050 (0.169)	0.576* (0.306)	-0.005 (0.092)
University and above	0.013 (0.502)	0.446*** (0.154)	0.091 (0.540)	0.230 (0.186)	0.937** (0.381)	0.062 (0.106)
Specific Human Capital						
Experience in Current Job (years)	-0.578*** (0.097)	-0.308*** (0.020)	0.073 (0.062)	0.012 (0.017)	0.051 (0.040)	0.039*** (0.010)
Experience Squared	0.012*** (0.002)	0.007*** (0.000)	-0.001 (0.002)	0.000 (0.000)	0.000 (0.001)	-0.001*** (0.000)
Have Training (No=0)	0.092 (0.398)	0.085 (0.103)	-0.612 (0.494)	-0.262* (0.134)	-0.300 (0.317)	-0.154** (0.072)
Have Family Member in Business (No=0)	-0.200 (0.569)	0.259 (0.162)	0.655 (0.606)	0.374* (0.212)	0.417 (0.447)	0.106 (0.119)
Financial Capital						
Have Formal Loans (No=0)	-0.577 (0.588)	-0.084 (0.200)	-0.681 (0.772)	-0.351 (0.297)	1.515*** (0.439)	0.363** (0.148)
Need for Credit (No=0)	0.320 (0.271)	0.076 (0.090)	0.296 (0.278)	0.531*** (0.117)	-0.194 (0.207)	-0.313*** (0.065)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculations; MSEs in Egypt; 2003

For both genders, experience is an important determinant of the growth of the business; the effect however, is in the opposite direction. Both experience and experience squared variables display a curvilinear (U-shaped) relationship between employment growth and business experience. In other words, MSEs belonging to new entrepreneurs tend to contract or have a retarded growth, and growth reaches a minimum—as a U shaped relationship is observed—as entrepreneurs gain more experience. It follows that owners/manages of MSEs (women and men) with relevant experience suffered lower rates of growth, possibly because they are aware of, or not ready for, the risks linked to growth, or not prepared for exposure to greater liabilities, or the ability to compete with relatively larger businesses.¹⁶ Financial capital measures do not have any significant impact on growth of the MSE, although the sign of the coefficient on the ability to secure a formal loan is negative for both genders. One likely explanation for women's larger negative size of coefficient over men could be the fact that since traditionally women are risk averse, they may avoid taking the risks involved with business expansion.

IV. 2. 2. Success Model:

This model tests if and to what extent measures of general and specific human capital and financial capital impact the success of the MSE. Success in this model is a binary variable denoting if the business experienced a positive growth in revenues from one year ago.

In general, the literature found positive, albeit small, relationship between the owner's human capital and success (Bruederl et al., 1992; Chandler & Hanks, 1998; Cooper et al., 1994; Preisendörfer & Voss, 1990; Sandberg & Hofer, 1987; and Rauch et al (2000). Table (3), however, reveals that none of the measures of human or financial capital proved to have a considerable effect on the success of the business for women. Remember that a significant positive difference in success measure, in favor of women, has been established in the pooled model. This clearly suggests that additional factors, not accounted for by this model, are driving the success of women owned businesses. One may argue that aspects of human and financial capitals are not tied up with the success of the business to act as a predictor of entrepreneurial competencies by employees, customers, and suppliers.

For men owned/managed businesses, aspects of general human capital represented by education and age are not significant to the success of the business. In agreement with Kalleberg & Leicht (1991), but against Rosenbusch et al (2009) finding, relevant experience does not have significant impact on the success of the business for both, men- and women-owned businesses.

Two aspects of specific human capital significantly contributed to the success of the business, however in different manners. Having specific training negatively impacted success—raising doubts about its quality or effectiveness. Having a family entrepreneur in the business positively boosts revenues. It's also interesting to see a significant effect of this variable exclusively in this model, attesting to the likelihood of realizing the benefits of an additional assistant in the form of increased revenues, but none in terms of growth or efficiency, which may involve own traits over outside help. Finally, men owned businesses identifying the need for credit as the most important constraint to the performance of their business are more likely to experience success rendered as increased revenues from one year ago.

¹⁶ This is also confirmed by the finding that the longer the business has been in operation, the less likely this business witnesses any rise in the number of workers (though the difference between the two coefficients is insignificant: $\chi^2=0.05$; $\text{Prob}>\chi^2=0.80$). Put it differently, men owners of newer business with fewer years of relevant experience are less intimidated by the risks that may come along with additional hires (in terms of increasing their workforce) than those who have been in the business longer and have accumulated more years of experience.

IV. 2. 3. Efficiency/ Survival model:

The third model determines the impact of human and financial capitals on the efficiency of the MSE measured by a dichotomous variable indicating if the business has experienced a positive change in ROS from one year ago.

Table (3) confirms that measures of general human capital, in particular education, have a significantly deterministic impact on business efficiency for women-owned businesses. The higher the level of education the more likely it is run efficiently. Contrarily, education does not have a similar impact in men owned businesses, supporting Coleman (2007) findings. Age has a negative significant effect implying that younger women seem to have managed their businesses more efficiently than older women. It is worth mentioning that the significant impact of education on efficiency is more pronounced in female-owned businesses than in male-owned ones, despite the fact that male entrepreneurs are better endowed with human capital than female entrepreneurs in this sample. This outcome supports Honig (1998) finding in Jamaica that while women owned businesses were more likely to survive, they were less likely to grow.

The influence of aspects of specific human capital on efficiency is different for women than men owned businesses. Having relevant experience positively impacts the ability of the male owner to manage his business efficiently. However, men who had specific training are less likely to run their business efficiently. This, again, begs to question the quality of the training they receive.

The fact that relevant experience has a significant positive impact on efficiency for men but a negative impact on growth for women and men may lend the argument that more experienced women and men are risk averse when it comes to hiring more workers, but more experience furnish men with the necessary elements of running their business efficiently.

In terms of financial capital measures, the ability to secure formal loans is a deterministic factor in running an efficient business for both women and men owned businesses, but it has a stronger impact for women owned businesses¹⁷, contrary to what Coleman, 2007 found for both gender. In other words, women owned MSEs that have access to formal credit tend to perform better in terms of efficiency than their male counterparts. This suggests that gender biases against women's access to formal capital and finance may obstruct the efficiency of MSEs. Interestingly, the positive impact of formal loan is only manifested in the efficiency model, suggesting the usefulness of formal credit for the efficiency of the business¹⁸.

Finally, efficiently run male-owned businesses were less likely to cite "need for credit" as the main constraint to their business performance, suggesting a greater confidence in their ability to secure formal capital.

The overall message of this model, and liberally said, general human capital and financial capital measures are factors conducive for business efficiency for women owned business, whereas specific human capital and financial capital measures play a prime role in business efficiency in men owned businesses.

V. Discussion and Policy Implications:

This paper evaluates the effect of aspects of human and financial capitals on three measures of performance of MSEs in Egypt for men and women. Measures of performance are: growth (increase in employment from one year ago); success (rise in revenues from one year ago); and efficiency (growth

¹⁷ A test of significance of probit coefficients for men and women owned businesses came at: ($\chi^2=4.77$; Prob > $\chi^2=0.02$).

¹⁸ It should be mentioned that only 13.7% of women respondents actually accessed credit.

in ROS from one year ago). Preliminary findings show gender differences in terms of general, and specific human capital, as well as financial capital, where women are at a disadvantage.

Empirical findings reveal that women are better performers than men in generating revenues, despite the fact that their revenues are almost one third their males' counterparts. What's more interesting is that they (i.e. women) are no different than men in terms of employment growth or the efficiency of running their businesses.

To determine if gender differences in human and financial capital measures affect performance measures differently, the analysis is then conducted along gender lines.

The central message of the elaborate analysis is that human capital does not act as ancillary to the lack of financial capital, a common constraint for women starting their businesses, as some of the literature suggests. In fact, both contribute significantly to the efficiency of the business. An interesting outcome is the fact that despite their disadvantaged position in human capital measures (i.e. lower education, lower experience ...etc.), human capital variables have positive and significant impact on the efficiency of women than men-owned/managed MSEs. Plainly said, education does impact how women run their businesses, but does not have the same effect on men. Alternatively, education impacts employment growth of the business for men, but has no effect for women. Financial capital in the form of formal loans has a positive influence on the efficiency of the business for both men and women. Having relevant experience worked in the opposite direction in growth measure (more experience, less employment) for both genders, but has a positive effect on efficiency for men.

These findings help answer certain policy related inquiries such as: what is the purpose of promoting the MSE sector? is it an employment generating mechanism; revenue generating tool; or a medium to sustain the standards of livings of the household of owner or lift the household out of poverty? If we are to invest in future generations (males and females) in a way conducive to stimulating this sector, which investment type is more likely to produce the anticipated effects for each gender: education, specific training, or unrestricted access to credit? The main message of this study, in short, is that different factors impact the performance of the business differently for men and women.

Most entrepreneurs' studies measure performance of the firm as a function of increased employment, profits, revenues ...etc., reflecting the male model of self-employment (Chen, 1996; Moore & Buttner, 1997). The fact that women and men have different backgrounds and characteristics, no form of performance should be the basis for a valid demonstration of entrepreneurialism. As Constatinidis et al (2006) suggest, women entrepreneurs behave different than men entrepreneurs: women do not like to spend money that they did not have at their disposal, thus decreasing their reliance on bank loans; their family responsibilities increase their risk aversion and they tend to manage their business the way they manage their household; and tend to value life and security rather than money and wealth. In fact, one may argue that starting a business for women is motivated by a different cluster of variables than men: desire for independent income, advancement in the labor market, self-satisfaction, increasing the livelihood of the family, or as means of empowerment by reducing their dependence on male members of the family. ...etc., (Carr et al, 1996, Chen, 1996; Mayoux, 1995). Sullivan et al. (1997) confirms this argument by showing that women, who became self-employed to move out of poverty, define business success in terms of economic self-sufficiency or independence, and of personal rewards and satisfaction. Therefore, business performance should not be evaluated by outcomes which reflect normative male model of economic activity, and destined to fail women.

International organizations have been racing to advance MSEs as both employment generating mechanism and poverty alleviating instrument especially in economies with abundant unskilled labor such as Egypt. MSEs have also been praised as a pivotal tool in providing inexpensive goods and services to their communities where these services are most needed, compensate for inflationary effects, and promote a balanced growth and equitable income distribution. The fact that close to 50% of

women and men owned businesses in this sample have been in operation for periods that range between five and twenty years is a testimony to the false claim that MSEs are a temporary solution or a short lived answer to growing economies. What has been ignored and overlooked is the course of action to stimulate this sector.

But challenges faced by women outstrip those faced by men both in nature and number. Women, in most cases, don't hold land, house, or vehicle titles, confining their assets to jewelry and furniture, not meeting the requirement of formal loans of banks. In many cases, women are discounted by women themselves, who may view their work as supplementary to that of men and takes second or third priority after her house, husband and kids, a message that is interpreted most often by financial officers as "women are not as serious about the loan". Subsidized loans and loan guarantees are the most common instruments of government assistance programs to support MSEs. It is imperative in this regard to identify women clients by encouraging loan officers in financial institutions to be familiar with women's applications and to consider different channels of communications to approach and inform them of available projects, their success rates and profitability, as well as recognizing different aspects of women's chosen businesses, such as a business that is close to home or could be combined with home chores.

Access and availability of general education is one important policy prescription coming out of this study. Experience and training in business related fields is another essential instrument for grooming efficient entrepreneurs, especially for men. Financial capital is also of importance for both gender not as a determinant for growth or success, but as a basis for efficiency. Access to credit alone is should not be a one policy fits all type for MSEs.

While access to resources is as important to both genders, other ignored, or downplayed factors are equally important to women. There is a greater need to recognize gender related challenges such as time burden, intra-household decision making, and limited control over resource as well as markets ...etc. Additional strategies to back human capital and carefully tailored programs in human resources management may include bookkeeping classes, assertiveness, risk-aversion, and negotiating aptitude.

Granted, there are a number of common core skills required by all businesses irrespective of the gender of their owner/manager. However, the greater the deviation between the two types of entrepreneurialism, the greater the need for heterogeneous policies which are specific to a particular group. It is also important to recall that neither women nor men are in themselves homogeneous categories. Young unmarried women face different constraints compared with older women who may be widowed or divorced. The same is true for regional or educational differences. The findings of this study argue that female businesses mandate differentiated policies which target their needs and specifically develop their business competencies compared to the majority of male businesses (see Mukhtar, 1998 for a Gender-Based Business Competence Development in the U.K.)

There is a need point out in this context that policies tailored to women MSEs promoting the efficiency or survival models may end up in a vicious cycle by reinforcing their "different" entrepreneurial behavior and discouraging long term growth and profitability feeding back into women vulnerability (Ehlers and Main, 1998). Efforts should be directed towards encouraging women to create ventures in high-value, high growth sectors. Likewise, raising interest of finance institutions in traditional female dominated sectors, and identify niches of potential profitable sectors and where economic profitability and targeting attractive businesses.

A number of gender specific policies have proved successful. Examples are: the U.S. federal programs (Diana Project)—see Marlow and Patton (2005) for details. In the U.K, organizations such as PROWESS (Promoting Women's Enterprise Support) recognize gender related challenges and have instigated a wide range of measures sensitive to the needs of women entrepreneurs. These initiatives can create viable businesses which contribute to the economy and meet individual specific needs. Self

Employed Women's Association SEWA model in India is another success story. The program helps link producers with markets, develops cooperatives, initiates and/or links with previously established trade shows, and investigates higher value market niches.

Finally, as Marlow and Patton, 2005, put it: "*The argument should no longer be about if gender is an issue but how it shapes the experiences of entrepreneurship within particular contexts*"

V. 1. Weakness of the study:

This study provides an understanding of the gender differences in entrepreneurship. Nevertheless, the study suffers from a host of deficits. One of these deficiencies is that the analysis is reduced to business and entrepreneur characteristics but not institutional or social factors that may impact the success of the business, Lerner, Brush & Hisrich, 1997; Schutjens & Wever, 2000). Factors such as family conflict or time available for market work (Lee and Rogoff (1997). Second, while this may be a clear weakness of the analysis, it is necessary for future surveys to include a set of questions representing the roles, motivations and responsibilities, and control over economic resources (rather than access) based on the gender of the entrepreneur, moving away from purely economic view of the business and closer to an all-inclusive understanding. (Kantur, 2002). Third, a measure of entrepreneurial drive or dedication is vital in gender analysis, though it would be difficult to measure. Future research may be able to explore it further. Finally, improved data collection methods, especially those producing panel data, would enhance our understanding of the MSE growth process by collecting accurate data on variables such as costs, sales, and prices.

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APPENDIX

Table (A-1)--Variable Definitions:

Growth: A dichotomous variable coded as “1” if the business experienced positive change in employment from one year ago.

Success: A dichotomous variable coded as “1” if the business experienced positive change in revenues from one year ago.

Efficiency: is a measure of ROS (return on sales) -- the ratio of profits/total sales. A dichotomous variable is then generated and coded as “1” if the business has experienced positive growth in ROS from one year ago.

Age: age of the owner/manager in years.

(R+W)&Primary: a dichotomous variable coded as “1” if the owner/manager knows how to read and write or has primary education.

Intermediate&Secondary: a dichotomous variable coded as “1” if the owner/manager has either intermediate or secondary education.

University&Above: a dichotomous variable coded as “1” if the owner/manager has university education or above.

Experience in Current Job: The number of years of experience in current job (i.e. industry specific).

Training: a dichotomous variable coded as “1” if the owner/manager has received relevant training.

Family Members in Business: a dichotomous variable coded as “1” if the owner/manager has a family entrepreneur at the business.

Formal Loans: a dichotomous variable coded as “1” if the owner/manager has been successful in securing some type of formal loan (i.e. bank, credit firm, NGO ...etc.).

Need for Credit: a dichotomous variable coded as “1” if the owner/manager has cited the need for credit as the most significant financial constraint.

Years of Establishment in Business: the number of years the establishment has been in business, calculated as the number of years between the start of the business and 2003 (the year of the survey).

Trade: a dichotomous variable coded as “1” if the main activity of the business in Trade.

Services: a dichotomous variable coded as “1” if the main activity of the business in Services.

Table (A-2): Logit Estimates of Performance Measures—Pooled Model, Egypt 2003

VARIABLES	Growth Model	Success Model	Efficiency Model
Women	-0.048 (0.134)	0.680*** (0.158)	0.129 (0.104)
General Human Capital			
Age	-0.004 (0.005)	-0.006 (0.006)	-0.001 (0.003)
Level of Education (Illit=0) (R-W)&Primary	0.425*** (0.153)	0.123 (0.172)	0.155 (0.099)
Intermediate&Secondary	0.136 (0.128)	-0.008 (0.153)	0.088 (0.087)
University and above	0.361** (0.143)	0.214 (0.172)	0.155 (0.101)
Specific Human Capital			
Experience in Current Job (years)	-0.322*** (0.020)	0.015 (0.017)	0.040*** (0.010)
Experience Squared	0.008*** (0.000)	-0.000 (0.000)	-0.001*** (0.000)
Have Training (No=0)	0.063 (0.099)	-0.269** (0.129)	-0.152** (0.070)
Have Family Member in Business (No=0)	0.219 (0.155)	0.425** (0.199)	0.124 (0.115)
Financial Capital			
Have Formal Loans (No=0)	-0.116 (0.187)	-0.424 (0.277)	0.457*** (0.138)
Need for Credit (No=0)	0.090 (0.085)	0.488*** (0.107)	-0.291*** (0.062)
Control Variables			
Years of Establishment in Business	-0.095*** (0.010)	0.001 (0.007)	0.013*** (0.004)
Business is Sole-Proprietorship (No=0)	-0.296** (0.139)	0.310 (0.192)	0.025 (0.107)
Type of Business (Industry=0)			
Trade	0.134 (0.138)	0.132 (0.175)	-0.056 (0.091)
Services	0.293* (0.152)	0.344* (0.195)	0.170 (0.105)
Married (No=0)	0.064 (0.149)	0.260 (0.184)	0.069 (0.105)
Have Kids<18yrs (No=0)	0.048 (0.130)	0.079 (0.149)	-0.012 (0.085)
Constant	0.277 (0.266)	-3.389*** (0.361)	-0.968*** (0.195)
Observations	4958	4958	4958

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculations; MSEs in Egypt; 2003.

Table (A-3): Logit Estimates of Performance Measures—Pooled Model, Egypt 2003

VARIABLES	Growth Women	Model Men	Success Women	Model Men	Efficiency Women	Model Men
General Human Capital						
Age	0.006 (0.015)	-0.005 (0.005)	0.005 (0.014)	-0.007 (0.006)	-0.018* (0.011)	0.003 (0.003)
Level of Education (Illit=0) (R-W)&Primary	-0.257 (0.481)	0.520*** (0.165)	0.017 (0.479)	0.153 (0.187)	0.305 (0.337)	0.095 (0.105)
Intermediate&Secondary	0.144 (0.391)	0.200 (0.140)	0.344 (0.411)	-0.050 (0.169)	0.576* (0.306)	-0.005 (0.092)
University and above	0.013 (0.502)	0.446*** (0.154)	0.091 (0.540)	0.230 (0.186)	0.937** (0.381)	0.062 (0.106)
Specific Human Capital						
Experience in Current Job (years)	-0.578*** (0.097)	-0.308*** (0.020)	0.073 (0.062)	0.012 (0.017)	0.051 (0.040)	0.039*** (0.010)
Experience Squared	0.012*** (0.002)	0.007*** (0.000)	-0.001 (0.002)	0.000 (0.000)	0.000 (0.001)	-0.001*** (0.000)
Have Training (No=0)	0.092 (0.398)	0.085 (0.103)	-0.612 (0.494)	-0.262* (0.134)	-0.300 (0.317)	-0.154** (0.072)
Have Family Member in Business (No=0)	-0.200 (0.569)	0.259 (0.162)	0.655 (0.606)	0.374* (0.212)	0.417 (0.447)	0.106 (0.119)
Financial Capital						
Have Formal Loans (No=0)	-0.577 (0.588)	-0.084 (0.200)	-0.681 (0.772)	-0.351 (0.297)	1.515*** (0.439)	0.363** (0.148)
Need for Credit (No=0)	0.320 (0.271)	0.076 (0.090)	0.296 (0.278)	0.531*** (0.117)	-0.194 (0.207)	-0.313*** (0.065)
Control Variables						
Years of Establishment in Business	-0.114*** (0.041)	-0.092*** (0.011)	-0.055** (0.027)	0.006 (0.007)	0.030** (0.014)	0.012*** (0.004)
Business is Sole-Proprietorship (No=0)	-0.614 (0.479)	-0.262* (0.146)	0.841 (0.611)	0.250 (0.204)	0.657 (0.418)	-0.016 (0.111)
Type of Business (Industry=0)						
Trade	0.362 (1.506)	0.120 (0.140)	13.241 (629.459)	0.096 (0.178)	-0.587 (0.724)	-0.045 (0.093)
Services	0.461 (1.534)	0.290* (0.154)	13.382 (629.460)	0.336* (0.199)	-0.656 (0.757)	0.194* (0.108)
Married (No=0)	0.434 (0.390)	0.067 (0.167)	0.301 (0.363)	0.221 (0.229)	0.430 (0.274)	-0.086 (0.121)
Have Kids<18yrs (No=0)	0.352 (0.381)	-0.008 (0.141)	-0.622* (0.352)	0.221 (0.172)	-0.526** (0.262)	0.095 (0.094)
Need Permission to Work (No=0)	-0.575 (0.383)		0.164 (0.358)		0.519** (0.263)	
Feels Empowered by Earnings (No=0)	0.269 (0.342)		0.251 (0.359)		-0.815*** (0.241)	
Constant	0.547 (1.819)	0.200 (0.279)	-16.452 (629.460)	-3.385*** (0.385)	-0.556 (1.023)	-0.948*** (0.203)
Observations	519	4439	519	4439	519	4439

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Author's calculations; MSEs in Egypt; 2003.