

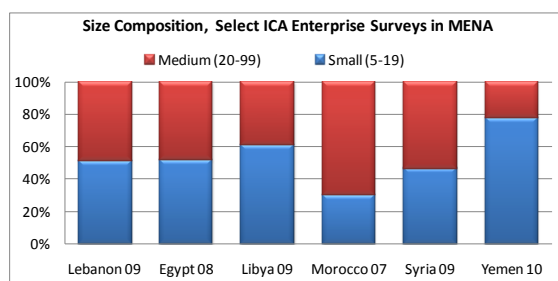


SME INNOVATORS AND GAZELLES IN MENA – EDUCATE, TRAIN, CERTIFY, COMPETE!

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Introduction and Overview: The MENA region faces no greater challenge than employment generation. An expanding literature on “gazelles” suggests that a small percentage of fast-growing small and medium enterprises (SMEs) generate the majority of new jobs in diverse economies. This paper observes the characteristics of fast growing SMEs included in World Bank Investment Climate Assessment (ICA) enterprise surveys in the MENA region. The identified enterprises characteristics associated with high growth among SMEs include being an innovator, offering workers formal training and receiving an international quality certification. In Egypt, a panel dataset allows observation of true “gazelles” – SMEs that grew an average of 20% or more over more than 4 years. There, analysis links enterprise gazelle status among manufacturers to training employees, using email or having a company website, being less than 10 years old, getting a high number of inspections, experiencing fewer power interruptions, and using foreign-licensed technology (considered here a type of innovative behavior). For service firms, being small at the outset enhances the probability of being a high-growth firm. Given the importance of innovation to growth both theoretically and empirically, the analysis then looks at the characteristics of firms that innovate. It finds that innovation consistently

links to firms whose workforce includes 5% of more university graduates, firms that offer formal training, firms that have an international quality certification, firms that use email, and firms that confront competitive pressure to reduce prices, either from local markets or international ones. These findings direct policy attention towards education, training, quality systems, telecommunications systems and computer literacy, and competition policy (understood broadly) as key focal points for a strategy to promote SME-based employment growth.



World Bank Investment Climate Assessment Enterprise Surveys World Bank ICA enterprise surveys offer a unique primary data source through which to better understand the interaction of firm characteristics and practices, investment climate conditions, and performance outcomes. This analysis is based on regional surveys² encompassing 2,946 SMEs (employing up to 99 workers) in the manufacturing and services sectors.

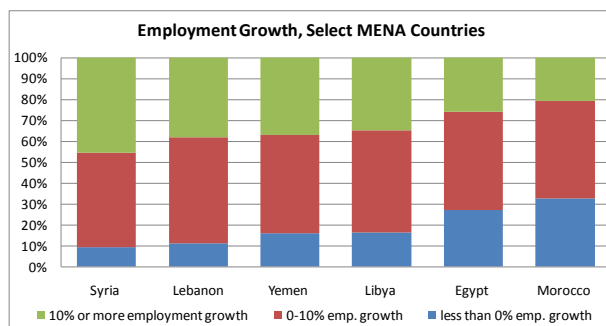
What do we know about firms that grow? For over 20 years, a literature on fast-growing SMEs

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² Enterprise surveys have been carried out in 11 MENA economies, however data from Algeria, Jordan, Oman, and West-Bank Gaza did not provide the needed variables for this analysis.

has noted their disproportionate importance in employment growth. This work tends to define a gazelle as an SME that sustains growth of over 20% for some minimum period, often three or four years. It is not agreed whether this should be defined by sales or employment growth. The gazelle literature finds that “5 to 10% of the firms deliver 50 to 80% of employment generation”.³ (Hölzl, WIFO, 2008).

For most countries, ICA enterprise surveys record only about one year’s growth, so we cannot analyze sustained growth across countries. Furthermore, firms that grew more than 20% are relatively rare, making it harder to conclusively analyze them. Thus for a cross-country analysis, we look at fast-growing SMEs (likely including some gazelles, but also many non-gazelles) whose employment rose 10% or more per year in the prior year. Only for Egypt can we examine real gazelles, based on a large panel dataset from three consecutive enterprise surveys that provides 6 consecutive years of data on sales growth and 5 years of employment growth.



A basic descriptive analysis of fast-growing firms elicits the following observations:

- Fast-growing SMEs are more likely to innovate – while 58% of fast growing firms reported innovating in at least one way, only 39% of slower growing firms did so.⁴
- Fast-growing SMEs are more likely to offer formal training to their employees – 32% do so vs. 18% of slower growing firms.

³ Hölzl, W. *Gazelles: Findings from the Sectoral Innovation Watch Project and the Europe Innovation Panel on Gazelles* (WIFO: 2008)

⁴ The surveys enable us to observe 3 kinds of “innovation” in all countries except Morocco and Libya – introducing an important new product line, upgrading an existing product line, and using a technology licensed by a foreign company.

- Fast-growing firms are more likely to use email and to have a website.
- Fast-growing firms are more likely to have an international quality certification such as ISO 9000.
- Fast-growing firms are more likely to have 5% or more of their workforce with a university education.
- SMEs sampled in Syria, Lebanon, Yemen and Libya were more likely to have experienced fast employment growth than were firms in other countries such as Egypt and Morocco.

Equally interesting are the factors that didn’t significantly relate to high growth status. These include having a loan, identifying serious problems with access to land, suffering frequent power outages, experience high regulatory compliance cost in terms of management time, and being an exporter.

In order to substantiate these descriptive associations and control and test for other explanatory factors, we ran a logistic regression (logit) to relate firm characteristics and constraints to the probability of being a high growth SME.⁵ For the short list of countries for which we have indicators of innovative behavior, the probability of being a high employment growth SME positively relates to:

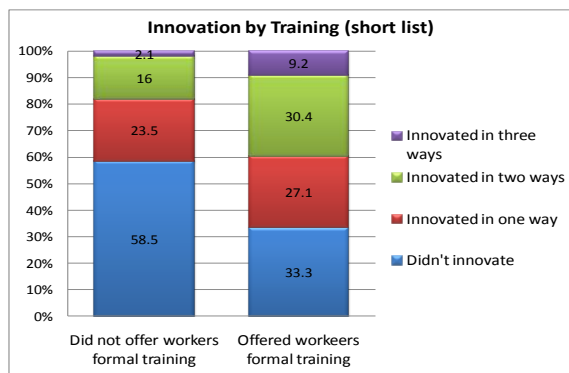
- introducing a new product or upgrading an existing one
- offering workers formal training
- having a company website

For the longer list of countries, the probability of being a high employment growth SME is positively related to:

- offering workers formal training
- being medium-sized
- receiving an international quality certification

It is negatively related to being in Morocco.

⁵ A logistic regression (or logit model) is used to predict the probability of the occurrence of an event by fitting data to a logistic curve. In our work, we predict the probability of an SME being high-growth and the probability of a firm being an innovator.



Real Gazelles in Egypt: In Egypt, we can observe real gazelles using panel data: firms whose sales or employment grew an average of at least 20% per year over the period 2003-2007. Among SME manufacturers, a logit regression indicates the following positive relationships of the probability of rapid employment growth to firm characteristics:

- Training employees.
- Using email or a website (alternate specifications)
- Being less than 10 years old
- Getting a high number of inspections (>=20x/year)
- Having fewer power interruptions
- Having foreign-licensed technology

However, having a loan was negatively associated with being an employment gazelle. This may indicate that the financial system in Egypt (which serves a notably low share of SMEs) is not especially effective at allocating credit to high growth firms. When service firms are added to the mix, small size and having 5% or more of workers with a university education or higher emerge as significantly related to the probability of being a gazelle, along with training employees, using email, and being less than 10 years old. In this analysis, manufacturers in our samples are more likely to be gazelles than service firms.

What do we know about firms that innovate?

In the cross-country enterprise analysis, innovation relates positively to high employment growth. So it is important to understand the investment climate conditions facing innovative firms. Descriptively, 71% of firms with an international quality certification report having innovated while only 42% of firms without such a certification have done so.

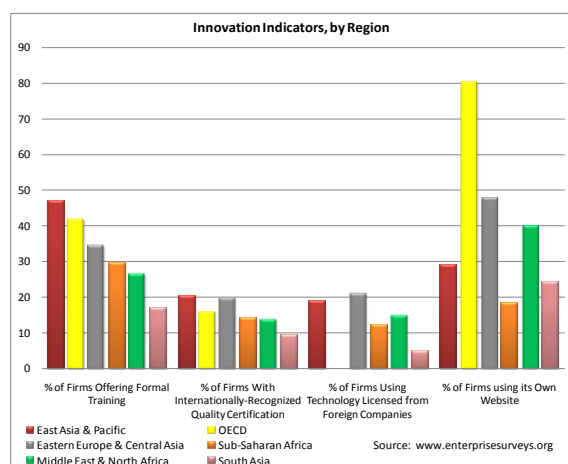
62% of firms using 5% or more of their workforce with a University education have innovated, while only 40% of firms without such a workforce have done so. And 60% of medium-sized firms report having innovated, versus 33% of small firms.

Again, to analyze these associations with greater rigor, we applied a logit model to relate firm characteristics and operating conditions to the probability of being an innovator. In order to make the best use of limited data, three definitions of innovation were used. First, there were those firms that innovated by introducing an “important new product.” Second, there were firms that innovated by upgrading an existing product line. And third, in order to have an innovation variable captured for the “long list” of seven countries, we tested the factors associated with using technology licensed by a foreign company, the “third way” of innovating.

Developing a new product line positively relates to:	Developing a new product line or upgrading an existing product relates positively to:	Using technology licensed by a foreign company positively relates to:
Offer formal training	Offering formal training	Offering formal training
Using foreign-licensed technology	Having international quality certification	Having international quality certification
Using e-mail	Using e-mail	Having a website
	5% or more of workforce has university education	>= 5% workforce has university education
	Lowered prices due to local competition	Lowered prices due to foreign competition
	Medium Size	

Several factors appear to associate closely with innovative behavior. Offering workers formal training is clearly key – in each specification it emerges as associated with the type of innovation being analyzed – for example, a manufacturing firm offering formal training is twice as likely to use technology from a foreign company, than one that does not and twice as likely to introduce a new product. University education of 5% or more of workers appears in two of the three models as associated with an elevated probability of innovation, associated with a 50% higher probability of innovation. Use of email or a website appears significantly positively associated with innovation in the

table above. Size is inconsistently related, but the data suggests that medium-sized firms have a higher incidence of innovative behavior than small ones.



Competition is Key A final point bears emphasis – competition is key. In the equation evaluating whether a firm engaged in the two forms of innovation, introducing a new product or upgrading an existing one, firms that lowered their price in response to local competition are 50% more likely to have innovated than firms that do not. In adopting foreign-licensed technology, firms that face competition from international competitors are twice as likely to have done so as firms that do not. This is consistent with a substantial literature on competition that indicates that the market dynamisms stimulated by competition encourages innovation and productivity growth.⁶ Earlier work on Egypt confirms this: *The clear relationship of innovation to higher productivity suggests that the correlates of innovation are vital to Egypt's future growth. Those correlates are competition (domestic), competition (international) and competition (informal). This finding is consistent with a Schumpeterian view of the benefits of creative destruction: encouraging market dynamism*

⁶ For example, an OECD literature review found that “firm dynamics...is an important component of innovation and aggregate productivity growth” and that dynamic efficiency gains rely both on competition in product markets and in factor markets “to reallocate labor and capital of shrinking/existing firms to entering/growing firms.” Sanghoon Ahn *Competition, Innovation and Productivity Growth: A Review of Theory and Evidence* (Economics Department Working Papers No. 317, OECD, Jan.17, 2002).

*through ease of entry and exit and flexible operation will enhance and sustain innovation and market-led growth.*⁷

Conclusion: Educate, Train, Certify, Link, Compete! The cross country analysis highlights linkage between high SME growth and innovation, workers’ education, formal training, firms’ quality certification and email use. It links innovation to these factors, and to competitive pressure, whether local or international. Attention is then directed to human resource policy on education and training, the policy framework and incentives for firms to train workers, country quality systems, and telecommunications policies supporting email and internet use. Some of these are areas where the region lags – for example, international data suggests MENA is the second worst region in both the rate of firms offering formal training and firms obtaining an internationally-recognized quality certification. Finally, the analysis suggests the importance of an integrated competition policy, involving a combination of trade, investment and regulatory policies that encourage flexible operation and ease of entry and exit, with an active competition authority empowered to address anti-competitive behavior.

Simply stated, policies to encourage gazelles and innovation could focus on education, training, quality systems and certification, telecommunication linkages, and competition.

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⁷ Andrew Stone and Jean Pascal Nganou et al., *Investment Climate Correlates of Productivity and Innovation* (World Bank, 2010)