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International Centre of Economic Affairs

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**The Journal of International Business and Economic Affairs**

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## **Journal of International Business and Economic Affairs**

Welcome to the second volume of the *Journal of International Business and Economic Affairs*.

This publication of this volume follows our successful conference in Cairo in April 2011 and we are delighted to have the opportunity to commence the publication of papers from the conference with Hala Hattab's prize-winning paper on gender and entrepreneurship in the Middle East and North Africa. In addition, we publish two new papers by Rudra Pradhan on imports and exports in emerging economies and by Nassr Ahmad on Corporate Social Responsibility and Corporate Environmental Disclosure.

At a time when parts of the world appear obsessed with the economics of finance and currency markets, it is as well to remember that financial economics is not a matter separate removed from economics as a study of human activity. Finance is both an expression and a facilitator of human economic activity and the proper management of finances is essential to the continuation of industry and commerce. It is a dangerous mistake to think of economic activity primarily in terms of making money, which is only a unit for measurement and comparison of outputs. However, monetary measures remain the most reliable and useful method of assessing the economic worth of an activity or a commodity and the abuse and manipulation of monetary units for political or governmental ends can have the most serious consequences for the real economy.

Such abuses may take a variety of forms and may even have a variety of beneficiaries but they are never without victims. The distribution of currency by governments with no policy objective except the stimulation – or simulation – of the demand for goods and services which normally arises from the exchange of goods and services between individuals and groups distorts economic activity by raising the supply and circulation of money faster than the increase in the output of goods and services. The same is true of central banks which seek to encourage increases in lending and borrowing by commercial banks and other private and public organizations which exceeds the combined increase in quantity and improvement in quality of goods produced and services rendered. The availability of cheap finance may make a project more attractive to fund but it does not make it intrinsically a more worthwhile use of resources. Such a lessening of the rate of return required to permit the financing of a business can only be justified if the returns on other possible businesses have really been reduced. If that is not so, then the additional lendings and borrowings to finance new activity will exceed the additional outputs and may even allow borrowers to attract labour and resources away from more worthwhile ventures. The effect is to increase the availability of currency without any increase in the availability or quality of economic outputs.

These distortions can easily militate against sustainable enterprise. A short-term business may be built on the expectation of paying off cheap capital with inflationary currency but a long-term business venture must be built on the expectation of maintaining its real capital by increasing its real outputs and sales. This is only undermined by the deliberate use of inflationary policies to give the illusion of economic activity elsewhere. Simply put, productive businesses and their employees end up being unable to compete for goods and services and their productive capacity is artificially reduced as a result. Sociologists will observe the effects of this in the impoverishment of the working classes and accountants in the failure of enterprises' sales income to meet the cost of replacing inventories and fixed assets. Followers of the currency markets will see it in the inability of holders of an inflationary currency (except for those whose pockets were swelled by the original inflationary measures) to purchase what they were once able to in foreign markets or to meet liabilities owed in foreign currency.

Amidst all this, it is essential to recall what builds value in an economy. Many factors contribute but it among the most essential are ideas, organization, education and the extent to which resources are allocated to production of services and goods which have good potential to meet a future demand. Also vital is the ability to trade goods and services, not only to allow for the most efficient use of each individual or group's mental and physical resources and endowments of wealth but also to provide security against shortfalls in production or sales in local markets. The stewardship of natural resources and maintenance of social welfare is also of the utmost importance to enterprise, as no enterprise can function when it has damaged its own natural and social means of production or the living environment of its customers beyond repair. We are therefore fortunate to be able to present three papers which deal with three essential aspects of the economy: human entrepreneurial endeavours, trade between countries and corporate social and environmental responsibility.

Dr. Hattab's paper presents a new look at the relationship between gender, entrepreneurship, development and innovation. The paper provides evidence of substantial differences between countries, not only in the level of entrepreneurial activity and the amount of innovation by entrepreneurs but also in the extent and direction of any gender differences. It is noteworthy that, while in many countries women entrepreneurs appear to lag behind their male counterparts in some countries in the use of new technologies and in the introduction of products which are new to their customers, there is no absolute rule about this and in some countries women entrepreneurs were more innovative on one or both of these measures. It was also clear that entrepreneurs in the middle-income countries which Dr. Hattab studies are not necessarily less innovative or less willing to use new technologies than those in post-industrial nations.

One reaction to these findings may, of course, be to question whether innovation is a necessary component of all successful entrepreneurship and whether most customers in some countries are not happy to receive the same service which they have always desired. Business owners and managers must make their own judgments on that. Another reaction, however, must be to consider what factors might be distorting the behaviour of men or women in different countries to make them more or less innovative and more or less risk averse, especially where their fellow entrepreneurs are behaving differently. It is therefore very much to be hoped that Dr. Hattab's call for further research on the factors hindering the development of entrepreneurial businesses and the reasons for gender differences between entrepreneurs will be taken up.

Rudra Pradhan examines the relationship between imports and exports in international trade. This relationship is one which repays further study, especially at times when governments may be tempted to seek short-run gains in employment and income for some domestic companies by restricting the import of foreign goods, services or labour, whether overtly or by reducing the purchasing power of domestic currency. Dr. Pradhan shows convincingly that exports are not independent of imports and that countries as well as individuals must trade in order to produce, as well as trading in order to consume. There is no production without consumption, not only because the producer needs a market but also because the producer must also obtain the materials, energy and services needed in the production process, quite apart from the fact that those who are engaged in production must eat, must clothe themselves, must keep warm and must have the basic enjoyments and pleasures which make the effort of production worthwhile. Attempts to exclude the goods, services or persons of those who provide these things will not lead to overall economic gains. Dr. Pradhan's study is of great value in demonstrating this empirically for five rapidly emerging economies.

Finally, Nassr Ahmad presents an excellent study of environmental disclosures in Libya, where he finds that a professed concern for the environment and society and incentives to pay attention to social factors in business do not appear to lead to a great deal of disclosure of environmental performance. This may have many causes but Dr. Ahmad's study finds that the key reasons are not a lack of concern but an acknowledged lack of education in environmental accounting and a

lack of direction on these matters from the government and from the accounting profession. This lack of accounting for the effect of business on the natural environment has potentially serious consequences for the sustainability of business, as it is not possible to manage the environment effectively without information on the effects that human activity presently has on it. The means of measuring those effects must therefore not only be developed but also disseminated through education and used in order to provide the information which is needed for long-term decision-making.

We would like to thank the contributors to this edition of the journal. We also look forward to the publication of future work in these and other areas relating to financial and non-financial economics. We also look forward to our Second Annual Conference of Economic Forum of Entrepreneurship and International Business in Ottawa in February 2012.

A handwritten signature in blue ink that reads "M. Handley-Schachler." The signature is written in a cursive style and is positioned above the printed name.

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*Hala Hattab*

## **Innovation and Entrepreneurship: Does Gender Really Matter in the Middle East?**

### **Abstract**

It has been widely accepted that entrepreneurship and innovation play an important and vital role in the economic growth and development of countries. Both are believed to be positively related, while Drucker (2007) believed that innovation is the specific tool of entrepreneurs; Schumpeter viewed the entrepreneur as an innovator. Although our understanding of the relation between innovation and entrepreneurship is seldom gendered, nevertheless, there is a gender difference among entrepreneurs in terms of levels of innovation. The current research aims at broadening our understanding of the differences between men and women entrepreneurs in the Middle East using the data collected by the Adults Population Survey as part of the Global Entrepreneurship Monitor in 2008 and 2009. The research shows, that although the level of entrepreneurship in Arab countries is fairly good, the level of innovation is poor, with men entrepreneurs being more innovative than women.

**Keywords:** Entrepreneurship, Innovation, Global Entrepreneurship Monitor.

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### **1. Introduction**

Despite the global interest in entrepreneurship, there is no concise universally accepted definition of the term. This situation is a reflection of the fact that entrepreneurship is a multidimensional concept (Audretsch, 2002). One of the most common definitions is the one provided by Schumpeter (1912) as cited in Harvey et al. (2010), who defined entrepreneurship as an activity to create development through new combinations linked to products/services, production processes/routines, new market, the use of raw materials and the organization of the business. On the other hand, innovation is defined by Kanter (1983) as cited in Chell (2001) as the generation, acceptance and implementation of new ideas, processes, products or services.

The link between innovation and entrepreneurship has been addressed intensively, since both are seen as tools to create economic growth and wealth. Brazeal and Herbert (1999) indicated that the entrepreneurial event is a product of innovation, change and creativity, while Drucker (2007) believed that innovation is the specific tool of entrepreneurs; it serves as the means by which they exploit change as an opportunity for a different business or a different service.



Due to transformations taking place everywhere, whether political, economic or social, more and more people are taking the route to entrepreneurship; traditionally men were more inclined than women to venture into business, hence most of what is known about entrepreneurs, their background, motivation for starting a business and business problems faced by them is based on studies of male entrepreneurs (Hisrich and Brush, 1984, as cited in Garga and Bagga, 2009). Nevertheless, in the last few years women have started to represent more than one third of all people involved in entrepreneurial activity (Minniti et al., 2006) and hence it was deemed necessary to study women entrepreneurship and explore the gender differences.

In the Middle East, the interrelatedness between innovation and entrepreneurship is understudied as both terms are newly emerging in the region. On the other hand, women entrepreneurs are still a minority and thus conducting a comparison between men and women entrepreneurs would enrich the literature of innovation and entrepreneurship in the Middle East and North Africa (MENA) region.

## 2. Literature Review

There has been no consensus in defining entrepreneurship and innovation in the exiting literature (Zhao, 2005). However, entrepreneurship has been gaining interest at the national and international levels because it symbolises innovation and dynamism in the economy. Many authors and scholars see entrepreneurship and innovation as clearly interrelated. This section starts with presenting entrepreneurship, innovation and the interrelation between these two concepts, then moves on to highlighting the gender differences as contemplated by the literature.

### Entrepreneurship

There is no single universally accepted definition of entrepreneurship. This situation is a reflection of the fact that entrepreneurship is a multidimensional concept (Audretsch, 2002) spanning different units of observation ranging from the individual to the firm, region or industry and even nation (Grilo and Thurik, 2005) and depending largely on the focus of the research undertaken (Wennekers et al., 2002). According to Johnson (2001, p. 138), "Entrepreneurship, in its narrowest sense, involves capturing ideas, converting them into products and, or services and then building a venture to take the product to market." While Schumpeter (1912), as cited in Harvey et al. (2010), defined entrepreneurship as an activity to create development through new combinations linked to products or services, production processes or routines, new markets, the use of raw materials and the organization of the business. Another definition was provided by Stevenson and Jarillo (1990) who described entrepreneurship as the process by which individuals pursue opportunities without regard to resources they currently control, while Gedeon (2010) views it as starting without any resources and creating new values in the realm of business, social values, government or academia.

Entrepreneurship's importance stems from its effect on economic and social development within any country, in addition to providing chances for growth and wealth creation. The potential of entrepreneurship to enhance economic development has been recognised (OECD, 2003), particularly in developing countries (Mahemba and De Bruijn, 2003) who are not large players in world trade. Entrepreneurial activity is important to job growth (Bednarzik, 2000), has a strong positive correlation with growth (Reynolds et.al., 2002) and serves as a

mechanism by which knowledge spills over to a new firm in which it is commercialised while augmenting the number of enterprises and increasing competition (Carree and Thurik, 2005).

### **Innovation**

In spite of the increased attention paid to innovation, earlier researches have not yielded a widely accepted consensus regarding how to define innovation (Goswami and Mathew, 2005). Innovation is defined as the generation, acceptance and implementation of new ideas, processes, products and services (Kanter, 1983, as cited in Chell, 2001), while Schumpeter (1912), as cited in OECD (1997), defined five types of innovation:

1. Introduction of a new product or a qualitative change in an existing product.
2. Process innovation new to industry.
3. The opening of a new market.
4. Development of new sources of supply for raw materials or other inputs.
5. Changes in industrial organisations.

Businesses, whether dealing with products or services, are facing transformations like never before, not only a turbulent business environment, but continuously changing customers' needs and expectations and competition growing due to low entry barriers, just to mention a few. Thus the choice shifted from whether to innovate or not to which way the business can be innovative. The growth and survival of firms will depend on their ability successfully to adapt their strategies to changing environments (Cefis and Marsili, 2006). In such an environment, innovation creates a variety of competitive positions and enhances a firm's potential to succeed in the market; it gives it a competitive edge thus enabling it to outperform its competitors (Chell, 2001) and thus it is taken as axiomatic that innovative activity has been the single most important component of long-term economic growth (Rosenberg, 2004), while the capacity of regions to support processes of learning and innovation has been identified as a key source of competitive advantage (MacKinnon et al., 2002).

### **Innovation and entrepreneurship**

Creativity and innovation have long been associated with entrepreneurship (Mueller and Dato-On, 2008). In a world where ideas drive economies, it is no wonder that innovation and entrepreneurship are often seen as inseparable bedfellows (Chan, 2008).

Many scholars have shed light on the relation between these two terms. Hindle (2009), for example, argues that innovation is the combination of an inventive process and an entrepreneurial process to create new economic value for defined stakeholders and focuses on the policy implications of this duality, while Zhao (2005) saw entrepreneurship and innovation as positively related to each other and interacting to help an organisation to flourish. Drucker (2007) believed that innovation is the specific tool of entrepreneurs.

Schumpeter (1912) viewed the entrepreneur as an innovator who implements entrepreneurial change within markets. However, applying the five manifestations mentioned above, one can notice that this Schumpeterian view does not necessarily imply that the entrepreneur is always an innovator; it suggests that innovativeness comes from putting things together in new combinations, from taking advantage of technology to create markets that did not exist before or from offering something familiar with new features.

According to Cefis and Marsili (2006), firms that are both small and young are those most exposed to the risk of exit and, at the same time, those that benefit most from innovation to survive in the market, especially in the longer term.

### **Women Entrepreneurs and Gender Differences**

In many countries the percentage of men entrepreneurs is higher than that of their women counterparts; however, more attention has been paid recently to women's entrepreneurship and several studies are being conducted to pinpoint the gender differences and if there are any particular attributes of women entrepreneurs, especially as all that was previously known about entrepreneurship and entrepreneurs was based on men.

In the MENA region, women's entrepreneurship is increasingly recognized as an important factor for economic growth and development (CAWTAR, 2007). However, their share is far lower than in the other middle-income regions of East Asia, Latin America and the Caribbean, Europe and Central Asia (World Bank, 2007) and thus very little is known about women entrepreneurs in Arab countries, as Al Lamky (2005) has recognised. This can be attributed to what the women in the Middle East face, the inequality and restrictive practices in education, economic participation and family roles. Many of these oppressive practices and limitations are said to emanate from local cultural traditions (Nazir, 2006) and create obstacles to rights and liberties reflected in laws dealing with criminal justice, the economy, education and health care.

However, over the last five years, important steps have been made to improve the status of women; fourteen out of seventeen Arab countries have recognised some gains (Kelly, 2010). Women have become more visible participants in public life, education and business throughout the region. In terms of education, primary school enrolment is high in most MENA countries (Fahimi and Moghadam, 2004), and gender gaps in secondary school enrolment have already disappeared in several countries. Women in MENA countries are also more likely to enrol in universities than they were in the past. Nevertheless, statistics on women's rates of participation in economic activities in the Arab region show these to be lower than in any other part of the world (UNDP, 2005). On average, only 28% of the adult women in the Middle East are economically active, the lowest rate in the world (Kelly, 2010).

Previous research reveals that, while there are many similarities between women and men entrepreneurs, a number of differences exist (DeMartino and Barbato, 2003). For example, women will be less present in industries where a formal education in science and technology is required and thus we would expect fewer women engaging in entrepreneurship based on technological innovations (OECD, 2004), while Wadhwa (2010) showed that there is an imbalance between the two sexes entering high-tech fields, and that imbalance is increasing over time. Nevertheless Sonfield et al. (2001) indicated that there are no significant gender differences in venture innovation, risk situation or strategies chosen by business owners. Conversely, men tend to be more predisposed to start high-tech businesses (Morris et al., 2006), which is also supported by Nählinder and Coleman (2010) who believe that innovation is not gender-neutral; rather, it is gender-biased, since there is a general perception that women are less innovative than men.

### **3. Aims and objectives**

The majority of data concerning innovation have been gathered from firms in developed countries (Hadjimanolis, 2000), and “the relevance of the innovation process in firms doing business in developing countries is not always properly acknowledged” (Chudnovsky et al., 2006, p. 267). Likewise, little is known about entrepreneurship in emerging economies (Bruton et al., 2008), not to mention the lack of information and research about gender differences in terms of innovation and entrepreneurship, especially in the Middle Eastern countries.

Between 2008 and 2009, eleven Middle Eastern countries participated in the annual cycle of the Global Entrepreneurship Monitor (GEM), which is an international research programme aimed at measurement of the national level of entrepreneurial activity by assembling relevant harmonized data from a number of countries on an annual basis (see Appendix 1). These countries vary in the level of their economic development based on the level of GDP per capita and the extent to which these countries are factor-driven in terms of the shares of exports of primary goods in total exports according to the Global Competitiveness Index. These countries include:

1. Factor-Driven: Yemen, West Bank and Gaza, Syria, Lebanon, Algeria, Egypt.
2. Efficiency-Driven: Jordan.
3. Innovation-Driven: United Arab Emirates.

GEM utilises Schumpeter’s (1942) theory of creative destruction, which states that entrepreneurs distort the market equilibrium by introducing new products, market combinations or innovations. Thus the combination of entrepreneurship and innovation is believed to contribute to economic growth.

Therefore, GEM tries to recognize the early stage entrepreneurs’ expectations of innovation and growth. It does so in a variety of ways: firstly, the assessment of early-stage entrepreneurs of the unfamiliarity of their products or services relative to customers’ current experiences, secondly, the degree of competition faced by the business and thirdly the modernisation of technologies used to produce products and services compared to last year.

The aim of the current research is to investigate the differences between male entrepreneurs and their female counterparts in Eight Arab Countries (Algeria, Morocco, Egypt, Yemen, Palestine, Jordan, Syria and Lebanon) in terms of their innovativeness to see whether there is a significant difference in their inclination towards innovation or not.

### **4. Methodological approach**

Due to the lack of information available in the Middle East about the levels of innovation, let alone the link between entrepreneurship and innovation and whether there are gender differences, the researcher opted to conduct exploratory research. This type of research is designed to clarify and define the nature of a problem (Zikmund, 2003) and grants a greater understanding of something that not enough is known about.

In order to describe the levels of innovation and entrepreneurship in MENA countries, the researcher used different sources and methods for data collection:

1. Secondary data, where the researcher relied on surveying the literature pertinent to the topic, including the statistical tables, publications issued by governmental and non-governmental organizations, research papers, articles and editorials.
2. The Adults Population Survey (APS), which is the main tool for data collection used by GEM. It provided a comprehensive set of data throughout the region and allows for comparison across countries. The researcher exploited the questions related to innovation, which are:
  - a. What is the total early stage entrepreneurial activity rate for both men and women?
  - b. Will there be a market expansion mode and if so will new technologies be used?
  - c. Do all, some or none of your potential customers consider this product or service new and unfamiliar?
  - d. How many businesses offer the same products?
  - e. Were the technologies or procedures available more than a year ago?
  - f. How new is the technology?
  - g. What is the technology level of the sector?
  - h. Are you operating in the technology sector?
  - i. Is there any indication of new products or market combinations?

## 5. Data Analysis

The analysis of data starts by highlighting the levels of entrepreneurship in the Middle Eastern countries then moves to discussing the levels of innovation in these countries and ends by revealing the differences in the levels of innovation among men and women entrepreneurs.

### *Levels of entrepreneurship in the Middle East*

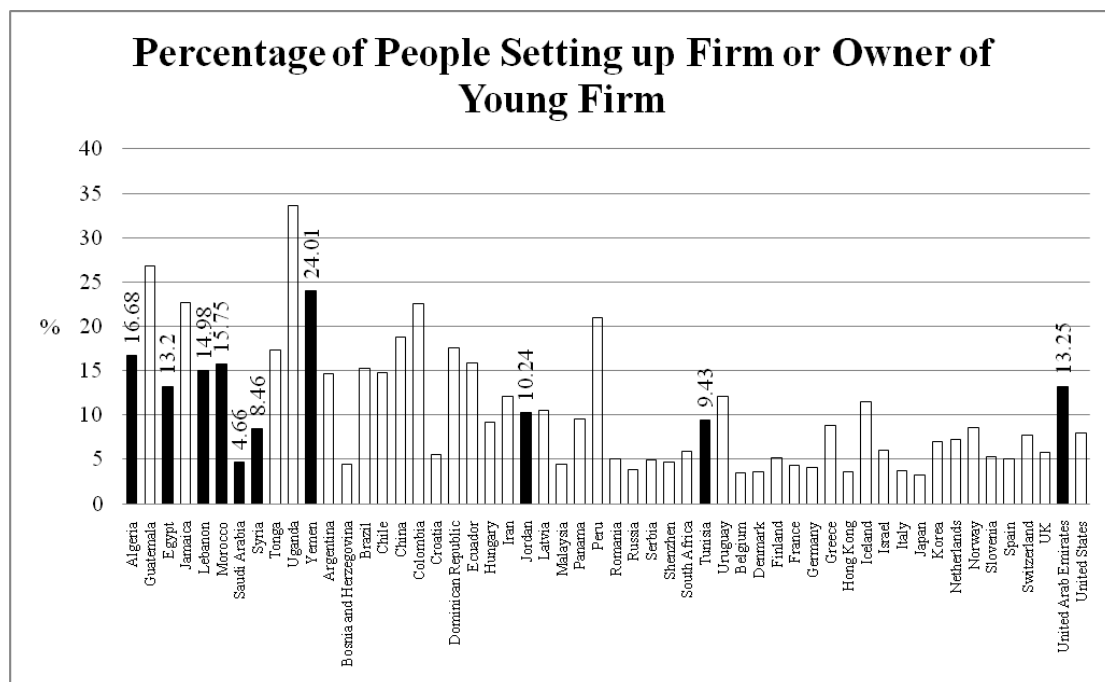
Figure 1 displays the level of entrepreneurship among the Arab countries participating in the annual cycles of 2008 and 2009 compared to other countries. The early-stage entrepreneurial activity (TEA) prevalence rate of the adult population (proportion of people aged 18-64 who are involved in entrepreneurial activity as a nascent entrepreneur and/or as an owner-manager of a new business) differs between countries, with Yemen as the second highest not only among the countries at its same level of economic development but among all the countries, with a TEA rate of 24.01%, and Saudi Arabia as low as 4.66%, which is among the lowest rates across the three levels of economic development. The TEA rates for the Arab countries show that people at these countries are more entrepreneurially active compared to other countries either at the same or at higher levels of economic development. For example, at the level of Innovation Driven Economies, more adults in the UAE are entrepreneurially active than USA or UK with TEA rates of 13.25%, 7.96% and 5.74% respectively, and these rates are lower than that of Jordan, Egypt, Algeria and Lebanon.

In conclusion, most of the Middle Eastern countries which are categorised as being factor driven economies have fairly good rates of entrepreneurship. This rate is higher than for many innovation-driven economies.

### *Levels of Innovation*

This part discusses the levels of innovation in the eight Arab countries subject to analysis (Table 1). Although the previous literature review showed the interrelatedness of entrepreneurship and innovation, yet it is noticed that all the Arab countries have a low level of innovation despite the level of entrepreneurship; with insignificant differences between the levels of innovation among the countries, although Jordan has the lowest mean, while Palestine has the highest. It is noticeable that in terms of technology sector and technology level of the sector, the rate of entrepreneurs using medium technology or working in a sector implementing a medium level of technology is very low, almost approaching zero per cent, with Egypt having a higher level, though it remains low as well.

**Figure 1: Prevalence Rates of Entrepreneurial Activity in the Adult Population in GEM MENA Countries and Comparator Countries, 2008 and 2009**



Algeria to Yemen: Stage 1: Factor Driven  
 Argentina to Uruguay: Stage 2: Efficiency Driven  
 Belgium to United States: Stage 3: Innovation Driven

**Table 1: Levels of Innovation of GEM MENA 2008-2009**

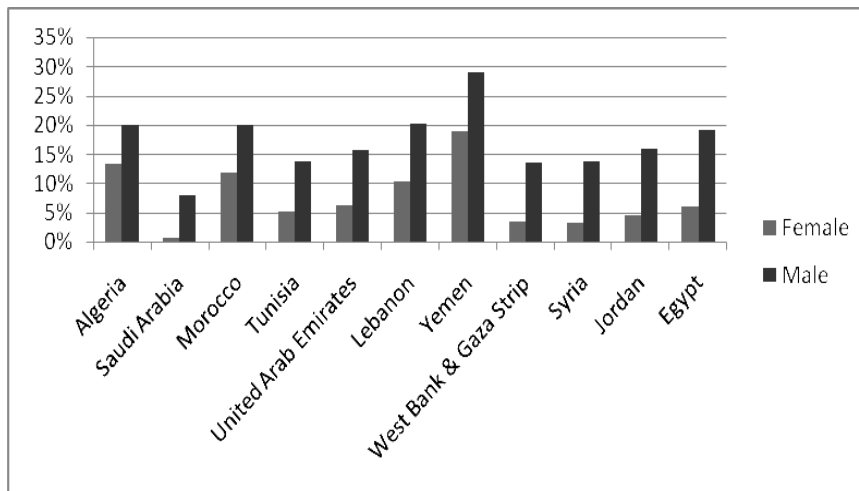
Country	Market Expansion Mode	(Potential) customers considering product new/unfamiliar	Businesses offering the same product	Technologies or procedures available more than a year ago	New technology	Technology level of the sector	Technology sector	New product market combination	Level of Innovation	TEA rate
Egypt	1.7	2.6	1.4	2.2	0.2	0.1	0.1	0.1	1.054	13.2
Algeria	1.9	2.28	1.42	2.22	0.30	0.00	0.00	0.24	1.044	16.68
Jordan	1.7	2.33	1.46	2.44	0.19	0.00	0.00	0.22	1.000	10.24
Lebanon	1.6	2.49	1.51	2.50	0.16	0.02	0.02	0.23	1.064	14.98
Morocco	1.4	2.74	1.43	2.57	0.12	0.00	0.00	0.07	1.044	15.75
Palestine	1.8	2.74	1.45	2.12	0.33	0.01	0.01	0.13	1.072	8.6
Syria	1.5	2.33	1.70	2.64	0.05	0.00	0.00	0.24	1.065	8.46
Yemen	2.1	2.03	1.52	1.86	0.38	0.00	0.00	0.27	1.017	24.01

*Gender Differences- Levels of Innovation and Entrepreneurship*

Comparing the early stage entrepreneurial activity (TEA) rate for women in MENA countries with the TEA rate for their men counterparts reveals the existence of gender gap. For men the TEA rates are higher than those of women. Egypt has the largest gender gap, followed by Jordan, Syria and the West Bank and Gaza, while the lowest gap is in the case of Algeria and Saudi Arabia (Figure 2).

Table 2 displays the level of innovation for both men and women in Morocco, Jordan, Lebanon, Yemen, Algeria, Syria, Palestine and Egypt. Overall, it can be noticed that men entrepreneurs are more innovative than their women counterparts in the Middle East, with some variations between countries and among the variables.

**Figure 2: Early-Stage Entrepreneurial Activity (TEA), Men vs. Women**



Entrepreneurs of both genders in all the eight countries exhibit an inclination towards using new technologies in their work, with Yemeni women showing the highest indication among both genders. Except Lebanon, women entrepreneurs show more indication of new technology than men.

## Innovation and Entrepreneurship: Does Gender Really Matter

In terms of the percentage of early stage enterprises that are based on new product market combinations, the percentages of women entrepreneurs varied from as low as 7% in Morocco, to as high as 27% in case of Jordan, followed by Syria (26%), Yemen (25%) and Algeria (24%). Palestine and Egypt were at the lower end (12% each). Men in Morocco also are the lowest in terms of this scale of innovation (7%) while Yemeni men are the highest. Among genders, women in Jordan, Syria and Egypt showed higher indications of basing their enterprises on new product market combinations, while in Lebanon, Yemen and Palestine, the situation reverses.



## Innovation and Entrepreneurship: Does Gender Really Matter

**Table 2: Innovation of Early Stage Entrepreneurs, Men and Women, MENA**

	Morocco		Jordan		Lebanon		Yemen		Algeria		Syria		Palestine		Egypt	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
TEA: New Technology																
Indication	17%	9%	20%	19%	13%	18%	40%	36%	35%	26%	22%	18%	35%	32%	28%	24%
No Indication	83%	91%	80%	81%	87%	82%	60%	64%	65%	74%	78%	82%	65%	68%	72%	76%
TEA: New Product Market Combination																
Indication	7%	7%	27%	20%	20%	25%	25%	29%	24%	24%	26%	24%	12%	14%	12%	8%
No Indication	93%	93%	73%	80%	80%	75%	75%	71%	76%	76%	74%	76%	88%	86%	88%	92%
TEA: New Technology Level of The Sector																
No/Low Tech	100%	100%	100%	99%	100%	97%	100%	100%	99%	100%	100%	99%	100%	99%	100%	99%
Medium Tech	0%	0%	0%	1%	0%	3%	0%	0%	1%	0%	0%	1%	0%	1%	0%	1%
TEA: Technology Sector																
No/Low Tech	100%	100%	100%	99%	100%	97%	100%	100%	99%	100%	100%	99%	100%	99%	100%	92%
Medium Tech	0%	0%	0%	1%	0%	3%	0%	0%	1%	0%	0%	1%	0%	1%	0%	8%
TEA: Number of Businesses Offering the Same Products																
Many	60%	69%	64%	65%	55%	61%	59%	50%	61%	64%	58%	49%	59%	66%	64%	68%
Few	27%	21%	27%	24%	33%	31%	37%	45%	36%	31%	26%	30%	35%	25%	31%	24%
None	9%	9%	9%	11%	12%	8%	4%	5%	3%	5%	16%	21%	6%	10%	5%	7%
TEA: Market Expansion Mode																
No Market Expansion	66%	72%	48%	56%	61%	58%	33%	35%	41%	48%	61%	52%	53%	54%	64%	57%
Some Market Expansion (No New Technologies)	17%	19%	32%	25%	14%	24%	27%	29%	23%	26%	35%	42%	12%	14%	8%	19%
Some Market Expansion (New Technologies)	16%	9%	20%	16%	13%	16%	36%	30%	34%	22%	3%	4%	35%	31%	27%	21%
Profound Market Expansion	1%	0%	0%	2%	0%	2%	4%	6%	2%	4%	0%	1%	0%	1%	1%	3%
TEA: Number of (Potential) Customers Considering Product New/Unfamiliar																
All	9%	7%	22%	22%	15%	13%	36%	29%	16%	22%	16%	25%	3%	5%	4%	15%
Some	8%	9%	33%	19%	20%	25%	38%	32%	36%	32%	19%	20%	18%	18%	24%	13%
None	82%	83%	44%	58%	65%	62%	26%	39%	48%	47%	65%	55%	79%	77%	72%	72%
TEA: Were the technologies or procedures available more than a year ago?																
Very Latest Technology (Less than 1 Year)	17%	9%	10%	19%	13%	18%	40%	36%	35%	26%	3%	6%	35%	32%	28%	24%
New Technology (1 To 5 Years)	20%	19%	34%	17%	19%	17%	41%	37%	13%	21%	29%	24%	21%	22%	23%	30%
No New Technology (More than 5 Years)	63%	73%	56%	65%	68%	65%	19%	27%	52%	53%	68%	71%	44%	46%	49%	46%

Men and women entrepreneurs are operating in no-technology and low-technology sectors; the percentage is almost 100% for both genders except in Algeria, where 1% of women entrepreneurs are operating in medium technological sectors (versus 0% for their men counterparts), while in Jordan, Lebanon, Syria, Palestine and Egypt, men are showing slightly higher inclination towards operating in medium technology sectors with rates of 97%, 99%, 99% and 92% respectively. This situation can also be seen on another scale of innovation, which is the degree of the technicality of the sector (technology level of the sector).

In terms of the newness and unfamiliarity of entrepreneurs' products relative to customers' current experiences, in most of the countries, according to women entrepreneurs none of the customers consider the products new. In Morocco, Palestine and Egypt, 82%, 79% and 72% of customers (respectively) were familiar with the products provided by the early stage entrepreneurs, while in Yemen, 26% said they were familiar with the products, compared with 38% of Yemeni customers who felt that some of the products were new. However, 36% of costumers in Yemen consider the products new and unfamiliar to them, which is the highest percentage of newness in all the MENA countries, followed by Jordan, with 22% of customers considering products are new. The majority of men entrepreneurs (more than 50%), except Yemenis, perceive that their products are not new and they are close in this pattern to women entrepreneurs in their respective countries. However, in Jordan, this pattern is not followed, as women more than men recognise that their customers see their products are somehow new or unfamiliar; 33% compared to 19%. In Yemen, women more than men think that their products are all new or unfamiliar; 36% compared to 29%. In Egypt, although more women than men see some of their products as new to customers (24% compared to 13%), yet more men than women see that all their products are new or unfamiliar to the customers (15% compared to 4%).

Regarding the competitiveness of businesses, which is measured by the number of businesses who offer the same products, it can be seen that in almost all the eight countries there are many businesses who offer same products and services. However, it is noticeable that more women than men (with the exception of Yemen and Syria) are offering products and services that are offered by a smaller number of businesses, while the situation reverses for cases where "no other businesses offer the same product" except the entrepreneurs. In Lebanon 12% of women said there are no other businesses offering similar products compared to 8% of men.

Only 4% of early stage women entrepreneurs in Yemen are planning to undertake profound market expansion, placing it at the top out of these eight of countries, followed by Algeria (2%), Egypt and Morocco (1%). Women in the rest of these countries are not even intending to make this sort of expansion; rather they are more inclined not to take any step towards expanding the market at all or to have some market expansion which doesn't involve the introduction of any new technologies. Nevertheless, more men than women, although with low percentages, are intending to expand the market profoundly, except in Morocco (0% of men compared to 1% of women). However, 36%, 35% and 34% of early stage women entrepreneurs in Yemen, Palestine and Algeria (respectively) are planning to expand the market based on the introduction and utilisation of new technologies. A reasonable percentage of women in all countries, except for Syria, have plans to expand using new technologies.

Regarding the modernisation of technologies used for the production process, it was found that the majority of men and women entrepreneurs in almost all MENA countries are using

technologies that are more than 5 years old. However, in Yemen both men and women are exploiting the very latest technology (newer than one year): 36% and 40% respectively. However, there is a reasonable percentage of men and women entrepreneurs who are utilising the very latest technologies (newer than one year).

## 6. Conclusions and Recommendations

The current research is considered to be exploratory research that aims at studying gender differences among Middle Eastern entrepreneurs, through utilising the Global Entrepreneurship Monitor's Adults Population Survey for eight Arab countries. The research shows that although the levels of entrepreneurship in those Arab countries are fairly good compared to other countries, nevertheless, the level of innovation among the entrepreneurs is very low, especially in terms of operating in the technology sector. This finding is not consistent with the literature that emphasises the positive relation between innovation and entrepreneurship.

The research showed that there is a gender gap in the levels of entrepreneurship, with men being more entrepreneurially active than women but with the levels of innovation on some measurements being higher among women than men. Nevertheless, the overall level of innovation among men entrepreneurs is higher than that of their women counterparts.

It is recommended that further research should be conducted 1) to identify the reasons and factors hindering Arab entrepreneurs and thus deterring them from utilizing technology and being innovative in general; and 2) to understand the underlying reasons for gender differences among entrepreneurs and their inclinations towards innovation.

The main limitation of this research was the lack of data and previous researches discussing entrepreneurship and innovation in the Middle East in general and by gender specifically. Thus it is expected that the current research will contribute to describing this phenomenon and increasing our understanding of it.

Dr. Hattab's paper on Gender and Entrepreneurship was awarded the prize for Best Paper at the Eco-ENA First Annual Conference of Economic Forum of Entrepreneurship and International Business in Cairo, Egypt, in April 2011.

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## Appendix 1

### Global Entrepreneurship Monitor (GEM) - The Model (Hattab, 2008, GEM, 2010)

“GEM focuses on three main objectives:

- “• To measure differences in entrepreneurial attitudes, activity and aspirations among economies.
- “• To uncover factors determining the nature and level of national entrepreneurial activity.
- “• To identify policy implications for enhancing entrepreneurship in an economy.

“GEM is based on the following premises. First, an economy’s prosperity is highly dependent on a dynamic entrepreneurship sector. This is true across all stages of development. Yet the nature of this activity can vary in character and impact. Second, an economy’s entrepreneurial capacity requires individuals with the ability and motivation to start businesses, and requires positive societal perceptions about entrepreneurship. Entrepreneurship should include participation from all groups in society, including women, a range of age groups and education levels and disadvantaged populations. Finally, high-growth entrepreneurship is a key contributor to new employment in an economy, and national competitiveness depends on innovative and cross-border entrepreneurial ventures.” (GEM 2010, p.12).

“The main data collection methods used in the GEM research are:

- “1. The Adult Population Survey (APS), conducted with a randomly-selected sample of a minimum of 2,000 adults, aged 18-64 years old, and;
- “2. The National Experts Survey (NES), conducted with 36 experts (key informants) on various aspects of entrepreneurship, selected on the basis of their knowledge and experience with respect to the nine entrepreneurial framework conditions.

“The APS is the primary research tool of GEM. Each national team must survey at least 2,000 adults in their country using best practice in social science survey techniques. To ensure consistency and cross-country comparability, each country conducts exactly the same survey of its adult population at the same time of the year using the same methodology. The individual country surveys are then harmonised into one master dataset.” (Hattab, 2008, p.7).

## ***Rudra Prakash Pradhan***

### **Are Exports and Imports Cointegrated: The Case Study of O-5**

#### **Abstract**

The paper investigates the long run equilibrium relationship between exports and imports in O-5, namely Brazil, China, India, Mexico and South Africa. Using Johansen's cointegration technique, it finds that exports and imports are cointegrated in China and South Africa. Using Granger causality further, it finds the bidirectional causality between exports and imports in all the five countries. The paper finally suggests that the existence of convergence between exports and imports will lead to stabilization in trade balance and hence, contributes to macroeconomic stability in the economy.

**Key words:** Exports, Imports, Cointegration.

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#### **1. Introduction**

Foreign trade plays an overriding role in economic development. It bestows economies of scale and enables a country to produce those goods which are economical, competitive and based on rational cost proportions. Foreign trade strengthens the relationship (both economically and politically) with other trading countries and provides an opportunity to enter into a customs union that brings forth trade-creating and trade-diverting benefits. It offers vibrant gains to the country such as competition, efficiency, markets, resources etc. Its contribution to economic growth is substantially dynamic and statistically significant (Kunst and Marin, 1989, Karunaratne, 1996, Frankel and Romer, 1999). While an expansion of exports will induce a higher rate of economic growth (Michaely, 1977, Balassa, 1978, Heller and Porter, 1978, Tyler, 1981, Feder, 1983, Kavoussi, 1984, Ram, 1985, Jung and Marshall, 1985, Ahmad and Harnhirum, 1996, Chandra, 2002, Mallick, 2005), an expansion of imports will increase the expenditure base of the country (Nandi and Kumar, 2005). But the increase of import expenditure entirely depends upon the level of economic growth in the economy, which is partly financed through enhancing exports. That means exports and imports are interrelated to each other, though this relation may be influenced by changes in terms of trade (Basu and Mcleod, 1991) and more flexible trade policies (Clark, 1997). Hence, the study of this relationship is



highly essential. The relationship between the two has twin benefits for the economy. First, it enhances the trade volume and, second, it adds a contribution to economic growth and other benefits like employment, foreign exchange reserves, etc.

Moreover, in developing countries like India, there is instability of exports and that affects economic growth adversely (Krishnamoorthy and Reddy, 2002). The volatility of exports may arise for a number of reasons such as changes in price, exchange rates, terms of trade, etc. (Lim, 1976). The uncertainty in exports and resulting volatility in economic growth cause fluctuations in the levels of imports. The latter can also disrupt private development expenditure. This way we can justify saying that exports and imports are integrated to each other. Moreover, most of the policies, in any country in the world, are very interdependent. So it is very difficult to evaluate the effects of one policy without controlling the others. At times, policy makers are interested to work out the combined effect of all policies on the trade balance. And one way to investigate the combined effects of all policies on the trade balance is to determine whether a country's imports and exports converge to long run equilibrium (Irandoost and Ericsson, 2004, Bahmani-Oskooe and Rhee, 1997). Hence, the objective of this paper is to investigate the nexus between exports and imports in the case of O-5, the five fastest emerging countries in the world.

The rest of the paper is organized into five different sections. Section 2 describes the theoretical model; Section 3 presents the analytical model; Section 4 lays out the database; Section 5 discusses empirical results; and the final section offers conclusions and policy implications.

## 2. The Theoretical Model

Economies are usually represented in two specific forms: closed and open. Government intervention is very high in the closed economy, where most of the economic activities are restricted within the country. But the open economy is a situation where there is little or no government intervention in the economy and gives lots of flexibility to both consumers and investors. Let us consider a situation where there is no government intervention in the economy. That means consumers are assumed to optimize their utility function subject to certain budget constraints and they are allowed to borrow and lend in international markets at a predetermined world interest rate to achieve their maximum utility. For a given income ( $Y$ ), consumption ( $C$ ) and investment ( $I$ ), an individual's current budget constraint can be represented as follows (Husted, 1992, Erbaykal and Karaca, 2008):

$$C_t = Y_t - I_t + B_t + (1 + r_t)B_{t-1} \quad (1)$$

where  $C_t$  = consumption expenditure for time period  $t$  (current);  $Y_t$  = income at the time period  $t$ ;  $I_t$  = investment expenditure at the time period  $t$ ;  $B_t$  = international borrowings at the time period  $t$ ;  $B_{t-1}$  = international borrowings at the time period  $t-1$ ;  $r$  = cost of borrowing at the time period  $t$ . It is to be noted that  $B_{t-1}$  is the debt of the previous period, which represents country's external debt.

$$B_t = \sum_{t=1}^{\infty} \lambda_t TB_t + \lim_{n \rightarrow \infty} \lambda_n B_n \quad (2)$$

where  $TB_t$  = trade balance at the time period  $t$ , which is the difference between exports ( $Xt$ ) and imports ( $M_t$ ); and  $\lambda_t = 1/(1+r_t)$ , which is the discount factor. If the last term of equation (2) is equal to zero, then the country's borrowing or lending is exactly same as the present value of the

future trade deficits or surpluses. Here we can derive the testable model by rearranging equation (1) as follows:

$$Z_t + (1 + r)B_{t-1} = X_t + B_t \quad (3)$$

where  $Z_t = M_t + (r_t + r)B_{t-1}$  and it is assumed that the world interest rate is stationary with unconditional mean  $r$ . Equation (3) can be further modified to:

$$M_t + rB_{t-1} = X_t + \sum_{j=0}^{\infty} \lambda^{j-1} [\Delta X_{t+j} - \Delta Z_{t+j}] + \lim_{j \rightarrow \infty} \lambda^{t+j} B_{t+j} \quad (4)$$

where,  $\Delta$  is the first difference operator. The left-hand side of the equation (4) represents expenditure on imports as well as interest payments/ receipts on net foreign debt/ assets. If  $X_t$  is subtracted from both sides and each side is multiplied by minus one, then the left-hand side becomes the country's current account balance of payments.

Assuming both  $X$  and  $Z$  are integrations of 1, then the equation (4) can be redesigned as follows:

$$X_t = \alpha + MM_t - \lim_{n \rightarrow \infty} \lambda^{t+j} B_{t+j} + \varepsilon_t \quad (5)$$

where  $MM_t = M_t + r_t B_{t-1}$ ;  $\alpha$  = the drift parameters (possibly equal to zero) and  $\varepsilon_t$  is a white noise disturbance term that follows a stationary process. Now, for  $j \rightarrow \infty$ , equation (5) can be further modified to:

$$X_t = \beta_0 + \beta_1 * MM_t + \zeta_t \quad (6)$$

The equation (6) states that a country satisfies its inter-temporal budget constraint if the estimated coefficient of  $MM_t$  equals unity (i.e.  $\beta_1 = 1$ ) and  $\zeta_t$  is white noise disturbance term and stationary. If both the conditions are valid, then exports and imports are cointegrated (Keong et al, 2004).

The paper basically aims to examine the possibility of cointegration and causality between exports and imports in O-5, Outreach 5. The following research problem is not something new. In fact, there are a number of empirical studies that have documented the relationship between exports and imports in various countries with different time periods (see Maneschiöld, 2008, Nandi and Kumar, 2005, Abual-Foul, 2004, Awokuse, 2004, Irandoust and Ericsson, 2004, Panas and Vamvoukas, 2002, Bahmani-Oskooe and Rhee, 1997, Ahmad and Harnhirun, 1996, Balassa, 1978). But the outcomes of these studies are not uniform. It varies from country to country and even within the same country with different time periods. That means the nexus between exports and imports are very inconclusive in the economic literature. The present study is, however, different from the previous literature on two grounds. First, it adds extra support to the inconclusive nexus between exports and imports. Second, it is a unique study in O-5, Outreach 5. The statistical analysis of this nexus is investigated in the subsequent section.

### 3. The Analytical Model

The investigation of the relationships between exports and imports begins with an examination of the integration properties of the data, followed by cointegration and Granger causality tests. The details of the three tests are described below.

*Integration Test*

Univariate analysis is generally conducted to investigate the stationarity properties of the data. The Augmented Dickey Fuller (Dickey and Fuller, 1981, Dickey et al., 1986) test is usually applied to examine the stationarity of the variables. The structure of this test starts with the estimation of the following time series model.

$$\Delta Z_t = \alpha + \beta Z_{t-1} + \sum_{j=1}^n \gamma_j \Delta Z_{t-j} + \varepsilon_t \tag{7}$$

Where, Z is the variable of choice for exports and imports,  $\varepsilon_t$  is the white noise error term and the null hypothesis is to test whether  $\beta$  is equal to zero or not. Though the Augmented Dickey Fuller (ADF) test is very simple and frequently used in financial econometrics, it is not reliable in small samples, because of its poor size and power properties. That means the ADF test can over-reject the null hypothesis when it is true and under reject it when it is false (see Dejong et al., 1992, Harris and Sollis, 2003). The study, therefore, uses the Ng-Perron test (Ng and Perron, 2001) to check the stationarity. The test uses four test statistics based on the lines of GLS de-trended data. The modelling structure of the Ng and Perron unit root test is as follows:

$$k = \sum_{t=2}^T (D_{t-1}^d)^2 / T^2 \tag{8}$$

while de-trended GLS tailored statistics are given by

$$MZ_a^d = [T^{-1}(D_T^d)^2 - f_0] / 2k \tag{9}$$

$$MZ_t^d = MZ_a^d XMSB \tag{10}$$

$$MSB^d = (k/f_0)^{0.5} \tag{11}$$

$$MP_T^D = (\bar{c}^2 k - \bar{c} T^1) (D_T^d)^2 / f_0 \text{ if } x_t = \{1\} \tag{12}$$

and

$$MP_T^D = (\bar{c}^2 k + (1 - \bar{c} T^1)) (D_T^d)^2 / f_0 \text{ where } \bar{c} = -7 \text{ if } x_t = \{1\} \text{ and } \bar{c} = -13.5 \text{ if } x_t = \{1, t\} \tag{13}$$

Like other statistical tests, the null hypothesis of unit root cannot be rejected if the test statistic is higher than the critical value.

*Cointegration Test*

The cointegration technique is basically used to detect the long run equilibrium relationship between exports and imports. The study used the Johansen (1988 and 1991) and Johansen and Juselius (1990) approach to test the cointegration. The technique commences with the estimation of the following equation:

$$X_t = A_0 + \sum_{\tau=1}^p \Pi_{\tau} X_{t-\tau} + \varepsilon_t \tag{14}$$

Where  $X_t = n$  by 1 vector of non-stationary  $I(1)$  variables;  $A_0 = n$  by 1 vector of constants,  $p =$  number of lags; and  $\varepsilon =$  white noise error terms.

The equation can be further written as

$$\Delta X_t = A_0 + \sum_{\tau=1}^{p-1} \bar{\Pi} \Delta X_{t-\tau} + \bar{\Pi} X_{t-p} + \varepsilon_t \quad (15)$$

where  $\bar{\Pi} = \sum_{i=1}^{\tau} \Pi_i - I$  and  $\bar{\Pi} = \sum_{\tau=1}^p \Pi_{\tau} - I$  are of dimension  $n$  by  $n$ .

It is to be noted that the lag length  $p$  has to be chosen in such a way to ensure that the errors are white noise. Since  $\varepsilon_t$  is stationary, the rank  $r$  of the long run matrix ( $\bar{\Pi}$ ) determines how many linear combinations of  $X_t$  are stationary. If  $r = n$ , then all  $X_t$  are stationary. If  $0 < r < n$ , there exist  $r$  cointegrating vectors, representing  $r$  stationary linear combinations of  $X_t$ . In that case, the impact matrix can be written as follows:

$$\bar{\Pi} = \alpha\beta' \quad (16)$$

Where, both  $\alpha$  and  $\beta$  are  $n$  by  $r$  matrices. The cointegrating vectors of  $\beta$  are the error correction mechanisms in the system, while  $\alpha$  contains the adjustment parameters. The result is known as Granger's representation theorem (Engle and Granger, 1987). Johansen and Juselius (1990) provide a full maximum likelihood procedure for estimation and testing within this framework. The Johansen and Juselius test basically looks for two statistics: trace statistics ( $\lambda_{Tra}$ ) and maximum eigen value statistics ( $\lambda_{Max}$ ).

The trace statistics is computed as follows:

$$Trace = -T \sum_{i=r+1}^n \text{Log}(1 - \hat{\lambda}_i) \quad (17)$$

Where  $\hat{\lambda}_{r+1}, \dots, \hat{\lambda}_n$  are  $(n - r)$  smallest estimated eigen values.

The likelihood ratio test statistic for the null hypothesis of  $r$  cointegrating vectors against the alternative of  $r + 1$  cointegrating vectors is the maximum eigen value test and is given by

$$\lambda_{\max} = -T \text{Log}(1 - \hat{\lambda}_{r+1}) \quad (18)$$

Here, the null hypothesis of  $r$  cointegrating vectors is tested against an alternative hypothesis of  $r + 1$  cointegrating vectors. Hence the null hypothesis  $r = 0$  is tested against the alternative  $r = 1$ ,  $r = 1$  against the alternative  $r = 2$ .

### *Granger Casualty Test*

The finance/ economic theory are little bit ambiguous whether exports cause imports or vice versa. The Granger causality test could give the answer for it. Hence, we apply Granger causality to know the direction of causality between exports and imports. According to Granger (1988), if two variables are cointegrated, then there is possibility of causality between them at least in one direction. Following Johansen (1988) and Johansen and Juselius (1990), the error correction model (ECM) is deployed for the causality detection between exports and imports.

$$\Delta EX_t = \phi_1 + \sum_{i=1}^p \alpha_i \Delta EX_{t-i} + \sum_{j=1}^q \beta_j \Delta IM_{t-j} + \delta_1 EC_{t-1} + \zeta \quad (19)$$

$$\Delta IM_t = \phi_2 + \sum_{i=1}^r \eta_i \Delta IM_{t-i} + \sum_{j=1}^s \mu_j \Delta EX_{t-j} + \delta_2 EC'_{t-1} + \zeta \quad (20)$$

Where,  $EX$  represents exports and  $IM$  represents imports.  $EC_{t-1}$  and  $EC'_{t-1}$  are the lagged stationary residuals from the cointegration equation. The null hypotheses are  $H_0: \beta_i = \delta_1 = 0$  (for all  $i$  and  $k$ ) against  $H_A: \beta_i \neq \delta_1 \neq 0$  for equation (19) and  $H_0: \mu_i = \delta_2 = 0$  (for all  $i$  and  $k$ ) against  $H_A: \mu_i \neq \delta_2 \neq 0$  for equation (20). The short run causality is tested by the significance of  $\beta$  and  $\mu$  coefficients, while the long run causality is tested by the significance of  $\delta_1$  and  $\delta_2$ . The coefficients of  $\delta_1$  and  $\delta_2$  contain the information about whether the past values of variables affect the current values of the variable in the ECM system. However if the two variables are not cointegrated, then we can go for simple vector autoregressive (VAR) model (see Shan and Sun, 1998). Like the integration and cointegration test, the lag length is also very sensitive in the causality test. The Akaike Information Criterion has been deployed to fix the same.

We also conduct these three tests (unit root, cointegration and causality) at the panel level. This is for the better feasibility of the investigation, as it allows large samples. The LLC (Levin et al., 2002) and IPS (Im et al., 2003) tests are used for unit root test. They are based on the lines of ADF principle only. The LIC assumes homogeneity in the dynamics of the autoregressive coefficients for all panel numbers, while IPS assumes for heterogeneity in these dynamics. The Pedroni (2004 and 1999) panel cointegration technique is deployed to examine the long run equilibrium relationship between two variables. The test overcomes the problem of small samples and allowing heterogeneity in the intercepts and slopes of the cointegrating equation. The test starts with the following time series panel regression.

$$Y_{i,t} = \alpha_i + \sum_{j=1}^{p_i} \beta_{ji} X_{jit} + \varepsilon_{it} \quad (21)$$

$$\varepsilon_{it} = \rho_i \varepsilon_{i(t-1)} + w_{it} \quad (22)$$

Where  $Y_{it}$  and  $X_{jit}$  are the observable variables with dimension of  $(N^* T) \times 1$  and  $(N^* T) \times m$  respectively;  $\varepsilon_{it}$  represents the disturbance term from the panel regression;  $\alpha_i$  allows for the possibility of country-specific fixed effects and the coefficients of  $\beta_{ji}$  allows for the variation across individual countries.

The panel causality test, proposed by Holtz- Eakin et al. (1988), is finally applied to detect the direction of causality. The test is based on the estimation of following equations:

$$\Delta GDP_{it} = \eta_j + \sum_{k=1}^p \alpha_{ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{ik} \Delta FDI_{it-k} + \lambda_i EC_{1it-k} + \Delta \varepsilon_{1it} \quad (23)$$

$$\Delta GDP_{it} = \eta_j + \sum_{k=1}^p \alpha_{ik} \Delta GDP_{it-k} + \sum_{k=1}^q \beta_{ik} \Delta FDI_{it-k} + \lambda_i EC_{3it-k} + \Delta \varepsilon_{3it} \quad (24)$$

Where  $EC$  is error correction term and that is obtained from the cointegrating equation.

#### 4. Database

The empirical investigation has been carried out for O-5, outreach 5. This is the group of five emerging countries in the world, namely Brazil, China, India, Mexico and South Africa. The group is constituted to solve number of issues, particularly with respect to individual country's development and overall development in general. One of such issues is to establish the trade link among the member nations. The empirical investigation can suggest that the growing integration between exports and imports will improve the trade integration and can increase the trade volume among the member countries. It will also signify the importance of pursuing liberal and free market policies by pursuing export promotion strategies and by attracting foreign investments (see Myatt et al., 2007). Moreover, the integration of exports and imports will provide multiple benefits in the economy, particularly on economic growth, foreign exchange and employment.

The variables used for this investigation are export, which is measured as goods and services as a percentage of GDP, and import, which is represented as goods and services as a percentage of GDP. The annual data of O-5, covering the period from 1960 to 2008, is used for the empirical investigation except China. In the case of China, the coverage is 1970-2008. The choice of the countries is mostly for their recent formulation, while the choice of data length reflects the availability. The data are obtained from World Development Indicators, World Bank Group, Washington. The descriptive statistics and correlation of these data are presented in Table 1.

#### 5. Results and Discussion

In the light of econometric methodology presented in the above, the unit root and cointegrating properties of the variables are first examined and then the causality results are discussed in this section. Table 2 presents the unit root tests obtained by ADF, DFGLS, NG-Perron and panel unit root tests. The results indicate that the computed test statistics could not reject the null hypothesis of stationarity at the level data. That means the variables are non-stationary in their level data and suggests checking the stationarity at a higher order of differencing. However, once the first differences of the variables are considered, the null hypothesis of unit root is rejected at 1% significance level. This is exclusively true for all the countries of O-5, namely Brazil, China, India, Mexico and South Africa. Overwhelmingly, all the testing procedures suggest the existence of unit root or non-stationarity in the level data but found stationary at the first difference. This confirms that the time series variables (exports and imports) are integrated of order one [i.e.  $I(1)$ ]. The findings are also confirmed by the panel unit root test results.

**Table 1: Descriptive Statistics**

Countries	Mean	Med	Max	Min	SD	Skew	Kur	Correlation Matrix				
<i>EX<sub>Brazil</sub></i>	0.898	0.903	1.146	0.602	1.02	0.001	3.863	1.0				
<i>EX<sub>China</sub></i>	1.140	1.23	1.602	0.477	0.332	-0.62	2.320	0.51	1.0			
<i>EX<sub>India</sub></i>	0.854	0.845	1.11	0.602	0.137	-0.122	2.467	0.37	0.66	1.0		
<i>EX<sub>Mexico</sub></i>	0.762	0.778	1.04	0.477	0.157	0.39	2.150	0.31	0.81	0.82	1.0	
<i>EX<sub>South Africa</sub></i>	1.426	1.415	1.54	1.320	0.057	0.124	2.284	-0.11	-0.31	-0.05	-0.26	1.0
<i>EX<sub>Pool</sub></i>	1.06	1.04	1.60	0.48	0.296	0.047	1.824					
<i>IM<sub>Brazil</sub></i>	0.892	0.903	1.146	0.699	0.098	0.159	3.01	1.00				
<i>IM<sub>China</sub></i>	1.11	1.20	1.51	0.477	0.316	-0.76	2.39	0.38	1.0			
<i>IM<sub>India</sub></i>	0.854	0.845	1.114	0.602	0.137	-0.122	2.467	0.19	0.63	1.0		
<i>IM<sub>Mexico</sub></i>	0.854	0.845	1.113	0.602	0.137	-0.122	2.467	0.19	0.63	0.98	1.0	
<i>IM<sub>South Africa</sub></i>	0.153	0.151	0.189	0.121	0.017	0.049	2.512	-0.05	-0.29	-0.05	-0.05	1.0
<i>IM<sub>Pool</sub></i>	0.803	0.903	0.151	0.121	0.039	-0.467	2.276					

**Note:** Ex: Exports; IM: Imports; Med: Median; max: Maximum; Min: Minimum; SD: Standard Deviation; Skew: Skewness; Kur: Kurtosis.

Having confirmed the existence of unit roots for all the data series, the next step is to check possibility of long run equilibrium relationship between them. The Johansen's maximum likelihood cointegration test and Pedroni's panel cointegration test are applied for the same. The estimated results are reported in Table 3. The null hypothesis of no cointegrating vector in favour of at least one cointegrating vector is rejected at 5% significance level for China and South Africa. The rejection of null hypothesis of no cointegration implies that the countries do not drift apart from the point where trade opportunities remain equilibrium in the long run. That means, technically, there should be at least a common stochastic trend in the long run. This indicates that there is significant long run equilibrium relationship between exports and imports in China and South Africa. The analysis also finds that there is no cointegration between exports and imports in Brazil, India and Mexico. The difference of results may be due to small data set up. The results could be different, if there is different set up of data (see Alam, 2003) and large sample size. The results of panel cointegration confirm the same, as the cointegrating panel statistics are statistically significant (see Table 3).

**Table 2: Unit Root Test Results**

Countries	EX [At First Difference]		IM [At First Difference]		Conclusion
	ADF	DFLGS	ADF	DFLGS	
Brazil	-6.38*	-6.49*	-8.47*	-8.61*	1 (1)
China	-4.24*	-4.23*	-5.56*	-5.49*	1 (1)
India	-6.48*	-6.13*	-6.54*	-6.21*	1 (1)
Mexico	-8.26*	-6.67*	-6.54*	-6.21*	1 (1)
South Africa	-5.19*	-5.28*	-5.19*	-5.28*	1 (1)
<b>Ng- Perron Test</b>					
<b>EX [At First Difference]</b>					
	MZ <sub>a</sub>	MZ <sub>t</sub>	MSB	MPT	
Brazil	-20.14*	-3.17*	0.160	4.53	1 (1)
China	-2073*	-32.2*	0.015	0.05	1 (1)
India	-23.03*	-3.39*	0.147	3.96	1 (1)
Mexico	-22.99*	-3.39*	0.147	3.98	1 (1)
South Africa	-22.18*	-3.29*	0.148	4.35	1 (1)
<b>IM [At First Difference]</b>					
Brazil	-22.2*	-3.32*	0.150	4.19	1 (1)
China	-44.3*	-4.69*	0.106	2.13	1 (1)
India	-23.1*	-3.39*	0.147	3.94	1 (1)
Mexico	-23.2*	-3.39*	0.147	3.94	1 (1)
South Africa	-22.2*	-3.29*	0.149	4.33	1 (1)
<b>Panel Unit Root</b>					
	EX [At First Difference]		IM [At First Difference]		
LLC	-7.654*		-8.397*		1 (1)
BR	-5.174*		-5.508*		1 (1)
IPS	-7.833*		-7.592*		1 (1)
ADF	75.05*		67.67*		1 (1)
PP	160.6*		119.2*		1 (1)

**Note:** Ex: exports; IM: Imports; Test statistics follows constant and linear trend; and \*: Indicates statistically significant at 1%.

The cointegrating test is, however, does not provide an indication of causality between exports and imports. We deploy Granger causality test to detect the direction of causality. The VECM is used for China and South Africa, since exports and imports are cointegrated in these two countries. On the contrary, VAR is used for Brazil, India and Mexico, since exports and imports are not cointegrated. The results of Granger causality test based on VECM and VAR are reported in Table 4. It shows the presence of bidirectional causality from exports to imports in all the five countries. The estimated F-statistics rejected the null hypothesis of non-causality at 5% level of



significance. This suggests that exports and imports are very interdependent in O-5 countries. The panel causality test is also supported too. But this is true only in the short run except China, which has both short run and long run equilibrium between exports and imports. To complement this study, an investigation is also carried out to know whether the above long run relationships are stable over the used time period. We conduct the diagnostic tests for serial correlation (LM test), autoregressive conditional heteroskedasticity (ARCH test), heteroskedasticity (White test) and stability test (Ramsey test). The estimated results are reported in Table 5. The results confirm the stability of the model on the nexus between exports and imports in O-5.

**Table 3: Results of Johansen’s Cointegration Test**

Countries	Null Hypothesis	$\lambda_{Tra}$	$CV_{Tra}$	$\lambda_{Max}$	$CV_{Max}$
Brazil	None	8.37	15.5	6.66	14.3
	At most 1	1.71	3.84	1.71	3.84
China	None	18.4*	15.5	14.3*	14.3
	At most 1	4.14*	3.84	4.14*	3.84
India	None	6.94	15.5	6.41	14.3
	At most 1	0.54	3.84	0.54	3.84
Mexico	None	12.1	15.5	12.0	14.3
	At most 1	0.12	3.84	0.13	3.84
South Africa	None	24.6*	15.5	16.8*	14.3
	At most 1	7.75*	3.84	7.75*	4.13
		No deterministic intercept or trend		Deterministic intercept and trend	
Panel v- Statistics		2.172*		3.291*	
Panel $\rho$ - Statistics		-3.174*		-3.468*	
Panel PP- Statistics		-3.386*		-2.540*	
Panel ADF- Statistics		-2.147*		-2.856*	

**Note:** Both trace test and max- eigenvalue test, for all individual countries, indicates 2 cointegrating equations at the 0.05 level and the test follows linear deterministic trend; and \*: Indicates statistically significant at 1%.

## 6. Conclusion and Policy Implications

The purpose of this study is to test if export-led import strategy (or vice versa) is supported by the data in O-5, the five fastest emerging countries in the world. The study covers the period 1960 to 2008. It first employed unit root tests, both at individual and panel level, to know the stationarity of exports and imports, since we are dealing with time series data. By applying ADF, DFLGS, NG, LLC, IPS tests, it finds that both exports and imports are non-stationary at the level data but attained stationary at the first difference. This indicates that both exports and imports are integrated of order one [i. e. I (1)]. This is true for all the countries at the individual level and

panel level. We then applied cointegration test to examine the long run equilibrium relationship between exports and imports. By applying Johansen’s maximum likelihood test and Pedroni’s panel cointegration test, the study finds that a cointegration exists between exports and imports in China and South Africa. This is also true at the panel level. This suggests that the existence of cointegration in the system leads to extract that variables tend to evolve together over time. However, we do not find any cointegration between exports and imports in Brazil, India and Mexico. This may be due to lack of data points in the cointegration modelling. Finally, we applied Granger causality test to know the direction of causality between exports and imports. The results confirm that there is bidirectional causality between exports and imports in all the five countries at the individual level and group level. That means both exports and imports cause each other in O-5.

**Table 4: Results of Granger Causality Test**

	Dependent Variables	Sources of Causation			
		Short Run	Long Run		Inference
		F-Statistics	t-Statistics	ECT (-1)	
		EX	IM		
Brazil	EX		16.63*		IM => EX
	IM	23.19*			EX => IM
Conclusion					EX <=> IM
China	EX		3.886*	-2.95*	IM => EX
	IM	2.490*		-2.11	EX => IM
Conclusion					EX <=> IM
India	EX		177.6*		IM => EX
	IM	198.6*			EX => IM
Conclusion					EX <=> IM
Mexico	EX		297.9*		IM => EX
	IM	253.1*			EX => IM
Conclusion					EX <=> IM
South Africa	EX		9.996*	-1.55	IM => EX
	IM	10.17*		0.593	EX => IM
Conclusion					EX <=> IM
Panel Estimation					
	EX		3.864*	-2.23*	IM => EX
	IM	3.031*		-1.76	EX => IM
Conclusion					EX <=> IM

**Note:** \*: Indicates statistically significant at 1%; \*\*: Indicates statistically significant at 5%.

The empirical findings confirm that exports and imports are significantly interdependent on each other. They play important role in different channels of the economy. For instance, imports of raw materials can augment the value added products and import of necessary technology increases the productivity capacity and productivity, which further enhances the economic growth and exports in the country. Similarly, imports can generate employment, particularly in handling and transportation sectors, directly and indirectly in the wholesale and retail sectors. The process will definitely affect the growth of the economy. Unrestricted access to imports, moreover, also supports by reducing the prices of essential production inputs. Therefore, the overall effect of this is to increase growth which supports the increase demand of the imports. On the contrary, exports boost the growth of the economy through access to wide world market, particularly among the trading nations, and hence, economies of scale. This helps in boosting

foreign exchange and employment in the economy. So every country should continue with imports of necessary raw materials for value addition and needed technology to expand capacity and improve productivity and give full attention to boost up the exports. Since one country's import means another country's export, the increase of import of a particular country leads to increase of exports of its trading countries. That means there is mutual benefit of all countries. The structure is very accurate, if we have well established trading group in the world economy like O-5, SAARC, EU, etc.

**Table 5: Results Short Run Diagnostic Tests**

Countries	LM	ARCH	Ramsey	White
<b>Brazil</b>	44.7* [0.00]	18.40* [0.00]	6.74* [0.06]	1.123 [0.29]
<b>China</b>	11.8* [0.00]	4.531* [0.04]	0.835 [0.00]	0.052 [0.01]
<b>India</b>	84.9* [0.00]	35.18* [0.00]	5.723* [0.00]	28.4 [0.00]
<b>Mexico</b>	35.5* [0.00]	21.82* [0.00]	3.210* [0.00]	3.52* [0.06]
<b>South Africa</b>	52.9* [0.00]	28.44* [0.00]	48.07* [0.00]	2.22* [0.04]

**Note:** LM: Serial Correlation LM Test; ARCH: ARCH Test; Ramsey: Ramsey Test; White: White Heteroskedasticity Test; \*: indicates the statistic is significant; and the parentheses indicate the probability of significance.

The policy implication of this study is that exports and imports are directly (or indirectly via economic growth) integrated to each other. The highlight of the nexus between exports and imports not only improves the trade in the member countries but also contributes to economic growth and employment. This will certainly boost the macroeconomic stability in the country, particularly in the long run. Therefore, we can suggest that a suitable trade policy should be designed and applied in O-5 to enhance the exports and imports in the region and overall economic growth in total.

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*Nassr Ahmad*

## **Corporate Environmental Responsibility and Environmental Disclosure: The Perception of Libyan Managers in Industrial Companies**

### **Abstract**

This research reports an empirical study of perceptions of Libyan managers on corporate environmental responsibility, accountability and disclosure, based on a questionnaire survey of 85 managers from large Libyan industrial companies. This study has examined the extent to which managers have been engaged in corporate environmental management and disclosure in Libya, and analysed views of Libyan managers on the motives to disclose or not disclose environmental information. It is influenced by the results of prior researches into Libyan Corporate Environmental Disclosure (CED) practice which indicated that there is a little evidence of CED either in terms of its quantity or quality, especially if the health and safety category is excluded (Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a). The overall results suggest that the vast majority of the managers accept that Libyan companies and the managers should recognize their environmental responsibility and provide environmental disclosure to the central authorities (the main users). However, most surveyed managers felt that a scarcity of legal and professional standards and guidelines, along with their lack of expertise, qualification and training in the field of CED have prevented them from engaging in CED. Therefore, CED has not been put in the agenda of many Libyan companies. Although this study is predominantly concerned with the case of Libya, the findings have some broad implications to many other developing countries where CED has not been given attention.

**Keywords:** Perceptions of Libyan Managers, Environmental Responsibility, Accountability, Corporate Environmental Disclosure, Libya.

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### **1. Introduction**

Since the 1960s there has been a growing interest in the environment, and particularly, in the damage being done to the natural environment (Welford, 2001). As a result, disclosures of environmental matters have been emerging as an important dimension of corporate disclosure practices. Corporate Environmental Disclosure (CED) has become a favourite topic of discussion

and investigation among accounting academics (Mathews, 1997, Gray, 2001, Gray and Bebbington, 2001). One of the most important areas of CED research is the perception of people who are involved in the process. The final decision on disclosure of such information, especially voluntary disclosure, is in the hands of the people involved in the disclosure process, particularly the board of directors (Jaggi and Zhao, 1996, O'Donovan, 2002, O'Dwyer, 2002). They are in a position to make decisions as to what and how much to disclose, because they have to be accountable and responsible for their actions. Cognitive factors such as knowledge and skills will have a significant influence on their decisions. Furthermore, they may prefer not to disclose environmental information that may reflect their weaknesses. However, this depends on their beliefs and attitudes. O'Donovan (2002, p.352), for example, stated that "gathering data, directly from management, about their perceptions and from an ex ante perspective is more useful in evaluating reasons for certain environmental disclosure and, more importantly, why decisions not to include environmental information were made".

Accordingly, the principal purpose of this study is to examine managerial perceptions of the motives for CED in Libya. It is one of the few studies to use managerial perspectives in efforts to understand CED (Jaggi and Zhao, 1996, Perry and Sheng, 1999, O'Donovan, 2002, O'Dwyer, 2002). It fills a research gap in this literature by examining and interpreting CED in the light of managerial perceptions in an Arabic-speaking country. This study is influenced by the results of prior researches into Libyan CED practice which indicated that there is a little evidence of CED either in terms of its quantity or quality, especially if the health and safety category is excluded (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a). By adopting this approach, this research also seeks to respond to the observation of Anuar et al. (2004) that "the analysis (in their study) is limited to only a content analysis of environmental disclosure within annual reports. Further research needs to examine this issue further, perhaps examining the reasons for such disclosure and perceptions and attitudes of company management on the need for environmental disclosure" (p.13).

The remainder of the paper is structured as follows. Section 2 summarizes previous studies. Section 3 sets out the questions and methodology. The findings are shown in Section 4. Section 5 presents the conclusions.

## 2. Previous Studies

**A very few empirical studies in the literature have focused on the perception of managers in terms of corporate environmental responsibility, accountability and disclosure (Jaggi and Zhao, 1996, Perry and Sheng, 1999, O'Donovan, 2002, O'Dwyer, 2002).**

Jaggi and Zhao (1996) reported a test of hypotheses about managers' attitudes to environmental performance and disclosure and contrasted it with levels of actual CED practices in Hong Kong companies. The attitudes were captured by a questionnaire to 100 listed companies. The results revealed that there was a growing awareness among managers of the need for improved environmental performance by Hong Kong companies and about half were positive about the desirability of CED. There was, however, a gap between managers' perceptions and actual company environmental performance and disclosure. Only 7 companies out of the 28 respondents provided any CED.



Perry and Sheng (1999), in addition to examining the CED practices of all Singapore registered public companies, investigated the reasons which can be used to explain the non-disclosure of environmental information. To do so they utilized a postal questionnaire sent to 252 of the 264 companies whose reports had been assessed. The responses suggested that there are three main sbenefit and (3) lack of government pressure.

O'Donovan (2002) mainly aimed to test the extent of the applicability and predictive power of legitimacy theory by investigating to what extent annual report disclosures are related to attempts to gain, maintain and repair legitimacy and to the choice of specific legitimacy tactics. The primary data source of this study was interviews with six senior managers from three large Australian companies, namely BHP Ltd. (mining), Orica Ltd. (chemicals) and Amcor Ltd. (paper and pulp). The findings indicated support for legitimacy theory as an explanatory factor for CED in the Australian context.

O'Dwyer (2002) also used legitimacy theory to interpret managerial perceptions of corporate social disclosure presence and absence in the Irish context, by conducting interviews with 29 senior managers in 27 Irish public limited companies. The results indicated that Irish companies are the subject of major social pressures, particularly from local communities, environmental pressure groups and the print media. There was a general acceptance that social pressures generated a need for the companies to be responsive, with managers in environmentally sensitive sectors indicating that their annual report disclosures did tend to be reactive and were tied to a desire to project legitimacy.

These studies were undertaken in industrialized countries. Gray et al. (1995) stated that the reasons behind management's decision to disclose CED depended principally upon managers' culture and competence in environmental matters, along with the political and economic context of the organization.

Legitimacy theory, which was used by O'Dwyer (2002) and O'Donovan (2002), may fail to provide a basis for an explanation of CED in the Libyan context, simply because it is derived from bourgeois political economy theory (Deegan, 2000, Gray et al., 1995). Libya has been governed under unique political and economic systems based on the "Third Universal Theory" of the Green Book. In this theory society (the mass) plays a dominant role in the majority of economic activities as well as an important role in industrial development through the provision of finance and other resources. Society (via central authorities) (see Ahmad and Mousa, 2009a and 2009b) is continually intervening in the economy with the purpose of achieving its development and growth aims. The members of the People's Committees who are charged with the management of Libyan enterprises are members of Popular Congresses and, consequently, share in laying down national public policies for the state (see Ahmad and Mousa, 2009a and 2009b). These policies will obviously reflect their opinions and attitudes, with the objective of forming policies in harmony with the public interests of society. They act as both decision-makers and actors within society, where decisions are to be implemented. Thus, managers in Libya may have less of a motive to be use environmental disclosure to justify their companies' continued existence, to enhance corporate image or the reputation of the company or to anticipate or avoid social pressure, as they already have opportunities to influence policy. This is in accordance with evidence from this study, where "avoiding any intervention by central agencies" and "avoiding any claim from Basic People Congresses or employees" were less important reasons for non-disclosure of corporate environmental performance (see Table 4).

Moreover, Ahmad (2004) found that “to give the impression of the company’s complying with environmental responsibility stated by legislations such as Law No. 15 of 2003” was not an important reason for CED. This was also supported by the results of content analysis, where more attention was paid to the bad news by the companies surveyed (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a and 2009b). Thus, they were not competing for approval from institutions or attempting to influence stakeholders’ assessments by signalling firms’ salient advantages. This contrasts with the situation in the liberal market, where this theory has been developed, since companies in such a market, even in developing countries, mainly disclose information which is favourable to their corporate image (Deegan and Gordon, 1996, Jaggi and Zhao, 1996, O’Dwyer, 2001, Thomas and Kenny, 1997, Williams and Pei, 1999). Thus, legitimacy theory seems to be inappropriate as a basis for the explanation of CED practice in Libya (see also Guthrie and Parker, 1989).

### 3. Research Questions and Methodology

**As mentioned earlier, the main purpose of this study is to examine managerial perceptions of the motives for CED in Libya. In particular, the study sets out to provide answers to the following questions:**

RQ1. How much do Libyan managers know about environmental management and accounting?

RQ2. What is managers’ perception of environmental responsibility and disclosure?

RQ3. What are the main reasons for non-disclosure of environmental information?

To provide answers to these questions, questionnaires<sup>1</sup> were delivered personally to Secretariats and members of the General People’s Committee<sup>2</sup> and Financial Directors who worked for companies that formed part of the sample (large industrial companies) used in previous studies (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a), thereby facilitating the use of their perspective in interpreting the results of the content analysis. There are two more reasons for the selection of these managers: firstly, all of them had some input into the formulation of the corporate reports, in most cases performing either a preparation or review and approbation function (Ahmad and Mousa, 2009a and 2009b), which might expose them to the issue of CED at some stage, and, secondly, individuals at a high level of management could be expected to have a broad perspective on their organization’s operations and may thus be viewed as being able to address questions on perceptions of CED (O’Donovan, 2002).

The questionnaire consisted of three parts. The purpose of first part was to assess managers’ experience and knowledge about the scientific basis for CED and the social need for it, which may influence their decisions. The second part was designed to examine their perceptions of environmental protection and CED. Respondents were asked in this part to indicate to what extent they agree or disagreed with a number of statements relating to environmental protection

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<sup>1</sup> Ticehurst and Veal (2000, p.49) stated that “Questionnaire-based surveys should only be used when quantified information is required concerning a specific population and when individuals’ own accounts of their behaviour and attitudes are acceptable as a source of information.”

<sup>2</sup> According to article 7 of the General People Committee (1980), “The management of the company or establishment shall become controlled by a People’s Committee consisting of at least five members to be chosen through direct election by workers.”

and CED. The third part asked participants to assess the relative importance of possible factors in influencing their decisions not to disclose environmental information within their company's reports. They were asked to indicate their assessment of importance on a five-point Likert scale with 1 meaning "not at all important" and 5 "very important." "Do not know" was given as a separate option.

The questionnaire was translated into Arabic and delivered to the target respondents. Table 1 shows the number of questionnaires that were distributed, the number returned for each following up visit and the overall response rate.

**Table 1: Questionnaire Response Rate**

Questionnaires Distributed (First visit)	Completed Questionnaires Received				Usable Questionnaires	Response Rate
	Second visit	Third visit	Fourth visit	Total		
66	14	38	10	62	59	89.39%

#### 4. Research Findings

##### *Background Information on Respondents*

47 usable responses were received from Secretariat and General People's Committee members and 12 from Financial Directors. 26 out of 47 (55%) of the Secretariat and the General People's Committee members had professional experience exceeding five years. 3 (6%) held less than a Bachelor's degree, 23 (49%) held Bachelors' degrees and 21 (45%) held Masters' degrees or PhDs. In addition, 27 (57%) only had qualifications and training in areas which were not relevant to management or accounting. 42 (89%) had completed no training courses to improve their knowledge of environmental management<sup>3</sup> in particular.

In relation to 7 out of 12 (58%) of the Financial Directors had professional experience exceeding five years. 4 (33%) held less than a Bachelor's degree, 5 (42%) held Bachelors' degrees and 3 (25%) held Masters' degrees or PhDs. 8 (67%) were members of the Libyan Accounting and Auditing Association (LAAA), 1 (8%) had a professional qualification from the Institute of Arabic Accountants and Auditors (IAAA) and 1 (85) had a professional qualification from the American Institute of Certified public Accountants (AICPA). Accountants in these companies were not well prepared for handling environmental issues. None of the participants or their accounting staff had completed any training courses to improve their knowledge of the environmental management or accounting. This supports what has been found by Buzied (1998), especially in relation to the Financial Directors. He stated that "accountants in the selected companies (including industrial companies) were asked if they had attended any courses or training programmes after their graduation....The majority of accountants, 72 and 90 percent

<sup>3</sup> Bebbington et al. (1994, p.116) stated that "there is widespread recognition that environmental disclosure needs the development of environmental management systems to support it....Such developments could normally be expected to affect even the accountant."

respectively, did not attend any training courses nor were they involved in research programmes” (p. 159; see also IPC, 2002).

Based on these results and in accordance with the literature (Hambrick and Mason, 1984, Derwent, 1989, Gray, 1990, Bebbington et al., 1994, Haniffa and Cooke, 2002, Lodhia, 2003), one can say that Libyan managers are ill-equipped in handling environmental issues including CED. This is not to say that managers are incapable of change, but that they are ill-prepared through their training and education to reflect upon and respond to challenges that lie outside their existing knowledge. This was supported by this survey itself, where the overwhelming majority of managers stated that their lack of expertise, qualifications and training in the field of CED is the main determinant that has prevented them from engaging in CED (see Table 4 below and Ahmad and Gao, 2004). Therefore, CED has not been put on the agenda of many Libyan companies as shown by the results of content analysis (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a).

*Managers’ Perceptions of Environmental Responsibility*

Table 2 shows levels of agreement with each of the statements on environmental responsibility. The average score has been computed by taking the arithmetic mean of the rank numbers given by each respondent (on a scale of 1 to 5, where 1 means “strongly disagree” and 5 means “strongly agree”)<sup>4</sup>. In addition, the standard deviation of the scores is shown in the final column to provide an indication of the relative homogeneity of responses.

**Table 2: Managers’ View about Environmental Responsibility**

Statement	Usable Responses	Disagree	Neutral	Agree	Mean	Standard Deviation
1. Management should contribute to a company’s environmental responsibility.	59	0 0.0%	2 3.4%	57 96.6%	4.37	0.55
2. Achieving environmental protection, even if it leads to less profit should be accepted by a company.	59	7 11.9%	3 5.1%	49 83.1%	3.86	0.99
3. The right to development must be fulfilled so as equitably to meet developmental and environmental needs of present and future generations.	59	1 1.7%	8 13.6%	50 84.7%	4.12	0.70
4. Environmental protection is an Islamic duty, which must be undertaken to protect human health.	59	0 0.0%	9 15.3%	50 84.7%	4.25	0.71
5. Any adverse effect on the environment from the production of goods and services is unavoidable.	59	4 6.8%	12 20.3%	43 72.9%	3.83	0.91

<sup>4</sup> To facilitate data analysis, it has been decided to categorize responses into either “disagree,” “neutral” or “agree” by aggregating both “strongly disagree” and “mostly disagree” responses and “strongly agree” and “mostly agree” responses.

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In broad terms, the data presented in Table 2 show a positive picture of managers' attitudes on environmental responsibility. The mean response for all of these statements is above a midway ranking of 3. Of especial note are the particularly high scores (4.37, 4.12 and 4.25) for the managers' attitudes on statements 1, 3 and 4 respectively. This might be attributed within the Libyan context to the Islamic religion being more likely to have contributed significantly to shaping Libyan behaviour and attitudes (Kaabur, 1995). However, despite this awareness, the analysis of actual CED practices reveals that companies have not been providing adequate CED (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a and 2009b). In other words, there is a gap between respondents' attitudes and their actions. This was justified by respondents later (see Table 4) by saying that a scarcity of legal and professional standards and guidelines, along with their lack of expertise, qualifications and training in the field of CED are the main determinants that have prevented them from engaging in CED (translating their beliefs into behaviour).

### *Managers' Perceptions of CED*

Table 3 shows responses, average scores and standard deviations for statements on disclosure.

**Table 3: Managers' Views on CED**

Statement	Usable Responses	Disagree	Neutral	Agree	Mean	Standard Deviation
6. Companies should report on environmental performance along with economic performance in their annual reports.	59	2 3.4%	9 15.3%	48 81.4%	4.15	0.81
7. Independent Libyan accounting bodies should standardize what companies should disclose in term of environmental performance.	59	2 3.4%	8 13.6%	49 83.1%	4.07	0.81
8. The central authorities should regulate what companies should disclose in terms of environmental performance.	59	4 6.8%	7 11.9%	48 81.4%	3.92	0.82
9. Accountants should be responsible for disclosing environmental performance information along with financial performance information.	39 <sup>5</sup>	9 23.1%	12 30.8%	18 46.2%	3.49	1.12
10. Disclosure of environmental information is a subject to which I have given substantial consideration.	38 <sup>6</sup>	20 52.6%	8 21.1%	10 26.3%	2.58	1.27

Cross-tabulations of attitude scores and reported qualifications of respondents revealed little no significant relationships. This may be because managers did not have relevant qualifications and many had qualifications which were not directly relevant to management or accounting. The literature on attitudes (see for example, Rokeach, 1976), therefore, suggests an interpretation of

<sup>5</sup> 20 respondents answered "Do not know."

<sup>6</sup> 21 respondents answered "Do not know."

their views and the variances between their views as manifestations of personal beliefs or contextual factors. To gain more understanding on managers' attitudes to CED, statements can be classified into three main categories, namely, views on the place of CED (Statement 6), views on the need for guidelines and standards on CED (Statements 7 and 8) and views on involvement with CED (Statements 9 and 10).

### *Views on the Place of CED*

The majority of the respondents (81.4%) thought that Libyan companies should provide their CED information, if any exists, in the annual report. Such a view might be attributed to their familiarity with the annual report which is required by law (Buzied, 1998). They are less likely to have come across a separate environmental report. This can be seen from the results of previous studies on CED in Libya, where stand-alone environmental reports were not found to be common (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a and 2009b), with little or no pressure from central authorities (the main use) to produce them (Ahmad and Mousa, 2009b). This argument is supported by the results of content analysis (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a and 2009b), with most companies providing a specific external report outside the annual report for CED only as a response to the requirements of central authorities such as the Industrial and Mineralization Secretary (IMS, see IMS, 2000). Thus, if a separate environmental report is required by the central authorities, managers will become familiar with it and their attitude may then change. There may also be a view that a lack of accounting disclosure in most Libyan industrial companies (Ahmad, 2004, Buzied, 1998) should be remedied before producing stand-alone environmental reports.

### *Views on the Need for Guidelines and Standards on CED*

The great majority (83.1% and 81.4% respectively) of managers wanted standards from accounting bodies and regulations from central authorities on disclosure of environmental performance, with average scores of 4.16 and 4.07 indicating that such standards and regulations were strongly favoured. A possible reason for this could be that managers feel ill-prepared to handle what is for them a relatively new phenomenon like CED, leading to a need for standards and guidelines. The importance of such guidance was supported by the Libyan CED literature, with results of content analysis revealing that Libyan companies had limited their attention only to the areas required by central authorities such as the IMS (Ahmad and Mousa, 2009a and 2009b). Moreover, the results of this study show that the scarcity of legal and professional standards and guidelines from central authorities and professional bodies is one of the main determinants that have inhibited engagement in CED (see Table 4 below). This is consistent with the argument provided by Thompson and Zakaria (2004), who suggest that without legislation, standards or official recommendation encouraging companies to disclose environmental information there appears to be little likelihood of disclosure increasing.

### *Views on Involvement with CED*

Only 46.2% of those who gave a definite response were positively in favour of giving accountants the responsibility for disclosing environmental information along with financial information, with 23.1% disagreeing, and the mean agreement score of 3.49, though still above the mid-point of the scale, was lower than for the statements on guidelines and regulations. 20 respondents (33.9%) said that they did not know whether they agreed with the statement,

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reflecting a degree of professed ignorance on the topic of responsibility for CED. Only 26.3% of those who gave a definite response said that they had given substantial consideration to the subject of CED, with 52.6% disagreeing and 21.1% neutral. In addition, 21 respondents (35.6% of the total) said that they did not know, indicating a serious lack of knowledge of the subject. The high percentages of neutral responses in comparison with other questions may be a further indication of ignorance and uncertainty on these questions. For those who gave a definite response, the mean score of 2.58 indicated generally negative feelings about the amount of attention that respondents had given to the subject. 7 out of 12 Financial Directors (58.3%), including 4 out of 8 members of LAAA (50%), disagreed with Statement 9, compared with only 2 out of 47 members of Secretariats and General People's Committees (4.3%). This is consistent with the results of international studies (Bebbington et al., 1994, Deegan et al., 1996, Perry and Sheng, 1999, Lodhia, 2003), which found that accountants are not broadly involved in the social and environmental disclosure practices of businesses. In Libya, this finding may reflect a lack of confidence among Financial Directors in their ability to extend their role into CED because of a lack of training (see Table 4 below) and may also reflect a lack of initiatives by LAAA on environmental matters and CED (Ahmad and Mousa, 2009b). LAAA involvement in CED guidance and training could potentially increase Financial Directors' enthusiasm, as Bebbington et al. have posited that "professional body leadership does have some, if small, effect on member behaviour" (Bebbington et al., 1994, p.117).

### *Reasons for Non-Disclosure of Environmental Information*

Since this study is influenced by the results of prior research into Libyan CED which indicated that there is a little evidence of CED, especially if the health and safety category is excluded (Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a), participants were provided with a list of possible reasons which may dissuade Libyan companies from disclosing environmental information and were asked to assess the importance of each of these reasons on a 5-point Likert scale, with 1 meaning "not at all important" and 5 "very important." This may provide insight into possible ways of increasing this type of disclosure in Libya. Table 4 presents the scores for each reason.

Table 4. Reasons for Non- Disclosure of Environmental Information

Reasons	Usable Responses	1	2	3	4	5	Mean	Standard Deviation	Rank
1. The company lacks such expertise, qualification and training.	59	6 10.2%	1 1.7%	7 11.9%	23 39.0%	22 37.3%	3.92	1.22	4
2. Absence of needed requirements and guidelines by central authorities such as IMS.	59	0 0.0%	0 0.0%	7 11.9%	43 72.9%	9 15.3%	4.03	0.52	1=
3. Absence of standards published by accounting professional bodies such as LAAA.	59	0 0.0%	1 1.7%	8 13.6%	38 64.4%	12 20.3%	4.03	0.64	1=
4. Have not been required by laws.	59	1 1.7%	3 5.1%	20 33.9%	25 42.4%	10 16.9%	3.68	0.88	5
5. Secrecy of such information.	59	15 25.4%	18 30.5%	15 25.4%	9 15.3%	2 3.4%	2.41	1.13	8
6. Avoiding any claim from Basic People's Congresses.	59	2 3.4%	5 8.5%	21 35.6%	17 28.8%	14 23.7%	3.61	1.05	6
7. Avoiding any intervention by central authorities.	59	3 5.1%	5 8.5%	20 33.9%	21 35.6%	10 16.9%	3.51	1.04	7
8. Cost of data collection and	59	20	18	7	8	6	2.36	1.35	9

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publication.		33.9%	30.5%	11.9%	13.6%	10.2%			
9. Absence of stakeholder pressure.	59	1 1.7%	0 0.0%	12 20.3%	31 52.5%	15 25.4%	4.00	0.79	3

Three reasons were viewed as especially important: the lack of requirements from government, the lack of standards from professional bodies and the absence of stakeholder pressure. A lack of expertise was the next most important reason. Most respondents had already indicated that they were in favour of environmental disclosure by companies in principle (see Table 2) but they claimed that a lack of legal and professional standards and guidelines established by both central authorities and accounting professional bodies, an absence of stakeholder pressure and a lack of expertise, qualifications and training in the field of CED restricted their involvement in such disclosures. In support of this, the Head of the Performance and Follow-Up Division in the office of the Secretary of Industry (SI, now IMS) described the relationship between these central authorities, especially the SI, and companies as a father-son relationship (Saleh, 2001). Saleh stated that “embedded in this metaphor is the accountability relationship where the son (a company) is accountable to the father (the SI) for spending, protecting and managing his (the company’s) resources. The father on the other hand is accountable to the son for providing him with all necessary means - financial or non-financial (which include foreign exchange needed in the case of companies) - to achieve pre-agreed goals. The use of this metaphor also reflected the father’s power through which instructions are given to the son. Therefore, reciprocal but unbalanced accountability relationships exist between the son and the father” (p. 161). The pre-agreed goals are laid out in the comprehensive budget and plan and instructions are given through guidelines and advice. The “father” provides help, as well as exercising power. This is consistent with the argument provided by Thompson and Zakaria (2004). They suggest that without legislation, standards or official recommendations encouraging companies to disclose environmental information there appears to be little likelihood of disclosure increasing.

The next three reasons in order of importance, all with a mean score above 3.5, were a lack of legal requirements, the avoidance of claims by Basic People’s Congresses and the avoidance of intervention by central authorities. Although 35 out of 59 respondents said that an absence of legal requirements was important, previous studies of CED in Libya reveal that some companies do not even disclose this minimum information required by IMS (Ahmad and Gao, 2005, Ahmad and Handley-Schachler, 2008, Ahmad and Mousa, 2009a and 2009b). Although a lack of legal requirements was regarded by managers as less important than a lack of guidance, there may be an ignorance of the law on the part of some managers. Defective compliance with existing minimum accounting disclosure requirements in general is a problem which Libya shares with other middle income and developing countries, including Nigeria (Wallace, 1988), Egypt (Ibrahim and Kim, 1994), Saudi Arabia (Al-Modahki, 1995), Zimbabwe (Owusu-Ansah, 1998), and Bangladesh (Belal, 2001). For example, Belal (2001, p. 286) commented in relation to Bangladesh that “it may be noted that 51 percent of companies did not disclose the mandatory information, such as information on foreign currency transactions.” Ahmed and Nicholls (1995) stated that there are several reasons for companies not complying with disclosure regulations in developing countries, such as an inadequate regulatory framework and enforcement mechanisms and the absence of both an effective capital market and an effective accounting profession.

With regard to the issues of avoiding claims from Basic People’s Congresses and avoiding any intervention by central authorities, it may be argued that providing information on environmental



practices and performance to society may be a function of the level of trust<sup>7</sup> between a firm's management and the members of the community (Wicks et al., 1999, Kulkarni, 2000, Tomkins, 2001). Companies, by telling the public to "trust us," demand that society should accept that each company is acting in the common interest and should not ask questions or expect proof, requiring a high level of trust (Kaptein and Wempe, 1998, Greenwood, 2001). Therefore, the message being given by companies is that society does not need evidence of companies' benevolence in the form of CED, with trust being an alternative to information (Luhmann, 1979, Zaheer and Venkatraman, 1995, Faulkner, 1999). Where there is a low level of trust, by contrast, society wants to be told what is going on, telling companies to "show me" (Kaptein and Wempe, 1998, Greenwood, 2001). Trust cannot, however, be increased without information (Tomkins, 2001). Hence, companies need to provide information to society for the purpose of creating trust (Tomkins, 2001).

One of the continuing assumptions underlying the Libyan constitution<sup>8</sup> is a high level of trust between the management of companies and other members of society. Under the Libyan political system, the managers of Libyan enterprises (which are owned by society as a whole) are members of the Basic People Congresses, representing society. They are involved in laying down public policies for the state. These policies will obviously reflect their opinions and attitudes and are intended to be in harmony with the public interest. Thus, they act both as decisions-makers and as actors within the society where decisions are to be implemented, so that they form part of the group to whom they are accountable. In other words, managers are not expected to act against their interests as members of the society, as they are on both sides of the trust relationship. This may help to explain why they believe that there is no need to provide society with company information (Kilani, 1988, Buzied, 1998, Saleh, 2001). Nevertheless, managers did say that avoidance of action by Basic People's Congresses and by central authorities were reasons for not disclosing information, which may suggest that they do not in fact feel that they have been entirely trustworthy or that they trust others to use the information in a responsible way.

With the intended high level of trust, managers of companies see their public accountability not in terms of providing explanations and justifications to the society but in terms of bringing in new technologies and improving production techniques (Saleh, 2001). For example, the Executive Manager of the National Trailers Company (NTC) (one of the surveyed companies in this study) describes public accountability by saying that "of course, there is accountability to the state. Belonging to the industrial sector gives me the feeling that I have to provide something to the industry and thereafter to the benefit of the country. This may include the creation of a trained workforce, developing human resources, bringing new products and technology and changing some industrial ideas" (Saleh, 2001, p.193). However, in this context, information needs to be provided by companies to the central authorities, which have been given responsibility by society<sup>9</sup> for planning and control. The information provided by companies is

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<sup>7</sup> For the purpose of this discussion, trust is defined as "the adoption of a belief by one party (member of society) in a relationship that the other party (managers of companies) will not act against his interests" (Tomkins, 2001, p.165).

<sup>8</sup> For more details about the Libyan Political context see Ahmad and Mousa, 2009a and 2009b.

<sup>9</sup> Society as a whole believes that central authorities will act on behalf of society and try to set planning and control strategies in line with society's interests (Ahmad and Mousa, 2009a and 2009b).

used in preparing companies' plans and budgets, the Production Activity Report (PAR)<sup>10</sup>, the development plans of the state and economic and social indicators including GDP, exports and imports per capita. It is used also to determine the country's budget and the allocation of available foreign exchange. Therefore, companies' information, both financial and non-financial, plays an important role in making macro and micro decisions and in showing whether the companies have achieved their pre-agreed targets. This is consistent with the argument given by Luhmann (1979), who emphasizes the difference between information needed when trust is either absent or at a low level and information for the "mastery of events." The recognition of the need for information to master events is important. Whatever the level of trust in a relationship, information will still be needed to help plan a collaborative future by setting down what each party (central authorities on behalf of society as a whole and managers of particular companies) wishes to achieve from the collaboration, how feasible the goals and relative roles are and what actions need to be taken. Information needed in the absence of trust is more related to the verification of actions of the other party in accordance with expectations (creating trust) rather than what the parties should collectively do (Tomkins, 2001).

Consequently, in the Libyan context, CED information flows at most on a "need-to know" basis and is aimed at informing macro and micro decisions or carrying out routines within or outside companies. It is based on meeting the needs and the requirements of the central authorities to help plan a collaborative future. This is in contrast with the liberal market economies where the information disclosure is based to some extent on the "right-to-know" with the aim of making the market more efficient by fully reflecting the available information (Ijiri, 1983, Stanton, 1997, Perry and Sheng, 1999, Holland and Foo, 2003). The general public, including customers, employees and environmental groups, in such economies has increased the pressure on companies to disclose their environment-related activities (Ahmad and Mousa, 2009a and 2009b). Managers in Libyan companies generally do not hesitate to disclose negative or bad news and tend not to hide the bad news which has been requested (Ahmad and Mousa, 2009a and 2009b). This bad news is included in the Production Activity Report, which is prepared by IMS and sent to other central authorities to arrange how to contribute to solving these problems, which are confirmed by this information (father-son relationship). This can be achieved by providing the companies with all necessary means, financial or non-financial, for the general benefit of society (social interest), which is the main aim of these companies and the central authorities (Buzied, 1998). This contrasts with the arguments of Verrecchia (1983) and Thomas and Kenny (1997), which have been developed in liberal market contexts. They would expect most corporate disclosure in the annual report to be positive in tone. They also would expect companies that are not good environmental citizens to do little, if any, self-reporting in the annual report.

Confidentiality and cost were not considered important reasons for non-disclosure of environmental information. This may be related to the social ownership of Libyan enterprises, as the profit motive is subordinated to the main objective of offering services and goods to the public within a centrally planned economy (General People's Committee, 1980, Law regarding

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<sup>10</sup> This report about the sector companies' activities is prepared by the IMS annually based on companies' annual reports and other information that is provided to the IMS by companies. It contains information about each company's name, location, type of activity, capital, plants, foreign exchange needed and available and sales and problems facing companies.

the Establishment of Public-Owned Companies, 1981). As Buzied (1998, p.215) puts it, "Profit maximization has a lower priority for Libyan companies. Instead meeting social responsibilities towards society at large, whilst achieving sufficient profit to help the company to survive and expand, is the main priority for most companies." The lack of concern with the cost of data gathering and publication is consistent with the lack of concern for the impact of environmental protection itself on profitability (see Table 2, Statement 3).

With respect to secrecy, Gray (1988) argued that secrecy is consistent with a preference for collectivism, with its concern for those closely involved with the firm rather than external parties. However, the collectivist environment in Libya does not appear to result in secrecy being regarded as an important reason for a lack of CED. Managers in Libya may feel that they are trustees for society as a whole rather than for corporate insiders.

### *Importance of Education and Experience*

It is easy to forget the issue of personal competence and education in predicting the behaviour of individuals and corporations, including their behaviour with regard to disclosure of information. Theories such as legitimacy theory and capital needs theory tend to focus on the question of what an intelligent and self-interested manager would do, given perfect information and the ability to predict the reactions of others. This is not the whole story. Managers are not bound by rules of behaviour dictated by economists and need not be motivated by purely financial interests. There may be far more persuasive psychological rewards and punishments for acting or refraining from acting in a particular way. In particular, the desire to stick with a familiar task and to show off the ability that one does possess provides a strong motivation to provide information in which one has confidence and which one knows how to produce, regardless of the economic benefits to the individual or the organization of giving or withholding the information concerned, even if the information is incriminating, as tends to be the case with Libyan health and safety disclosures. To be seen as a source of information still confers personal status and to be able to come up with the information still conveys an aura of administrative competence on the organization. There is, however, a strong disincentive to the provision of additional disclosures which will require an understanding of new data gathering and data analysis skills, because of the risk of appearing incompetent or inadequately prepared if the information contains errors or significant omissions. This is borne out by the present study in which the lack of personal expertise and the lack of such expertise collectively within the company becomes a powerful reason for non-disclosure of environmental performance information.

### *Rôle of Government and Professional Bodies*

Especially in cases where there is a degree of personal inertia or even apprehension relating to improving CED, there is a necessity for some form of direction from an appropriate authority. Authority may come from the government or from professional bodies. Government, of course, possesses the power to provide incentives and punishments for desirable and undesirable actions, as perceived by those in positions of power and by those who put them into those positions. Likewise, professional bodies usually have various sanctions, including exclusion from the profession, at their disposal to enforce their standards. However, the rôles of government and professional bodies are not limited to laying down rewards for compliance and penalties for non-compliance. They are also responsible for articulating what is to be done. While this may be met with resistance if the demands are especially controversial or onerous and a balance may need to be struck between amending unreasonable rules and enforcing reasonable ones, it is above all

else essential to set out clear instructions to be followed. Enforcement of the rules may follow later. Where, as appears to be the case in relation to CED in Libya, instructions are inadequate, not only enforcement but also compliance is irrelevant. Moreover, in the absence of highly developed privately developed systems and technologies, compliance with regulations may be the best that can reasonably be expected of professionals seeking to do their job to the best of their abilities.

### 5. Conclusion

The vast majority of respondents were willing to accept that Libyan companies should accept environmental responsibilities. However, they claimed that a lack of legal and professional standards and guidelines established by both central authorities and accounting professional bodies and a lack of expertise, qualifications and training among managers restricted their involvement in CED. There was also a perceived lack of pressure from stakeholders to produce this information.

This research highlights the importance of education and managerial expertise as a determinant in disclosure. Levels of disclosure are not necessarily driven by minute calculations of corporate or personal advantage, as outlined by capital needs theory or legitimacy theory, but by personal confidence and self-perceived competence. The desire to show what one can do and to hide what one cannot may be as powerful a motivation as the desire to disclose or conceal what one has done.

It is recommended that governments should take active steps to develop CED by making regulations and providing guidelines for managers and accountants to follow. This is especially the case where accountants are not specifically trained in CED. As this is the case nearly everywhere, a framework for mandatory disclosures should be seen as a benefit to corporations and to the accounting profession and not as an imposition, as it makes the task of deciding on the content and format of CED easier.

It is also recommended that professional bodies, especially accounting institutes, should take up the challenge of assisting and supporting accountants and managers who wish to provide CED and of encouraging those who have yet not considered making environmental disclosures by formulating and publishing standards for these disclosures. Professional bodies and universities can also help by providing a formal education in CED, whether as an element in degree courses and professional examinations or as part of continuing professional development.

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