The Egyptian Center for Economic Studies (ECES) is an independent, nonprofit, research institute. It was founded by leading members of Egypt's private sector in 1992. The objective of the Center is to promote economic development in Egypt by assisting policy makers to develop appropriate plans for reform based on international experience. In pursuit of this objective, ECES conducts applied policy research and disseminates its findings through a select series of publications, lectures, conferences, and roundtable discussions.

For more information, please contact:

The Egyptian Center for Economic Studies

The World Trade Center, 14th floor, 1191 Corniche El Nil, Cairo 11221, Egypt

Tel.: (2-02) 578-1202 Fax: (2-02) 578-1205

E-mail: eces@eces.org.eg URL: www.eces.org.eg

## **Members of ECES**

Moustafa Khalil, ECES Honorary Chairman Chairman, Arab International Bank

**Ibrahim Shehata,** ECES Honorary Chairman Secretary General, ICSID, World Bank

Taher Helmy, ECES Chairman

Partner, Baker & McKenzie Law Firm

Galal El Zorba, ECES Vice Chairman Chairman, Nile Clothing Co.

Mohamed L. Mansour, ECES Secretary General Chairman & CEO, Mantrac & Chairman, Mansour Motor Group

Omar Mohanna, ECES Honorary Treasurer Managing Director, Accor Hotels

Mounir Abdel Nour, Managing Director, SEFIAA Vitrac

Ahmed Bahgat, Chairman, International Electronics Co.

Shafik Boghdady, Chairman, Fresh Food Co.

Moataz El Alfi, Chief Executive Officer, Kuwait Food Co., S.A.K. (Americana)

Farouk El Baz, Director, Center for Remote Sensing, Boston University, USA

**Mohamed El-Erian**, Executive Vice President, Pacific Investment Management Company

**Adel El Labban**, Managing Director, United Bank of Kuwait, London

Management

Ahmed Galal, ECES Executive Director

Ahmed El Maghraby, Chairman, Accor Hotels

Ahmed Ezz, Chairman, Ezz Group

M. Shafik Gabr, Chairman and Managing Director, Artoc Group for Investment and Development

Ahmed Galal, ECES Executive Director

**Hazem Hassan**, Chairman, KPMG Hazem Hassan Management Consultants

Magdi Iskander, Former Director, Private Sector Development Dept., The World Bank

Ibrahim Kamel, Chairman, Kato Aromatic Co.

**Mohamed F. Khamis**, Chairman, Oriental Weavers Group

Ayman Laz, Chairman & Managing Director, ASKA Financial Consultants

Hatem N. Moustafa, Chairman, Nimos Group

**Gamal Mubarak**, Executive Director, Med Invest Associates, London

**Rachid Mohamed Rachid**, Chairman, Unilever of Egypt

**Mohammed Sheta**, Chairman, International Group for Investments (IGI)

Mohamed Taymour, Chairman, EFG-Hermes Raed H. Yehia, Managing Director, Misr America Carpet Mills

# Business Barometer January 2001

Issue No. 6

**A Publication of The Egyptian Center for Economic Studies** 

## About the Business Barometer

In an attempt to provide timely information about the direction of the Egyptian economy, ECES published the first issue of the *Industrial Barometer* in 1998. The periodical reported the results of a bi-annual survey of 165 firms fully drawn from the industrial sector. However, to improve the depth of the report, the survey was further expanded in the July 2000 issue to include 35 firms from the construction sector. This step thus converted the former *Industrial Barometer* into today's *Business Barometer*. Detailed information about the sample can be found in the 'Methodology' section of the publication.

This edition of the *Business Barometer* reports the results of a stratified sample of 200 public and private firms. The survey covers their assessment of economic growth and the results of their operations in terms of their production, sales, inventories, prices, wages, employment and investment over the last six months of 2000. It also summarizes their expectations for overall future economic performance as well as their individual plans for the first six months of 2001.

The interpretations and comments expressed in this survey are those of the ECES team, and do not necessarily reflect those of the ECES Board of Directors.

#### **ECES Business Barometer Team**

Faika El-Refaie, Consultant Rawia Mokhtar, Economist Noha Sherif, Research Analyst

Sarah N. Vellozzi, Editor

**Survey conducted by:** 

Market Research & Development

MARKET RESEARCH & DEVELOPMENT

**Layout & Production:** 



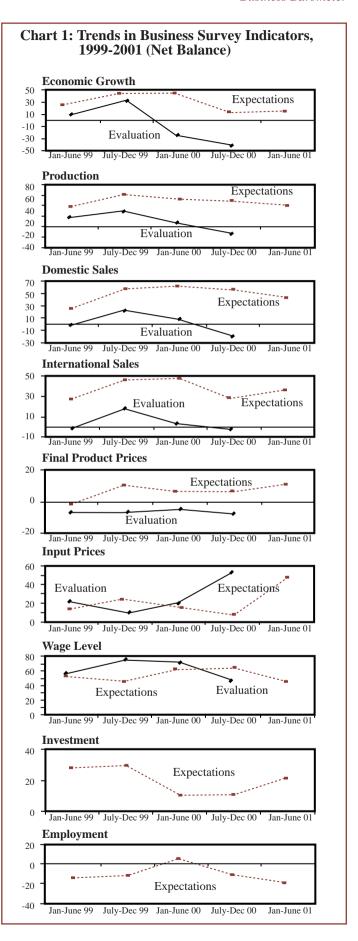
## Overview

Two broad conclusions emerge from this recent survey of the Egyptian business sector on economic performance in the last half of 2000 and expectations for the first half of 2001. First, in terms of recent performance, the respondents believe the overall economy continued its downward trend in the second half of 2000. Comments on their individual performances supported this general assessment, as firms reported declines in their production and sales (especially of domestic sales), as well as stagnant output prices, rising input prices and a decline in the wage bill. They also conveyed that no significant increases in investment were made throughout the last half of 2000.

The second broad conclusion concerns their expectations for the first six months of 2001 – which generally indicate a feeling of guarded optimism. The majority of respondents believe that the economy at large will begin to recover, although modestly. In terms of their own performance, firms are more optimistic about their international sales than they have been in the past, but less so for production and domestic sales. Equally important, they plan to increase their investment, although they did not convey similar plans for employment or wages.

These broad conclusions are consistent with other indicators. The slow down of the economy in the second half of 2000 was associated with a decline in the share of the business sector in total credit, a rise in lending rates, and a decline in imports of capital and intermediate goods. The guarded optimism about the next six months may be attributed to the adoption of a managed float exchange rate regime, the depreciation of the pound, and anticipation of less tight monetary policy to activate the economy given that the authorities may be more inclined to allow the pound to move within bounds. Progress in the settlement of government arrears is also a good sign.

The remainder of this issue of the Business Barometer elaborates these broad conclusions under four headings: the level of economic activity (overall growth, production, inventory, and capacity utilization), prices and wages, investment and employment, and constraints.



# The Level of Economic Activity

## Lower growth with slightly higher expectations

Similar to the results of the previous survey, almost 90 percent of firms described economic growth in the second half of 2000 as stagnant or declining. This assessment is consistent with trends in other indicators such as the share of business sector borrowings from banks in total bank credit, the increase in bank lending rates, and the decrease in imports of intermediate and capital goods.

Another indication of slower growth was the drop in the number of newly established companies from a monthly average of 297 during the first half of 2000 to 246 during the first four months of the second half. The market capitalization to GDP ratio also declined from a monthly average of 40.6 percent to 35.2 percent (see Additional Indicators below).

Additional Indicators	Jan./June 2000	July/Oct. 2000
Business sector share in	80.5	80.1
bank credit (%)		
Lending rate (%)	13.13	13.19
Monthly imports (US\$ million)		
Intermediate Goods	210	196
Capital Goods	463	461
Exchange rate (LE/US\$)	3.427	3.760*
Capitalization to GDP (%)	40.6	35.2*
Newly established companies	296	246*

<sup>\*</sup> July through end-December.

Source: Ministry of Economy and Foreign Trade, *Monthly Economic Digest*, January 2001.

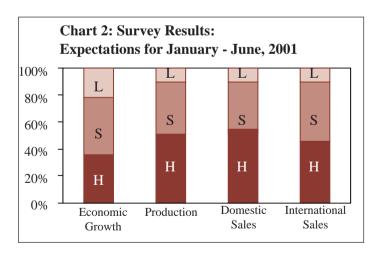
On the positive side, there was an increase in exports during the period in question, especially of non-petroleum goods (from a monthly average of US\$ 233.8 million during January-June of 2000 to US\$ 245.3 million during July-October). Furthermore, tourism resumed growth, showing an increase in the number of tourists from a monthly average of 444,000 to 493,000 and accordingly, a rise in tourist nights from a monthly average of 2,664 to 3,020. The country also witnessed a rise in electricity utilization to MWH 2.1 million against MWH 1.9 million, and an increase in the monthly average cement consumption to 2.349 million tons against 2.147 million tons. There was also an increase in the growth of domestic liquidity to 5.0 percent from 4.7 percent in the corresponding period of 1999.

These positive developments, along with the change in exchange rate policy, progress in the settlement of government arrears and possible relaxation of monetary policy, may explain why a larger number of firms (37 percent against the previous survey's 31 percent) expect higher growth during the first half of 2001 (Charts 1 & 2).

## Decline in production with optimistic plans

More than three quarters of the firms surveyed indicate that their production levels were lower or remained the same in the second half of 2000 in comparison to the previous six months. Those exceptional firms that indicated higher levels of production were primarily from the chemicals, non-metal, and printing sub-sectors. The firms experiencing stagnant production levels were primarily from the leather and shoes industries.

Yet, in regard to the future, optimistic expectations were reported by a good half of the respondents – representing the food, basic metals, non-metal, paper and printing industries. Only 11 percent of the respondents (mostly from the chemicals, spinning and weaving, transport, ready-made clothes, beverages and tobacco, rubber, and leather products sub-sectors) expect lower production levels over the coming six months.



# Lower sales with mixed expectations for the international and domestic markets

The survey results show that more participants experienced lower sales in domestic and international markets during the last half of 2000 than they did in the first half of the year. The drop in domestic sales was only slightly deeper than that experienced abroad, as 75 percent of the respondents

reported lower or stagnant sales in domestic markets, while 73 percent recorded the same in the international markets. At the sub-sector level, all groups reported lower sales on the domestic market without exception, while industries such as food, non-metal products, beverages, tobacco, leather and shoes reported higher sales on the international markets.

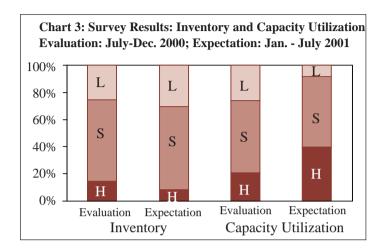
Expectations for future sales show that firms have higher expectations for the international market in the coming period than they did in the last survey, while expectations for sales in the domestic markets have declined. 44 percent of the survey respondents expect higher sales abroad in the coming 6 months. This shows more optimism for international sales than in the previous survey, where only 32 percent expected higher sales. The 9 percent of the respondents that expect lower sales in the international markets primarily represent the basic metals, transport, ready-made clothes, beverages and tobacco, rubber, paper, printing, wood, cork and furniture, and shoes sub-sectors. In terms of domestic markets, the number of firms expecting higher sales declined from 62 percent to 53 percent. These results are consistent with the steps the government has taken towards adopting a relatively more flexible exchange rate regime since June 2000.

#### Declining inventory and capacity utilization

Because sales during the second half of 2000 were lower than in the first half, firms drew more on their inventories, rather than increasing production to meet market demand. Out of the 200 firms in the survey, 28 reported an accumulation of their inventories. However, at the sub-sector level, several specific industries did report increases in their inventory during the second half of 2000. These included the chemicals, wood, cork, and furniture sub-sectors. As far as expectations are concerned, almost all business firms expect to lower or maintain their levels of inventory during the first half of 2001, with the exception of the leather sub-sector.

In terms of capacity utilization during the second half of 2000, most firms also reported stagnation or a further decline, with the exception of the chemicals, spinning and weaving, non-metals, and paper sub-sectors.

Expectations for increasing capacity utilization are high for most sub-sectors (representing 40 percent of the survey) except the rubber, wood, cork and furniture, and leather industries

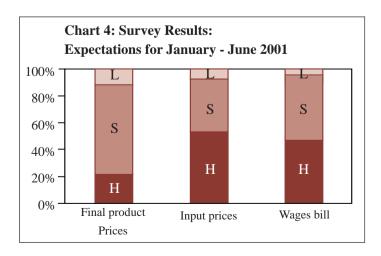


## **Prices and Wages**

# Lower prices of final goods with expectations of a slight increase

As a result of slow demand, 80 percent of respondents (160 firms) reported the same or lower prices for their final products during the second half of 2000, despite the noticeable rise in input prices during this period. This result points out to the fact that companies had to incur costs in the face of falling demand by reducing the prices of their final goods.

Looking forward, 78 percent of the surveyed firms expect prices to be lower or at best remain the same in the coming 6 months. At the sub-sector level, the exceptions to these overall trends in final goods prices were the basic metal,



non-metal, transport and printing sub-sectors, which indicated that prices went up. These industries expect further increases in prices in the 6 months ahead.

# Rising input prices with expectations of a further increase

The majority of firms indicated higher input prices during the second half of 2000. For the coming six months, all sub-sectors expect input prices to further increase with the exception of the ready-made clothes industry, which expects lower input prices and the rubber and wood, cork and furniture industries, which expect prices to stay the same.

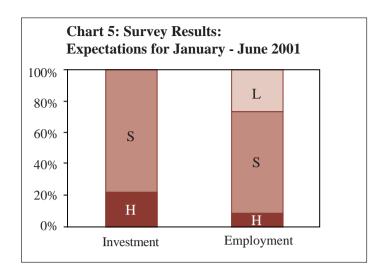
# Lower wages with expectations of further decline

Concerning wages, a lower number of respondents reported higher wages during the second half of 2000 in comparison to the previous survey. Furthermore, with the exception of the beverages, tobacco and shoes sub-sectors, most firms expect wages to stay the same or decline during the first half of 2001.

## **Investment And Employment**

## Stagnant investment with some prospects for expansion

Against a significant decline in investment during the first half of 2000, the current results indicate that investments by the majority of firms were also lower or stagnant during the second half of the year. Over three-fourths of the surveyed firms (146 firms) reported no new investments, while 20 firms reduced their investment spending and only 34 were able to expand. Likewise, 156 firms expect no expansion in investment spending (Chart 5). However, the firms (44) that particularly expect higher sales in international markets (those in the food, chemicals, spinning and weaving, basic metals, non-metals, and leather sub-sectors) did indicate prospects for higher investment spending.



## No plans for increasing employment

With low demand domestically and plans to depend on accumulated inventory rather than expand production, private business sector firms indicated that they have no plans to hire more labor in the first 6 months of 2001. Overall, 184 firms expressed intentions to reduce or maintain current employment levels, while only 16 firms plan to have more labor. The firms straying from the general trend come from the basic metals, non-metals and shoes sub-sectors.

## **Constraints**

# Access to credit replaces market demand as most severe constraint

In the previous survey, both private and public firms cited market demand as the most severe constraint, while lack of skilled labor was the second for public firms and insufficient credit was the second for the private firms.

In the current survey, access to credit ranked the severest constraint for both public and private firms, followed by market demand and lack of capital. This situation is shared by both the manufacturing and the construction sectors.

Table 1. Survey Results: Summary of Business, Manufacturing, and Construction Evaluations and Expectations<sup>1</sup>

Indicator				<b>Business Sector</b>	Secto	Ē					Manu	Manufacturing Sector	ing Se	ctor					Cons	Construction Sector	on Sec	tor		
		Eval July- D	Evaluation July- Dec. 2000	0		Expectation Jan June 2001	tation te 2001		Ju	Evaluation July- Dec. 2000	<b>tion</b> 2000		Ja	Expectation Jan June 2001	tion;		J.	Evaluation July- Dec.2000	<b>tion</b> 2.2000			Expectation JanJune 2001	tation le 2001	
	Higher	Same	Lower	Net Lower Balance <sup>2</sup>	Higher		Net Same Lower Balance <sup>2</sup>		Higher S	Same L	Net Lower Balance <sup>2</sup>		Higher	Same L	Net Same Lower Balance <sup>2</sup>		Higher S	Same L	Net Lower Balance <sup>2</sup>		Higher Same	l .	ower I	Net Lower Balance <sup>2</sup>
Economic growth	12	38	20	-38	37	41	22	15	13	36	51	-38	36	40	24	12	6	45	. 94	-37	40	49	11	29
Output																								
Production	24	40	36	-12	50	39	11	39	76	38	36	-10	47	41	12	35	41	49	37	-23	65	29	9	59
Domestic sales	25	31	4	-19	53	35	12	41	56	27	47	-21	50	37	13	37	70	49	31	т <u>.</u>	89	23	6	59
International sales	27	44	29	-2	4	47	6	35	29	43	28	-	45	47	~	37	6	55	. 36	-27	36	45	19	17
Inventory	14	61	25	.m	∞	62	30	-22	15	09	25	-10	6	09	31	-22	13	49	23	-10	9	99	28	-22
Level of capacity utilization <sup>3</sup>	21	53	26	ŵ	40	52	∞	32	20	55	25	ιĊ	35	57	∞	72	. 92	43	31	ń	63	34	$\epsilon$	09
Prices																								
Final product prices	20	54	26	9-	22	<i>L</i> 9	11	11	18	59	23	ķ	21	89	11	10	76	34	40	-14	23	89	6	14
Input prices	59	34	7	52	52	42	9	46	63	30	7	99	99	40	4	52	40	51	6	31	37	51	12	25
Wage level	52	41	7	45	47	50	8	4	54	41	5	49	47	52	_	94	43	43	41	59	46	45	6	37
Inputs																								
Investment	17	73	10	7	22	78	0	22	15	92	6	9	20	08	0	70	23	09	17	9	31	69	0	31
Employment	∞	52	40	-32	∞	92	27	-19	∞	53	39	-31	∞	65	. 27	-19	6	51	40	-31	3	89	29	-26

<sup>&</sup>lt;sup>1</sup>Numbers represent percent of total responses
<sup>2</sup> Net balance' represents the percentage of respondents indicating "higher" minus the percentage of respondents indicating "lower".
<sup>3</sup> Higher= approaching full capacity; Same= normal capacity utilization; Lower = below capacity utilization.

Table 2. Survey Results: Summary of Business Sector Evaluations<sup>1</sup>

Indicator	JE	muary -	January - June 1999	60	Jul	July - December 1999	nber 19	66	Jan	January - June 2000	une 200	0	Juľ	July - December 2000	mber 20	90
	Higher	Same	Net Lower Balance <sup>2</sup>	Net Balance <sup>2</sup>	Higher	Same	Lower	Net Balance <sup>2</sup>	Higher	Same	Lower	Net Balance <sup>2</sup>	Higher	Same	Lower	Net Balance <sup>2</sup>
Economic growth	33	4	23	10	41	51	∞	33	10	57	33	-23	12	38	50	-38
Output Production	37	44	19	18	40	51	6	31	28	51	21	7	24	40	36	-12
Domestic sales	30	39	31	-	39	46	15	42	32	43	25	۲ (	25	31	4 8	-19
International sales Size of inventory	78 78	43 37	29 37	. <u>.</u>	34 19	51	15	£ 8	22 23	59 53	19 24	ю <del>1</del>	27 14	44 61	29 25	-11
Level of capacity utilization <sup>3</sup>	18	57	25	7-	10	59	31	-21	19	49	17	7	21	53	26	'n
Prices Final product prices	17	59	40	1.	4	85	=	1,	16	63	21	ų	20	42	96	ې
Input prices	37	49	1 1	23	- 41	82	4	10	29	61	10	91	59	34	<u></u>	25
Wage level	63	33	4	59	77	22	П	92	92	21	т	73	52	41	7	45
<b>Inputs</b> Investment⁴ Employment⁴	: :	: :	: :	: :	: :	: :	: :	::	: :	: :	: :	: :	17	73 52	10	7-32

Table 3. Survey Results: Summary of Business Sector Expectations<sup>1</sup>

Indicator	η	ıly - Dec	July - December 1999	666	Ja	January - June 2000	June 200	0(	Jul	July - December 2000	nber 200	00	Jai	nuary - J	January - June 2001	1
				Net				Net				Net				Net
	Higher	Same	Lower	Lower Balance <sup>2</sup>	Higher	Same	Lower	Balance <sup>2</sup>	Higher	Same	Lower	Balance <sup>2</sup>	Higher	Same	Lower	Balance <sup>2</sup>
Economic growth	53	38	6	44	45	54	-	4	31	50	19	12	37	41	22	15
Output																
Production	29	27	9	61	57	39	4	53	53	41	9	47	50	39	11	39
Domestic sales	29	23	6	28	99	29	5	61	62	32	9	99	53	35	12	41
International sales	99	25	19	37	51	45	4	47	32	64	4	28	4	47	6	35
Inventory <sup>4</sup>	÷	:	:	:	:	:	÷	:	:	÷	:	:	∞	62	30	-22
Level of capacity utilization <sup>3,4</sup>	:	:	:	:	:	:	÷	:	:	:	:	:	40	52	∞	32
Prices																
Final product prices	19	72	6	10	11	84	5	9	14	77	6	w	22	<i>L</i> 9	11	11
Input prices	30	64	9	77	17	82		16	16	75	6	7	52	42	9	46
Wage level	47	51	7	45	64	35	1	63	29	31	7	99	47	50	3	4
Inputs																
Investment	30	70	0	30	111	68	0	11	10	06	0	10	22	78	0	22
Employment	17	55	28	-11	12	81	7	w	9	92	18	-12	8	65	27	-19

<sup>&</sup>lt;sup>1</sup> Numbers represent percent of total responses. For evaluations, data represents only the manufacturing sector until Dec. 1999. Same for expectations until June 2000.

<sup>&</sup>lt;sup>2</sup> 'Net balance' represents the percentage of respondents indicating "higher" minus the percentage of respondents indicating "lower".

<sup>3</sup> Higher = approaching full capacity; Same = normal capacity utilization; Lower = below capacity utilization

<sup>4</sup> ...: Not Available

## Methodology

Because of the lack of timely real-side data on the Egyptian economy, ECES created and conducted a bi-annual survey targeted to cover the most important sectors affecting economic activity. Aside from providing useful information on business sector views about past performance, it casts light on their expectations for future production, prices, employment, and investment. The survey is based on two samples of the largest firms in the manufacturing (165 firms) and the construction (35 firms) sectors, conducted biannually in June and December.

The manufacturing sector sample was selected by first calculating the value-added contribution of each major subsector using the following classifications of the Ministry of Planning: food; beverages and tobacco; spinning and weaving; ready-made clothes; cork, wood and furniture; paper and its products; printing; shoes; leather and leather products; rubber products; chemicals and chemical-related products; non-metal mining products; basic metal products; and transportation equipment. Based on these calculations, a number of public and private firms were chosen from each sub-sector so as to make the sample representing the sector. Finally, the sample was scaled down by selecting large firms across different sub-sectors on the basis of employment. Using this approach, the total number of companies reached 165.

The decision to include the construction sector in 2000 was based on several observations. First, it was noticed that the

government made great effort to provide adequate infrastructure. This led to significant increase in the construction sector's share in economic activity from 4.94 percent of GDP in FY 89/1990 to 6 percent in FY 98/1999. Furthermore, the sector absorbs virtually 8 percent of total employment in the Egyptian economy. The sector's investment is rapidly expanding, with the private sector implementing over 80 percent of such investment.

The sample was chosen to encompass different specializations and count for the major part of employment in this sector. Employment in 35 biggest companies constituted over 23 percent of the total labor force in the sector in FY 98/1999.

The survey elicits responses from these two selected samples on current levels of activity in terms of production, sales in the domestic and international markets, inventories, the level of capacity utilization, the prices of final product and inputs, as well as wages, employment and investment. The survey also searches for the changing nature of constraints on business, as well as assessment of the overall economic growth (see questionnaire).

ECES would like to express its deep appreciation to all companies that participated in the completion of the questionnaires in due time, and would welcome any further comments or suggestions for further improvement.



# **Business Barometer**

(Bi-annual Survey: January 2001)

Entermise name:	Dogno	ndant	Nama					
Enterprise name: Specialization:								
Sector:   Public Private								
Year of Foundation:								
Number of Employees:								
1. During the last six months relative to the preceding six months was your production/ volume of activity: was your sales volume / size of activity in the domestic market: was your sales volume / size of activity in the international market did prices for your products/ projects: did prices for your inputs/ building materials:	□ h ::□ h □ ri	nigher nigher nigher nigher ise	□ n □ n □ s	ormal ormal ormal tay the same		lower lower lower fall	% 	
did wage level: did your inventories (If applicable): was your capacity utilization: did your employment: did your investment:	□ ri ll capac □ ri □ ri	ise ise	□ si □ n □ si □ si	tay the same ormal tay the same tay the same		fall fall below fall fall		
2. What is your sales/ Size of activity in Egyptian pounds during				s survey per				- -
3. In the last six months, did the economy grow: $\Box$ faster	□ a	t the s	same rat	te 🗆	slower	•		
4. Is your production currently constrained: ☐ yes	□ n	10						
If yes, please rank on a scale from 0 to 4 the following constraints to refers to severe constraints.	your pr	oducti						
refers to severe constraints.	your pr	oducti	on proce	ess, where 0	indicate 2		constr	aint and 4
refers to severe constraints.  Insufficient demand	your pr	oducti						
Insufficient demand Insufficient capital	your pr	oducti						
Insufficient demand Insufficient capital Insufficient access to imports	your pr	oducti						
Insufficient demand Insufficient capital Insufficient access to imports Insufficient skilled workforce Insufficient access to credit								
Insufficient demand Insufficient capital Insufficient access to imports Insufficient skilled workforce Insufficient access to credit								
Insufficient demand Insufficient capital Insufficient access to imports Insufficient skilled workforce Insufficient access to credit Other factors (please specify):  5. In the next six months, do you expect:		stay tl stay tl stay tl stay tl stay tl	0		2			
Insufficient demand Insufficient capital Insufficient access to imports Insufficient skilled workforce Insufficient access to credit Other factors (please specify):  5. In the next six months, do you expect: your production/ size of activity to: your sales/ size of activity in the domestic market to: your sales/ size of activity in international markets to: prices for your products/ projects to: prices for your inputs/ building materials	O O O O O O O O O O O O O O O O O O O	stay tl stay tl stay tl stay tl stay tl stay tl	ne same he same he same he same		fall fall fall fall fall	crease i	%	
Insufficient demand Insufficient capital Insufficient access to imports Insufficient access to credit Other factors (please specify):  5. In the next six months, do you expect: your production/ size of activity to: your sales/ size of activity in the domestic market to: your sales/ size of activity in international markets to: prices for your products/ projects to: prices for your inputs/ building materials wage level to:  increase your	U U U U U U U U U U U U U U U U U U U	stay tl stay tl stay tl stay tl stay tl stay tl stay tl	ne same he same he same he same	aaintain it naintain it se st	fall fall fall fall fall all fall all say the s	crease i	% decr	4 