

# Impact of COVID 19 on Small and Medium-Sized Enterprises: Evidence from Egyptian Plastic Packaging Industry

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**Abstract**— The paper presents the impact of COVID 19 on small- and medium-sized enterprises and the survival initiatives based on the owners' perspectives. The authors focused on plastic packaging small and medium size producers working in Egypt as a case study. The study applies qualitative approach conducted through phone-based interviews with five selected SMEs' and also supported by desk research and followed by three experts' interviews with professionals working at the ministry of environment in Egypt. The paper finds that SMEs working in the plastic packaging in Egypt were hit significantly by COVID-19. The impacts of COVID 19 on SMEs are classified into operational problems and financial problems. Regarding operational problems, the number of paid employees and the total number of hours worked by paid employees were reduced by 50%. And in terms of production, clear disruption in the supply chain occurred. Regarding financials, they have limited cash on hand, yet they did not apply for a loan to cover their expenses and preferred to temporarily reduce production. This paper represents one of the first attempts to closely assess the impact of COVID-19 on Egyptian SMEs working in plastic packaging. The assessment considers various aspects including employment, production, supply chain, financials, and the outlook to capture the full potential cost of COVID-19. It also discusses the solid waste plan (2019-2023) and how the government can support the green initiatives related to plastic recycling. The results show that fiscal and monetary measures taken by the Egyptian government were not perceived as the ultimate support desired by SMEs in this specific industry. They wanted more tailored programs addressing their specific needs.

**Keywords**— *SME, Plastic packaging industry, impact of COVID 19, Fiscal and monetary programs.*

## I. INTRODUCTION

On the global frontier and as per the surveys of National Federation of Independent Businesses (NFIB) research center, around 76% of small enterprises are negatively affected by the COVID 19 outbreak, while only 5% are positively affected [1]. Moving to the local market, on March 8, Egypt reported its first case of COVID-19. The crises affected the GDP growth rate and lowered it to only 3.6 % for FY 2019/2020. The services sector is hit hardest, followed by the industrial sector, while the agriculture sector is the most resilient one [2]. Small and medium-sized enterprises (SMEs) account for 34% of the total revenue generated by Egyptian businesses, involve 1.7 million businesses, and represent around 95% of the total industrial enterprises, mainly non-agriculture, and recruit around 75% of the total workforce. Small and Medium firms

represent 13% & 46% of industrial enterprises, respectively [3]. Those SMEs still face challenges related to their structure and business, being part of the informal sector and governmental supervisor, marketing issue, and means of funding [4]. The Minister of Planning and Economic Development Hala El-Saeed, mentioned in an interview that the MSMEs had been affected by the coronavirus crisis and that Egypt is working to encourage all programs and initiatives that support SMEs' development efforts. With the continuation of the COVID-19 pandemic, how are these vital parts of the economy doing?

## II. LITERATURE REVIEW

### A. Stages of COVID 19 and its impact

The COVID-19 pandemic continues to spread around the world affecting the various economic activities. In this section we will detail the various stages of COVID 19 and how Egyptian government address the challenges related to these stages.

#### 1) Stage 1: Awakening to the Epidemic (Feb – 15 March 2020)

COVID 19 was confirmed to reach Egypt on 14 February 2020 [5]. Preventive measures were taken as confirmed by Dr Yvan Hutin, Director for Communicable Diseases in WHO's Regional Office and mission team lead. In March 2020 he mentioned that: "Egypt was making substantial efforts to control COVID-19 outbreak, especially in the areas of early detection, laboratory testing, isolation, contact tracing and referral of patients" [6].

#### 2) Stage 2: Partial lockdown (16 March – June 2020)

The Egyptian government imposed a partial lockdown to try to gage the increasing number of confirmed cases of COVID 19. Both the private and public sector have implemented the governmental instructions allowing for individuals to work remotely from home depending on technology except for essential workforce' employees required to carry out normal operations [7]. Egyptian government took a number of measures to contain the economic effects of COVID 19. These measures were both fiscal and monetary measures. The measures included:

- Expanding the Social Security and Pension Act's realm, cutting tax on dividends by the half, providing EGP 500 for seasonal workers (paid once), extending

the deadline for personal tax filings and relinquishing e-payment fees for online payments.

- Tax Authority postponed the filing deadline for auditors and businesses, specifically SMEs [8].
- The Central Bank of Egypt (CBE)'s Monetary Policy Committee (MPC) slashed interest rates, and such action is expected to lead to higher household spending activity [9].
- For the industrial, agriculture & SMEs sector, they lowered the price of electricity needed for industrial use, relaxed the real estate tax payment settlements for industrial and tourism companies and allocated EGP 50 billion through banks to real estate sector. They also allocated EGP 100 billion to support private industrial companies, postponed all bank loan payments for businesses and retail clients for a six-month period, including SMEs, corporations, and individual borrowers. Furthermore, they adjusted the ATM withdrawal limits and offered a new investment tool (a one-year, EGP-denominated certificates with 15% yield). Not only this but they launched a debt relief program for some sectors and offered tourism companies a two-year soft loan [8]. Established a fast-tracking pay-outs system from the Export Subsidy Fund and allocated EGP 1 billion to exporters during the months of March and April. Moreover, they Extended the suspension of tax on agricultural land and allocated EGP 50 billion to ensure that hotels remained open.

On March 14, the government unveiled a USD 6.4 billion stimulus package. The Central Bank of Egypt (CBE) granted SMEs a six-month credit repayment extension and waived ATM withdrawal fees for the same period. In addition, the CBE raised the daily withdrawal limits for credit and debit cards. The central bank announced a 3% rate decrease on March 17 [10]. Insurance premium payment deadlines can be extended up to 60 days for life insurance customers and 30 days for medical and auto insurance customers. For the Egyptian exchange (EGX), the Egyptian government reduced the stamp tax on EGX transactions, postponed the capital gains tax and allocated EGP 20 billion to support the EGX from CBE [11]. For individuals' borrowers, they launched a debt relief initiative and relaxed the credit card limits, ATM and point-of-sale transaction fees and commissions [12].

### 3) Stage 3: Reopening with precarious measures (starting July 2020)

On the first of July, Egypt's lockdown measures were significantly eased as part of the strategy to coexist with COVID-19 [13]. Despite above mentioned efforts, SMEs still face the many challenges in reopening. There are imposed precarious measures, many SMEs struggle to meet these measures. Social distancing shrinks the market demand in the service sectors that are considered critical for many SMEs. There are also broken supply chain and logistics. Upstream SME closures are felt by downstream factories relying on them for raw materials and other logistic services. Without those SMEs many factories can hardly produce or store their finished goods. Most of the international shipping companies are reluctant to get back to work because of the outbreak. Furthermore, there are uncertainties about revenue and cash flow since there is a decreasing demand for many small businesses.

To some of the SMEs, reopening means depleting more personal resources covering rent and salaries without sufficient revenue. SMEs are financially fragile and cash-strapped when market demand is down, making emergency funding programs very important [14].

## III. METHODS

### A. Research approach and theoretical reasoning

Given the nature of the research problem and novelty of the case, qualitative research methodology was adopted supported with desk research.

### B. Secondary Approach: Desk research

A review of the existing literature on COVID-19 in terms of its impact on SMEs and various measures taken by the Egyptian government to handle such a challenge. This helps to develop a deep understanding of the situation and formulate the research questions that was used in the primary data collection.

### C. Primary Approach: data collection and analysis

This exploratory study aims to get fresh and meaningful insights on the impact of COVID 19 on SMEs in Egypt. Since it is the researcher believe that COVID 19 affects business differently, they focused on Plastic Packaging SMEs in Egypt.

Primary data for this research was obtained through qualitative research design by conducting eight semi-structured interviews. The total of five SMEs owners were selected, performing different business activities as part of plastic packaging industry. This wide spectrum helps researcher to develop better understanding on the issue of the research. Non-probability sampling was used to pick the respondents, and the purposive method was used to identify those who worked with Nile University. For each respondent, a profile of their company is presented in Table I.

TABLE I. PRIMARY APPROACH: DATA COLLECTION AND ANALYSIS

<i>Respondent</i>	<i>Business Experience – in years</i>	<i>Line of business</i>	<i>No. of Permanent staff</i>	<i>Paid capital / Sales turnover</i>
<b>R1</b>	15	PET Bottle to Bottle Manufacturer	4	Paid capital: 25 million EGP Sales turnover for 490 million EGP
<b>R2</b>	19	Food Packaging and plastic tableware	7	Paid capital: 20 million EGP Sales turnover for 190 million EGP
<b>R3</b>	25	HDPE and PVC Rod, tubes and sheets	10	Paid capital: 63 million EGP Sales turnover for 200 million EGP
<b>R4</b>	20	Plastic packaging solutions	5	Paid capital: 24 million EGP Sales turnover for 200 million EGP

<b>R5</b>	15	Plastic packaging solutions	10	Paid capital: 60 million EGP Sales turnover for 300 million EGP
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Table II shows a series of questions that were prepared. The questions are carefully constructed in order to get the necessary evidence. To ensure respondents' preparation, the question sets are delivered to each respondent via the WhatsApp message service 30 minutes before the interview call. Each interview lasted 30 to 40 minutes and was audio recorded with the informant's agreement. The interview transcripts are then evaluated using a content analysis approach, which includes coding, thematization, summarization, and data interpretation.

TABLE II. INTERVIEW QUESTIONS

Areas of information	Questions
Basic Information	Business Experience Type of business / products Business Location Paid Capital # of Permanent staff Average turnover
General impact	What is the overall impact of the COVID-19 epidemic on this business? Has the company's operational revenue changed? Were any of the company's branches closed for at least a day?
Effect on employees	Did this business have a change in the number of paid employees? did this business have a change in the total number of hours worked by paid employees?
Effect on production	Were there any issues with the company's supply chain? Has this company diversified towards the creation of new products or services? Any of the locations of this company use just pickup/carry-out/delivery to provide their clients with goods and services?
Financials	What's your assessment of the company's current cash flow? Did you apply a loan application? Were you able to secure any additional financial assistance? Who is the source of this information? Why?
Perception about the fiscal and monetary measures	Are you aware of any fiscal or monetary measurement done by the CBE or government? What do you know? Are any of these measurements useful? Why? What do you want them to do to help you?
Pollution	Do you think that the single- use plastic will pollute the world? Why? Are any other products might cause the same effect? Name them? What do you suggest?
Outlook	How long do you think it will take until this company is back to normal operations? What adjustments will you have to make as soon as you get back to work? Elaborate
Promising industry shift	Which plastic product / industries do you think will flourish in the coming 3 years? Why? Can we – as Egypt – compete globally? Is it easy to shift to the produce these products? why?

#### IV. RESULTS

This section reports the findings and discussion for each objective.

##### A. Theme 1: General Effect of COVID 19

All respondents agreed that the plastic packaging sector in Egypt was moderately affected by COVID-19 pandemic. Majority of the respondents highlight their main concerns on the impact of COVID 19 especially during the closure period (stage 2) as shown in Table III.

The circumstances inevitably affected employees, production and financials during stage 2 and afterwards as shown in Table 3 and can summarized as follows:

- All respondents agreed that the effect was negative in terms of decreasing the operating revenue but not to the level of closing the business down.
- Most respondents agreed that total number of hours worked by paid employees was reduced by 50%. Few of respondents dismissed casual workers and negating paying 50% of the salaries of permanent staff
- All respondents agreed that the business have disruptions in its supply chain, but they did not change their moulds to suit the alcohol packing because they believe it is not a continuous demand, they had a higher demand just for two weeks. And they did not add delivery service to their offer.
- The cashflow imbalance occur as the owners are still obligated to make compulsory expenses such as the staffs' salary, rental fees, utilities and other fixed costs. The current available cash on hand covers on average two weeks of business operations and covers up to 2 months of business operations to only few of them.
- Still, none of the respondents apply for a loan to cover their expenses and preferred to reduce production temporarily.
- All respondents were also aware of any fiscal or monetary measures done by the CBE or government, they agreed that such measures helped the overall economy but them specifically, they mainly mentioned the following measures: allocation of EGP 100 billion to support private industrial companies, postponing all bank loan payments for businesses and retail clients for a six-month period, including SMEs, corporations and individual borrowers, cutting discount rates for CBE financing initiatives and weaving the bank transfer fees for 3 months. However, they wanted the government to apply specific tailored plans helping affected industries not cross cutting programs and share the information influencing government's strategies, as transparency will help in building trust and facilitate communication between government and citizens.

TABLE III. GENERAL EFFECT OFF COVID 19

No	Themes of impact	Interviews' transcription
1	General Impact	"My Business is negatively affected" R1 "Thank GOD, we did not close for too long, yet sales definitely were affected" R3 "We did close but for a short period and then we reponed the factory taking all necessary precautions" R5 "It definitely did affect us without in terms of sales for example. Will this continue, no one knows!" R4
2	Effect on Employees	"Total number of working hours was decreased to half" R2, R3, R4, R5

		<p>"The casual workers were dismissed and currently negotiating with permanent workers to take 50% of their salaries till we overcome the crisis." R1</p> <p>"We still pay full salary to our staff! Can we sustain this?" R5</p>
3	Effect on Production	<p>"We did not change the molds to suit the alcohol packing because we believe it is not a continuous demand, we had a higher demand just for two weeks" R3</p> <p>"indeed, business have disruptions in its supply chain" R1, R3, R5</p> <p>"Customer's pick-up their products, no delivery offered" R5</p>
4	Financials	<p>"Current available cash cover not than 2 weeks of business operations" R2</p> <p>"Current available cash cover up to 2 months of business operation" R1, R3</p> <p>"Still we did not apply for a loan to cover our expenses and we prefer to reduce production temporarily and not burden ourselves with loans and their interest rates." R1, R3</p>
5	Perception about the fiscal and monetary measures	<p>"I heard about allocating of EGP 100 billion to support private industrial companies, but we need a more industry specific plans" R2</p> <p>"Postponing all bank loan payments for businesses and retail clients for a six-month period, including SMEs, corporations and individual borrowers, was a very good move" R1, R3, R5</p> <p>"Cutting discount rates for three CBE financing initiatives — the factories, mortgages and tourism finance programs, definitely helped" R4</p> <p>"Weaving the bank transfer fees for 3 months, was super" R5</p> <p>"we ask the government to share the information influencing it's strategies, as transparency will help in building trust and facilitate communication between government and citizens" R3</p>
6	Pollution	<p>"We are plastic producers are very worried as most single used plastic ends up in landfills or oceans, those are not biodegradable products!" R2</p> <p>"it covers around 1.6 million square kilometers of the oceans worldwide, an area twice the size of Texas or three times the size of France!, and that UN estimated plastic dumped in the sea annually to be around that 13 million tons, half of them single-use items." R3</p> <p>"shifting to recycling is the best solution" R3</p> <p>"With rising awareness about other environmentally friendly solutions, recycling is the best solution" R5, R4</p>
7	Outlook	<p>"6 months applying social distancing will be enough to regain out normal business performance" R2, R3, R5</p> <p>"No one knows" R1, R4</p>
8	Promising industry shift	<p>"But on the medium and long term, they agreed that plastic industry will change" R2</p> <p>"recycling and packaging solutions through innovation and operational excellence" R3</p> <p>"lightweight plastics in sectors such as healthcare, automotive, packaging, 3-D printing and definitely PET recycling" R5</p> <p>"The concept known as "Circular economy" will flourish" R4</p> <p>"Egypt can compete globally since we have the resources" R3</p> <p>"We have the resources (industrial and agriculture waste)" R5</p> <p>"manufacturing process might need investment in new technologies" R3, R2</p>

Every country in the world will be somehow affected by COVID-19 pandemic and must devise measures to contain its effect. Egypt was affected on various sectors; the tourism,

hospitality, and food & beverages sector estimated loss approached EGP 87 bn until June 2020, between direct, indirect, and induced impact. The Suez Canal revenues are extremely sensitive to global trade and economic growth, leading to a decrease in its revenues are expected to be affected heavily. The Manufacturing sector, representing 16.2% of the country's GDP depends on the consumer demand and the industry's exposure to global value chains. The medical supplies and food processing are booming while the automotive, or non-essential manufacturing are negatively affected. The informal sector which has been estimated to be around 50% of the GDP constitute mainly of small workshops and food factories. 30.6 % of it is concentrated in construction, retail, and catering industries while the rest includes diversified scattered industries. The informal sector is capable of supplying goods and services to the lowest economic quantities; and can often recover and resume operations faster than the formal sector does. For now, this sector will ignore the guidelines and contribute to lengthening the epidemic [15]. The small and medium enterprises, across formal and informal businesses, have limited reserves and will be severely affected. IFC suggests that a small business can survive around ten days after a sudden loss of income. The longer the crisis lasts, more implications will accumulate. The Startups suffer from lack of finance up to an extend that founders stopped talking about growth and expansion and focused on product development and adjusting business models to sustain operations during the pandemic. They mainly adjusted their operation model to work remotely from home. Startups are expected to be affected at a rate less than middle-sized companies [10].

#### B. Theme 2: Surviving probability of SMEs working in the plastic packaging industry in Egypt

The economic effects of COVID 19 are striking the oil and gas industry since the beginning of this year. Plastic and oil industries are interrelated. The IK Industrievereinigung Kunststoffverpackungen, released the results of a study conducted in Germany during Q1 of this year. The study showed how distinctively the manufacturers of plastic packaging are affected depending on the industries they are serving. **Plastic manufacture serving food, pharmaceutical, and medical producers approached their maximum capacity unlike plastic manufacturers serving other industries** [16], [17].

Some industries saw this epidemic to be an opportunity to innovate and create new solutions. Since Egypt started implementing a partial lockdown, online shopping platform have thrived attracting new customers [18]. Sectors such as food and pharmaceutical and medical supplies prevailed.

#### C. Theme 3: Pollution Effect

Turning to discussing a technical matter, which is the single- use plastic dictated by COVID 19 epidemic and its effect on pollution. They expressed their deep concerns as most single used plastic ends up in landfills or oceans, those are not biodegradables. The same applies for biodegradable ones that needs composting. One of the respondents even tried to quantify it by saying it covers around 1.6 million square kilometers of the oceans worldwide, an area twice the size of Texas or three times the size of France and that UN projected plastic dumped in the sea annually to be around that 13 million tons, half of them single-use items [19], [20]. They all agreed that shifting to recycling is the best solution along with rising

awareness about other environmentally friendly solutions, as shown in Table 3.

#### D. Theme 4: Promising products / industries

But on the medium and long term, all respondents agreed that the plastic industry will have to change providing world-class quality recycled packaging products through innovative solutions and operational excellence, such as lightweight plastics in sectors such as healthcare, automotive, packaging, 3-D printing, and definitely PET recycling. The concept known as “Circular economy” will flourish. They believed that Egypt could compete globally since we have the resources (industrial and agriculture waste) but manufacturing process might need investment in new technologies, as shown in Table III. BariQ is a successful example of an Egyptian producer that saw the signs and was proactive [21].

#### V. CONCLUSION

The Egyptian government should also develop and strictly deploy green public procurement policies to encourage SME suppliers to provide environmentally friendly goods and services. It may also introduce tax privileges and loan policies through public financial institutions to encourage SMEs to invest in green technologies. The government should not provide subsidies to SMEs compiling with environmental requirements to avoid making it a cliché. Step-by-step technical and managerial guidance should be considered to transform an SME to adapt green practices and sustain such a change on the long-term and build upon it. Working in partnership with business organization owning the needed know-how/technology can be particularly useful as many SMEs cannot afford paying for it individually. These business organizations can create a long-term investment via proving sector-specific technical assistance to the SMEs and get profit on the long run.

#### VI. DISCUSSION

The researchers complemented the primary data collection with 3 experts' interviews with professionals working at the Ministry of Environment in Egypt. The aim was to discuss the solid waste recycling plan and its implications on plastic packaging producers in Egypt.

Table IV summarizes the most common barriers to further increases in SME recycling. The table also presents solutions that were most frequently recommended. The last column details the actual recycling executive plan that was announced by the Ministry of Environment.

TABLE IV. BARRIERS AND POTENTIAL SOLUTION TO SME RECYCLING

Barrier	Solution	2019-2023 solid waste recycling executive plan
Lack of sufficient waste recycling centers and most of them are being monopolized, while some areas are not truly covered	Devise public project to create and increase number of recycling centers	94 trash sorting facilities (including 65 mobile ones) will be built, 52 safe waste pits will be dug, and 63 recycling lines)
Difficulty of investing in infrastructure. (cost of collection, vehicles, ...)	Public-Private Partnership (PPP) projects devoted to establishing treatment facilities, additional support for solid waste collection	Technical study is being conducted to efficiently revamp 4 landfills [22]
Difficulty associated with sorting and lack of awareness	Education and promotional initiatives targeting women,	Establishing 8 trash sorting facilities in five governorates beside 15

	schools and colleges, ...	mobile trash sorting facilities in seven governorates.  “Knock the Door” initiative in collaboration with the National Council for Women (NCW) to build general awareness and support SMEs in the recycling sector
Weak legislation	Increase landfill tax even further Impose the current laws	62 unlicensed landfills are to be eliminated. 34 safe waste pits are planned to be dug in 20 governorates along with the elimination of 35 unlicensed landfills in six governorates
Lack of targets and incentives	Offer financial incentives for recycling to SMEs and ensure simple solutions are available	Funding the contracts of garbage collection and transportation, street cleaning services, and management of safe landfills

Source: depth interviews conducted with experts working at the Ministry of Environment – July 22, 2020. They discussed the 2019-2023 solid waste recycling executive plan.

There are many instruments that can be used to promote environmental business practices, including regulatory-based tools, information-based tools, and economic incentives. Based on the conducted interviews, the researchers suggest several ways to effectively design and implement some tools supporting the SME in recycling [23]. Improving regulation of SMEs exhibiting low environmental risk through reducing the administrative burden on SMEs and ensuring collaboration between environmental and non-environmental authorities to avoid paperwork duplication. Staff of the Ministry of Environment should provide one-to-one guidance to SMEs in specific sectors to ensure their inclusion [24]. Providing information and advice. Currently, information is scattered and not well maintained. It is important to gather comprehensive information in one hub covering: cost comparison information covering the various aspects of the solid waste recycling business, information the terms of reference for each service, guidance on the procurement of the needed equipment and technologies, performance data covering all aspects of the recycling business, campaigns, and their impact. Within couple of years, web-based solutions are expected to be the main source of support for SMEs. Communication channels should be sector-specific reflecting related business models and activities.

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