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Keywords:

1- COVID-19
2- EGYPTIAN ECONOMY
3- MACROECONOMIC

Abstract

The research concentrates on impacts of COVID-19 pandemic on the Egyptian Economy and possible macroeconomic stabilization, drawing a distinction between macro and miso level. The Egyptian economy is affected but not so large like other economies in the region. That occurred because of the positive stand-by structural programs and reforms applied through wise and intensive intervention in sectors and markets. The research is mainly concerned with the impacts of COVID-19 pandemic on economic growth and employment, therefore takes a quicken observation to the fundamental sectors may critically affected like Remittances, Tourism receipts, Suez Canal, Manufacturing, Health and Pharmaceuticals, Petroleum and mineral Resources, Small and medium Enterprises, portfolio investment, stock market and the informal sector. It was necessary to build an economic model, able to interpret the phenomena and be a stand point to step upon rational and stable macroeconomic policies to surround relics and prevent their spread and help a good built-in-stability model to drive growth and improve employment opportunities. The research relied on advanced images of the Keynesian model. Following up the total effects in areas of aggregate demand and supply gaps, and the investment animal spirit (outlook) for the recession trap. Fiscal policy accounted for sixteen reform steps and monetary policy adopted nineteen. With the application of the study model, it was found that the Healthcare sector, in its broad sense, is able to respond to macroeconomic reforms and recommendations, especially with the support of the rest of national economy, based on its dynamics and investment attraction.

ملخص الدراسة

تتناول الدراسة الآثار الإقتصادية لجائحة كورونا فى الاقتصاد المصرى بالتركيز على محورى النمو والتوظف, واستشراف السياسات الاقتصادية الكلية الاستقرارية الممكنة. تنطلق الدراسة من المقارنات التى عقدها صندوق النقد الدولى لمجموعة الدول العربية وحساب معدل النمو الاقتصادى قبل وبعد الأزمة. يستعرض البحث أثر الأزمة على النمو والتوظف فى عدد من القطاعات وثيقة الصلة بالنمو النهاءى (بعد حساب إسهام قطاع العالم الخارجى), مثل تحويلات العاملين بالخارج والموارد السياحية وعائدات قناة السويس, وقطاعات التصنيع والصحة والدواء والبترول والتعدبن, والصناعات الصغيرة والمتوسطة وسوق

المال والسوق غير الرسمية. يتفاوت أثر الأزمة بين قطاع واخر بين الحاد والمعتدل والطفيف , لكن الأزمة ولدت تهديد صريح لكل عناصر الاقتصاد المصرى ودفعته الى اللجوء الى صندوق النقد الدولى لطلب المزيد من القروض لتمويل التعويضات اللازمة للقطاعات المتضررة وتحسين الآداء الاقتصادى. وضح ذلك فى إعادة تصميم السياسات المالية والنقدية لتكون أكثر ديناميكية فى مواجهة الأزمة, وأكثر تحصينا للاقتصاد من تداعياتها. كذلك يسجل البحث استجابة السياسات الاستقرارية للأساس النظرى لنموذج الدراسة وأدبيات الاصلاح الهيكلى. سجلت السياسة المالية ستة عشرمحورا فى بنائها الاستقرارى وسجلت السياسة النقدية تسعة عشر. وبالتركيز على فهم دور قطاع الرعاية الصحية فى مفهومه الواسع فى النمو الاقتصادى وتحسين التوظف, خرجت الدراسة بعدد من النتائج والتوصيات.

(1) INTRODUCTION

The Coronavirus crisis wreaking havoc on economies around the world, Egypt is no exception. As a multifaceted crisis, COVID 19 has hit hard the health sector as well as the most economic sectors of the Egyptian Economy.

After a 3-year successful structural adjustment program, Egypt was on the verge of taking off to the next level towards an inclusive, private sector led growth of the economy. However, Egypt's successful structural adjustment did not vow for it in these dire times of COVID 19, which had its grip felt, pushing Egypt to resort back to the IMF programs for Structural Stand-by Arrangements **(SBA)** and Rapid Financial Instruments **(RFI)**, lest it loses its pre-COVID achievements.

Yet, sooner rather than later, the economy is set to rebound. Egypt will have to be ready, as the government will have to move forward with structural adjustment to tap the potential of the private sector and to modernize its economy, while endorsing inclusive and sustainable growth.

(2) SUBJECT AND OBJECTIVES OF THE RESEARCH

In the following, we endeavor to look at Egypt's pre- and post-COVID 19 period. We will study the extent of the latter implications on the economic growth and Employment, as well as delve into the question of whether the Egyptian Economy is apt for a quick rebound. The research presents some of the Covid 19 crisis effects on the markets and Miso level (what comes between micro and macro levels) to give reasons of why the whole problem should be handled on the Macroeconomic level. Lastly, we explore the way forward for the macroeconomics to survive the crisis with the least possible damages and to move towards a sustainable, inclusive and dynamic economic growth and employment.

The Research aims at first to present the theoretical Framework of the research problem which is summarized in the possible Scenarios for effects of Covid 19 on the Egyptian Macroeconomics by focusing on the important two Axes of Employment

and Growth. This comes with the presentation and explanation of the Keynesian Model and its development in the modern economic References. How does the Egyptian Economy understand the available theoretical solutions and turns them into reality to boost growth and Employment?

(3) IMPACT OF COVID 19 ON THE EGYPTIAN ECONOMY

COVID-19 came to hit the very indicators that Egypt worked so hard throughout the adjustment program to stabilize and the heavy sacrifices people had to undergo to support. The crisis is multifaceted and the Egyptian government **(EG)** has no easy task to mitigate the combined socio-economic and health implications of the COVID-19 outbreak.

In Egypt, the first COVID-19 confirmed case was reported on 15 February 2020, and as of 21 July 2020, there were more than 89,000 confirmed cases. Since then, the Government has issued several public health measures and programs, including on awareness raising, to curb the spread of the virus. Concurrently, the Government has been rolling-out a series of fiscal stimulus policy measures, including tax breaks and delayed payment of taxes targeting several sectors, to mitigate the economic impact of the pandemic. Monetary policy response actions were also taken by the Central Bank of Egypt including relaxing the credit repayment deadlines for small and medium enterprises (SMEs) through the local banks.

Without going into much detail, it suffices to point out that the **IMF** forecast re-evaluated the increase in real GDP growth to drop to 2% in 2020 from initial expectations close to 6% with the continued impact of the Coronavirus pandemic. Measured against the 2.3% rate of population growth, which is one of the highest global growth rates, means that Egypt will equally suffer a negative per capita growth rate.

Furthermore, the public debt declined

	Pre-COVID 19 2020 IMF Growth Forecasts	**Post-COVID19 IMF Growt Forecasts**
Algeria	2.6%	-5.0%
Bahrain	2.5%	-4.3%
Kuwait	3%	-2.5%
Oman	2.5%	-5.0%
Qatar	3.6%	-5.9%
Saudi Arabia	2.5%	-4.3%
UAE	3.0%	-5.0%
Egypt	5.9%	+2%
Jordan	2.4%	-3.7%
Lebanon	0.9%	-12%
Morocco	3.7%	-3.7%
Tunisia	2.4%	-4.3%

Source: Egyptian Center for Economic Studies (ECES)

In addition, unemployment rates returned to their previous level five years ago to attain nearly 12% after having reached 8% in 2019, the lowest level ever within 20 years because of implementing the reform program.

from 103% in 2016/17 to about 85% in 2018/19, which is a healthy downward trend, nevertheless remains high in proportion to GDP, thus continuing to pose sustainability risks. This will exacerbate if the crisis causes a discontinued fiscal consolidation.

It is not unique that due to the global impact of the pandemic and the worldwide lockout, Egypt is

encountering a huge drop in its net financial inflows. It is most unfortunate that such a shortage of finance comes at a time when the prevailing conviction was that Egypt was pulling itself out of the bottleneck. Egypt lost its income from the tourism sector, faced significant drop in the Suez Canal revenues, and sharp contraction of export proceeds. The steep descent overnight in global oil and gas prices, from $60 per barrel to no more than $25 per barrel, are leaving their marks on Egypt's budgetary outlays.

Adding to all this, the fall of remittances by 20% globally will have a devastating effect on the Egyptian Economy, as the world fifth largest recipient of remittances.**(1)** To put things into perspective, the World Bank stipulates that the decline in remittances is unprecedented, with the closest comparison being the Global Financial Crisis (2008/9), when remittances fell around 5%.**(2)** Remittances and tourism are the two largest sources of foreign currency for Egypt and the two have dried up in the post-Corona era that will be difficult to recoup in the short term. In light of the huge losses that Egypt incurs in its revenues, it will have to, according to Egypt's Ministry of Finance, reassess its budget downward and review ways of maintaining and increasing public spending on sectors such as education and health. Placing Egypt's rate of growth in a regional context, it is useful to look closer at the projected changes the IMF has made to the 2020 GDP forecasts as a result of COVID.

While it is obvious that all countries are hard hit by COVID-19 sliding to negative growth rates, Egypt is apparently better off than other countries. Losing a 4% of its
Growth level, Egypt's positive rate of growth will wither, as noted, once we factor in the rate of growth of the population. Additionally, with the high disparity in the standards of living in Egypt, the vulnerable segments of the population will be the hardest hit. According to United Nations figures, over 30 percent of the population live below the poverty line. One thing is also clear; Egypt will hardly be able to resort to its Gulf friends to ease its quandary, as COVID-19 has spared no one. All are obviously in the same boat.

(4) PARTIAL AND MESO-SECTORAL LEVEL EFFECTS

(4-A) Remittances

According to the World Bank, Egypt is the fifth largest recipient of remittances after India (USD 82.2 billion), China (USD 70 billion), Mexico (USD 38.7 billion) and the Philippines (USD 34 billion). **(3)** Expatriate worker remittances are Egypt's biggest source of hard currency, bringing in USD 27 billion annually from about 5 million expats (2019), and accounting for about 30% of foreign currency revenues. Most of these funds are transferred from Egyptian expats in the Gulf countries; should those employers scale back on projects and/or lay off employees, we may see household purchasing power in Egypt weaken – especially for families reliant on transfers from abroad. This may also weigh on the Egyptian pound's value, which has already began sliding since the outbreak.

In a March 2020 study, the Egyptian Center for Economic Studies **(ECES)** assessed COVID-19's potential impact on remittances for three scenarios based on the magnitude of the outbreak's impact on the economy. The ECES predicts the decline in remittances would grow Egypt's unemployment and inflation rates as well as lower GDP growth. **(4)**

(4-B) Tourism receipts

After recovering from post-2011 events, the tourism sector is Egypt's second highest source of foreign currency, accounting for over 50% of service receipts in FY 2018/19. The sectors that has already been significantly impacted by the pandemic. On March 15, the government suspended all air traffic (excluding cargo) into and out of Egypt until April 15, which could be extended. Experts estimate the travel suspension, which went into effect on

	Magnitude of impact	Forecasted decline in remittances (FY 2019/20)	Forecasted decline in remittances (FY 2020/21)
Best-case scenario	Low	10% (USD 2.6 billion)	8% (USD 1.8 billion)
Moderate scenario	Moderate	12.5% (USD 3.2 billion)	13.5% (USD 3.0 billion)
Worst-case scenario	Major	15% (USD 3.8 billion)	15+% (USD 3.3+ billion)

March 19, could cost the aviation sector north of EGP 2.25 billion in losses by March's end. The government has also halted domestic tourism in the Red Sea and South Sinai areas, ordered the evacuation of tourists from hotels and locked down workers for a 14-day quarantine period.

According to the Egyptian Travel Agents Association, new bookings were down 70-80% over the next nine months and occupancy rates at hotels have plummeted. According to the minister of tourism and antiquities, the lockdown could result in monthly losses of USD 1 billion to the tourism industry, and even more if hospitality is accounted for.

A key industry and with strong ties to many other industries—including hospitality, travel, food and beverages, and tourist attractions—one consulting firm, estimates the cost of the tourism shutdown to approach EGP 87 bn ($5.52 bn) in the first four months until June 2020, between direct, indirect, and induced impact.

(4-C) Suez Canal

The Suez Canal—which represented 3.7 percent of public budget revenues last year—is also one of the country's main sources of foreign inflows; it is a major employer, with 14,000 jobs, and a central point in the state's development strategy, which has made a Suez Canal Special Economic Zone a central pillar of its investment promotion plans. Canal revenues however are, unsurprisingly, extremely sensitive to global trade and economic growth.

With the crisis hitting global trade hard, international trade corridors are already seeing notable decreases in traffic and revenues. Egypt's Suez Canal, which drew in USD 5.7 billion during FY 2018/19, is also expected to see some drops. In February, the number of container ships passing through the canal fell by 7.3%, while the number of passenger and cargo ships decreased 22.2% and 1.3%, respectively. Fewer ships transiting the canal means fewer tolls paid, which may further constrict Egypt's foreign currency liquidity, add to its current account deficit and negatively affect the EGP-USD exchange rate. **(5)**

(4-D) Manufacturing

Egypt's manufacturing sector, representing 16.2 percent of the country's GDP and 12.4 percent of employment, offers a mixed bag of outcomes. Depending on the imminent need of people and their exposure to global value chains, some industries will actually fare better than others—medical supplies and food processing, for obvious reasons; whereas such sectors as the automotive, or non-essential manufacturing, will inevitably contract. Overall, the manufacturing sector, according to

projections by the Egyptian Center for Economic Studies, could shrink by more than half for 2020.

The pandemic has spurred excessive demand for food commodities amid consumer fears of being unable to access stores. This has predictably translated into stock reductions in mass grocery outlets also impacting businesses in the fast-moving consumer goods **(FMCG,)** retail and other commercial sectors.

Manufacturers have been operating at less than full capacity in their plants, which impacts retail outlet stocks and shelf availability as well as prices. Businesses that import production inputs have been hit by shipment delays, also reflecting on final product availability and retail outlet shelves.

To mitigate the impact on the supply of goods and production as a result of the curfew, the government has announced that targeted support to private businesses through sector-specific measures is in the works.

The government has also reduced the price of natural gas for industry to USD 4.5 per million British thermal unit (mmbtu) to stimulate production. This translates into a 25% price cut for cement companies that were paying USD 6.00 per mmbtu, and an 18% cut for metallurgy and ceramic manufacturers (which were paying USD 5.50 per mmbtu).

(4-E) Healthcare & Pharmaceuticals

Impact: According to the United Nations Economic Commission for Africa, global health spending will increase to up to USD 10.6 billion as a result of the virus outbreak. **(6)** Soaring demand for surgical masks, disinfectants, ethyl alcohol and ethanol in Egypt has resulted in significant price increases and dwindling supplies.

The Ministry of Trade and Industry has banned exports of surgical masks, disinfectants and medical alcohol for three months to ensure that Egypt has enough supply to cover local needs.
In addition to its network of 21 ministry and university hospital laboratories, the Ministry of Health is looking into having other major hospitals conduct the PCR test used to diagnose COVID-19. Should the number of cases exceed 1,000, the ministry would consider converting schools into medical facilities dedicated to COVID-19 patients.

(4-F) Petroleum and Mineral Resources

The pandemic has led to a decline in global demand for energy despite the decrease in both oil and natural gas prices. In light of the Saudi-Russia oil war triggered by the COVID-19's spread, oil markets have been significantly stifled, driving global oil

and gas companies to cut back on their spending and projects. **(7)** Lower Brent crude oil prices will likely have a positive impact on Egypt's hydrocarbon bill. In FY 2018/19, Egypt's petroleum imports were at USD 12.1 billion **(8)** when oil prices were in the range of USD 60 per barrel. If oil prices remain depressed over the coming period (USD 23.5 per barrel at time of publishing), the import bill is likely to decline by half. The Ministry of Petroleum facilities have reduced their workforces, rotating employees at field and production sites in shifts to keep production at same levels.

(4-G) Small and Medium Enterprises (SMEs)

Small and medium enterprises, as sector-cutting across formal and informal businesses, are a particularly exposed sector. With limited reserves, they have significantly little runway to cover their expenses and salaries; for them, the crisis is measured in days, not months: the **IFC (9)** suggests that a small business can survive, on average, ten days after a sudden loss of income. It would appear that SMEs are excluded from the government's EGP 100 bn ($6.3 bn) stimulus for the private sector, which will benefit large firms; a few weeks later after it was announced, the Micro, Small and Medium Enterprise Development Agency **(MSMEDA)** launched an initiative for one-year SME loans to cover operational expenses, to help keep them afloat during the months of closure.

(4-H) Foreign Trade

Egypt's top trading partners include the EU, the U.S., Italy, Spain, China, Turkey, UAE and Saudi Arabia, which are among the economies highly affected by COVID-19 pandemic. Trying to contain the spread of the disease, these countries have all but halted their industrial and manufacturing activity, which will have direct negative impacts on two-way trade. On the export side, experts are forecasting export proceeds for Egypt may decline by 25% throughout 2020 as the movement of Egypt's exports to the EU (specifically Italy) and U.S. face internal and external delays, which will also weigh on the country's external accounts.

Similarly, Egypt is likely to import lower volumes, as overseas suppliers focus on domestic markets; this will affect a number of Egypt-based manufacturers, especially in the electrical appliance, electronic devices and textiles sectors, which rely heavily on imported production inputs.

(4-I) Portfolio investment

Emerging market (EM) debt and equity outflows have hit USD 78 bn in the two months since the global COVID-19 crisis started in February, with investors rushing to invest in safe-haven assets. **(10a)** According to the

International Institute of Finance, EM outflows recorded during January and February are more than triple the amount seen in the three months following the beginning of the 2008-09 global financial crisis. This may pose a major risk to Egypt's international investment position given its "vulnerability to a lasting and sharp tightening in financing conditions, says a March 31, 2020 Moody's report **(10b).**

According to the Ministry of Finance, Egypt's capital flight since mid-February amounts to USD 2-2.5 billion as of mid-March, with USD 24 billion in outstanding foreign holdings of treasury debt. Demand for new debt offerings is low, as investors look for higher yields amid concerns on Egypt's exposure to the COVID-19 outbreak. Even after hiking yields by an average 80 bps on March 16, the **CBE (11)** sold only 30% of its total offerings at its March auction.

When interest rates were slashed, many predicted the sell-off of Egyptian debt will continue. However, a number of analysts believe foreign holdings of T-bills may not significantly decrease as inflation eases, ensuring real returns remain attractive. According to local investment bank HC Securities, as the interbank market moderately picks up the slack, yields will remain attractive, offering a 0.95% real interest rate (accounting for the 3% rate reduction and HC's forecast for 9% inflation through 2020) compared to 0% for Turkey**. (12)**

(4-J) Stock Market

The coronavirus has negatively affected all global markets, with key indices recording double-digit retractions since the beginning of February. Global equity markets saw some recovery in the third week of March after the U.S. Senate approved a near USD 2 trillion stimulus package after weeks of negotiations. European indices also began recovering on the back of talks among leaders of an EU zone recovery package.

Following the significant losses, state-owned **NBE** and Banque Misr injected a combined EGP 3 billion in the market on March 19. The CBE followed on March 23, buying EGP 20 billion worth of equities —about 5% of the EGX 100's market capitalization — to support asset prices amid uncontained market volatility. The market reacted positively to the intervention, reverting its downward trend for three consecutive sessions.

(4-K) The informal sector

In Egypt 55%of people work in the informal economy. People who work in the informal economy don't have access to social security payments and are more difficult to locate or track. Another factor is that small and medium-sized enterprises have

problems accessing capital and liquidity that prevents them from emerging from the crisis.

Added to this is the fact that many people do not have savings or access to insurance or a social protection network. This would be aggravated by the decline in remittances. Faced with this situation, many families in poverty end up selling or losing those resources that allow them to generate income or cannot continue to invest in the education or health of their children. This has irreparable long-term negative effects. Finally, many families depend on basic public services such as health or education.

A sector particularly difficult to both assess—and address—and which will inevitably represent a very complicated part of the response, is the informal sector. Exceeding 50 percent of the national economy and employing two-thirds of all labor in Egypt, 44.8 percent of them work in the agricultural sector, 24.6 percent in the industrial sector—mainly small workshops and food factories—and 30.6 percent in construction, retail, and catering.

This breadth and diversity make informality a difficult issue to tackle but, in a way, can be an ally during crises. "During the 2011 lockdowns, what sustained the economy was the informal sector, and the demand from illicit construction, and the fact that people still moved around to purchase basic foodstuff. Capable of supplying goods and services to the lowest economic quintiles of the economy and flaunting government restrictions and directives, the informal sector can often recover and resume operations faster than the formal sector does.

What this means, in essence, is that the informal sector is engaged in a downward spiral of its own, where it will ignore guidelines to stop working—but this will not only expose its workers to greater risk, but also would contribute to lengthening the crisis, thus further pushing more formal enterprises to collapse—many of whose employees will come to compete with them for informal jobs.

(4-L) Re-emergence of a Parallel market

With the strain on Egypt's foreign currency receipts, there could be a risk of a reemerging parallel market that the EGP float dissolved in November 2016. According to a Naeem Brokerage research note, banks and exchange bureaus were offering EGP 15.75 to the USD in March's third week, while unofficial trades saw the dollar sold at EGP 16.10-16.15. **(13)** A resurgent parallel market could impact remittance inflows as expats look to convert their earnings at higher rates for their families. According to Naeem's note, "banks have begun

rationing their foreign currency inventories (prioritizing on the imports of necessities) and adjusting to the drop in inflows from tourism and hot money outflows. With interbank (foreign exchange) liquidity expected to dry up further in the coming months, we expect the CBE to intermittently plug the deficit by selling USD to the banks.

The CBE is working to limit dollarization by cutting bank interest on USD deposits to 1% above the London interbank rate **(LIBOR),** down from 1.5%. A number of banks, including Banque Misr and the National Bank of Egypt (NBE), have reduced the returns on their USD-backed saving certificates to encourage investors to park savings in EGP-backed instruments.

(5) MACROECONOMIC FUNDAMENTALS

Egypt like the majority of the Developing and emerging economies, suffers from two painful macroeconomic Challenges because of the Coronavirus crisis.

The first challenge beats directly the investments needed for financing the journey of Corvid's confrontation besides complementing the public projects drown for the economic Growth path:

1. A lack of financing because of the procedures adapted with the spread of Covid
2. Unfrequented Current debt levels
3. An increase in the fiscal deficit and
4. Possible closures of the debt market due to low levels of additional international reserves.

All make it impossible for Egypt to obtain the necessary financing. Not only for the health expenditures needed to deal with the pandemic, but also for social spending and refinancing existing debt. The more the isolation is contained, the greater the fiscal space needed to mitigate the effects of the resulting recession.

These challenges have direct and indirect effects on employment and stability of growth. Such effects sudden investments via increased real interest rates and actions of cost push inflation.

The second big challenge has been on the supply and demand of commodities, leading to closures or interruptions in supply chains. Developing and emerging economies are particularly vulnerable to these events. Such challenge crushes the supply side of the GDP and represents reasons of demand pull inflation.

(6) A MODERN FRAMEWORK FOR THE KENESIAN MODEL

The economic effects of the coronavirus outbreak, and the

preventive measures adopted around the world, are still largely unknown. In addition, standard macroeconomic models based on fundamentals may be slow to adapt in this fast-changing environment.

Before guiding the decision maker with what can contribute to the possible macroeconomic stabilization polices in Egypt, we discuss the standard New Keynesian model (**Gal__, 2009)** as the best reference**. (14A)**

(6-A) the research model

For simplicity's sake, we consider the Egyptian economy as a whole, and thus ignore asymmetries across economic sectors. Time is discrete and indexed by ***t***. National output $\mathbf{y_t}$ is increasing in employment l_t and labor productivity a_t

$$y_t = l_t + a_t.$$

There is a maximum - possibly time-varying - level of employment l_{t1}, which also corresponds to the efficient level of employment. **(14B)**

When $l_t = l_{t1}$ the economy operates at full employment and output is equal to potential, while when $l_t < l_{t1}$ there is some involuntary unemployment and output
is below potential.

We denote the growth rate of labor productivity by $\mathbf{g_t} \neq \mathbf{a_t} - \mathbf{a_{t-1}}$.

As in the Keynesian tradition, we assume that output and employment are determined by aggregate demand. In turn, aggregate demand depends on expectations of future output $y_t + 1$ and on the real interest rate r_t.

First, demand in the present is increasing in expectations of future output. Consumers, the reason is, are more willing to spend in the present if they anticipate a higher future income.

Second, a lower interest rate boosts aggregate demand, for instance by encouraging expenditure financed by borrowing. These effects are captured by the expression:

$$y_t = -r_t + y_{t+1},$$

Which is similar to the standard inter temporal substitution (IS) equation of the New Keynesian model. The interest rate is determined by monetary policy. More precisely, monetary policy controls the nominal rate i_t, while agents base their spending decisions on the real rate r_t. The two rates are related by the Fisher equation $i_t = r_t + \pi_{t+1}$, where π_{t+1} denotes expected price inflation.

For the moment, we assume that inflation is fixed and equal to π^-, so that the central bank effectively controls the real interest rate. **(15)** We will revisit this assumption later on. Moreover, we assume that the central bank sets the policy rate according to:

$$i_t = \bar{i} + \phi(l_t - \bar{l}_t),$$

Where i^- and ¢ are two positive constants. Under this rule the central

bank aims at stabilizing output around its potential level, by cutting the policy rate in response to falls in employment. Substituting (1) and (3) into (2) gives:

$$l_t(1+\phi) = -\bar{i} + \bar{\pi} + l_{t+1} + g_{t+1}$$

This AD equation describes the demand side of the economy.

(6-B) Impact of coronavirus on aggregate demand

We now need take a stance on how to model the coronavirus shock. Surely, the epidemic is inducing a fall in the efficient level of employment. The reason is that many occupations require in-person social interactions, which facilitate the spread of the virus. Limiting employment, by imposing an economic lockdown, is thus desirable to mitigate the impact of the virus on public health. These considerations can be captured through a fall in $\bar{l}_t$. This effect, however, is not the focus of this note. We will thus abstract from it by assuming a constant level of efficient employment ($\bar{l}_t = \bar{l}$ for all $_t$).

Besides its impact on the efficient level of employment, the virus - and the associated lockdown - is also likely to generate a drop in the future productive capacity of the economy, by making firms scrap their investment plans, companies going bankrupt and destroying workers-firms matches.

All these effects produce a long-lasting supply disruption, which might very well extend far beyond the end of the epidemic. In the model, this can be captured by a persistent drop in labor productivity growth. It is analytically convenient to focus on the limit in which the fall in productivity growth caused by the coronavirus is permanent. This is, of course, an unrealistic assumption. But our results generalize to cases in which the drop in productivity growth is persistent, without being permanent.

Since g_t is constant, all the other variables are also constant over time. For instance, the AD equation becomes

$$\phi(l - \bar{l}) = -\bar{i} + \bar{\pi} + g,$$

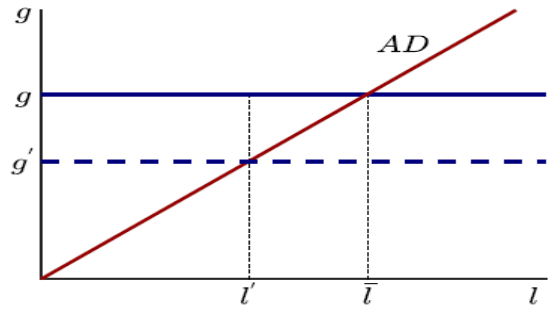
Where we have removed time subscripts to simplify notation. Figure 1 shows the AD schedule in the l - g space. The curve is upward sloped, because lower productivity growth is associated with expectations of lower future income, and thus with weaker aggregate demand.

Lower aggregate demand, in turn, depresses output and employment. As shown in the figure, for given g this equation determines employment l.

Now imagine that we start from an equilibrium characterized by full employment ($l = \bar{l}$). Suppose that the coronavirus epidemic causes a (previously unexpected) fall in g to $\tilde{g} < g$. The outcome is illustrated by the left panel

of Figure (1). The fall in productivity growth translates into lower aggregate demand. The central bank reacts by cutting the policy rate, but not enough to prevent unemployment from arising. The result is a drop in employment below its efficient level ($\bar{l} < l$).

In this simple model, therefore, the negative supply shock triggered by the coronavirus gives rise to a fall in demand and involuntary unemployment. The crucial assumption behind this result is that the supply disruption is persistent, so as to induce agents to revise downward their expectations of future income. **(16)**



(a)

Figure 1: Impact of coronavirus on a

What does it take to restore full employment? The central bank needs to inject further monetary stimulus, i.e., it needs to lower $\bar{i}$. Graphically, this corresponds to a rightward shift of the AD curve. If the monetary stimulus is strong enough, full employment is restored, as illustrated by the right panel of Figure **(1)**. This simple model thus lends support to the idea that central banks might need to respond to the Covid-19 outbreak by easing monetary policy. In reality, however, restoring full employment through monetary stimulus might not be that easy. **First**, social-distancing is impairing households' ability to spend. A reduction in interest rates might thus have a much weaker impact on demand, compared to normal times. **(17)** **Second**, interest rates are currently very low. This reduces central banks' ability to cut policy rates, because of the effective lower bound constraint. We will go back to this point later on.

Let us now spend a few words on inflation. Suppose that the prices set by firms are increasing in the marginal cost of production. Higher wages, therefore, push up prices by increasing marginal costs. Higher labor productivity, instead, lowers prices by reducing the marginal cost of production. We can then write price inflation π_t as:

$$\pi = \pi^w - g,$$

Where π^w denotes nominal wage inflation. Let us also assume the existence of a wage Phillips curve $\pi^w = \xi(l - \bar{i})$, where $\xi > 0$ so that wage inflation is positively related to employment. Inflation is then determined by:

$$\pi = \xi(l - \bar{l}) - g.$$

Will Covid-19 lead to higher or lower

inflation? Clearly, the answer is it depends. Lower productivity growth, in fact, tends to push inflation up. This is the classic notion that negative supply shocks are inflationary. But lower employment pushes wage inflation down. This effect points toward lower price inflation. The relative strength of these two effects depends on the slope of the wage Phillips curve. It is then hard, a priori, to say whether the coronavirus outbreak will lead to higher or lower inflation.

As in the standard New Keynesian literature, however, the model suggests that central banks will face a tradeoff_ between stabilizing employment at its efficient level and inflation.

(6-C) The supply-demand doom loop

So far, we have taken the rate of labor productivity growth as an exogenous variable. In reality, firms can increase their labor productivity by investing to increase their capital stock, or to develop innovations that improve the quality of their products. It is reasonable to assume that firms' investment decisions depend on aggregate demand. **First**, when demand is strong the return from investment tends to be high. Weak aggregate demand, consequently, depresses firms' incentives to invest. Moreover, due to financial frictions, many firms have to rely on internal funds to finance investment.

Weak aggregate demand reduces firms' operating profits and erodes their net worth, forcing financially-constrained firms to scrap their investment plans. These effects give rise to a positive relationship between investments - and so labor productivity growth - and aggregate demand. **(18)** These effects can be captured through a micro founded model, as done by **Benigno** and **Fornaro** (2018). Here, instead, we simply assume that productivity growth evolves according to:

$$g = \chi l + \bar{g},$$

Where × and $\boldsymbol{g}^{-}$ are two positive constants. The term x^{l} captures the endogenous component of productivity growth. The rationale behind this term is that higher aggregate demand, which is associated with higher employment, leads to higher investment and faster productivity growth. $\boldsymbol{g}^{-}$, instead, captures all the factors that can affect productivity independently of demand - such as the spread of the Covid-19 coronavirus and the associated lockdown.

The GG schedule summarizes the supply side of our simple model. Figure **(2)** plots the AD and GG schedules. The GG schedule is, for reasons explained above, upward sloping. The equilibrium is thus determined by the intersection of two upward sloped curves. As usual, this

signals the presence of amplification effects.

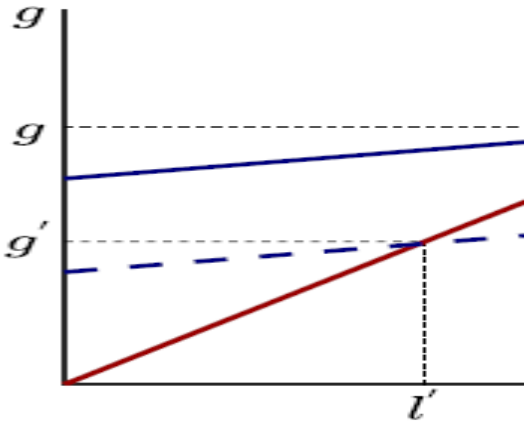


Figure 2: The suppl

Let's now go through the macroeconomic impact of a negative supply shock triggered by the coronavirus spread, which we capture by a fall in _g. As shown in Figure **(2)**, the fall in g^- makes the GG curve shift toward the right. If monetary policy holds i^- constant, the new equilibrium features lower productivity growth and lower employment.

What is interesting, is that now a supply-demand doom loop takes place. As before, the initial negative supply shock depresses aggregate demand. But now lower demand induces firms to cut back on their investment, which generates an endogenous drop in productivity growth and future potential output.

Lower productivity growth, in turn, induces a further cut in demand, which again lowers investment and growth. This vicious spiral, or supply-demand doom loop, amplifies the impact of the initial supply shock on employment and labor productivity growth.

Now monetary interventions aiming at sustaining demand have a multiplier effect - because they reverse the supply-demand doom loop. Suppose that the central bank eases monetary policy, by lowering i^- This intervention increases aggregate demand. Moreover, higher demand induces firms to increase investment. In turn, this sustains consumers' expectations of future income, leading to a further rise in demand, and so on.

Under this scenario, a monetary expansion has a particularly large impact on employment and productivity, because it counteracts the supply-demand doom loop. Unfortunately, as we argued above, central banks might be able to impart only a limited amount of monetary stimulus to the economy. But the supply-demand doom loop can be reversed also through appropriate fiscal policy interventions. Imagine that governments can implement policies to sustain investment, so that now the GG equation becomes:

$$g = \chi l + \bar{g} + s,$$

Where s captures government policies aiming at increasing investment. A higher s, for instance, can be interpreted as a rise in subsidies to firms' investment, an increase in public

investment, public credit provision to financially-constrained firms or even subsidies to prevent the breakup of workers-firms matches. All these policies, in fact, lead to higher aggregate investment – and therefore higher labor productivity growth - for given aggregate demand.

Graphically, a rise in ***s*** generates an upward shift of the GG curve - leading to higher productivity growth and employment. The interesting bit is that these fiscal interventions, which act on the supply side of the economy, also affect aggregate demand. The reason should be clear by now.

Higher investment boosts expectations of future growth and income, leading agents to increase spending in the present. In turn, higher aggregate demand leads to a further rise in investment and productivity growth, etc. The bottom line is that fiscal interventions supporting investment reverse the supply-demand doom loop, and so they trigger a positive multiplier effect on economic activity.

(6-D) Animal spirits and stagnation traps

Animal spirits of entrepreneurs is a term coined by Keynes to describe investors' feelings. We have so far sidestepped a fundamental constraint on monetary policy, given by the effective lower bound on the interest rate. As we will see, this is no small omission. Let us now assume that the central bank cannot push the interest rate below i_l, so that

$$i = \max\left(\bar{i} + \phi(l - \bar{l}), i_l\right).$$

In this case, if demand is weak enough the interest rate hits the lower bound and the economy experiences a liquidity trap. The AD equation now becomes:

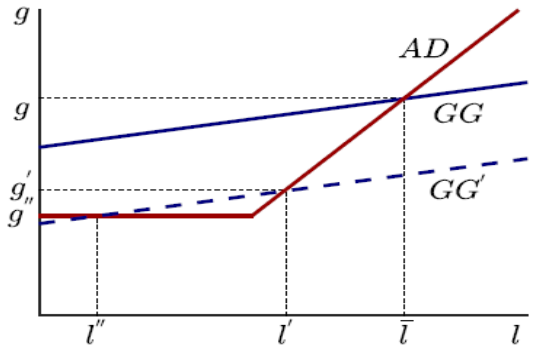
$$\max\left(\bar{i} + \phi(l - \bar{l}), i_l\right) = \bar{\pi} + g.$$

As shown in the left panel of Figure **(3)**, the AD equation now exhibits a kink, and it becomes horizontal for values of ***l*** low enough to trigger a liquidity trap.

As before, imagine that the coronavirus outbreak induces a downward shift of the GG curve, from ***GG*** to ***GG***$^{-}$. As drawn in the figure, there are now two intersections between the AD and the ***GG***$^{-}$ curve. This means that two equilibriums are possible. The first equilibrium, corresponding to the point (l^{-}; g^{-}), has already been described in the previous section. The second equilibrium, corresponding to the point (l^{--}; g^{--}), is new.

In this equilibrium the economy is stuck in a liquidity trap ($i = i_l$), and both growth and employment are depressed ($l^{--} < l^{-}$ and $g^{--} < g^{-}$). This second equilibrium can then be thought of as a stagnation trap (**Benigno and Fornaro**, 2018). **(19)**

Notice that nothing fundamental determines which equilibrium prevails. In fact, agents can coordinate their expectations on either of the two equilibriums. Therefore, pessimistic animal spirits can push the economy into a stagnation trap. Now the coronavirus shock not only triggers a supply-demand doom loop, it also places the economy in a danger zone in which animal spirits and agents' expectations can affect employment and productivity growth. To see how this can happen, imagine that agents become pessimistic about future growth. Due to the zero- lower bound, the central bank cannot counteract the associated drop in demand. As a result, employment and economic activity drop. Firms react by cutting investment, which negatively affects productivity growth.



(a)

Figure 3: Stagnation tr

Initial pessimistic expectations of weak growth thus become self-fulfilling. Importantly, this self-fulfilling feedback loop can take place only if the fundamentals of the economy are sufficiently weak (notice that the equilibrium is unique before the coronavirus causes a drop in g^{-}). The coronavirus epidemic, therefore, can open the door to expectation-driven stagnation traps precisely by weakening the growth fundamentals of the economy.

Which policy interventions can prevent a stagnation trap from taking place? There is little that conventional monetary policy can do, since the policy rate is constrained by the zero-lower bound. Luckily, fiscal policy - and in particular policies that sustain investment - can be of help. Suppose that the government reacts to the coronavirus outbreak by increasing s. As illustrated by the right panel of Figure **(3)**, this policy induces an upward shift of the GG curve, from GG^{-} to GG^{--}. If this shift is large enough, the stagnation trap equilibrium disappears.

In economic terms, this means that only a sufficiently aggressive fiscal intervention can rule out stagnation traps. A timid intervention, in fact, will not do the job (think about a small upward shift of the GG curve). Taking stock, this coronavirus outbreak might cause a persistent supply disruption, which might last far longer than the epidemic itself (and the associated economic lockdown).

We show that, in this case, the spread of the virus might cause a demand-driven slump, give rise to a supply-demand doom loop, and open the door to stagnation traps induced by pessimistic animal spirits. Monetary policy is likely to be insufficient in mitigating the slump induced by the coronavirus shock. Instead, aggressive fiscal policy interventions to support investment - and more broadly future productivity capacity - can play a key role in sustaining employment and growth, by reversing the supply-demand doom loop. This is especially true if governments will need to jumpstart their economies out of stagnation traps driven by pessimistic animal spirits. **(20)**

We conclude by reiterating that in this note we have focused on a pessimistic scenario. Hopefully, the coronavirus will cause just a short-lived negative supply shock. In this case, agents' expectations about future growth will not be greatly affected, and the impact on aggregate demand will be small. But unfortunately, at present we cannot rule out more pessimistic outcomes, in which the supply disruption caused by the virus is going to be severe and protracted.

If this possibility materializes, this simple model suggests that drastic policy interventions - both monetary and fiscal - might be needed to prevent this negative supply shock from severely affecting employment and productivity.

(7) REALITIES OF EMPLOYMENT

As the research basic model stipulates and spurs sudden effects – like what occurred because of Covid-19- on aggregate demand, the supply-demand loop, and investors reactions and expectations with the wave, all in all comes true in two ears, employment and opportunities of growth. For corporate environments, a number of employers have reported layoffs and unpaid mandatory leaves due to a severe shortage in cash flows, especially among smaller companies.

On March 15, the government issued a decree to reduce the number of civil servants at government offices during working hours for 15 days. The decree also stipulated:

1. Exemptions for vital employees in the fields of transportation, hospitals, ambulances, sanitation services and electricity;
2. Granting exceptional leaves for employees with chronic illnesses, pregnant employees and those caring for children younger than 12;
3. Granting employees who had recently returned from abroad a 15-day paid leave (or permission to telework) from their return date.

Starting March 21, the army's chemical warfare units have been deployed to deep clean and disinfect parts of Cairo. On March 24, the Prime Minister extended the decree for an additional 15 days (until April 15) and suspended all in-person government-to-citizen services; some services are available through digital portals. In the same announcement, the Prime Minister:

1. Extended the curfew on malls, restaurants, cafes and other recreational outlets from 5 p.m. to 6 a.m. (excluding supermarkets, bakeries, pharmacies and home delivery services);
2. Imposed a curfew on citizens from 7 p.m. to 6 a.m.; and
3. Suspended all public and private mass transportation nodes during the curfew.

Local businesses and multinationals are adopting new policies to preserve their staffs' health and welfare while maintaining operations at minimal losses. These include teleworking, reduced staffing on premises and paid sick leave. Companies that need workers physically present, such as factories and other production-oriented businesses, are implementing social distancing strategies by reducing shift hours and work weeks, reducing the number of shifts, and replacing onsite meal services with cash stipends.

Following the PM's curfew extensions, output at production facilities across different sectors may be severely impacted. Other corporate measures include:

1. Suspension of fingerprint biometric attendance.
2. Closing onsite food outlets and banning external delivery services.
3. Banning external visitors and meetings.
4. Rescheduling in-person meetings, training, etc. or resorting to digital alternatives.

Mobile network operators, banks and other businesses with front-end services are directing clients to online services and limiting the number of clients allowed in branches to 1-4 people at a time. These include F&B outlets, grocery stores, pharmacies and other retail stores. Banks have reduced their business hours and the EGX has shortened its trading day.

The longer the crisis lasts, the more likely are its implications to grow and compound. Mitigation measures are very hard to maintain on the long term, **(21)**.

But since the government has already engaged an important set of mitigation policies, it is imperative that it carry on its supportive policies and more

importantly expand on sector-specific interventions, including informal workers.

Interesting examples exist around the world. The U.K., for instance, has created a ***"Coronavirus Business Interruption Loan Scheme***," whereby the government would cover the first 12 months of interest payments and provide lenders with a guarantee of up to 80 percent on SME loans.

In addition, a missing opportunity lies in collaborating with businesses and high net worth individuals **(HNWI)**. Companies can redirect productive capacity to produce necessary goods and protective equipment, which would be supported by government contracts, thus guaranteeing business continuity; and HWNIs can, in collaboration with institutions, donate for real and clear relief packages for the most affected groups of people.

(8) BOOSTING GROWTH AND PRODUCTIVITY

How does the Egyptian economy understand the available theoretical Solutions and turns them to Reality to mitigate effects of COVID crisis on Employment and Growth?
The following section of the research focuses on the answers and main Findings.

(8-A) The success of the 3-year adjustment program

Starting with ever-bold reforms and evidences of wright way choices including the liberalization of the exchange rate in November 2016, Egypt showed resilience throughout to bring its reforms to success. Prior to the eruption of the COVID crisis growth had been improving steadily and expectations were to remain in the same vein for the coming years.

Egypt was prone to take off to deeper institutional reforms after having stabilized its macroeconomic indicators in its three-year arrangement with the **IMF (2016-19).** Inflation as well as unemployment levels were at single digits; Egypt had reached an unprecedented level of growth as well as driving public debt to a downward trajectory. **(22)**

Orchestrated by the Central Bank, Egypt managed to achieve tangible progress in the fiscal situation, which prompted private and public consumption and gave a breathing space to the economy to grow. A reduction in interest rates due to the rise in foreign reserves was meant to incentivize the domestic private sector to lead the second wave of reforms.

Despite of the decline in foreign reserves from a peak of $45.5 billion in 2019 to $40 billion in the first quarter of 2020, reserves remain solid, covering nearly an 8-month period of merchandise imports. **(23)** One of the

priority objectives of structural reforms was geared in essence towards boosting job creation, not as a trickle-down effect but on its own merit, providing social safety nets, particularly to the vulnerable groups, notably youth and women.

Prior to the crisis, the outlook was favorable for Egypt with a projected GDP growth of 6% in 2020, that would have counted among the highest worldwide, a readiness for further institutional and transformational reform, as well as a more conducive business environment for the private sector. To say the least, the reform program was able to provide confidence and the right impulse for the economy to grow.

(8-B) The Egyptian Economy as a well-disposed for additional finance

Having shortly completed a stringent structural program with the IMF, under which it obtained a loan of $12 billion, to restructure its economy and stabilize macroeconomic indicators; Egypt is in a better shape over its peers. It started getting its first tranche in October 2016 and got the last one in December 2019. Egypt implemented this program with merit and succeeded in enhancing business/investors' confidence in its economy and fixing its international credibility, which made it fully eligible to borrow to face the pandemic, which no one knows its extent.

Despite the huge difficulties, Egypt did not hesitate to make every strenuous effort to tackle the Coronavirus crisis at an early date to limit its spread. It took preventive plans and strict measures to confront the pandemic in the governorates, equipping hospitals, examining, and sterilizing streets and squares to combat the transmission of infection.

The government has also embarked promptly on effective steps to mitigate the economic impact on the most vulnerable households and irregular workforces, including fiscal stimulus. This amounts to cover million people working in construction, agriculture, fishing, plumbing and other fields.

The Central Bank has also taken other steps, including monetary easing, and liquidity and regulatory measures for the financial sector and for borrowers. There is need for further stimulus, especially expenditures on health, food, and income support for vulnerable households and support for businesses.

Egypt, however, amidst these hardships has refrained from relinquishing its reform efforts. In fact, one should give tribute to the government to having reacted quickly to lessen the negative impact on the economy.

The Government clearly understands

that the completion of the Extended Financing Facility **(EFF)** reform program with the Fund does not mean at any rate ending its dealings with the **Bretton Woods institutions**. **(24)**

(9) PILLARS OF THE MACROECONOMIC STABLIZATION POLICES

(9-A) the political economic Aspects

(1) Like other developing countries, Egypt is in constant need of technical advice and capacity development in many fields that it requires from these institutions, which have high professional expertise. The IMF **(25)** and there, is no shame in it – monitors and supervises the development of Egypt's economy, comparable to all developing and developed member states through 'Article IV'.

(2) Throughout its long history and credibility in its dealings with the Fund as well as with other international and regional institutions and creditors, Egypt has proven worthy of their confidence. There is nothing wrong, as many would like to think, resorting once again to the Fund. It is to the GOE's credit to have recourse to emergency programs that the IMF assigns to its member states affected by unforeseen crises. It is the sign of governance maturity and responsible membership of the international community of nations.

(3) The fight to contain the Coronavirus has not derailed Egypt's authorities from pursuing its pre-Corona achievements and in continuing with its second wave of reforms. In fact, the 'Stand-By-Arrangement' **(SBA)** with the Fund is particularly geared towards averting the potential risks of losing the accomplishments of Egypt's IMF-supported structural adjustment program and ready it for the next set of reforms.

(4) But Egypt is also entitled to profit from another specialized window, the 'Rapid Financing Instrument' **(RFI) (26)** to address specifically the immediate needs of ***the balance of payments*** and support the most affected groups. It is well-established that all eligible member states facing urgent financial needs are in a position to benefit from either of these two programs or both. However, the SBAs, which are more precautionary in nature and for balance of payment support are used more by the developed and middle-income countries **(27).**

(5) By responding to Egypt's demands, the Fund is keen not to risk the successes previously achieved by the reform program and macroeconomic policies. Egypt and the IMF need to work jointly to protect the significant gains made in the framework of the three-year reforms. And, as approved by the IMF Executive Board on 11

May, a $2.772 billion (100% of quota) for the new comprehensive package of financial support will achieve a dual-purpose.

First, help Egypt cope with its current plight due to the repercussions of the Coronavirus pandemic.

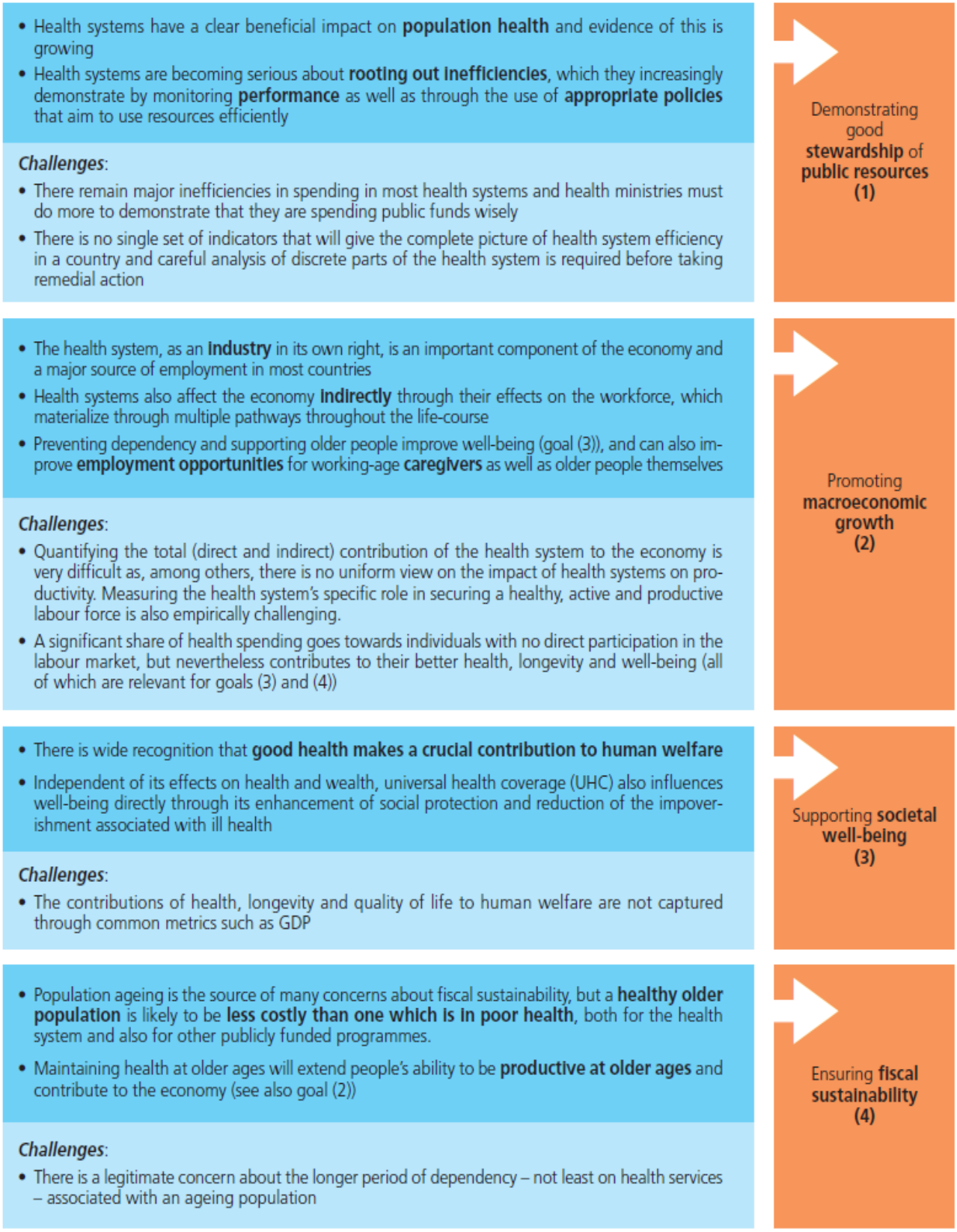
Second, safeguard previous successes, support future reform needs and help provide the basis for a strong economic recovery through accelerated reform efforts aimed at supporting broad-based private sector led development and at making growth more inclusive and sustainable.

(6) As the IMF Board has acquiesced to Egypt's loan, it is expected that other financial resources, from the sister and other regional institutions ***(IFC, EBRD, Afrexim Bank and others)***, each with its own defined objective, will flow easier into the country, assisting in overcoming the predicament at hand and stimulating development.

(9-B) RESPONSES TO (IMF) (28a)

Finance and economy ministries are in most countries the single most powerful influence on public expenditure decisions and overall macroeconomic policy. While there are variations across countries in the responsibilities, priorities and objectives of such ministries, the four themes depicted in Figures (2) and (3) can be found in mission statements of many ministries of finance in the European Region **(28b).** We will use them as an organizing framework to present how Egyptian macroeconomic policies effectively working on overcoming the pandemic and meanwhile fostering growth at possible lower unemployment rates.

Figure 3: How do health systems further the key goals of finance ministries?



(9- B -1) FISCAL POLICY

According to the ***IMF reports and its accumulated data for country cross-analysis purposes***, the government has announced stimulus policies in the USD 6.13 billion package (EGP 100 billion, 1.8 percent of GDP) to mitigate the economic impact of COVID-19. Pensions have been increased by 14 percent. Expansion of the targeted cash transfer social programs, **Takaful and Karama**, are also being extended to reach more families. Similar to other nations, Egypt's government rolled out a full-fledged stimulus package worth at least EGP 100 billion to absorb the shocks of the pandemic.

Fiscal measures to support the economy and the financial market include:

1) A targeted support initiative for irregular workers in most severely hit sectors has been announced, which will entail EGP 500 in monthly grants for 3 months.
2) To support the healthcare sector, EGP 8 billion has been allocated, targeted at providing urgent and necessary medical supplies, and disbursing bonuses for medical staff working in **quarantine** hospitals and labs.
3) To support medical professionals, including doctors working in university hospitals, a 75 percent allowance over the wages has been announced.
4) Energy costs have been lowered for the entire industrial sector;
5) Real estate tax relief has been provided for industrial and tourism sectors;
6) Discount on fuel price has been announced for the aviation sector as part of the EGP 100 billion stimulus,
7) EGP 50 billion has been announced for the tourism sector, which contributes close to 12 percent of Egypt's GDP, 10 percent of employment, and almost 4 percent of GDP in terms of receipts, as of 2019.
8) The moratorium on the tax law on agricultural land has been extended for 2 years. The stamp duty on transactions and tax on dividends have been reduced.
9) Postponing the capital gains tax on stock market transactions until January 1, 2022, and permanently exempting foreign investors from the duty.
10) Lowering the price of electricity for industrial use by 10 piasters per kilowatt hour (kWh) for the medium, high and ultra-high usage tiers, and freezing rates for the next 3-5 years. Government sources estimate these electricity price cuts could cost around EGP 6 billion alone.

11) Relaxing real estate tax payment settlements for industrial and tourism companies by giving them a three-month tax break. Companies will also be allowed to settle existing real estate tax liabilities in monthly installments until September 2020.
12) Reducing the stamp tax on EGX transactions to 0.125% (from 0.15%) for foreign investors and 0.05% (down from 0.15%) for local investors. All spot transactions on the EGX will also be exempt from the stamp tax.
13) Cutting tax on dividends by 50%: investors will now pay a withholding tax of 5% (down from 10%) on dividend payouts from listed companies.
14) Fast-tracking payouts from the Export Subsidy Fund, which will see EGP 1 billion in arrears fully paid out by April's end and 10% in cash payments for new obligations during June.
15) Expanding the Social Security and Pension Act's realm by disbursing EGP 27.6 billion in funds to 2.4 million families, encompassing a total 10 million beneficiaries, as well as raising pensions by 14% starting 2021.
16) Extending the deadline for personal tax filings until mid-April and waiving e-payment fees for online payments. The Tax Authority is looking into postponing the filing deadline for auditors and businesses, specifically SMEs.

(9- B -2) MONETARY AND MACRO-FINANCIAL POLICY

Along with 39 other central banks around the world, the Central Bank of Egypt **(CBE)**'s Monetary Policy Committee (MPC) slashed interest rates, cutting the benchmark rates by 300 basis points (bps) at an emergency meeting on March 16. The overnight deposit and lending rates now stand at 9.25% and 10.25%, respectively. While high interest rates have been among the CBE's strategies to draw in foreign liquidity, the latest cuts are meant to encourage industrial sector growth and capital expenditure lending, help shrink the budget deficit (given the new expansionary fiscal measures) and stimulate foreign investments on the stock market. The rate cut is expected to lead to a rise in inflation, starting with April's figures. Other expansionary measures include:

1) The central bank has reduced the policy rate by 300bps.
2) The preferential interest rate on loans to tourism has been reduced from 10 to 5 percent,
3) For SMEs, industry and housing for low-income and middle-class families, has been reduced from 10 percent to 8 percent. Postponing all bank loan payments for businesses and

retail clients for a six-month period, including SMEs, corporations and individual borrowers.

4) A government guarantee of EGP 3 billion on low-interest loans by the central bank has been announced for the tourism industry soft loans.
5) The central bank has approved an EGP 100 billion guarantee to cover lending at preferential rates to the manufacturing, agriculture and contracting loans.
6) Loans with a two-year grace period will be made available to aviation sector firms. Support has been announced for small projects harmed by COVID-19, especially in the industrial and labor-intensive sectors, through the availability of short-term loans of up to a year, to secure the necessary liquidity for operational expenses until the crisis is over.
7) The limit for electronic payments via mobile phones has been raised to EGP 30,000/day and EGP 100,000/month for individuals, and to EGP 40,000/day and EGP 200,000/per week for corporations.
8) A new debt relief initiative for individuals at risk of default has also been announced, that will waive marginal interest on debt under EGP 1 million if customers make a 50 percent payment.
9) Micro-lenders have been instructed to also consider delays on a case-by-case basis, of up to 50 percent of the value of monthly installments for struggling clients.
10) The regulations issued last year requiring banks to obtain detailed information of borrowers have been relaxed.
11) Suspension of credit score blacklists for irregular clients and waiver of court cases for defaulted customers have been announced.
12) The central bank has also launched an EGP 20 billion stock-purchase program which it has not yet used. A temporary daily limit has been for deposits and cash withdrawals for individuals and companies.
13) Launching a debt relief initiative for individual borrowers where marginal interest on debt under EGP 1 million will be waived for borrowers at risk of default. Eligible customers will have to pay 50% the original debt up front and arrange a payment plan with their creditor bank; they will then be removed from the CBE and i-Score's blacklist and have restrictions on their assets lifted. The Financial Regulatory Authority

(FRA) has allowed mortgage finance, factoring and leasing companies to also give their clients a six-month period to repay debts.

14) Extending EGP 50 billion in financing for middle-income housing, to be disbursed through local banks.
15) Relaxing credit card limits, ATM and point-of-sale transaction fees and commissions in a bid to improve businesses' access to working capital and streamline consumers' access to credit. The daily limit on electronic payments increased to EGP 30,000 for individuals and EGP 40,000 for companies; monthly limits are now EGP 100,000 for individuals and EGP 200,000 for companies**. (29)**
16) Launching a debt relief program for farmers and ranchers, with loan repayments postponed until September 2020.
17) Providing two-year soft loans to tourism companies to pay wages, commitments to suppliers, and maintenance as part of the EGP 50 billion tourism initiative launched in 2019. Hotels, tour operators, restaurants and tourism transport companies can also access loans with a tenor of two years and a six-month grace period at an interest rate of 8%.
18) Offering one-year, EGP-denominated certificates with 15% yield via public sector banks to discourage dollarization.
19) Cutting discount rates for three CBE financing initiatives — the factories, mortgages and tourism finance programs— to 8%, in accordance with the MPC's decision.
    a) The factories initiative allocates EGP 100 billion for medium-sized factories to access subsidized loans at 10% interest.
    b) The mortgage initiative allocates EGP 50 billion for mortgages with interest rates of 10% for middle-income households. (This is a follow-on program of the CBE's EGP 10 billion initiative that ran from 2014 to 2019.)
    c) The tourism initiative allocates EGP 50 billion for tourism companies to pay down their debts at subsidized interest rates of 10%.

(10) HOW CAN HEALTHCARE ABSORB AND RESPONSE TO MACROECONOMIC

SOLUTIONS

(10-A) Healthcare and economic growth

(1) In order to explain the relationship between health and economic growth, it is necessary to understand the concept of health in a broad sense**. (30)** Health is not only the absence of illnesses; it is also the ability of people to develop to their potential during their entire lives. In that sense, **health is an asset** individual possess, which has **intrinsic value** (being healthy is a very important source of well-being) as well as **instrumental value**. In instrumental terms, health impacts economic growth in a number of ways. For example, it reduces production losses due to worker illness, it increases the productivity of adult as a result of better nutrition, and it lowers absenteeism rates and improves learning among school children. Health also allows for the use of natural resources that used to be totally or partially inaccessible due to illnesses. Finally, it permits the different use of financial resources that might normally be destined for the treatment of ill health.

In sum, low level of health (illness, infection, infectious diseases…) affects economic growth directly through labor productivity and the economic burden of illnesses. Health also indirectly impacts economic growth since aspects such as child health affect the future income of people through the impact health has on education. This indirect impact is easier to understand if it is observed on a family level. The loss of health affects the poor to a greater extent since the main, and at times, only asset they have is their body. When they become ill they have fewer alternative solutions and suffer greater consequences.

(2) Showing that additional health spending always directly translates into measurable macroeconomic gains will inevitably be **challenging, especially at the macro level**. Health-policy-makers could therefore draw the attention of their finance counterparts to the direct and indirect **economic benefits of increased health spending at the micro level, where the evidence is more clear-cut**.

(3) The health Sector, as an industry in its own right, is an **important component of the economy and a major source of employment** in most countries. However, the debate on how the health sector affects economic-wide productivity and Growth is unresolved.

(4) Health Investments can contribute to the economy through its influence on the scientific 'discovery' industries, notably pharmaceutical and medical devices, but also via cross-border health care and remote provision of

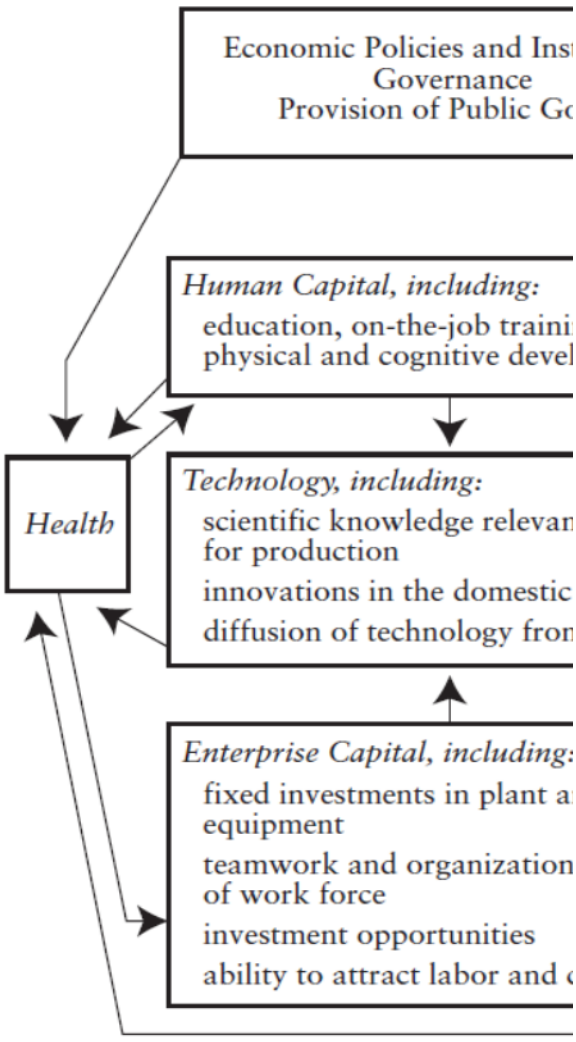
services, its association with the educational sector in the form of clinical training and life sciences. Health Investments in the different factors of health industry can **further economic growth through their influence on the health of those who do not participate in the formal labor market**, such as children, older people or those who are care dependent. Investing in health is critical to maintaining a healthy population and workforce, which in turn are necessary for sustainable economic growth. Investment in health is also necessary to maintain competitiveness in the life sciences sector, an industry which underpins a knowledge-based economy. Many of the developing countries have previously had strong life sciences industries, but the low level of investment in R&D in this sector has led to a dramatic decline in activities. Furthermore, many of those whose health status is improved, even if they do not participate in the formal labor market, will be able to make greater informal economic contributions in the form of voluntary work and informal care.

(5) Health systems also affect the economy **indirectly (via better health) through effects on the workforce**, which materialize through multiple pathways **throughout the life-course**. Numerous studies have shown that individuals in better health enjoy improved opportunities for economic participation (including through later retirement) and earnings compared to their less healthy counterparts.

(6) The results of historical studies suggest a very strong relationship between health and economic growth. **Robert W. Fogel (31)** finds that between one third and one half of England's economic growth in the past 200 years is due to improvements in the population's food consumption.

(7) The existence of an impact of health on economic growth with similar magnitudes has been verified for different time periods and countries, including Latin America and Mexico. Cross-country macroeconomic studies suggest that health positively affects growth. For example, an increase in life expectancy from 50 to 70 years (a 40% increase) would raise the growth rate by 1.4 percentage points per year15. A 10% decrease in malaria is associated with an increased annual growth of 0.3%16 and malnutrition causes a decrease in the annual GDP per capita growth worldwide of between 0.23 and 4.7% **(32)**. For Latin America and the Caribbean, health, measured as the probability of surviving to the next age group, has a strong long-term relationship with growth**. (33)**

Figure 1. HEALTH AS AN INPUT INTO ECON



(10-B) Influence of health Investments on overall fiscal sustainability?

(1) Sustainability addresses whether tax revenues will be sufficient to maintain the level of public expenditure in the long term. Therefore, sustainability on its own is not a meaningful objective without a statement of what is to be sustained. For example, ministries of finance may seek to reduce taxes in order to promote economic growth. They may therefore take the viewpoint that reducing public spending on health – and thus reducing their financial obligations – is an important prerequisite in the short term with a view to promoting longer-term sustainability.

(2) Most modern researches **(34)** concurred with the view that health was a public good, necessary to improve the welfare of society and, as such, deserving more investment. Mixed financing models, involving the state, the private sector and non-governmental organizations, were identified as the favored approaches to achieve increased investment in the health system. There was a broad consensus that it was necessary for governments to create an enabling environment to develop public–private partnerships and learn lessons from other member states.

(3) Rising healthcare expenditure relative to gross domestic product (GDP) can be seen in virtually all economies, but it has been most pronounced in the Egyptian Economy where the system has historically supported significant incentives to control price inflation. With the Egyptian economic reform Program coming in late 2016, there has been much discussion about adaption **the social-market system** applied in most EU countries in the Egyptian healthcare system and placing tighter

controls on drug pricing Statistical correlation analyses show that as GDP/capita rises, so does per capita healthcare expenditure. As Egypt and other emerging economies become wealthier, this drives more healthcare demand Innovation Novel biopharmaceuticals which increase life expectancy for previously untreated patients result in higher total cost of care.

(4) Some degree of change to the Egyptian healthcare system is necessary and likely but – for several reasons – we are highly skeptical that legislators will enact sweeping policies that would meaningfully impair the viability of the sector. Furthermore, there are key factors which we believe will constrain the degree of government involvement in the Egyptian healthcare system. The most obvious is the fact that the health sector in its broadening size **(35)** accounts for about 12% of employment. Any major overhaul of the healthcare system must be enacted carefully or it could cause an economic recession. There are also many obvious areas where legislators and administrators could find material cost savings without completely up-ending the system. These include:

1) driving increased utilization of value-based-care reimbursement (to replace fee-for-service reimbursement)
2) Shifting where patients receive care to lower cost settings.
3) Strengthening the controls on serial drug price inflation.
4) reducing the use of expensive drugs in competitive product classes and
5) Streamlining the entry of bio-similar products to reduce the burden of high cost biologics.

(5) We conclude that a significant amount of risk is already reflected in sector valuations, which implies a positive risk/reward for long-term investors. As stated earlier, while we believe change is inevitable and that the pricing environment will become more challenging, we also believe the environment will remain positive overall, particularly for the most innovative companies.

(6) For these reasons, the underlying demand (as defined by volumes) for healthcare is highly likely to experience continued growth well into the future. Healthcare thus offers a high degree of growth certainty which is being masked by current regulatory concerns.

While we expect slowing healthcare price inflation and increasing pressure on utilization, we believe these efforts will only slow the pace of growth in expenditure but that, given the underlying trends, healthcare expenditure should still outpace GDP growth. This implies healthcare equity performance will also likely outpace the broader market.

(7) The pace of innovation in healthcare is similar to that seen in the information technology sector. This innovation is evident throughout the sector and offers the prospects of revolutionizing healthcare over the coming decades, significantly improving long-term outcomes, driving increased care coordination and potentially alleviating some of the cost pressures within the system. Below we list some of the most significant trends, which we see as **investable opportunities**. **(36)**

(a) Developing novel therapeutic constructs: Biological innovations have enabled the creation of drug constructs which were previously not feasible but have enabled

a) The harnessing of the body's endogenous immune system and

b) The insertion of corrective genes encoded to produce missing proteins in rare genetic conditions. These revolutions in biological products have enabled significant advances in clinical outcomes including the potential for cures of certain cancers and rare genetic conditions.

(b) The power of Artificial Intelligence: (AI) is being deployed across all aspects of healthcare. Biopharmaceutical companies are using AI to analyze large swaths of genetic information to identify drug targets. Diagnostics tools companies are using it to analyze complex markers to identify the presence of cancer. Medical device manufacturers are incorporating AI into algorithms for wearable devices to detect significant trends in biomarkers to prevent catastrophic medical events. Healthcare providers are employing AI as a decision-support tool.

(c) Miniaturization, materials and robotics: Improvements in engineering, materials and haptics (touch-based interactive equipment) have significantly benefited the medical technology marketplace. This has manifested itself in smaller medical equipment and implants, resulting in less invasive surgery with less trauma and quicker recovery times, which in turn enables the shift of inpatient procedures to outpatient locations.

(d) Systematic innovation in healthcare delivery: Changing reimbursement incentives in conjunction with technological advances are driving a change in how healthcare is being delivered today – for example, how physicians communicate with each other and their patients, allowing the site of care to be moved to less intensive settings (including on-line). These trends offer the potential for improved outcomes and potentially lower costs of care delivery.

(8) Boosting growth via enhancing

healthcare investment needs plausible answers to the following four guiding questions **(37)**:

1. What infrastructure/enabling environment needs to be in place to encourage the development of investment in health care?
2. What policies need to be in place to encourage the development of investment in health systems?
3. What practical constraints face the health systems in Egypt and how might progress be made towards encouraging better use of investment?
4. How can investment be best disseminated within the health systems and across economic sectors?

There was a broad consensus in the developing economies that government-led investments and interventions were needed in member states to create an enabling environment for investment to realize economic and welfare benefits and to reach an appropriate level of funding and subsequently an efficient allocation of resources to develop an enabling environment to encourage investment.

The research model recognized the need for investment to support education and professional development, and to enhance linkages between universities, the health sector and industry.

The Research recommends when designing educational policies, government should consider the current and future skills gap within the scientific community, which has been steadily eroded in the transition years, and encourage students to select science subjects in universities and seek careers in sectors where these skills could be harnessed.
We feel that the government could identify and address practical constraints faced by individuals and organizations which hindered investment within health systems.

Dissemination of investments can be supported by better sharing of health technology assessment results which highlight the costs and benefits of drugs that are used to treat common problems. Industry linkages should be encouraged to disseminate information within economic sectors.

(9) To make the Egyptian healthcare system matured enough to welcome basic and additional investments to boost growth and lessen Unemployment, it needs to refine feasible Answers to the following four questions:

1. How can equity, efficiency, effectiveness and choice objectives be balanced within the health sector?

2. How can allocative efficiency in health systems be enhanced and what tools and mechanisms are available to do this?
3. How can the levers available to achieve objectives be modified?
4. What macroeconomic policy interventions are available and how can these policy objectives be incorporated into the national planning agenda?

Investments in health sector in its broad meaning are necessary and appropriate, but much of the discussion focused on today's needs, rather than future needs or strategies which might help address these. The Research discusses appropriate levels of health investment that would be deemed efficient in macroeconomic terms. However, no consensus in the modern economic literature was reached on ways to determine appropriate levels of health investment.

There was also broad consensus between economists that the current health system model in limited income countries **(38)** like Egypt was outmoded, supply-driven, inefficient, unresponsive to users and not sustainable. Implementation of health-sector reform was at an early stage in the majority of such countries.

There was agreement that major government-led interventions would be required to reorganize the healthcare delivery system to improve the effectiveness and efficiency of health-sector financing.
Allocative and technical efficiency issues should be appointed in relation to investment decisions to effectively target resources.

The current economic reforms suggested to the healthcare sector in developing countries share similar values **(39)**, in that equity emerged as the most important health system objective, relative to efficiency, effectiveness and choice. It is clear that in the health systems of these countries the current resource allocation processes were opaque and decisions were often influenced by short-term political drivers rather than considerations of equity, efficiency or effectiveness.

Much work is needed to achieve effective resource allocation mechanisms at national and local levels. **First**, the ministries of finance and health should consider healthcare expenditures to be not just a cost but an investment with welfare and economic benefits; **second**, resource allocation formulae which take into account need and demand patterns should be developed; and **third,** when setting priorities, there should be means to identify interventions and technologies which are innovative and cost-effective.

(11) How can health-sector investments be sustained to support growth?

The Research poses the following two questions to guarantee dissemination and acceleration of new health investments:

What are the decision policy priorities to meet the challenge of health system financing at a time when GDP per capita in Egypt is still lower than most of the rest of the developing countries and economic growth appears to be slowing down?

How do the new and aspiring plans to tackle these new human resource needs?

The government's goal should be determined to improve the health status of our population to a level comparable to that of other similar developing countries, and that to achieve this the supply- and demand-side drivers have to be effectively managed to create some fiscal space to concentrate on priorities. That seems logic with the following Arrangement **(40)**:

1. Ensure that the health system is delivering the appropriate outputs.
2. supporting an enabling environment for research and development,
3. improving public health and
4. Ensuring access, quality and effectiveness.
5. Providing timely and accurate data and analytic capacity to generate policy-relevant information from the data for health intelligence.
6. Supporting systems to develop capacity for healthcare decision-making.
7. Making additional financing for the health system available if these funds could be used to influence change in the system,
8. Enhancing investments appropriately to increase health knowledge and awareness.
9. Judging the cost-effectiveness of pharmaceuticals in relation to other technologies and health services.
10. Developing appropriate incentive structures for the workforce, investment in training and more appropriate use of the knowledge and skills of the professionals who work in the health system
11. Engagement of a broad group of stakeholders, including the consumers, to be critical to drive reforms and encouraging stakeholder to be informed and take greater responsibility in the development process.
12. Health investments should be balanced, targeting infrastructure (to enhance capital stock), service

development (for example, to manage long-term care).

13. Developing a public health network to meet changing demand patterns.
14. While simply investing in 'more' hospitals would be extremely unwise, in practice it would be impossible to retire much of the existing capacity unless some of the existing hospital capital stock were upgraded **(41)**.
15. Supporting Investments in new capital stock to enable a generation in terms of the model of care and help create new, more cost-effective service delivery models.

(12) Conclusion

(1) In conclusion, it is compelling for Egypt to undertake a review of its budgetary outlays in light of the Coronavirus impact on Egypt's revenues. Egypt needs to look into a completely new system with new sources of revenues and of public spending with new priorities in which the state takes a greater role in the areas of healthcare, education and localization of investment in technology and infrastructure without crowding out the private sector.

(2) There is no room for complacency. Egypt should not shy away from the second wave of reforms. It is as important as the first one in order to tap the potentials of the private sector, sustain growth, enhance productivity and ultimately create jobs. In fact, without pursuing the second wave of economic reforms targeting a more conducive business environment and an inclusive growth, Egypt will fail to benefit from its previous successes. It would have ended by paying the expenses of the first wave of reforms, without acquiring its dividends.

(3) The private sector has much at stake here. The government leveraging itself by supporting the economy at the time of the crisis is now compelled to advance particularly in the regulatory framework. When the crisis ends, private and public sector investment in digital technology, artificial intelligence and localization of the industry are key for the modernization of Egypt's economy. The time is for bold actions to go for digital solutions. COVID-19 has only paved the way.

(4) In a related context, there is no doubt that, in the aftermath of the pandemic, Egypt will have to delve into the **structural transformation of its economy**. Egypt is compelled in light of the Corona pandemic to move swiftly from a **rent economy** to a more **dynamic, diversified and competitive economy based on the ability to produce goods and services**. Egypt will have to dispense largely – in the short to medium term – on the income it receives from tourism, workers' remittances and perhaps counts on less returns from the Suez Canal and its oil exports after its price

collapse. The situation will continue to be fluid and volatile long after the world abates the Coronavirus pandemic.

(5) The challenge is the consolidation and the effective implementation of the long-spoken about **private-public partnership**. The GOE will have to continue the efforts to kick-start private sector led inclusive growth, which requires – now as before – the alleviation of longstanding constraints, lessening the red tape and further enhancement of the business environment. This, however, should not deny the government its continued role in several areas post-Corona, as public investment in the health and education sectors remains key to inclusive growth.

(6) The best way forward to Egypt is to transition into a **digital economy**. This should give a positive twist to the negative impacts of COVID 19. The ITC sector is topping the priority list for investment to allow the economy to grow. The lockdown of the Coronavirus pandemic has made it all the more necessary to move into digitalization of practically all sectors of the economy, health, education, finance, and trade. There is no alternative to e-commerce, digital marketing, e-learning, hybrid-learning, online platforms, and delivery businesses to rise to the top in the Egyptian market.

(7) We already witness-in Delta University for science and technology-the fundamental changes in the education sector because of the crisis, and the overwhelming trend towards distance education using modern technology.

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(14A) See, for instance, **Benigno and Fornaro (2018)** for the micro foundations behind this assumption. There agents experience no disutility from working, and can supply to the market up to $\bar{l}$ $\bar{t}$ units of labor. Involuntary unemployment is possible due to the presence of nominal wage rigidities.
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(15) All it takes for our results is some stickiness in nominal prices or wages. The assumption of constant inflation corresponds to the limit in which prices are fully rigid.
(16) This effect is well known from the literature on news shocks **(e.g., Lorenzoni, 2009).**
(17) To capture this effect, we can replace equation (2) with

$$y_t = -\sigma r_t + y_{t+1},$$

Where $\Phi > 0$ determines the sensitivity of aggregate demand to changes in the interest rate. Social distancing would then lead to a reduction in Φ.
(18) There are other channels through which a spell of weak aggregate demand can produce a drop in future potential output. For instance, weak aggregate demand might generate a destruction in workers-firms matches. Due to search and matching frictions, it might not be easy to restore these matches quickly once demand recovers.
(19) Benigno, Gianluca and Luca Fornaro (2018), Stagnation traps," Review of Economic Studies, Vol. 85, No. 3, pp. 1425:1470.
(20) Of course, financing a large fiscal stimulus package represents a difficult challenge for governments. While we do not address this issue here, our analysis suggests that fiscal interventions to stimulate investment are likely to trigger positive multiplier effects on economic activity. Taking into account these effects is important to design optimal fiscal packages.
(21) Says **Mr. Youssef**. The former speaker of Ministry's council. "The most difficult thing right about this crisis is that we don't have a deadline. So we can't overpromise and under deliver; if the government continues to issue financial support it will end with ballooning deficits, and implications can last the long term. It would lose the entire benefits of the economic reforms from 2016."
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(24) The **Bretton Woods institutions** include IMF and IB and its Branches like international investment Authority.
(25) According to the IMF regulation, the country will have to commit in its letter of intent, to ensure that this assistance is used for the urgent purpose agreed under the emergency financing. Both mechanisms, SBA and RFI, are essentially short-term for one or two years. However, in case of necessity they can be extended to three years at most.
As all Fund's arrangements, the IMF follows and monitors closely the expenditures in both credit lines, SBA and RFI and follows ex-post assessment procedures. The conditions of the Fund prevail, such as transparency and anti-corruption measures to its loans, requiring governments to conduct independent audits, publish procurement plans, including the names of beneficial owners, et cetera. Anti-corruption measures

are part of the macroeconomic issues within the framework of the Extended Fund Facility arrangement for structural reforms.

(26) The RFI provides fast financial assistance to countries facing an urgent need for balance of payments. It is a more flexible tool for meeting the diverse emergency needs of member states. The access for countries under this instrument is up to 100 percent of their quota share, however, the precise amount is to be decided by the IMF Board.

(27) Egypt is a low-middle-income country.

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