ESTIMATED IMPACT OF COVID-19 ON THE JORDANIAN ECONOMY

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Abstract

This study aims to estimate the negative effects of COVID-19 on the Jordanian economy. These effects are expected to coincide with the results of studies carried out by international institutions. For example, the International Labor Organization (ILO) estimated indicate an increase in the number of unemployed to 5.3 million (the “low” scenario) and 24.7 million (the “high” scenario), from a baseline of 188 million in 2019 (ILO, 2020a). Experts from the World Bank and the International Monetary Fund (IMF) confirmed that the global economic downturn (caused by the coronavirus pandemic) is the largest in the past eight decades, which will lead to an increase in poverty and inequality and harm economic growth in the long term. (News 18, 2020). To measure the impact of COVID-19 on the Jordanian economy, the following indicators were adopted: an economic growth, an unemployment rate, a foreign trade (imports and exports), public revenues, public spending, a public debt, and a budget deficit. The study relied on data contained in reports issued by international institutions and official institutions in Jordan. The results indicate a slowdown in the rate of economic growth, an increase in the unemployment rate, a decrease in exports and imports, an increase in the public debt and the budget deficit.

Keywords: COVID-19 Economic Impact, Economic Development, Economic Crisis, Economic Growth, Unemployment, International Trade and Public Finance

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1. INTRODUCTION

The COVID-19 is a part of the global pandemic that first appeared at the end of 2019 in China. The first case of this disease was recorded in Jordan at the beginning of March 2020. Since that date, the Jordanian government has taken a number of preventive measures to protect the population and protect the economic sector from potential damage caused by this pandemic. These procedures were as follows: activating the Defense Law issued in 1992; quarantine and isolation of the infected; complete closure of all economic and non-economic activities, including educational, religious, entertainment, and other activities, except for what is necessary for the survival of basic life in a society; suspending international flights to and from Jordan; close borders, land, and seaports, and a complete halt to the movement of people and goods.

After Jordan’s success in the first four months of the pandemic in reducing numbers of cases, Jordan worked to gradually ease restrictions, that is, the transition from a complete ban to a partial ban and to take measures to ensure physical distance between citizens while they travel to work, shop and visit. Banning parties and banning gathering of more than 20 people under any circumstances, also, the easing of closure measures is due to the negative economic effects that the public, private, and family sectors faced in society.

Opinion polls were conducted by various official and media agencies to measure citizens’ expectations of the socio-economic impacts of COVID-19 (Center for Strategic Studies, 2020). Most important results showed:
- a great negative impact on the Jordanian economy;
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dissatisfaction with the support provided by the private sector to confront the pandemic;
• the private sector has been negatively affected as a result of government decisions to combat the pandemic;
• positive contribution to government decisions related to citizen support (continuing to pay salaries, delaying payment of bank installments, reducing interest rates on loans).

Since the beginning of the third quarter of 2020, it has been observed that the outbreak of the COVID-19 has re-spread and the number of recorded infections increased daily, which means a return to complete or partial closure. It also means continuity and intensification of the negative economic impacts that the Jordanian economy will face.

Therefore, the study aims to determine the size of the negative economic effects on the Jordanian economy through a number of economic indicators such as the rate of economic growth, the extent of the impact of different economic sectors, the unemployment rate, the foreign trade, the general budget deficit, and other figures. This study adopted the statistical descriptive methodology represented in preparing figures. The study relied on secondary data sources represented in reports and bulletins issued by the official institutions such as the Ministry of Finance, Ministry of Planning, Department of Statistics, and Ministry of Labor.

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature and previous studies. Section 3 analyses the methodology that has been used to conduct this paper. Section 4 deals with describing Jordanian economic policies to confront the impact of COVID-19. Section 5 analyses the economic effects resulting from the pandemic in Jordan. Section 6 deals with findings and recommendations.

2. THEORY AND LITERATURE REVIEW

2.1. Theoretical background

The World Health Organization (WHO) declared in January 2020 that COVID-19 is a virus dangerous to human health in the world. It had also declared a state of emergency. The only tool that countries of the world have resorted to mitigate the demographic impacts of COVID-19 is a form of total or subtotal closure to reduce infection by breaking the current social and economic forms of communication. These measures impose a severe negative shock on the economy, with an immediate loss of economic activities followed by medium and long-term economic effects.

To protect the population from the pandemic, many countries have taken measures to completely or partially close their borders with the world, as well as to prevent or limit the movement of people within their borders.

These preventive measures have led to major negative effects on the economy. The size and type of these impacts are entirely related to the period of closures, the extent of the pandemic’s persistence, and the actions of other countries.

The closure measures lead to a total or partial closure of companies in all economic sectors, delay in the supply of locally produced and imported intermediate goods necessary for production, a complete (partial) cessation of imports of raw materials, partial or total cessation of workers from work, a slowdown in external demand for national products and thus a decrease in exports. The outcome of this is that companies (totally or partially) cease production, meaning a decrease in the country’s gross domestic product (GDP). The forecasts of both the International Monetary Fund (IMF) and the World Bank (WB) confirm these effects. The economic growth rate (-9.4%) was estimated by them. Organization for Economic Cooperation and Development (OECD) also forecast that the GDP growth rate will range from -0.6% to -0.7% (Jackson, Weiss, Schwarzenberg, & Nelson, 2020). The extent of the negative impact of the productive companies affected by the epidemic varies in different economic sectors. The negative impact is expected to be greater in sectors that depend on the physical distance between people (education, tourism, and transport).

Partial or total closure of companies leads to the total or partial loss of a large number of workers from their jobs in these companies, thus increasing unemployment rates globally to 10%, and the fear that it will continue to rise for a long time (Jackson et al., 2020).

Trade between countries is negatively affected by the total or partial disruption of both exports and imports due to the strict restrictions imposed on the movement of people and goods between countries of the world. The latest forecasts of the World Trade Organization (WTO) indicate that global trade volume will be decreased by 18.5% in 2020 (Jackson et al., 2020).

Private investment is expected to decrease as a result of the partial or total closure of private companies resulting from the epidemic and the decrease in profit opportunities for companies that are still operating in the economy. Public investment will also decrease due to government cuts in capital expenditures and transfer of that money to health expenditures, social welfare expenditures, and corporate support (this type of spending increases dramatically during the pandemic).

The decline of companies in their production capacity or their complete closure leads to layoffs, or part-time work and lower wages. This results in loss or decrease in the income of a large number of workers and their families. This leads to a decrease in private demand for goods and services, a decrease in living standards, and an increase in the incidence of poverty. The decline in private demand can be inferred from the decline in wholesale and retail sales. Private investment demand is also expected to decline due to corporate losses and fear and uncertainty about the future.

The public budget is negatively affected by the epidemic. The size of this effect increases due to the financial policies taken to address them, their severity, and the period of time that the economy needs to recover. Public spending is increasing to combat the epidemic, and for the social safety net (cash and in-kind support for poor families, and for financial support for companies to enable them to continue the productive process, preserve employment and reduce losses). At the same time, the general budget witnesses a decline in the state’s public revenues from taxes (income and sales) and various fees. The result is an increase in the value of
the budget deficit and its percentage of the GDP. Often this deficit is financed in such exceptional circumstances by borrowing, which leads to an increase in public indebtedness.

2.2. Field studies

Field studies are still scarce, especially since most of them were conducted by international institutions such as WB, IMF, WTO, and ILO. These studies are distinguished by being a study that measures the expected economic effects at the global level through the following economic indicators (economic growth rates, unemployment rates, world trade).

In its June 2020 report, IMF indicated that the global economic growth rate is expected to drop to -4.9% in 2020, 1.9% points less than the April 2020 World Economic Outlook report forecast. The COVID-19 had a more negative impact on activity in the first half of 2020 than expected. The report indicates that a gradual recovery is expected in 2021, global growth is expected to reach 5.4%, and the negative impact on low-income households is particularly severe, jeopardizing the significant progress made in reducing extreme poverty in the world since the 1990s (IMF, 2020a, 2020b).

European Commission’s Directorate-General for Economic and Financial Affairs prepared a study in the summer of 2020 to find out the outlook for the European Union economy on the one hand and each EU country separately on the other hand. This study found a decrease in the volume of the union’s output by 8%. It works at about 25% to 30% less production capacity. The union’s economy is expected to recover next year, with an increase of 6% (OECD, 2020).

In June 2020, the WB published its report, titled “COVID-19 to plunge global economy into worst recession since World War II”. The WB has forecast that the global economy will contract by 5.2% this year. It is the deepest recession since the end of World War II, and economic activity is expected to contract by 7% in developed countries and by 5.2% in emerging and developing market economies, which is their first contraction as a group in at least sixty years. The WB also forecasts that per capita income will decline by 3.6%, which will lead millions of people into extreme poverty this year. However, global growth is expected to recover to 4.2% in 2021, with advanced economies growing by 3.9% and emerging markets and developing countries returning by 4.6%. These forecasts are uncertain given the potential for a prolonged pandemic, financial disruption, and a reversal of global trade (The World Bank, 2020).

In its report, the WTO indicated the restrictions imposed by countries on imports and exports, which led to a decline in international trade, especially during the first period of the outbreak of the coronavirus pandemic. However, these countries started partially lifting restrictions to the 28% rate, which still has a restrictive effect on global trade (WTO, 2020).

The ILO estimate showed a significant loss of working hours during the first half of the year 2020, the loss is estimated at 5.4% of global working hours (equivalent to 155 million full-time jobs). Comparing the results globally to the fourth quarter of 2019 indicates a loss of 400 million full-time jobs (ILO, 2020b).

Arndt et al. (2020) in their study of the impact of COVID-19 on the South African economy estimated the costs of the lockdown implemented by the South African government beginning on March 27, 2020. According to four scenarios, this paper concluded that these lockdown measures have had profound negative economic impacts. The repercussions of the epidemic in the rest of the world have negatively affected the demand for South African exports. Regarding the “rapid” recovery scenario, the decline in GDP will be approximately 5% by the end of 2020, and the continuing effects of COVID-19 will bring worse outcomes. GDP growth is in line with “slow” and “long” recovery scenarios.

Federation of Indian Chamber of Commerce and Industry (FICCI) conducted a study on the impact of COVID-19 on the Indian economy. The results of this study indicate that the pandemic has made the recovery of the Indian economy difficult in the short and medium-term. This devastating impact of the epidemic on the demand and supply sides and thus set India out of the head of the success story in economic growth before the pandemic (FICCI, 2020).

According to the researcher’s knowledge, field studies that measure the actual economic impact of the pandemic, whether at the international level or the country level, are very rare. This study is considered the first of its kind in the case of Jordan. It will analyze the economic impacts from the pandemic based on official figures published in various sources in Jordan.

3. DATA AND RESEARCH METHODOLOGY

The study methodology has been chosen according to the methodologies used in the international studies mentioned in the body of the research. Macroeconomic indicators were also adopted due to their use in these studies on the one hand, and the availability of Jordanian data on the other hand. These indicators are the economic growth rate, the unemployment rate, the value of exports and imports, public spending, the public revenues, the budget deficit, and the public debt.

The study relied on secondary sources to collect data on these macroeconomic indicators. These sources include international institutions, ministries, and national information centers in Jordan. Among the difficulties faced by the researcher is the time delay in issuing statistics and periodic reports, as it is known that the recency of data is a problem facing most researchers in developing countries.

The study adopted the descriptive statistical approach represented in calculating rates and changes in the values of economic indicators, and in preparing graphs to clarify the extent of the impact of the crisis on the Jordanian economy.

The researcher believes that it is necessary for the future to study the economic impact of COVID-19 at the microeconomic level (i.e., the extent to which private companies are affected by this crisis in the private economic sectors). This is necessary because it gives a more accurate picture of the effects of the crisis and thus determines the economic policies necessary to stimulate the economy and reduce the harm to these companies and their workers.

The researcher’s failure to perform such an analysis is due to the necessity of conducting
a sample survey of the companies, which requires a financial and technical effort that exceeds the researcher's capacity alone on the one hand and requires searching for a body that provides financial support to conduct these studies. Conducting these studies in the future, either by the same researcher or from other researchers, is not a substitute for this study, but rather a complement to its results.

4. JORDANIAN ECONOMIC POLICIES DURING COVID-19 CRISIS

Since the beginning of the COVID-19 crisis, the Jordanian government has adopted a set of financial and monetary policies to support the health sector, families, and companies. These include increased public spending on health, tax cuts, tax deferrals, financial support for the unemployed, corporate financial support, lower interest rates, loan installments deferred, and interest payments to individuals and companies. These economic measures can be explained in detail as follows.

4.1. The Central Bank of Jordan

In 2020, the Central Bank of Jordan took a package of measures aimed at containing the repercussions of the impact of COVID-19 on the economy, namely:
1) Postponing the payment of installments of credit facilities granted to both individuals and companies.
2) Allowing banks to postpone the payment of installments owed by the affected companies, provided that banks are not allowed to impose a commission or late interest on these companies.
3) Allowing banks to schedule the debts of clients who meet the scheduling concept without paying late interest.
4) Postponement of bank installments incurred by retail customers. As well as postponing credit card payments, housing loans, and personal loans, without paying any additional commission or delaying interest.
5) Pumping additional liquidity to banks (770 million dollars), by reducing the compulsory reserve ratio on deposits with banks from 7% to 5%. This procedure for banks would lead to a reduction in the interest rates imposed by banks on the credit facilities they grant to all economic sectors.
6) Reducing the financing costs of the Central Bank's program to finance and support the developmental economic sectors on existing and future facilities from 1.75% to 1% for development projects within the Capital Governorate (Amman) and from 1.0% to 0.5% for development projects in other provinces.
7) Reducing loan guarantee commissions and increasing coverage of the local sales guarantee program as follows:
   a) Reducing the industrial finance and service program guarantee commission from 1.50% to 0.75% for all loans that will be granted from its date until the end of the year 2020.
   b) Reducing startup loan guarantee commission from 1% to 0.75% for loans to be granted from date until the end of 2020.
   c) Increasing the percentage of insurance coverage for the local sales guarantee program from 80% to 90%.
   d) Modernizing procedures and guidelines for cash handling in order to protect the safety of citizens, bank employees, and moneychangers.

e) Ensuring the continuity of the work of banks and payment services companies and electronic transfer of funds in providing basic financial services to customers without interruption, by ensuring the readiness of the information technology infrastructure, and ensuring the continuity of providing payment services, and continuity. Maintaining these devices and providing them with sufficient banknotes after duly processing them to meet the needs of dealers without any interruption.

f) Establishing a national fund entitled Himmat Watan to support the fight against the COVID-19 epidemic and confront its economic and social impacts on the Kingdom, and its capital consists of donations from individuals and institutions from inside and outside Jordan. Donations are disbursed according to the spending aspects determined by the Prime Minister, according to their priorities, based on the placement of the committees formed to manage the accounts.
g) Accepting donations from individuals and institutions to support the Ministry of Health and the Ministry of Social Development by opening an account for each of them.

4.2. The Ministry of Finance

In 2020, the Ministry of Finance adopted a set of financial policies, namely:
1) Sales tax: Postponing the payment of sales tax due from companies until they receive the sales value in cash (also the possibility of postponing payment without interest). This measure includes all companies in all internal economic sectors and companies operating in external economic sectors such as logistics, health, and medicine.
2) General customs: Allowing the companies listed in the golden and silver lists to pay only 30% of the value of the customs duties due on them and postponing the payment of the remaining value, facilitating the procedures for controlling food and medicine in the entry of imported goods, as well as amending the fees for the grace period from 7 to 14 days and the cooling fees.
3) Building and occupational licenses: Extending the period of validity of licenses for professions in the municipalities and Greater Amman Municipality until June 1, 2020, postponing the payment of fees for organizing returns imposed on the land sector until the sale or establishment of projects without interest, as well as permitting the postponement of property transfer transactions between heirs and partners.
4) Social security: Postponing the payment of the installments due for the guarantee for 3 months and suspending the checks collection procedures. In addition, the unemployment allowance is paid to the insured who did not receive their salaries in the following economic sectors (tourism, trade, transport).
5) Salaries and wages: The government's commitment is to pay monthly salaries to all workers in the public sector institutions after deducting transportation allowances. As for workers in the private sector, the government pays 50% of their wages and the rest is paid by the employer in order to ensure that they remain working for their employers, as well as to guarantee their participation in social security.
5. THE RESULTS

5.1. GDP and economic sectors

The GDP growth rate declined significantly in the first quarter of 2020 due to the COVID-19 crisis. It reached 1.3%, which is very low compared to the growth rate in the fourth quarter of 2019, which was estimated at 3.7% (Figure 1). All economic sectors grew at much lower rates in the first quarter of 2020 compared to the drivers of their growth in the fourth quarter of last year (i.e., before the COVID-19 crisis). The slowdown of growth differs from one sector to another. The mining and construction sectors were the most affected by the crisis. It was negative 1.0% and 1.5%, respectively.

Figure 1. GDP at constant prices (percentage change from the same quarter of the previous year)

<table>
<thead>
<tr>
<th>Economic sectors</th>
<th>Q1 2019</th>
<th>Q1 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>0.50</td>
<td>-0.50</td>
</tr>
<tr>
<td>Industry</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Water &amp; electricity</td>
<td>1.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Construction</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Wholesale retail transport and communication</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Financial and insurance and real estate</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Social and private services</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Non-private services</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Household services</td>
<td>1.50</td>
<td>1.00</td>
</tr>
<tr>
<td>GDP at constant prices</td>
<td>3.50</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Source: Department of Statistics (2021).

The negative impact is also evident if we consider the decrease in the number of certificates of origin issued by the Amman Chamber of Commerce during the first quarter of 2020 to 7041 certificates compared to 8521 certificates issued during the same period in 2019. The tourism sector is one of the economic sectors most affected by the crisis. As it is evident that the Jordanian tourism income decreased by 48% on an annual basis during the first five months of this year compared to the corresponding period of 2019. This, in turn, has a negative impact on other sectors that have a direct or indirect relationship with tourism, such as hotels, restaurants, and transportation.

5.2. Unemployment

Figure 2 shows a significant and continuous rise in the unemployment rate in the Jordanian economy during the first and second quarters of 2020. It was estimated at 19.3% in the first quarter and increased to 23% in the second quarter. These rates are higher than their counterparts in 2019. Expectations indicate more unemployment in the coming period, especially with the increase in the number of injuries in the third quarter, i.e., an increase in the severity of the crisis.

Figure 2. Unemployment rate in Jordan 2019 and 2020 (before and during COVID-19 crisis, %)

Source: Department of Statistics (2020).

5.3. Foreign trade

Value of exports decreased by 7.3% during the first half of 2020 on an annual basis, to 2.5 billion dinars (3.5 billion dollars), while imports decreased 18% to 5.4 billion dinars (7.6 billion dollars). The decline is due to the decline in overall demand for consumer goods and intermediate goods, both locally and internationally.

5.4. Public finance

5.4.1. Public revenue

The financial policies related to tax exemptions, tax deferrals, and the decline in economic growth during the first half of 2020 clearly led to a decrease in
local public revenues during the first five months of 2020 by (0,805 billion Jordanian dinars) (Figure 3). This decrease is due to the decrease in tax revenues (such as income tax and sales tax) and non-tax revenues such as fees and revenues from selling oil derivatives, as well as a decline in retirement income. Jordan was able to compensate for the decline in local public revenues by increasing the value of foreign grants and loans obtained during the crisis (Figure 3).

Figure 3. The change on Jordanian public revenues during the period (2019-2020)

Source: Ministry of Finance of Jordan (2020).

For example, the European Union has provided 200 million euros in additional aid to Jordan to help tackle the COVID-19 crisis, and mitigate the social and economic impact of the epidemic. Japan also provided financial support of 2.2 million dollars to support the work of the United Nations Children’s Fund (UNICEF) in Jordan in order to preserve the health, education, and protection of children in light of the spread of COVID-19. The International Atomic Energy Agency (IAEA) has also supported the Jordanian Ministry of Health by providing it with early diagnostic devices for COVID-19. Jordan also received financial support from the Arab Monetary Fund in the amount of 38 million dollars to implement economic, financial, and structural reforms affected by the pandemic. Jordan also received 396 million dollars in immediate financing from the IMF to meet the balance of payments needs arising from the emerging coronavirus pandemic.

5.4.2 Public expenditures

The decrease in public spending is negligible, especially the current one, due to the government’s commitment to secure adequate financial amounts for the Ministry of Health and the Ministry of Social Development and to support companies in order to mitigate the economic effects of the COVID-19 crisis. There is a significant decrease in capital spending due to the government’s diversion of this spending to finance exceptionally increasing current expenditures (unplanned) due to the COVID-19. The percentage of decrease in capital spending reached 30.7% during the first five months of this year compared to the period of last year (Figure 4).

Figure 4. Jordanian public expenditures and budget deficit during the period (2019-2020)

Source: Ministry of Finance of Jordan (2020).
5.4.3. Budget deficit

The large decrease in state revenues compared to the slight decrease in its expenditures led to an increase in the public budget deficit before foreign grants from 0.575 billion Jordanian dinars during the first five months of 2019 to 1.2208 billion during the first five months of 2020 (Figure 4). The deficit will decrease by 0.114 billion Jordanian dinars after the foreign grants that Jordan obtained in the first half of this year.

5.4.4. Public debt

To face the financial and economic consequences of the COVID-19 crisis, the government has resorted to increasing its external and internal borrowing at the same time. The ratio of public debt to GDP increased from 95.2% in the first five months of 2019 to 111.2% in the same period in 2020. The external debt ratio increased from 37.9% to 39.1% during the comparison period. These real percentages indicate an increase in public debt more than the World Bank’s forecast of the public debt ratio, which was estimated 108.5.

6. CONCLUSION

This study used the descriptive approach to measure the negative economic effects of the COVID-19 crisis on the Jordanian economy. These effects were represented in a significant slowdown in the rate of economic growth, a significant increase in the unemployment rate, an increase in the burden on the public budget, an increase in public debt, and a decrease in the values of commercial transactions with the world.

The Jordanian government’s measures to combat the COVID-19 crisis are very similar to the measures taken by other countries of the world. These measures included the total or partial banning of individuals. Suspending economic activities for a certain period of time, during which physical distancing was almost impossible (transportation and tourism, hotels, restaurants, education, and places of worship). These measures had a significant negative impact on the national economy.

In conjunction with this package of preventive measures, the government implemented a package of financial and monetary policies to mitigate the damage to individuals and companies from COVID-19.

COVID-19 is not over yet, as daily official reports indicate a large and increasing number of infections. This is a great challenge for all economic sectors, and thinking about new types of measures to protect against the epidemic on the one hand, and to reduce the economic impacts on companies, individuals, and the public sector on the other hand.

Instead of a total closure policy, the researcher recommends adopting a policy of physical distancing and individual protection (for example, the use of masks, disposable gloves, and sanitization).

To mitigate the negative impact and revive the economy, the researcher recommends the following economic policies:

- Continuing and increasing financial support for companies, especially those operating in the affected economic sectors. The aim is to reduce the cost of production and ensure its ability to continue the production process.
- Reducing corporate taxes and delaying payment of tax due on them. This ensures the survival of companies and the survival of their employees.
- Reducing interest rates on all loans to individuals and companies if interest rates are still high and not stimulating.
- Allocating more financial resources to support the unemployed and their families to ensure a minimum standard of living.
- Allocating funds from the public budget to support the Himmat Watan Fund, which was established to support and stimulate the private sector.
- Increasing internal and external public borrowing to compensate for the expected decrease in public revenues and to increase public expenditures.

The researcher recommends academic research bodies and official institutions to conduct more research and studies, or funding researchers in this field, in order to estimate the size of the economic effects, especially at the microeconomic level (companies and individuals), and how to mitigate their economic effects.

REFERENCES


