

COVID-19 Economic Impact and Saudi Stimulus Package Effectiveness

Nahla Samargandi

Department of Economics, Faculty of Economics and Administration,
King Abdulaziz University (KAU), Jeddah, Kingdom of Saudi Arabia

ABSTRACT

This study examined baseline macroeconomic structure, economic impacts of the COVID-19 lockdown, and government stimulus package effectiveness to mitigate pandemic impacts in Saudi Arabia. By a disaggregated analysis, we identified the sectoral contribution in terms of intermediate, private and public demand, labour compensation and trade by utilising the Input-Output Table. By analysing the point of sales, we demonstrated hard-hit sectors by the lockdown. The Saudi economy shrank by 1% in Q1 of the fiscal year 2020 due to oil price collapse and the lockdown. The stimulus package may rebound the economy (costing external debt). We provide several policy implications.

Keywords: lockdown, economic shocks, stimulus package, oil price, Saudi Arabia

ARTICLE INFO

Article History:

Received: 9 February 2023

Accepted: 30 March 2023

Published: 30 April 2023

* Corresponding author: Nahla Samargandi. Email: nsamrgandi@kau.edu.sa

INTRODUCTION

The COVID-19 global pandemic has had drastic health impacts and adversely affected almost every sector of the global economy (Loang & Ahmad, 2021), mainly due to the most common public policy response of “lockdown” social distancing measures that caused the global economy to grind to a halt, severely hitting the labor market, entertainment, retail, restaurant sector, tourism, transportation, finance, oil markets and so on (Borojo et al., 2021; OECD 2020). Many economies have already taken various measures to mitigate the adverse impacts of COVID-19 on the economy, however these policy responses become complicated due to the uncertainty of the duration of the pandemic and conflicting rationales for lockdown and social distancing measures. Many major economies have issued stimulus packages to minimize economic losses due to lockdown, including in France, Germany, Japan, Russia, the UK, and the US. In general, these stimulus packages include direct payments to most citizens, unemployment insurance, loans for small businesses with forgiveness clauses for firms that keep workers on the payroll, aid for hard-hit industries (e.g. airlines), and extensive health spending.

The adverse effect of this pandemic on this Saudi Arabian economy is particularly severe for several reasons. First, crude oil prices fell below \$20 a barrel due to the collapse in oil demand during the coronavirus pandemic, due to the cessation of conventional economic activity, which represents a massive and direct reduction of oil earnings, upon which the national economy depends. Second, the Saudi authorities announced a very limited number of pilgrims would be allowed to perform Umra and Hajj, which has major implications for associated sectors including travel agencies, hotels, restaurants, transport, and so on, and it is estimated this will cost more than \$20 billion Saudi riyals (SAR) in 2020 (TRT World 2020). In addition, the global pandemic has been causing significant economic turmoil in the region through simultaneous shocks, including a drop in domestic and external demand, global supply chain and production disruption, a reduction in trade, a fall in consumer confidence, and tightening of financial conditions. The Saudi Finance Minister, Mohammad Al-Jadaan, announced that Saudi Arabia would reallocate some budgetary funds toward sectors most affected by the coronavirus outbreak, such as health, and stated that the Kingdom has the flexibility to cut spending as and when the need arises. He

indicated that the budget deficit might reach 9 per cent (SAR 100 billion) by the end of 2020.

Given this backdrop, this study aimed to measure the impact of this pandemic on the Saudi economy in a disaggregated matter, to potentially help devise proper measures to mitigate the adverse effects of this global pandemic on the Saudi economy. In addition, this study further helps to explore new market opportunities in the domestic economy to reduce overreliance on the global economy (particularly Saudi Arabia's dependency on oil export revenue). The objectives of this study included identifying the baseline scenario by analyzing Input-Out Table; assessing the hard-hit economic sectors and their potential loss due to the COVID-19 outbreak; and assessing the effectiveness of the stimulus package to mitigate the loss.

Most studies regarding the impact of COVID-19-induced lockdown applied simulation techniques, such as dynamic stochastic general equilibrium (DSGE) or computable general equilibrium (CGE) frameworks, to anticipate the probable impact (e.g., Atkeson 2020; Fernandes 2020; McKibbin & Fernando 2020a, 2020b). In contrast, our study applied real data (Input-Output Table, point of sales (POS), and current account data) to assess the impact of the lockdown due to COVID-19. Our study found that the volume of sales rose during the lockdown in the beverage and food, telecommunication, and health sectors. In contrast, the jewelry, furniture, recreation and culture, restaurant and café, and transportation sectors encountered a sharp fall in their volume of sales. Export earnings both from oil and non-oil sources plunged during the outbreak. Our analysis demonstrated that quarterly GDP dropped by 1%. The government stimulus package has helped the economy to recover some extent, but the full extent of recovery will largely be dependent on international oil prices (and by extension a global resurgence in conventional economic activity and oil demand).

LITERATURE REVIEW

Despite its rapid and recent nature, there are already ample studies measuring the impacts of the COVID-19 lockdown. Recent literature on measuring the economic impact of COVID-19 can be classified into two strands.

The first strand of literature highlights the impact based on simulations considering different scenarios. For example, McKibbin and Fernando (2020a) simulate the probable impact of the COVID-19 outbreak by applying the hybrid DSGE/CGE general equilibrium model. The study explored seven different scenarios of how COVID-19 might evolve in the coming year using a modeling technique developed by Lee and McKibbin (2003) and extended by McKibbin and Sidorenko (2006). The G-cubed model is a hybrid of dynamic stochastic general equilibrium (DSGE) and computable general equilibrium (CGE) models developed by McKibbin and Wilcoxon (1999, 2013), and extended to the G20 countries by McKibbin and Triggs (2018). McKibbin and Fernando (2020b) showed that a contained outbreak could adversely affect the global economy in the short run. Atkeson (2020) examined the economic impact of COVID-19 using simulation data from the US, while Fernandes (2020) considers it across industries and countries, discussing various channels and using rough estimates.

The second strand of literature focuses on real data to assess the economic impact of COVID-19. Cavallo and Forman (2020) examine the impact of COVID-19 pandemic on radiology practices using real data to discuss US public policy responses. Toda (2020) applied the Susceptible-Infected-Recovered (SIR) epidemic model for COVID-19 with data time series data starting from 22 January 2020 from the Center for Systems Science and Engineering at Johns Hopkins University, and the cumulative number of confirmed cases and deaths from the GitHub repository. Luo and Tsang (2020) estimated the output loss because of lockdown in Hubei Province of China using a network approach. They document that China encountered a 4% loss in output due to labor loss, and global output dropped by 1% per period due to the economic contraction in China. The study further reported that approximately 40% of impacts were indirect, cropped from spillovers through the supply chain inside and outside China.

Goolsbee and Syverson (2020) assessed the relative impacts of government restrictions on people's mobility and people voluntarily choosing to stay home to avoid the virus using cellular phone record data on customer visits to more than 2.25 million individual businesses across 110 different industries in the USA. They found that only 7 percent of a 60 percent drop in overall consumer traffic can be explained by legal restrictions, and that people's personal choices were far more important and

economically portentous, linked to their individual fears of infection. Inoue and Todo (2020) measured the economic impact of the possible lockdown of Tokyo to avert the spread of COVID-19 by applying an agent-based model. The study anticipated that total production would incur a loss of 27 trillion yen, or 5.3% of Japan's annual GDP.

DATA AND METHODOLOGY

Data and Sources

To analyze the baseline economic structure of the Saudi economy, we obtained the latest version of Input-Output Table based on 2017 data from the General Authority for Statistics (GASTAT). Input-Output Table reports the monetary transactions of eighteen major sectors in millions of Saudi riyals. To measure the impact of the COVID-19 lockdown (effective to varying degrees from 24th March to 12th June, 2020), we collected weekly data on points of sales (POS) from the Saudi Arabian Monetary Authority (SAMA). We eventually convert the data into a monthly format, ranging from 2019M1 to 2020M6. In addition, we collected the quarterly data on oil export earnings, non-oil export earnings, and GDP from 2006Q1 to 2020Q1.

Empirical Method

This study applied the explorative approach to identify the extent of damage to industries by COVID-19 using real data from different sources, including newspapers, SAMA, the Ministry of Finance, the Statistical Department, and official web portals from relevant organizations. This study also aimed to develop a Social Accounting Matrix (SAM) using the Input-Output Table to simulate different policy shocks by applying general equilibrium approach. In doing so, this study adopted the circular flow model developed by Baldwin and Mauro (2020) to measure the overall impact of the COVID-19 outbreak (Figure 1). It illustrates that the modern economy is a complex web of interconnected parties, including employees, firms, suppliers, consumers, banks, and financial intermediaries. Everyone is someone else's employee, customer, or lender, etc. If one of these buyer-seller links is ruptured by the disease or containment policies, the outcome will be a cascading chain of disruptions.

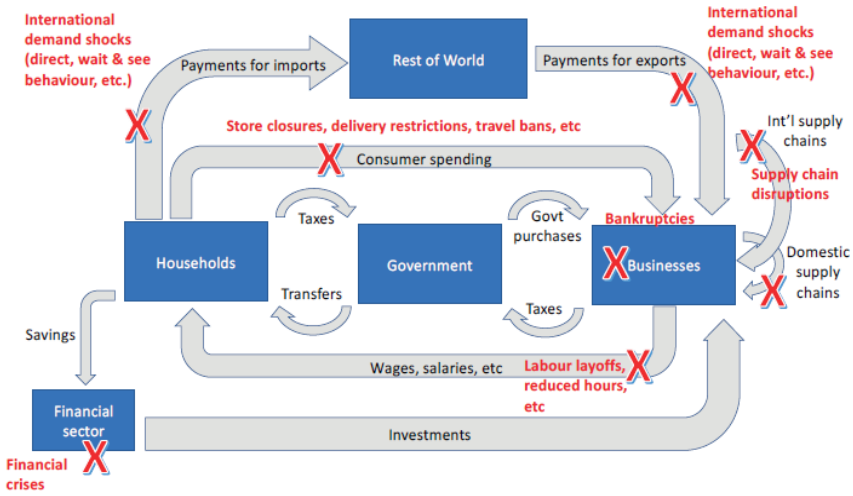


Figure 1: Circular Flow in Pandemic Conditions.

Source: Baldwin and Mauro (2020)

The Baldwin and Mauro (2020) diagram (Figure 1) is an elaborated version of the standard circular macroeconomic flow diagram available in introductory economic textbooks. In the circular flow, households possess capital and labor, which they sell to firms who utilize these to produce things. Households then purchase goods and services with the money that they earn from selling labor and capital, thereby completing the route and keeping the economy mounting. Consequently, a flow interruption anywhere originates a slowdown chain. The red crosses indicate where the three types of shocks are hurting the economy. Starting from the far left and moving clockwise, we observe that households who do not get paid encounter financial distress, and thus it reduces their spending. Second, a sluggish demand in the domestic economy hurts the nation’s imports, and thus the flow of money to foreigners. While this diminishes domestic demand directly, it also does reduce foreign incomes, and thus their spending on the nation’s exports (the cross in the top-right corner). A slowdown in demand and/or direct supply can lead to a disturbance in international and domestic supply chains (the two crosses on the right). Both lead to a further drop in output, especially in the manufacturing sectors. The hit to manufacturing can be aggravated by the wait-and-see behavior of people and firms. Manufacturing is particularly vulnerable, since purchasing of many manufactured goods can be postponed (the cross in the bottom-right corner).

RESULTS AND DISCUSSION

Results and discussion include the baseline scenario, focusing on the structure of the whole economy; the impact of the COVID19 lockdown; and the effectiveness of the government stimulus package.

Baseline Scenario

The Input-Output (IO) Table 2017 defines 18 major sectors, including agriculture; mining; petroleum refining; other manufacture; electricity, gas and water; construction; wholesale and retail; hotels and restaurants; transport and communications; financial intermediation; real estate; public administration and defense; education; health and social work; community; social and personal service activities; and private households with employed persons. Table 1 highlights the intermediate input demands, household consumption, government expenditure, export, and total purchase of each sector accordingly. Intermediate demand was highest in the manufacturing sector with around 27%, while it is lowest in private households with employed persons, education, and health and social work sectors. Household consumption was highest in the manufacturing sector, which was around 37.89%. In addition, private consumption was notably high in the real estate, transport and communication, hotel and restaurants, and agriculture sectors. Table 1 also reports that households do not consume any goods and services from the mining sector.

Regarding government expenditure, the highest expenditure was on public administration and defense (roughly 47.58%). We also observed that 30.32% and 13.06% of government expenditures were allocated for the education and health and social work sectors, respectively. These statistics provide an important indication of government priorities in improving the merits goods in form of education and health services for the citizens. Importantly, 4.93% of government expenditure went to community, social and personal service activities. Table 1 reports that the government did not have any involvement in petrol refining, construction, wholesale and retail, and hotels and restaurants.

As for external source of income, Table 1 shows that the export earnings of the Saudi economy mainly relied on a few distinct sectors,

including mining, petroleum refining, and other manufacturing sectors. Notably, the mining sector contributed 60.20% of export earnings. Other manufacturing and petroleum refining sectors contributed 22.19% and 14.68%, respectively. Such statistics demonstrate the criticality of the Saudi economy's narrow base of exporting sectors, which poses a significant external vulnerability and hindrance to the economic growth process.

Table 1: Saudi Economic Structure

Sectors	Intermediate demand		Households		Government		Exports (total)		Total use at purchasers' prices	
	Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio
Agriculture	90803.7696	6.64%	41007.76	3.93%	1872.009	0.30%	2297.274	0.27%	165612.8	3.57%
Mining	183448.3911	13.41%	46.79227	0.00%	312.0463	0.05%	514562.5	60.20%	700072	15.08%
Petroleum refining	131544.8982	9.62%	23357.16	2.24%	0	0.00%	125463	14.68%	282473	6.09%
Other manufacturing	372702.2715	27.25%	395191.1	37.89%	1281.604	0.20%	1896659.2	22.19%	1400012	30.16%
Electricity, gas and water	66802.47106	4.88%	39880.46	3.82%	10071.71	1.60%	3.848357	0.00%	117063.1	2.52%
Construction	135441.3068	9.90%	10211.11	0.98%	0	0.00%	634.4569	0.07%	416633.3	8.98%
Wholesale and Retail	27710.36187	2.03%	19185.49	1.84%	0	0.00%	79.98319	0.01%	46975.67	1.01%
Hotels and restaurants	28065.97291	2.05%	63895.19	6.13%	0	0.00%	840.6036	0.10%	92802.63	2.00%
Transport and communications	125762.1233	9.20%	81378.04	7.80%	8848.508	1.40%	17235.65	2.02%	233224.3	5.02%
Financial intermediation	75961.46263	5.55%	47475.35	4.55%	1334.657	0.21%	3201.907	0.37%	127973	2.76%
Real estate	78924.37519	5.77%	199694.4	19.15%	2182.263	0.35%	583.7004	0.07%	281384.1	6.06%
Public administration and defense	15400.16831	1.13%	18437.84	1.77%	300198.6	47.58%	0	0.00%	334037.6	7.20%
Education	9447.751776	0.69%	33481.9	3.21%	191340.8	30.32%	0	0.00%	234271	5.05%
Health and social work	9435.378478	0.69%	33340.62	3.20%	82401.88	13.06%	0	0.00%	125177.7	2.70%
Community, social and personal service activities	16074.09757	1.18%	16383.88	1.57%	31134.03	4.93%	203.0262	0.02%	63795.84	1.37%
Private households with employed persons	0	0.00%	20066.98	1.92%	0	0.00%	0	0.00%	20066.98	0.43%
TOTAL	1367524.8	100.00%	1043034	100.00%	630978.1	100.00%	854765.2	100.00%	4641575	100.00%

In millions of Saudi riyals

Figure 2 shows the distribution of each sector in terms of value addition at current market price, output at current market price, and labor compensation. The figure clearly shows that the ratio of value addition and output was greatest for the mining sector, followed by manufacturing. Interestingly, the ratio of labor compensation was relatively higher in the manufacturing sector. Construction, wholesale and retail, and real estate were also emerging sectors in the Saudi economy. In terms of compensation, the public administration and education sectors contributed roughly 28% and 22% respectively, both of which are public sector.

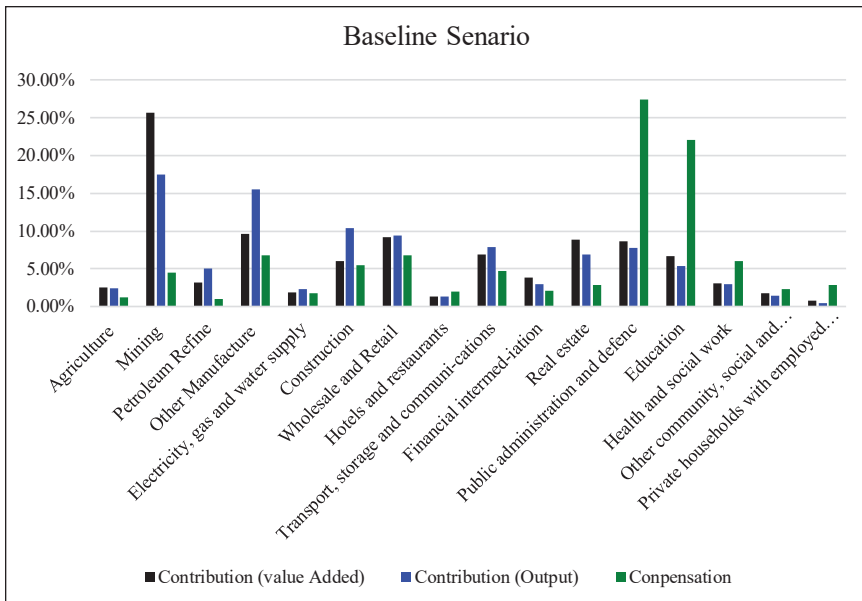


Figure 2: Value Addition, Output and Labor Compensation

Figure 3 reports the share of private and public sectors in each industry or sector. There was no government involvement in hotels and restaurants, wholesale and retail, construction, and oil refining sectors. The government had marginal shares in the real estate, financial intermediation, and manufacturing sectors, and hegemonic positions in public administration and defense, education, health and social work, and mining.

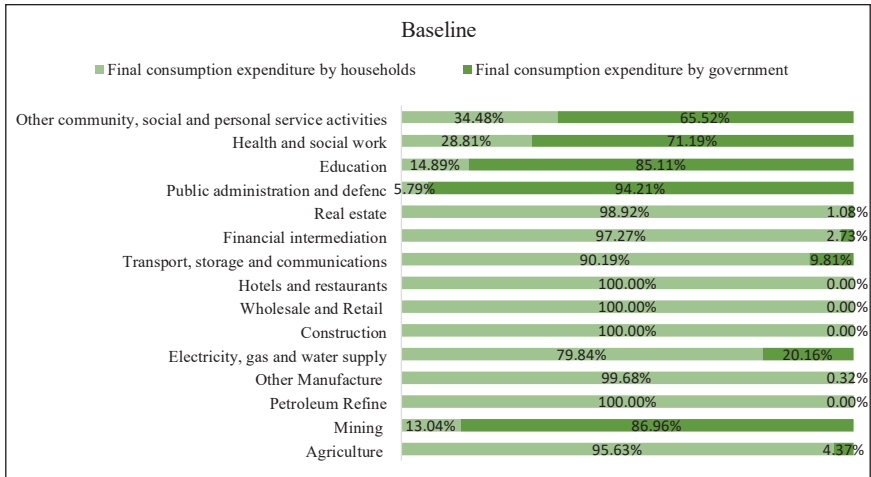


Figure 3: Ratio of Private and Public Involvements

Impact of Lockdown

The Saudi government imposed a partial lockdown on people’s movement and business transactions from the 24th March to the 5th April, 2020. This was subsequently extended and modified. When a further outbreak took place, the authorities completely locked down the economy from 6th April to 25th April 2020. After that, government again announced partial lockdown on 26th April 2020, which continued until 22nd May 2020. During the Eid celebration from 23rd-27th May 2020 the country remained under lockdown due to the fear of spreading the virus. Again, the economy experienced a partial lockdown from 28th -30th May 2020. From 31st May to 11th June 2020 the second stage of reduced the partial lockdown continued. The economy went back to a normal situation from 12th June 2020.

Our analysis of the impact of the COVID-19 lockdown on different sectors of the Saudi economy was based on POS data. We believed that any hypothesis simulation might deviate from the reality. Our trend analysis started from January 2019 to July 2020. The Saudi economy mainly experienced the economic lockdown over the months from March to June. Based on the availability of the data, we classified 16 economic sectors, which was slightly different from the IO Table, including beverage and food, clothing and footwear, recreation and culture, miscellaneous goods and services, electronic and electric devices, transportation, health, restaurants

and café, hotels, beverage and food, furniture, construction and building materials, jewelry, telecommunication, education, public utilities, and others.

The period of lockdown is marked in Figure 4 by two vertical red-lines from 2020m3-2020m6. The figure shows that the volume of sales climbed during the lockdown in the beverage and food sector. This is unsurprising as demand for beverage and food items augmented globally due to panic buying associated with the spread of the virus. Likewise, the telecommunication sector experienced an upward trend during the lockdown, as most people who were able to do so worked from home, using online platforms. The health sector experienced a slight slowdown at the beginning of March 2020, but it surged up with the outbreak of the virus spread in Saudi Arabia.

In contrast, Figure 2 shows that the jewelery sector was adversely affected due to the lockdown, as the trend of point of sale declined sharply from March to June 2020. This finding can be explained by the fact that jewelery is a highly elastic product, hence the consumers would be reluctant to purchase jewelery products under lockdown. The lockdown also highly influenced the education sector, which sharply declined during the lockdown. Figure 2 further highlights that the furniture, recreation and culture, and restaurant and café sectors encountered a sharp fall in their volume of sales. We also observed a sharp decline of revenue in the hotels business. These findings were expected, as the tourism sector was critically affected by the lockdown, and the slowdown in earnings in this sector continued even after lockdown due to global restrictions on travel and uncertainty among prospective travellers. Furthermore, the lockdown coincided with the annual Hajj pilgrimage season, which is the main component of the Saudi tourism sector. The transportation sector also suffered a commensurate decline during the lockdown. Interestingly, all the sectors enjoyed an upward trend of revenue in July 2020 when the lockdown was lifted.

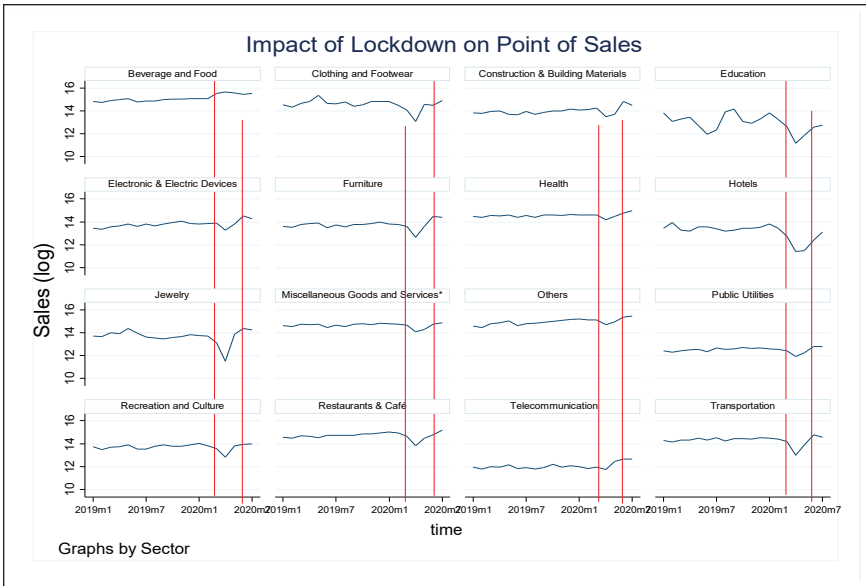


Figure 4: Impact of Lockdown on POS

At this stage, we focussed on export earnings, which significantly contribute to the Saudi economy. Figures 5 and 6 show the results. Figure 5 is plotted based on the numeric derivatives ($rate\ of\ change = \frac{dy}{dx}$), and Figure 6 shows actual values in terms of millions of riyals. The red line shows the oil export earnings and the black line shows the non-oil export earnings in Figure 5; it clearly highlights that oil export earnings significantly declined in the first quarter of 2020 as international prices plunged to historic lows. The Saudi economy experienced extreme negative shocks in oil export earnings in the first quarter of 2009 due to the global financial crisis. Between mid-2014 and early 2016, the economy faced another plunge in oil export earnings due to the fall of the oil price by about 70%. Some argue that increasing efficiency in US shale oil extraction was the main reason for the falling global oil price. Interestingly, non-oil export earnings followed a parallel shape along with oil earnings. During the COVID-19 pandemic, non-oil export earnings declined slightly compared to oil export earnings. Therefore, this implies that the Saudi economy must emphasize trade diversification.

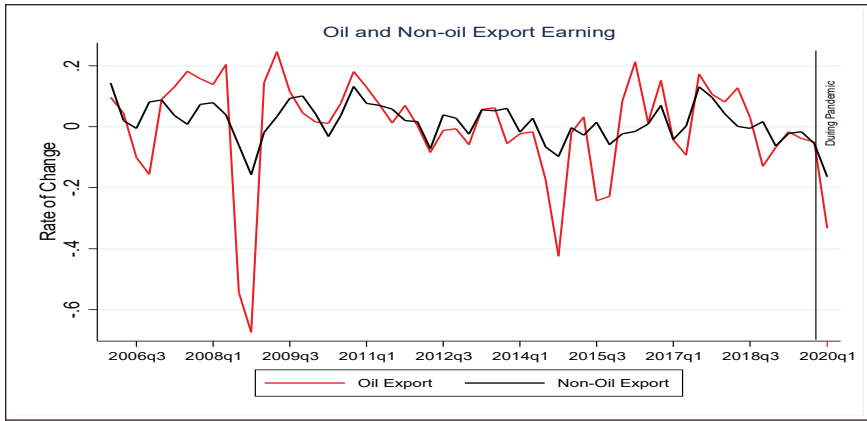


Figure 5: Impact of COVID-19 on Export Earnings (millions of riyals) – line

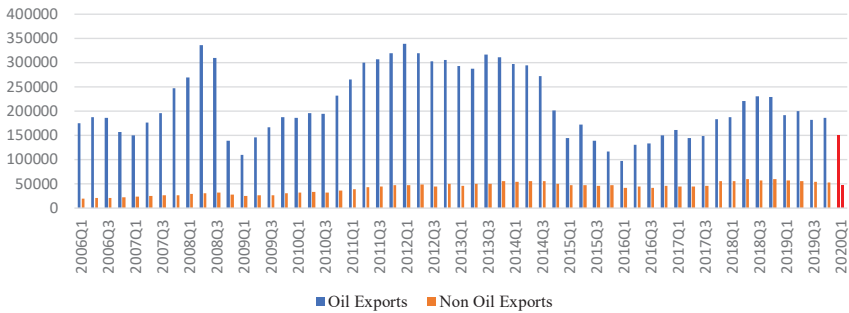


Figure 6: Impact of COVID-19 on Export Earnings (millions of riyals) – bar

Figure 7 exhibits the quarterly GDP growth rate of Saudi Arabia from 2016Q1 to 2020Q1. The figure clearly shows that the economy encountered negative growth of about -1% due to the COVID-19 pandemic. The main factors triggering the plunge in economic growth included the internal economic lockdown, and reduced oil export and non-oil export earnings. We observed that for the first three quarters of 2007 the Saudi economy experienced negative economic growth, with rates of -0.5%, -1.0%, and -0.30% in 2007Q1, 2007Q2, and 2007Q3.

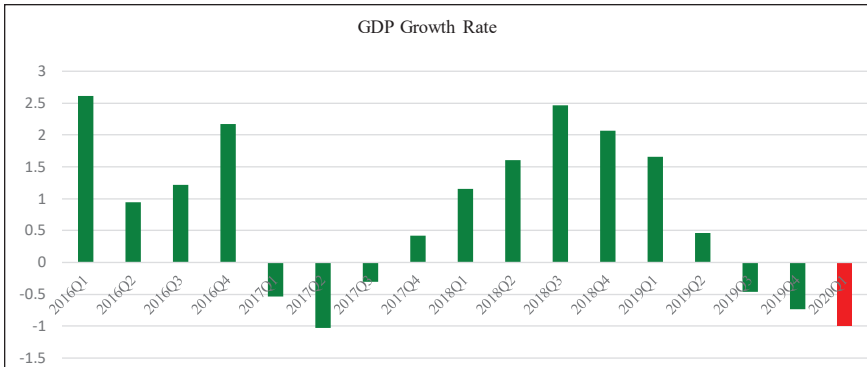


Figure 7: Quarterly GDP Growth Rat

Effectiveness of Stimulus Package

The Saudi government declared a set of policy support programs with a \$61 billion budget to stimulate the private sector and encourage an economic rebound. These policies were designed as a comprehensive approach, including the popular and customary tool of providing fiscal exemptions and tax holidays, and postponing government dues. Such ‘Infant Industry Protection’ policies resulted in an estimated postponement of government dues amounting to \$18.6 billion. Since the Saudi government sought to promote and foster private sector growth, it provided monetary support amounting to \$13.3 billion for the financial development of the SME and banking sector. To prevent a liquidity crisis and to expedite credit facilities in the private sector, SAMA injected \$13.3 billion into the banking sector. In addition, a very innovative initiative of a wage subsidy of 60% was launched, amounting to SAR 9,000 per employee for a period of three months, with a ceiling of USD 2.39 billion per month under the unemployment insurance system (SANID).

A stimulus package including SAR 50 billion (USD 13.3 billion) was announced for SMEs, and SAR 30 billion was allocated for banks and financial companies to bear delays on loan payments from SMEs for six months. The package provided SAR 13.2 billion to SMEs through bank loans to help them continue operations and support growth. SMEs also got relief from financial costs through a SAR 6 billion loan guarantee program under the Deferred Payments Program. SAMA oversaw all SMEs, according to the

Institution Circular No. 381000064902, and bank and financing companies as well. The postponement period for all outstanding installments (including accrued profits) was extended from March 14th, 2020 CE to September 14th, 2020 CE. To reduce the potential impact of decreased cash flows from SMEs, the payment of obligations of beneficiaries was delayed for a period of six months, and the amount allocated to the financing entities a program valued 30 billion riyals has been announced.

To expedite lending in the SME sector, concessional financing of up to SAR 13.2 billion was instituted by granting facilities from banks and finance companies to the SME sector in order to support continuation of business and growth in this sector. The duration of the program was one calendar year, from 14th March 2020, extendable for an additional year, according to market conditions. To grant subsidized loans to beneficiaries, credit facilities were provided at prices subsidized by SAMA for the account of the financing entities. The participating financing bodies must complete the financing of the beneficiaries within a maximum period of two weeks from the date of withdrawal from the credit facilities provided through the program to benefit from these facilities. The unutilized amount will be returned to SAMA. The financing is to be paid by the financing agency within a period of 36 months from the date of granting the financing to the beneficiaries. The clauses of the credit policy must be maintained by the financing parties to grant financing to the beneficiaries at a competitive price. The financing authorities are obliged to operate a separate bank account in implementing the program. Monthly reports provided to SAMA will be overseen to ensure program performance, including the funded and recovered amounts, and what the organization deems appropriate.

Among other government support policies, the fiscal policies play a very decisive role in shaping private sector development. In this regard, the Saudi government had undertaken a set of numerous tax policies including extension of deadlines for filing tax returns, and extensions for the payment of Zakat, income tax, value added tax (VAT), and excise tax, effective from 18th March to 30th June, 2020. The return filing dates for taxpayers was postponed until 31st July, with a December year-end for the year 2019. Likewise, return filing dates for VAT was postponed until 30th June, 31st July, 31st August, and 30th September for the February, March, April, May, and June periods. The period for submitting excise tax was also delayed

with a target to collect the monthly temporary returns to GAZT. Withheld of tax returns were due on the 10th of July, August, and September for the March, April, and May periods. Taxpayers were also exempted for delay in submitting tax returns and for associated payments for all taxes within the period starting from 18th March to 30th June, 2020. No further payments will be due for the taxes which were suspended, and over-payers under the new conditions are entitled to get the maximum refund.

To foster the growth of the private sector and foreign joint ventures, fees were waived for the renewal of residency permits for all expatriate employees for up to three months if they were to expire between March and June 2020. Expatriates were given another chance to be re-employed through the “Ajeer” portal if they are unemployed or their contractual employment expires. Private sectors wage cannot be reduced, and local leave cannot be deducted from deserved annual vacation without prior notice, and termination of employees cannot be undertaken for firms receiving government subsidies. The return of expatriate employees to their homelands continued to be facilitated through applications to the Ministry of Human Resources and Social Development. The Human Resource Development Fund had allocated SAR 5.3bn for training purposes for private sector employees.

CONCLUSION AND POLICY RECOMMENDATIONS

The adverse effect of the COVID-19 lockdown was clearly evident and signifies the largest economic shock the world has experienced in decades. Prior studies of associated impacts mainly projected using simulation techniques, considering different imaginary scenarios. We measured the impact of lockdown on various economic sectors using real data. To this end, we demonstrated three aspects. First, we comprehend the Saudi economy by disaggregated analysis of Input-Out Table, documenting intermediate demand, final demand, private consumption, government expenditure, export, compensation and so on for each economic sector. In the second stage, we measured the impact of lockdown on various sectors by using point of sales data. We found that the volume of sales rose during lockdown in the beverage and food sector. This is unsurprising as the demand for beverage and food items surged globally due to panic buying with the spread of virus.

The health sector experienced a slight slowdown at the beginning of March 2020, but it resurged with the outbreak and spread of the virus. However, the jewelry sector was adversely affected due to the lockdown as the trend of point of sale declined sharply from March to June 2020. The lockdown also highly influenced the education sector, with a sharp decline, along with the furniture, recreation and culture, and restaurant and café sectors. We also observed a sharp decline of revenue in hotels and transportation. Oil export earnings significantly declined in the first quarter of 2020, as international prices plunged historically. During the COVID-19 pandemic, non-oil export earnings declined slightly compared to oil export earnings. Therefore, this implies that the Saudi economy should emphasize trade diversification. This study also found that the economy encountered negative GDP growth of about -1% due to the COVID-19 pandemic in the first quarter of 2020. The main factors triggering this plunge in economic growth were internal economic lockdown impacts, and the collapse of oil and non-oil export earnings.

At the last stage, we discussed the effectiveness of the government stimulus package to mitigate the impacts of the COVID-19 lockdown on the economy. This package was well-designed to effectively support the hardest-hit industries. Saudi Arabia played an important role in enabling a historic agreement among OPEC+ members to cut oil production by 9.7 million barrels a day, to facilitate an increase in oil prices, which subsequently rebounded to around \$40/b.

Despite indicated fiscal expenditure cuts to weather the fall in oil receipts, the fiscal deficit was expected to widen in 2020. COVID-19-related health expenditure will be prioritized, for example provide a free treatment for all residents (not only nationals). The deficit will subsequently narrow as oil prices moderately recover, albeit to levels well below consensus assumptions at the start of the year.

REFERENCES

Atkeson, A. (2020). *What will be the economic impact of COVID-19 in the US? Rough estimates of disease scenarios* (No. w26867). National Bureau of Economic Research.

- Baldwin, R., & Mauro B. W. D. (2020). *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes*. London: CEPR Press. Retrieved from <https://voxeu.org/system/files/epublication/COVIDEconomicCrisis.pdf>.
- Baldwin, R., & Di Mauro, B. W. (2020). Economics in the time of COVID-19: A new eBook. *VOX CEPR Policy Portal*, 2(3).
- Borojo, D. G., Yushi, J., & Miao, M. (2022). The effects of COVID-19 on trade, production, environmental quality and its implications for green economy. *Journal of Economic Studies*, 49(8), 1340-1359.
- Cavallo, J. J., & Forman, H. P. (2020). The economic impact of the COVID-19 pandemic on radiology practices. *Radiology*, 296(3), E141-E144.
- Fernandes, N. (2020). Economic effects of coronavirus outbreak (COVID-19) on the world economy. *Available at SSRN 3557504*.
- Goolsbee, A., & Syverson, C. (2021). Fear, lockdown, and diversion: Comparing drivers of pandemic economic decline 2020. *Journal of Public Economics*, 193, 104311.
- Inoue, H., & Todo, Y. (2020). The propagation of economic impacts through supply chains: The case of a mega-city lockdown to prevent the spread of COVID-19. *PloS one*, 15(9), e0239251.
- Lee, J. W., & McKibbin, W. (2012). The impact of SARS. *China: New engine of world growth*, 19-33.
- Loang, O. K., & Ahmad, Z. (2021). Market overreaction, firm-specific information and macroeconomic variables in US and Chinese markets during COVID-19. *Journal of Economic Studies*.
- Luo, S., & Tsang, K. P. (2020). China and world output impact of the Hubei lockdown during the coronavirus outbreak. *Contemporary economic policy*, 38(4), 583-592.

McKibbin, W., & Fernando, R. (2021). The global macroeconomic impacts of COVID-19: Seven scenarios. *Asian Economic Papers*, 20(2), 1-30.

OECD. (2020, July 15). Coronavirus (COVID-19): SME Policy Responses. *OECD Policy Responses to Coronavirus (COVID-19)*, <http://www.oecd.org/coronavirus/policy-responses/coronavirus-covid-19-sme-policy-responses-04440101/>.

Toda, A. A. (2020). Susceptible-infected-recovered (sir) dynamics of covid-19 and economic impact.” *arXiv preprint arXiv:2003.11221*

TRT World. (2020, February 27). *How Important is the Umrah Pilgrimage for the Saudi Economy?*. *TRT World*, <https://www.trtworld.com/middle-east/how-important-is-the-umrah-pilgrimage-for-the-saudi-economy-34163#:~:text=Together%20the%20Hajj%20and%20the,seven%20percent%20of%20total%20GDP>.