

The Impact of Coronavirus Pandemic on Private and Public Consumption Expenditure

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ABSTRACT

The current worldwide coronavirus pandemic has caused the most economic instability since the Second World War. Lockdown and social distance essentially lead to losses in manufacturing, supply, trade, investment, and employment. Spending by governments and the private sector will be affected by the pandemic. As consumers will react to the crisis by shifting demand to specific products and online orders. At the same time, governments have to intervene to overcome the negative impact of COVID-19 on the economy using different policy tools. Government expenditure can be used as a tool to control the spread of the pandemic. This paper explores the impact of the coronavirus pandemic on spending whether by the private or public sectors, by employing a random effect panel regression analysis and GMM model using quarterly data over the period from 2019 to 2021 for 37 OECD countries. The results indicate that the pandemic, indexed by WUPI, has a positive and significant impact on government expenditure and a negative impact on private sector consumption spending.

Keywords: Coronavirus pandemic, private consumption expenditure, government consumption spending, OECD countries, GMM model

1-Introduction

Throughout history, the world has faced several challenges, that can be in the form of wars, revolutions, or the spread of contagious diseases, such as the plagues of the Medieval Era and the Great Influenza of 1918–1920, which radically changed the socio-political structure. Following the terroristic attacks of 2001 and the Global Financial Crisis of 2008, the coronavirus pandemic caused the third and largest economic and financial shock of the twenty-first century. The world is experiencing a wave of economic recession launched by the COVID-19 spread that is destroying the interdependent world. The coronavirus pandemic began in December 2019 in Wuhan, China, and is still active today. This new pandemic affects people's lives and the economic performance of all countries worldwide.

The shock results from the pandemic come with a deep recession, a suspension in production in almost all countries of the world, disruptions to the global supply chains, and a sharp reduction in demand, as well as a loss of confidence. This means that the massive spread of the virus has a negative impact on global manufacturing and supply chains. At the same time, virus-prevention efforts have hindered global economic development. The strict precautions that took place, while necessary to combat the pandemic, have thrown the economies into an unparalleled "deep freeze" from which there can be no easy or automatic way out. (Loayza & Pennings, 2020)

Policymakers all over the world are concerned with reducing the loss of life and health. However, the pandemic has triggered a global economic crisis that will continue to plague our economies for years. The outbreak of COVID-19 triggered nationwide lockdowns and was successful in limiting the number of new cases. On the other hand, when people remained at home to avoid the spread of the virus, economic activity in many countries has been slowed down. Countries' economic growth has been affected by the coronavirus. As a result, policymakers have tried to minimize the negative impacts of the pandemic by using different policy tools.

The pandemic could influence the economy in several ways. Firstly, it affects labor and human capital negatively because of the high number of confirmed cases and deaths caused by the pandemic, which then spreads the negative consequences to the economy. Secondly, a pandemic discourages consumer demand and increases preventive expenses, placing pressure on household wealth, company revenues and growth, as well as government finances. (Fu & Chang,

2021) From another point of view, a worldwide pandemic is expected to cause market and economic volatility, and vastly increased consumer uncertainty, the effects of the current COVID-19 pandemic have been enhanced due to the lack of the vaccine. During the lock-down, consumer purchases were restricted, as the global fear of infection rose, consumer behavior began to change in ways that affected the timing, breadth, and volume of purchases. Individuals may adjust their behavior in response to certain circumstances, such as natural disasters, healthcare crises, and terrorist strikes, according to survival psychology. Herd mentality, panic buying, changes in spontaneous buying habits, and investment decision-making are examples of these behavioral shifts.(Loxton et al., 2020) Third, the pandemic has had a negative impact on international trade and foreign direct investment. (Fu & Chang, 2021)

The health pandemic has resulted in adjustments in economic interests and political objectives for countries. Many countries face the problem of providing adequate health, social, and economic support for their populations in order to overcome the disaster. This has redirected government resources and policy priorities from pre-pandemic targets to new targets. Government spending should be used as a tool to control the spread of the pandemic and stimulate the economy. This means that government expenditure is one of the factors that has been highly affected by COVID-19. The ability of governments to cover the increased costs of COVID-19 and to finance future fiscal stimulus has been affected by their ability to acquire funds. (UNICEF, 2021)

Government spending is an important aspect of economic growth, but pandemics put a burden on public revenue. With COVID-19 still raging, it is informative to investigate how pandemics impact consumption spending by the private and public sectors. The main objective of this paper is to identify to what extent the coronavirus pandemic affected both government and private final consumption expenditure in OECD countries using quarterly data over the period from 2019: q1 to 2021: q4. The random effect and the GMM models will be used to achieve this objective. The rest of this paper includes six additional sections. Section two surveys several studies covering the coronavirus's impact on different economic aspects. Section three shows the mechanism of how pandemics affect government expenditure. Section four summarizes the key policy responses of the OECD countries to combat the pandemic. Section five displays the data sources,

the econometric strategy that will be applied, and the main findings of the study. Finally, the last section concludes the paper.

1. Literature Review

Liu et al. (2020) examined the impact of COVID-19 on household consumption in China. The study uses data from the China Household Finance Survey (CHFS) and finds that household consumption during the pandemic period decreased substantially. Further analyses of the heterogeneity reveal that the pandemic is reducing urban household consumption; moreover, rural households are less impacted. Online payments can ensure the efficiency of transactions and make consumption easier. Electronic or mobile payments further facilitate the consumption of urban households after the pandemic, while households in rural areas remain unaffected.

Demiessie (2020) studied the short-term impact of the COVID-19 uncertainty shock on macroeconomic stability in Ethiopia, using WUPI as a proxy for the pandemic uncertainty shock. The dynamic Stochastic General Equilibrium (DSGE) model has been used to estimate the impact of the pandemic on core macroeconomic variables like investment, employment, inflation, etc. According to the study's findings, the COVID-19 influence on Ethiopia's economy lasts at least three years. Since the Ethiopian economy relies significantly on imports from abroad, and due to the COVID-19 lockdown, the supply of foreign products will be negatively affected. It is also anticipated that the pandemic will cause a destabilization of the economy by affecting aggregate demand, prices of commodities, investment, and jobs.

Fu & Chang (2021) examined the impacts of pandemics on government and public health expenditures using a sample of panel data for 14 countries covering the period 2000-2018. The study analyzed the effects of pandemics on public health costs and public spending by utilizing data over the previous twenty years on the three major pandemics (SARS, H1N1 and EVD). The main findings of the study indicate that pandemics contribute to a rise in government health costs, but they cannot have a statistically significant beneficial influence on total government spending.

Green & Loualiche (2021) estimated the extent to which spending by state and local governments responds to fiscal pressures and how this affects the balanced budget requirements. This study focused on the response of public employment to the pandemic in the short run in the

US. The main findings of this study indicate that a large portion of public sector layoffs was due to the fiscal pressure induced by the pandemic. This negative impact can be minimized if the government can generate enough income to prevent borrowing to finance non-capital expenditures. This means that countries that suffer from budget deficits are more likely to be exposed to an economic contraction in the short run.

González-Bustamante (2021) discussed the coronavirus pandemic and the subsequent government early reaction in eight countries in South America. To that end, this study examined measures and actions taken by governments to control the negative impact of the pandemic. The main findings of this paper suggest that increased healthcare spending and pressure on the healthcare system prompt the government to respond with stringent actions. A counter-intuitive conclusion is that a country's economic strength slows such actions.

Goswami et al. (2021) explored the macroeconomic effects of the COVID-19 pandemic and its containment measures on states and eight union territories in India. The paper employs a panel regression analysis using state-level monthly macroeconomic data from April to November 2020. It can be noticed that the distribution of the virus differed across states. The panel regression indicates that states with a higher spread of the virus and unfavorable economic conditions prior to the pandemic, have a considerably higher economic loss and vice versa.

Makin & Layton (2021) analyzed the overall fiscal response to the COVID-19 crisis. This paper highlights the potential macro-economic challenges resulting from the high levels of public debt that have been created by the COVID-19 crisis, which concluded that fiscal consolidation would be required to deal with the unprecedented fiscal legacy of the crisis rather than any more fiscal stimulus. As fiscal relief is directed toward the supply side, fiscal stimulus measures are directed toward increasing aggregate demand. The fiscal relief measures will be suitable to deal with short-term unemployment.

Feng et al. (2021) investigated the effect of COVID-19 and the related government response policies on exchange rate volatility in 20 countries from January 13 to July 21, 2020, using a GMM estimate. The main results of this paper indicate that an increase in confirmed cases results in a significant increase in exchange rate fluctuations. Government measures such as school closures, controls on internal travel, and public awareness drives enacted in reaction to the pandemic have reduced exchange rate volatility. Moreover, policy responses introduced by

governments since the pandemic, including income support and structural interventions, have a restricting impact on exchange-rate fluctuations.

Duan et al. (2021) assessed the economic consequences of the COVID-19 pandemic at both the national and industrial levels using the CGE model in China. The main findings of this paper show that the pandemic may result in a reduction in China's economic growth and final consumption in 2020 by 3.5% and 4.4% respectively. The service sector is the most affected sector by the pandemic, with a detrimental productivity effect of 14.6%. Though in 2021, the most affected sector is the manufacturing sector. This paper reveals that the actions were taken by the government to overcome the negative impact of the pandemic play a key role in decreasing the potential economic damage.

Ho & Gan (2021) investigated the effects of health pandemics on FDIs based on a sample of 142 countries over the period from 1996 to 2019 using a Generalized Method of Moments model. The main findings of this study indicate that pandemic uncertainty has a significant impact on foreign companies' actions and causes a decrease in inward FDI flows to the host countries. Moreover, FDI is more vulnerable to pandemic shocks in emerging countries and the Asia-Pacific area than in other countries. Pandemic uncertainty might have a negative effect on employment and GDP.

Louhichi et al. (2021) explored the impact of government policy measures on the COVID-19 outbreaks. To achieve this objective, daily data for the period from January-April 2020 for 49 countries have been analyzed. The study shows that the size and scope of government intervention are limited. Working and school suspensions in emerging economies negatively affect liquidity, while new coronavirus awareness campaigns promote trade.

2. Influence Mechanism

Concerning private sector consumption, coronavirus restrictions have affected daily life activities such as eating out, leisure travel...etc. Because of the lockdown, as well as uncertainties regarding the virus transmission, people have been afraid of spending on these sorts of social events. As customer uncertainty and panic rose all over the world, people began to construct product categories that they considered necessary such as sanitizers, baking materials, dry goods, and gloves. At the same time, people have been directed to online demand as a substitute for

offline demand. After the lockdown period ends spending on social events' activities has recovered quickly. (Loxton et al., 2020)

At the same time, the capacity of governments to secure whatever they need efficiently has become a popular issue since the COVID-19 outbreak drove countries across the world to scramble to get stocks of everything from ventilators and protective gloves to infrastructure like tented hospitals. The COVID-19 pandemic put enormous fiscal pressure on many nations, necessitating more spending to minimize the pandemic's health, economic, and social repercussions while government revenues were declining. Governments are responding to these economic difficulties with a variety of measures, including more borrowing and spending adjustments. Government spending is affected by the pandemic through the following channels:

The first channel is human health. A young person who is infected has the chance of dying early and may not live to see old age. As a result, governments have to make preventive investments in order to reduce the negative impact of infectious illnesses. This means that the government has to intervene by increasing spending on healthcare and social support programmes. (Chakraborty et al., 2010)

Secondly, the pandemic has had a severe impact on individual productivity at work. For instance, infectious illnesses have a clear and direct impact on labor productivity by limiting workers' capacity to work. Also, the pandemic's impact on quality of life will be unfavorable as a result of employment loss. The coronavirus outbreak and lockdown negatively affect individuals and firms by reducing their income. As a result, income levels, labor supply, and other inputs into the economy will fall, creating a poverty trap. Poverty induced by infectious illnesses will alter economic entities' investment behavior. In the long run, the poverty trap produced by infectious illnesses may lead to stagnating economic growth, and this in turn will affect government spending. (Ngonghala et al., 2014; Xiang et al., 2021)

The third transmission channel is the government arrears. Governments are responding to budgetary challenges by increasing borrowing and reducing spending. Many countries face problems with limited fiscal space and poor management of public spending. As a result, they may be forced to expand domestic borrowing or appeal to the international community for concessional financing or debt relief due to a lack of choices from their own resources. This might lead to a buildup of government expenditure arrears. Government expenditure arrears are

financial liabilities incurred by any level of government but not paid by the due date. (Ciminelli et al., 2019; UNICEF, 2021)

Fourth, the Coronavirus outbreak has had a significant impact on educational activities globally, resulting in widespread school closures. Many nations across the world closed schools as part of the global campaign to combat COVID-19. School closures due to the coronavirus have created additional issues, such as how to convert to online and at-home learning. Poor infrastructure, such as networks and a lack of digital skills, hampered online education. As a result, the government has to increase investment in infrastructure to meet the new requirements. (Onyema et al., 2020)

The entire amount spent by the government in response to the pandemic is unlikely to be known. This is because the pandemic's expenses include not just new programmes to directly address the virus's impacts, but also increased indirect costs connected with huge changes in society and people's behavior. It can be concluded that the overall consequences of disease outbreaks can have a dampening effect on economic growth and government expenditures, and that government spending is redirected away from the productive sector to restrict and eradicate disease outbreaks.

3. Key policy responses from the OECD

The coronavirus was declared a pandemic by the World Health Organization (WHO) on March 11, 2020. Over 100 countries have been affected by the outbreak, which has resulted in more than 100,000 infections worldwide. Most European nations and the United States have witnessed an accelerating spread of infections and immense pressure on their health systems in the second half of March. While in Europe and the US, cases began to increase dramatically, and severe efforts to combat the pandemic and to try to limit the infection were undertaken. ((González-Bustamante, 2021)

Two main strategies that can be developed are mitigation and suppression. Mitigation aims at slowing, but not necessarily stopping, the spread of epidemics. Suppression attempts to stop the spread of the epidemic, reduce the number of cases, and keep it at a low level for as long as possible. Suppression is accompanied by social isolation of the whole population, home isolation

of patients, and household quarantine of their family members. This may need to be complemented by school and university closures. (Ferguson et al., 2020)

Furthermore, the government enforced lockdowns and put limitations on physical distance, shutting down entertainment, restaurants, and recreational outlets as well as office-based jobs in many industries. Mandated government lock-down measures have caused recessions during pandemics worldwide. ((Makin & Layton, 2021)

Policymakers face several challenges while dealing with the pandemic. The first policy issue is to help decrease the health disaster. The second issue is reducing the negative impacts of containment and mitigation efforts on individuals and companies. A third challenge will be to promote economic recovery and guarantee that crisis recovery is as quick as feasible. The final challenge is to increase the resilience of health and economic systems. (O'Reilly et al., 2020)

Due to the implementation of the mandated government lockdown and social distance, the number of new infections was effectively reduced by lockdowns. On the other hand, however, economic activity in many nations slowed as people stayed at home to avoid the spread of the virus. The problem caused by the health pandemic and the subsequently mandated government lockdown has resulted in both supply and demand shocks. These actions have decreased output, caused supply shocks, and lowered corporate and domestic demand in combination with the global health crisis. The initial immediate impact of shutdowns might lead to a decrease in both output and spending for consumers.(Alfano & Ercolano, 2020; OECD, 2020; Vidya & Prabheesh, 2020)

The COVID-19 pandemic puts pressures on public budgets that are impossible to anticipate and quantify in advance. OECD countries have agreed to act as "last-resort insurers" for companies and households. (Moretti D., D. Boucher, 2021) The recent coronavirus epidemic has placed governments across the OECD under significant pressure to provide emergency assistance to the healthcare system, families, and other segments of the economy that have temporarily stopped production. Almost all OECD countries moved quickly to mobilize additional financial resources. According to the Organization for Economic Cooperation and Development, it takes 26 days on average for a nation to respond to its first registered case. Following this initial reaction, OECD countries' budget interventions grew in size and scale as the sanitary, fiscal, and social consequences of COVID-19 became clear. (OECD, 2021)

To tackle the crisis, governments have established a set of budgetary policies. The most important measures include (i) increased health and medical expenditure; (ii) significant support for temporary unemployed persons or self-employed persons; (iii) support for liquidity through a delay of social security and taxation payments for enterprises and self-employed persons. These efforts have been further supported by the reinsurance programme for short-term commercial credit insurance and other socio-economic initiatives.

The governments gradually lifted the lockdown, removing many limitations on confinement and reopening business. Border crossings were restored, and the cross-border traffic virtually returned to pre-crisis levels. Working hours were then restored to their pre-pandemic level for government and non-governmental businesses. (IMF, 2020)

The economy is projected to begin rebounding in the second half of 2020, as fears about the pandemic fade and state and local governments remove stay-at-home orders, prohibitions on public gatherings, and other measures. The labor market is expected to recover substantially from the third quarter, with hiring rebounding and job losses decreasing significantly as the degree of social distance decreases. However, those gains will not be sufficient to compensate for previous losses. Because of decreased economic activity and unfavorable labor market circumstances, the inflation rate will stay relatively high until 2021. (Congressional Budget Office, 2020)

However, most OECD nations did not suffer extensive periods of high unemployment during the third and fourth quarters of 2020 and the first quarter of 2021, which are attributable to national income and wage maintenance programmes. As several developed economies begin to recover, central banks and national governments are weighing the impact of reducing monetary and fiscal support due to worries about possible inflationary pressures against the risk of delaying the recovery. (Jackson et al., 2020)

The fiscal policy reaction to the health pandemic has resulted in massive budget deficits throughout the world and has raised public debt levels. These high levels of public debt will negatively affect a country's credibility, put higher pressure on borrowing rates, and risk an unstoppable breakout of inflationary pressure in the future. In the absence of significant budget reform, the government's debt will continue to rise. The increased public debt adds to the

uncertainty and implies that present levels will be maintained, hindering future investment and productivity. (Makin & Layton, 2021))

To sum up, the new coronavirus epidemic has adversely affected economic activity via several supply and demand channels. By increasing uncertainty, the pandemic may potentially have a tremendous impact on economic activity. The final length and extent, however, remain unsure and depend on the capability of public health to prevent the spread of the virus. (Sarker, 2020)

4. Methodology

4.1 Data

This study aims to examine the impact of the coronavirus pandemic on consumption spending whether by the government or the private sector using quarterly time series data for the period from 2019: q1 to 2021: q4 for 33 OECD countries. Data on GDP per capita, final private consumption expenditure and the total population have been collected from the database of the OECD countries. With respect to the number of confirmed cases as a proxy for the coronavirus pandemic, data has been collected from JHU CCSE, the University of Johns Hopkin's. The second variable that can be used as a proxy for the coronavirus pandemic is the World Uncertainty Pandemic Indicator (WUPI), which was constructed by Ahir et al. in 2020. This index was developed using data from the Economist Intelligence Unit (EIU), in order to establish a comparative measure of uncertainty in policy in different nations. (Fang et al., 2020)

4.2 Model Specification

The effect of COVID-19 on OECD countries' public and private final consumption expenditure is examined using a panel data econometric approach. Adjusting time series for individual heterogeneity is only one of the many benefits of using panel data, along with more informativeness, greater variability, fewer instances of collinearity across variables, more degrees of freedom, and improved efficiency. (Yunitaningtyas et al., 2019) The pandemic affects private consumption as has been mentioned in earlier sections and also puts the budget under pressure because of its adverse consequences on government revenue and therefore increases the budget deficit.(Kum et al., 2019) This means that private consumption expenditure and government expenditure can be expressed as functions of the number of confirmed cases of coronavirus and WUPI, as illustrated in equations (1) and (2).

$$PC = f(Covid, WUPI) \quad (1)$$

$$Gov = f(Covid, WUPI) \quad (2)$$

According to economic theory, in periods of high uncertainty which is caused by the pandemic, companies postpone investment and employment decisions, while consumers increase their precautionary savings. As a result, private demand has dropped sharply. Then, the government can effectively intervene to overcome this problem by increasing government spending. Also, the higher spread of the virus will cause an increase in government spending depending on the level of the country's public debt and fiscal space. From another point of view, pandemic uncertainty and spread will negatively affect the economic growth of any country, and hence government spending will be negatively affected. (Goemans, 2020; Kum et al., 2019)

Several control variables that can affect government spending and private consumption have been added, GDP per capita, and total population. Then, equations (1) and (2), respectively, can be written as:

$$Gov = f(Covid, WUPI, GDP, POP) \quad (3)$$

$$PC = f(Covid, WUPI, GDP, POP) \quad (4)$$

Where PC stands for private final consumption, Gov is government consumption expenditure, Covid stands for the number of confirmed cases of coronavirus, WUPI is World Uncertainty Pandemic Indicator, GDP is per capita gross domestic product and POP is the total population.

Equations (3) and (4) can be represented in explicit form as:

$$Gov_{it} = \beta_0 + \beta_1 Covid_{it} + \beta_2 GDP_{it} + \beta_3 WUPI_{it} + \beta_4 POP_{it} + \mu_{it} \quad (5)$$

$$PC_{it} = \alpha_0 + \alpha_1 Covid_{it} + \alpha_2 GDP_{it} + \alpha_3 WUPI_{it} + \alpha_4 POP_{it} + \varepsilon_{it} \quad (6)$$

As a first stage, equations (5) and (6) can be estimated using fixed, random and/or pooled effects specifications can be used. However, these models may provide biased results whenever faced with endogeneity issues. Subsequently, the identical specification for a first-difference analysis will be used to circumvent the endogeneity issue. This means that a generalized method of moments can be used.

5. Estimation Results

The coefficients used in econometric research take on different values at different points in time and space. If the estimated values were to surpass the total number of estimations, the model could not be estimated. Based on the variation in the error terms and coefficients, alternative assumptions might be made in studies that use panel data analysis. Fixed-effect, random-effect, and pooled (common-effect) models are all valid categories here. (Sezar & Abastz, 2016)

It is important to determine if a pooled, fixed, or random effect model should be employed prior to estimating the model. That's why a Hausman test is necessary. The Hausman test is used to determine whether the error term is uncorrelated with unobserved effects. (Mulamba, 2009). Under the null hypothesis, it is assumed that the error term is unrelated to the non-observable effects. If the null hypothesis is accepted, it suggests that the fixed-effects model is inappropriate for the data, and that the model with random effects is the more suitable one. (Abdel Fattah, 2017; Akbar et al., 2011) It can be concluded from the Hausman test, as shown in table (1) and table (2), that the random effect is more suitable for both private sector and public sector consumption expenditure illustrated in equations (5) and (6).

The next step is to determine whether the common effect or the random effect is more applicable.

This necessitates performing a Lagrange multiplier test. The Lagrangian multiplier test proposed by Breusch and Pagan is used to evaluate conditional heteroskedasticity in linear regression. The estimated residual variance and its relationship to the independent variable are analysed. The null hypothesis states that there is no significant difference in the error variances. The alternate hypothesis postulates that the error variance of certain variables is multiplicative. An OLS model is inappropriate when the null hypothesis is rejected, hence a random effects model is used instead. (Akbar et al., 2011; Cooreman, 2019)

The results of the Lagrangian multiplier test indicate that the null hypothesis will be rejected, which means that the random effect is more appropriate to be used, as shown in table (1) and table (2). Then, it can be concluded that the Random Effect Model (REM) will be regarded as the best appropriate model to explain the relationship between the coronavirus pandemic and final

spending whether by the private sector or government since the random effects model is selected over the fixed effects model and the random effects model is recommended over the pooled OLS model.

A further issue that must be considered is endogeneity. Therefore, some of the explanatory elements, like GDP, may be endogenous, and ignoring this endogeneity may provide an inaccurate conclusion. The endogeneity issue will be solved by using a GMM.

Table (1): Results of equation (5) using Random-effect and GMM models

Variable	Random – Effect model		Dynamic GMM model	
	Coefficient	Probability	Coefficient	Probability
LOG(GOV(-1))	-	-	0.720985	0.0000
LOG(GDP)	0.723871	0.0000	0.228490	0.0000
LOG(POP)	0.139191	0.0263	-0.016871	0.8556
WUPI	0.000665	0.0001	0.000382	0.0000
CONFIRMED/1000000000	0.002762	0.5686	0.033604	0.3000
C	0.682422	0.1788		
R-squared	0.724			
Hausman – test	0.0000			
LM Breusch-Pagan	1857.695			
Sargan test (prob)			0.574	
AR(2) (prob)			0.9923	

It can be noticed from the results of the estimated random effect and GMM models in table (1) that WUPI has a positive and significant impact on government expenditure in both models. The number of confirmed cases has a positive but insignificant impact on government expenditure in both models. This means that uncertainty due to the pandemic and the outbreak of the pandemic will cause an increase in government expenditure in the OECD countries. The main reason behind this is that when pandemic interventions are made, governments transfer budget expenditures from other projects to pandemic management when putting a pandemic plan into action.

It can also be concluded that GDP per capita has a positive and significant impact on government spending in both models. The population has an insignificant impact in both models.

Table (2) demonstrates the results of the impact of the coronavirus pandemic on private sector consumption expenditure using both random-effect and GMM models, illustrated in equation (6).

Table (2): Results of equation (6) using Random-effect and GMM models

Variable	Random – Effect model		Dynamic GMM model	
	Coefficient	Probability	Coefficient	Probability
Log(PC(-1))	-	-	0.135642	0.0000
LOG(GDP)	0.940382	0.0000	0.987147	0.0000
LOG(POP)	0.090188	0.0463	0.122704	0.4080
WUPI	-0.000233	0.0699	-0.000370	0.0000
CONFIRMED/1000000000	0.001538	0.6404	-0.024820	0.3718
C	-0.691613	0.0136		
R-squared	0.9105			
Hausman – test	0.0000			
LM Breusch-Pagan	1748.516			
Sargan test (prob)			0.49	
AR(2) (prob)			0.999	

It can be concluded from the results of the GMM that the signs are identical to the results of the random-effect model for all variables except for the number of confirmed cases. The results indicate that the world pandemic uncertainty index has a negative and significant impact on private sector consumption expenditure. The number of confirmed cases has an insignificant impact. GDP per capita and the total population have positive impacts on private consumption.

6. Conclusion

The coronavirus pandemic is one of the greatest global challenges that has destroyed economies worldwide. It has had the greatest impact on the economy since the Great Depression, at least in the short run. The drastic consequences of the pandemic give it the power to constantly alter countries' political and economic frameworks. The measures implemented to address the crisis will have a significant impact on the duration of the recession and the depth of the recovery. Government expenditure can be used as an instrument to reduce the spread of the pandemic and recover the economy. This paper aims to examine to what extent the coronavirus pandemic affects private and government spending in OECD countries using quarterly data over the period from 2019 to 2021.

In this paper, random effect, GMM and the panel quantile regression models have been applied to investigate the effect of coronavirus pandemic on both private sector and public sector consumption expenditure. The health pandemic proxied by WUPI has a positive and significant impact on government consumption spending and a negative impact on private sector

consumption spending. With respect to the private sector, increased uncertainty caused by the pandemic leads to a reduction in spending. Moreover, governments will spend more money to increase investors' confidence in the economy and reduce uncertainty.

The health pandemic brought huge fiscal pressure on several countries, necessitating increasing government expenditure while revenues are decreasing. Governments are addressing these fiscal challenges through a variety of methods, including more borrowing and spending cuts. In order to avoid fiscal pressure, appropriate cash management mechanisms should be in place to prioritize payments when cash resources are insufficient to mitigate the risk associated with increasing government spending over government revenues.

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- **Conflict of Interest**

The author certifies that she has NO affiliations with or involvement in any organization or entity with any financial, or non-financial interest in the subject matter or materials discussed in this manuscript.

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