A Markov regime-switching (MS) approach to modeling the effects of fiscal policies and COVID-19 pandemic on tourism destination competitiveness in Kenya

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Abstract

Purpose – The COVID-19 pandemic has had a catastrophic impact on the tourist activity in Kenya. Global lockdown has limited travel resulting to losses in the tourism sector. This paper discusses the specific role that fiscal policy plays to improve tourism competitiveness in Kenya. Specifically, the study examines how Kenyan government can revive the tourism economy to improve its competitiveness.

Design/methodology/approach – A tourism demand model to explore relationship between fiscal policies and inbound tourism in Kenya is developed. This study uses a Markov regime-switching (MS) regression model to establish the relationships that exist between COVID-19 pandemic, fiscal policies and tourism revenue in Kenya.

Findings – The estimation results of the Markov-switching dynamic regression showed that the coefficients of international tourists arrivals, domestic bed occupancy and international bed occupancy are positive and significant with p-values of 0.000 during the pandemic period. The findings show that the transitioning periods during the fiscal policy shifts had an effect on the international arrivals. Therefore, fiscal incentives were key in influencing tourism arrivals and bednights occupancies.

Research limitations/implications – The theoretical implications show that to promote the state of high international and domestic tourist arrivals, the government should encourage more fiscal spending initiatives that encourage the increase in tourist arrivals and occupancies such as vaccinations against COVID-19 and promoting safe spaces for visitors within the destination is key towards reviving the sector. In order to curb the hysteresis effects of COVID-19 related depression and resultant impacts on GDP, there is a need to review the national fiscal policies and target fiscal policies on the cyclical effects of the COVID-19 impacts on international tourism market.

Originality/value – This research develops an economic model that builds accurate relationships between fiscal policies, pandemics and tourism destination competitiveness as a means of informing competitive tourism management strategies and governance.

Keywords Markov regime-switching, Tourism destination competitiveness, Fiscal policy, Tourism economics, Kenya

Paper type Research paper

Introduction

Globally, the COVID-19 pandemic not only created a health crisis but it has created an economic crisis that has ravaged markets, slowing down economic productivity and disrupting global trade and tourism sectors. The OECD (2020a) economic outlook similarly projected that the COVID-19 pandemic would trigger an economic recession for both the developed and developing economies. According to the International Monetary Fund World Economic Outlook, global GDP had declined to 4.9% in 2020 (IMF, 2020a), and this global contraction had significant effects on the tourism economies within the remittance dependent

developing countries (Gupta *et al.*, 2021). According to the OECD (2020b), the pandemic triggered demand shocks from the European and OECD countries as well as supply shocks for both domestic and intraregional trade and tourism, therefore, having devastating impact on trade and tourism in African context. In turn, these measures contributed to heightened unemployment as well as an increase in poverty rates. Developing economies were in turn in greater need for strong fiscal support to address the economic impacts of COVID-19 pandemic as well as finance the achievement of Sustainable Development Goals (SDGs) (Mogaji, 2020; Alon *et al.*, 2020; Rodela *et al.*, 2020). The COVID pandemic triggered lockdowns, movement control orders and other pandemic suppression measures that contributed to a halt of the contact-intensive services sectors, reduced labor participation and sharp reduction in economic activity. In the poor developing countries, the adverse shocks of the COVID crisis precipitated a humanitarian crisis, worsening the poverty situation and widening the debt crisis (Loayza and Pennings, 2020). Much of the priorities of governments around the world were bolstering social safety nets through tax policy changes during the pandemic period. In response to the current state of economic losses, governments focused on national fiscal policies to address the unique contexts as result of the COVID crisis.

In the African context, the COVID-19 pandemic made evident of a weakened health system and capacity as well as triggered a financial crisis of unprecedented levels (Girón and Correa, 2021). The COVID pandemic has elevated social inclusion in policy agendas despite the reduction in the levels and extents of SDG and development spending by the countries in the developing world (OECD, 2020c; IMF, 2020b). Many of these African countries have been declared ineligible for development assistance with tax to GDP ratios of less than 17.2%, debt-to-GDP ratios of 60%, inflation levels at an all – time high of 10.4% and fiscal deficits estimated at a historical high of 8.4% of the GDP (IMF, 2020b; African Development Bank, 2021). However, for these countries, the fiscal policy continues to play a very important role for inclusive recovery of the economy. A recent study by the African Union on the impacts of the COVID-19 pandemic on Africa's economy notes that the tourism and travel sector could lose at least USD 50 billion as well as at least 8 million jobs in the sector, if fiscal measures are not adequately taken (African Union, 2020). In the African context, variety of fiscal measures was taken in the tourism sector to address the economic impacts of COVID-19 pandemic. These measures according to African Development Bank (2021) predominantly focused on supporting the health sector, debt resolution, governance and sustainable development. In Kenyan context, the focus of fiscal reforms was fiscal consolidation and economic support programs to reduce firm mortality due to the unpredictable nature of the COVID-19 pandemic. In addition to the financial consolidation plan, the government aimed at borrowing KES 271 billion, or 2.2% of GDP, through external financing and the remaining amount through domestic borrowing. This was in addition to short term measures of reducing income taxes from 30% to 25%, VAT from 16% to 14% as well as corporate turnover taxes from 3% to 1% for MSME. These measures initially played an important role towards building economic shocks for the sector, (Government of Kenya, 2020). This study seeks to model the effects of these fiscal policies and COVID-19 pandemic on tourism destination competitiveness in Kenya.

Literature review and theoretical implications
The concept of fiscal policy
Fiscal policy has been conceptually defined as the use of Government spending to influence the economy (Horon and El-Ganainy, 2020). Expansionary fiscal spending during the COVID-19 pandemic has been seen to be instrumental towards addressing the productivity shocks caused by collapsing supply chains and global crises (Benmellech and Tzur-llan, 2020). Various theories have made theoretical expositions surrounding the efficacy of fiscal policies. The Keynesian

effect as well as the scarring and hysteresis effects of public debt has shown that fiscal policies are key towards mitigating the effects of unemployment due to financial crises (Dombi and Dedak, 2019). The World Bank reports on the scarring and hysteresis effects of steep recessions have shown that fiscal policies during the great recession caused by the COVID-19 pandemic and subsequent impacts on 65 middle income countries has had a significant impact on productivity losses (World Bank, 2021). Several studies have evidenced the positive effects of fiscal policy on the level and rate of endogenous economic growth (Easterly and Robelo, 1993; Kopits and Symansky, 1998). Indeed, external debt financing was critical for developing countries to address the public revenue deficits occasioned by disasters, crises and conflicts (Aybarc, 2018). Arestis and Sawyer (2003) specifically noted that there has been a growing shift in macroeconomic policy focusing on the potency of fiscal policy during crises to offset the major declines in aggregate demand. Empirical investigations have further elaborated that fiscal stimulus packages have an effect on tax redistribution, demand stimulation and reducing living standards (Mankiw, 2000; Perotti, 1999). Fiscal considerations in terms of government debt has evidently contributed to the slowing down of economic recession (Coenen *et al.*, 2012; Tcherneva, 2011), short-term macroeconomic stabilization (Debrun and Kapoor, 2010), promoting strong sustainable and endogenous economic growth (Bohn, 2008) and also dealing with poverty in developing countries. Feliziani and Monni (2012) in a study on the role of fiscal policies in increasing competitiveness in the Italian tourism sector established governance weaknesses in enhancing competitiveness of the sector. Steel and Harris (2020) further noted that lower income countries needed to focus post COVID-19 fiscal policies on long-term recovery than short-term recovery measures. In a bid to examine the efficacy of the fiscal policy measures, Khalid *et al.* (2021) noted that the size of the tourism sector has an influence on the nature of the economic policy response to the pandemic. Further, Millaku *et al.* (2021) confirmed that the prioritization of fiscal reforms had an effect on tourism recovery measures in Kosovo during the post COVID era. Savić *et al.* (2021) noted that fiscal policy was important in recovering tourism demand in the short-run. However, according to AZMI *et al.* (2021) in order to stabilize the effects of the fiscal impacts in the long-run, there is need to sustain the income generating potential of the nation. Therefore, there was need to study the long-term effects of fiscal reforms on tourism recovery measures.

Fiscal policies in the post-pandemic tourism context

From a public policy perspective, there has been emerging neoliberal perspectives questioning the concentration of wealth as well as interrogating the social perspectives of capitalism during and after pandemics (Giron and Correa, 2021; Solorza, 2021). The COVID-19 pandemic brought about unprecedented fiscal responses with a fiscal spending of $11 trillion worldwide (Gaspar and Gopinath, 2020). Further, the COVID-19 crisis forced most governments to apply countercyclical fiscal policies (Tian, 2021), therefore validating the macroeconomic arguments of Kalecki and Keynes of using public spending as an instrument of last resort to substitute private spending (Lopez and Assous, 2010). Indeed, the unprecedented fiscal responses by governments as a result of the pandemic raised a number of issues amongst which was the impacts of fiscal policies on tourism recovery in a post-pandemic context. A cross-country comparison of fiscal policy government responses to the COVID-19 pandemic indicates that the fiscal policies globally varied in terms of fiscal policy targets, the economic situation during the pandemic, fiscal capacities, size of fiscal spending as well as the fiscal policy tools (IMF, 2021; Chen *et al.*, 2021). Studies on fiscal policies during pandemic eras establish that liquidity assistance programs as most effective fiscal measure in addressing the economic impacts of the pandemic (Faria-e-Castro, 2021; Di Pietro *et al.*, 2020). Despite the fact that most post COVID-19 fiscal interventions sought to establish a balance between the government receipts, expenditures and public debt ratio to GDP, moments of austerity and lower taxes due to the COVID-19 pandemic

brought in employment support challenges as well as income reduction for most governments (Heald and Hodges, 2020). However, according to Dela Santa (2017), there have been need to focus on fiscal incentives such as credit support and lower taxes for tourism recovery in order to realize meaningful gains in the sector as has been in the Philippines.

Methodology

A Markov regime-switching (MS) regression tourism demand model was used to explore relationship between fiscal policies and inbound tourism in Kenya. It was used to establish the relationships that exist between COVID-19 pandemic, fiscal policies and tourism revenue in Kenyan context. MS models are time-series models in which parameters are free to change in each of a set number of regimes. The model includes a stochastic process that is presumed to have caused the regime shifts, allowing for model-based projections that take into account the likelihood of future regime shifts (Piger, 2009). Regime switching models can be classified into two types: Threshold and Markov switching. Tong (2012) proposed the threshold model, which assumes that regime transitions are caused by the level of observed variables in relation to an unobserved threshold. A Markov chain is a discrete stochastic process in which the probability of various future events is determined solely by the current state of the system or the immediately previous state (Gagniuc, 2017). Examples of states include recessions and expansions, high and low volatility, depressed and non-depressive states, epidemic and non-epidemic states. Hamilton (1989) presented the first application of the MS models in economics, in the analysis of business cycles. He used data on gross domestic product growth rates and fitted the following autoregressive model where the error term is conditionally normally distributed:

$$(y_t - \mu_{st}) = \beta_{st}(y_{t-1} - \mu_{st-1}) + \varepsilon_t,$$

In this paper, we use an MS time series approach to modeling the effects of fiscal policies and COVID-19 pandemic on tourism destination competitiveness in Kenya. Variables were transformed into their natural logarithm, which makes series variability more equal resulting in a more symmetric distribution (Tsunga, 2020). We consider a model with Kenya's international tourist arrivals (ITA) as the dependent variable and COVID-19 pandemic dummy as the independent variable. The dummy had a value of one (1) from quarter four 2019 (when COVID-19 started) to date and a value of zero from the period before quarter four 2019. We used quarterly data from quarter one 2010 to quarter four 2021. We follow (Perles Ribes *et al.*, 2015) and use a Markov-switching model where the sub index "*ri*" is an indicator of the corresponding regimes:

$$lnTR = \alpha + \beta_{1ri}lnITA + \beta_{2ri}lnDBO + \beta_{3ri}lnIBO + \delta_{1ri}COVID19 + \varepsilon$$

Where;

$LnTR$ is the natural logarithm of tourism revenue;

$LnITA$ is the natural logarithm of international tourist arrivals;

$LnDBO$ is the natural logarithm of domestic tourists' bed occupancy;

$LnIBO$ is the natural logarithm of international tourists' bed occupancy.

To make moderately skewed data more normally distributed or to achieve constant variance, the variables were transformed in to natural logarithms. Natural logarithm of variables helps to respond to skewness of large values and also to show percent change of the variables (Lütkepohl and Xu, 2012). The COVID-19 pandemic is captured by a dummy variable with the onset of the outbreak detected at the end of 2019.

Data type and descriptive statistics

The study used secondary data sourced from the websites of the World Bank and the Kenya ministry of tourism. The study used 44 observations from quarter one 2010 to quarter four 2021. Table 1 shows the summary statistics. The summary statistics were tabulated yearly from 2010 to 2021. The mean of ITA was 1,528,261 tourists for the study period with a standard deviation of 54,124.84. The lowest or minimum tourist arrivals were 567,848 which was reported in the year 2020 while the maximum tourist arrivals was 2,048,834 tourists in the year 2019. The mean of tourism revenues was 1.6 billion dollars with a standard deviation of 415,000,000. The minimum or lowest tourism revenue was 440,500,000 USD which was reported in the year 2020 while the maximum was 2,004,000,000 USD reported in the year 2019. The mean of bed occupancy was 3,115,086 for domestic tourists and 3,520,077 for international tourists with a standard deviation of 1,011,096 and 987,687, respectively. The lowest or minimum bed occupancy was 1,204,650 for domestic tourists and 1,085,550 for international tourists. These were reported in the year 2020 when the effects of the COVID-19 pandemic were at the peak. This was also the period occasioned by travel restrictions which greatly affected the hotel industry. The maximum bed occupancy 4,818,600 for domestic tourists reported in the year 2019 and 4,411,800 for international tourists reported in the year 2011.

Initial bed occupancy data observations as indicated by Figure 1 above shows that domestic tourism activity in Kenya has been increasing since 2010 and despite the drop in tourism numbers as a result of the COVID-19 pandemic. Initially, international bed occupancy

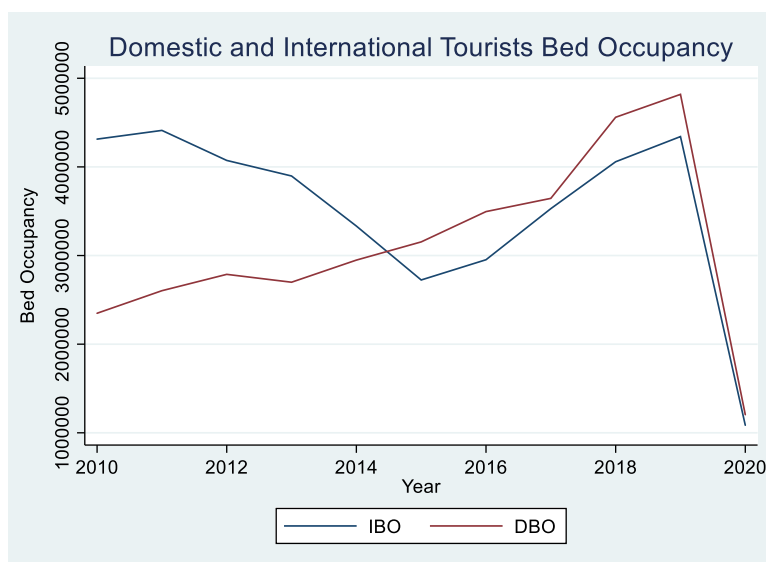| Variable	Mean	Std. Dev.	Min	Max
Tourism revenue (in USD)	1,610,000,000	±415,000,000	440,500,000	2,004,000,000
Domestic bed occupancy	3,115,086	±1,011,096	1,204,650	4,818,600
International bed occupancy	3,520,077	±987,687	1,085,550	4,411,800
International tourist arrivals	1,528,261	±416,728	567,848	2,048,834

Table 1.
Summary statistics

Figure 1.
Domestic and international tourists bed occupancy (DBO and IBO)

levels were higher than the domestic bed occupancy levels. However, the domestic bed occupancy levels have been increasing gradually and by 2015, domestic bed occupancy level had exceeded the international bed occupancy levels. This indicates that domestic tourism activity is able to spur growth in Kenya.

Findings and discussion

The estimation results of the Markov-switching dynamic regression are reported in Table 2. The entire variables have the expected signs. The coefficients of international tourists' arrivals, domestic bed occupancy and international bed occupancy are positive and significant with p-values of 0.000. This implies that international tourists' arrivals, domestic bed occupancy and international bed occupancy have a positive effect on tourism revenue in Kenya. This is indicative of the fact that increases in tourism have an effect of boosting the economy through tourism revenue. The coefficient of COVID-19 is negative and significant (p-value of 0.000). This implies negative effects of the pandemic to the economy. The table also displays the elements of the first $k - 1$ rows of the transition matrix, where k is the number of states as well as the means and standard deviations.

The State 1 is the modest state and has a mean of 11.94% while State 2 is the high form and has a mean of 12.09%. The high rate state Table 2 shows the transition probabilities of switching low ITA or high ITA. p11 is the projected probability of the tourism sector staying in state 1 in the next period. Table 3 contains the probabilities of switching from one state to another.

Sample: 2010q1 - 2020q3						No. of jobs $= 43$	
Number of states $= 2$						AIC $= -3.3543$	
Unconditional probabilities: transition						HQIC $= -3.2184$	
Log likelihood $= 81.11838$						SBIC $= -2.9857$	
LnTR	Coef.	Std. Err.	z	$p>\|z\|$		[95% Conf. Interval]	
LnTR							
LnITA	0.029836	0.006444	4.63	0.0000		0.0172055	0.0424657
LnDBO	0.151712	0.025075	6.05	0.0000		0.1025667	0.2008571
LnIBO	0.433142	0.020967	20.66	0.0000		0.3920473	0.4742373
COVID19	−0.10875	0.027393	−3.97	0.0000		−0.162442	−0.0550635
State 1							
_cons |	11.94991	0.218164	54.77	0.0000		11.52232	12.37751
State 2							
_cons	12.09434	0.215482	56.13	0.0000		11.67201	12.51668
sigma	0.030719	0.003361				0.0247902	0.0380644
p11	0.96987	0.031738				0.7929746	0.996317
p21	0.069039	0.055253				0.013567	0.285642

Table 2.
Markov-switching dynamic regression

Table 3.
Probabilities of switching from one state (either low tourist revenues or high tourist revenues) to another in one period of time to the next period

From/to state	1	2
1	0.96987	1–0.96987
2	0.069039	1–0.069039

The estimate of 0.96987 implies that state 1 is highly tenacious. Similarly, p21 shows the probability of transitioning to state 1 from state 2. The probability of staying in state 2 is therefore 1–0.069039 = 0.930961, which implies that state 2 is also highly visible.

Conclusion and recommendations
In conclusion, the findings showed how international visitor arrivals patterns change over time, characterized by an exogenous shock, namely the COVID-19 pandemic. The study showed that Kenya switches between two states of high and low tourist revenues and both states are persistent. This means that when we are in any one of the states, the probability of moving out of these states is very low. The theoretical implications show that to promote the state of high international and domestic tourist arrivals, the government should encourage more fiscal spending initiatives that encourage the increase in tourist arrivals and occupancies such as vaccinations against COVID-19 and promoting safe spaces for visitors within the destination is key towards reviving the sector. In order to curb the hysteresis effects of COVID-19 related depression and resultant impacts on GDP, there is need to review the national fiscal policies and target fiscal policies on the cyclical effects of the COVID-19 impacts on international tourism market. Additionally, the government should focus more on preventive measures as well as opening the borders to allow international travel during such outbreaks. This could restore mobility and encourage border crossings, thereby increasing tourism. However, further research is key towards modeling the long-term impacts of fiscal policies on the tourism economy in developing countries context.

References
African Development Bank (2021), "African economic outlook 2021. From debt resolution to growth: the road ahead for Africa", African Development Bank, available at: https://www.afdb.org/en/knowledge/publications/african-economic-outlook.

African Union (2020), "Impact of the COVID-19 on African economy", African Union, available at: https://au.int/sites/default/files/documents/38326-doc-covid-19_impact_on_african_economy.pdf.

Alon, T., Kim, M., Lagakos, D. and VanVuren, M. (2020), *How Should Policy Responses to the COVID-19 Pandemic Differ in the Developing World? (No. w27273)*, National Bureau of Economic Research, available at: https://www.nber.org/system/files/working_papers/w27273/w27273.pdf.

Arestis and Sawyer (2003), "Reinventing fiscal policy", *Journal of Post Keynesian Economics*, Vol. 26 No. 1, pp. 3-25, doi: 10.1080/01603477.2003.11051388.

Aybarc, S. (2018), *Theory of Public Debt and Current Reflections, Ublic Economics and Finance*, Bernur Açıkgöz, IntechOpen, doi: 10.5772/intechopen.82730, available at: https://www.intechopen.com/chapters/65684.

Azmi, F.A., Zainudin, A.Z., Jaafar, M.N., Wan Ismail, W.I.F. and Amdan, M.A. (2021), "Towards stabilizing the economic impact of COVID-19 through fiscal policy in Malaysia", *Geopolitics Quarterly*, Vol. 17, Special Issue, pp. 90-107.

Benmelech, E. and Tzur-Ilan, N. (2020), *The Determinants of Fiscal and Monetary Policies during the COVID-19 Crisis (No. W27461)*, National Bureau of Economic Research, Working Paper 27461, available at: http://www.nber.org/papers/w27461.

Bohn, H. (2008), "The sustainability of fiscal policy in the United States", in Neck, R. and Sturm, J.E. (Eds), *Sustainability of Public Debt*, MIT Press, Massachusetts, pp. 15-49, doi: 10.7551/mitpress/9780262140980.003.0002.

Chen, C., Shi, Y., Zhang, P. and Ding, C. (2021), "A cross-country comparison of fiscal policy responses to the COVID-19 global pandemic", *Journal of Comparative Policy Analysis: Research and Practice*, Vol. 23 No. 2, pp. 262-273, doi: 10.1080/13876988.2021.1878885.

Coenen, G., Straub, R. and Trabandt, M. (2012), "Fiscal policy and the great recession in the euro area", *American Economic Review*, Vol. 102 No. 3, pp. 71-76.

Debrun, M.X. and Kapoor, R. (2010), *Fiscal Policy and Macroeconomic Stability: Automatic Stabilizers Work, Always and Everywhere*, International Monetary Fund, London.

Dela Santa, E. (2017), "Fiscal incentives for tourism development in the Phillipines: a case study from the policy networks and advocacy coalition framework", *Tourism Planning and Development*, Vol. 15 No. 6, pp. 615-632.

Di Pietro, M., Marattin, L. and Minetti, R. (2020), "Fiscal policies amid a pandemic: the response of Italy to the COVID-19 crisis", *National Tax Journal*, Vol. 73 No. 3, pp. 927-950.

Dombi and Dedak (2019), "Public debt and economic growth: what do neoclassical growth models teach us?", *Applied Economics*, Vol. 51 No. 29, pp. 3104-3121, doi: 10.1080/00036846.2018.1508869.

Easterly, W. and Rebelo, S. (1993), "Fiscal policy and economic growth", *Journal of Monetary Economics*, Vol. 32 No. 3, pp. 417-458.

Faria-e-Castro, M. (2021), "Fiscal policy during a pandemic", *Journal of Economic Dynamics and Control*, Elsevier, Vol. 125 No. C, doi: 10.1016/j.jedc.2021.104088, available at: https://ideas.repec.org/a/eee/dyncon/v125y2021ics0165188921000233.html.

Feliziani, V. and Monni, S. (2012), "Towards new tourism policies: the role of fiscal policy in increasing competitiveness", *Tourism Review International*, Vol. 16 Nos 3-4, pp. 227-237.

Gagniuc, P.A. (2017), *Markov Chains: From Theory to Implementation and Experimentation*, John Wiley & Sons, Hoboken, NJ.

Gaspar, V. and Gopinath, G. (2020), "Fiscal policies for a transformed world", *IMF Blog*, Vol. 10, available at: https://www.joserobertoafonso.com.br/wp-content/uploads/2020/10/Vitor-Gaspar-and-Gita-Gopinath-published-by-IMF-.pdf.

Giron, A. and Correa, E. (2021), "Fiscal stimulus, fiscal policies and financial stability", *Journal of Economic Issues*, Vol. 55 No. 2, pp. 552-558, doi: 10.1080/00213624.2021.1915083.

Government of Kenya (2020), "Presidential address on the state interventions to cushion Kenyans against economic effects of COVIDS-19 pandemic on 25th March, 2020", Government of Kenya, available at: https://www.president.go.ke/2020/03/25/presidential-address-on-the-state-interventions-to-cushion-kenyans-against-economic-effects-of-covid-19-pandemic-on-25th-march-2020/.

Gupta, A., Zhu, H., Doan, M.K., Michuda, A. and Majumder, B. (2021), "Economic impacts of the COVID– 19 lockdown in a remittance-dependent region", *American Journal of Agricultural Economics*, Vol. 103 No. 2, pp. 466-485.

Hamilton, J.D. (1989), "A new approach to the economic analysis of nonstationary time series and the business cycle", *Econometrica, Econometric Society*, March, Vol. 57 No. 2, pp. 357-384.

Heald, D. and Hodges, R. (2020), "The accounting, budgeting and fiscal impact of COVID-19 on the United Kingdom", *Journal of Public Budgeting, Accounting and Financial Management*, Vol. 32 No. 5, pp. 785-795.

Horon, M. and El-Ganainy, A. (2020), "Fiscal policy: taking and giving away", *International Monetary Fund*, available at: https://www.imf.org/external/pubs/ft/fandd/basics/fiscpol.htm.

IMF (2020a), "Word Economic Outlook: a long and difficult ascent", *International Monetary Fund*, available at: https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020.

IMF (2020b), "Special series on COVID-19: tax policy for inclusive growth after the pandemic, international monetary Fund fiscal affairs", available at: https://www.imf.org/-/media/Files/Publications/covid19-special-notes/en-special-series-on-covid-19-tax-policy-for-inclusive-growth-after-the-pandemic.ashx.

International Monetary Fund (2021), "Policy responses to COVID-19: country policy tracker", available at: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19.

Khalid, U., Okafor, L.E. and Burzynska, K. (2021), "Does the size of the tourism sector influence the economic policy response to the COVID-19 pandemic?", *Current Issues in Tourism*, Vol. 31 No. 1, pp. 1-20.

Kopits, M.G. and Symansky, M.S.A. (1998), *Fiscal Policy Rules*, International Monetary Fund, London.

Loayza, N. and Pennings, S.M. (2020), *Macroeconomic Policy in the Time of COVID-19: A Primer for Developing Countries*, World Bank Research and Policy Briefs, (147291), available at: https://pdfs.semanticscholar.org/743b/8cc6b118771cc8a0621931851b6d456b49e0.pdf.

Lopez, J.G. and Assous, M. (2010), *Michal Kalecki: Great Thinkers in Economics*, Palgrave Macmillan, London.

Lütkepohl, H. and Xu, F. (2012), "The role of the log transformation in forecasting economic variables", *Empirical Economics*, Vol. 42 No. 3, pp. 619-638.

Mankiw, N.G. (2000), "The savers-spenders theory of fiscal policy", *American Economic Review*, Vol. 90 No. 2, pp. 120-125.

Millaku, B., Kuqi, B., Elezaj, E. and Shala, S. (2021), "Challenges of recovery in the tourism sector after COVID-19", *Knowledge International Journal*, Vol. 45 No. 1, pp. 107-111.

Mogaji, E. (2020), "Financing vulnerability during a pandemic: insights for coronavirus disease (COVID-19)", Research Agenda Working Papers, Vol. 2020 No. 5, pp. 57-63, available at: https://www.researchgate.net/profile/Emmanuel-Mogaji/publication/340347190_Financial_Vulnerability_During_a_Pandemic_Insights_for_Coronavirus_Disease_COVID-19/links/5e945a204585150839d97aaa/Financial-Vulnerability-During-a-Pandemic-Insights-for-Coronavirus-Disease-COVID-19.pdf.

OECD (2020a), *OECD Policy Responses to Coronavirus (COVID-19): the Impact of the Coronavirus (COVID-19 Crisis) on Development Finance*, OECD, available at: https://www.oecd.org/coronavirus/policy-responses/the-impact-of-the-coronavirus-covid-19-crisis-on-development-finance-9de00b3b/.

OECD (2020b), *COVID-19 in Africa: Socio-Economic Implications and Policy Priorities*, OECD Development Centre, available at: https://www.oecd.org/coronavirus/policy-responses/covid-19-and-africa-socio-economic-implications-and-policy-responses-96e1b282/.

OECD (2020c), *The Impact of the Coronavirus (COVID-19) Crisis on Development Financing*, OECD Development Centre, available at: https://www.oecd.org/coronavirus/policy-responses/the-impact-of-the-coronavirus-covid-19-crisis-on-development-finance-9de00b3b/.

Perotti, R. (1999), "Fiscal policy in good times and bad", *The Quarterly Journal of Economics*, Vol. 114 No. 4, pp. 1399-1436.

Perles Ribes, J.F., Ramón-Rodríguez, A.B. and Rubia Serrano, A. (2015), "Economic crisis and tourism competitiveness in Spain: permanent effects or transitory shocks?", *Current Issues in Tourism*, Vol. 19 No. 12, pp. 1210-1234, doi: 10.1080/13683500.2013.849666.

Piger, J. (2009), *Econometrics: Models of Regime Changes*, Springer, New York, NY, doi: 10.1007/978-1-4419-7701-4.

Rodela, T.T., Tasnim, S., Mazumder, H., Faizah, F., Sultana, A. and Hossain, M.M. (2020), "Economic impacts of coronavirus disease (COVID-19) in developing countries", SocArXiv Papers - Economic Impacts of COVID-19: Working Paper Series, available at: https://osf.io/preprints/socarxiv/wygpk/.

Savić, N., Lazarević, J., Vjetrov, A. and Marinković, E. (2021), "Serbian economy recovery in the post COVID-19 era: cluster approach", *Ekonomika preduzeća*, Vol. 69 Nos 3-4, pp. 243-259.

Solorza, M. (2021), "Responsible fiscal policy and economic development: a challenge for Latin America after the COVID-19", *International Journal of Political Economy*, Vol. 50 No. 3, pp. 198-211.

Steel, I. and Harris, T. (2020), *Covid-19 Economic Recovery: Fiscal Stimulus Choices for Lowerincome Countries*, ODI Briefing note, ODI, London, available at: https://odi.org/en/publications/covid-19-economic-recovery-fiscal-stimulus-choices-for-lower-income-countries/.

Tcherneva, P.R. (2011), *Fiscal Policy Effectiveness: Lessons from the Great Recession*, Working paper, No. 649, Levy Economics Institute of Bard College, Annandale-on-Hudson, NY, available at: https://www.econstor.eu/bitstream/10419/56991/1/65483119X.pdf.

Tian, W. (2021), "How China managed the COVID-19 pandemic", *Asian Economic Papers*, Vol. 20 No. 1, pp. 75-101.

Tong, H. (2012), *Threshold Models in Non-Linear Time Series Analysis*, Vol. 21, Springer-Verlag, New York.

Tsunga, K.R. (2020), *Modelling Export Growth in South Africa with a Focus on Third-Country Effects and Stock Market Liquidity*, (Doctoral dissertation), available at: https://ukzn-dspace.ukzn.ac.za/bitstream/handle/10413/19363/Tsunga_Kudzanai_Richard_2020.pdf?sequence=1&isAllowed=y.

World Bank (2021), *The Scarring and Hysteresis Effects of Steep Recessions and the Implications for Fiscal Policy in ECA Transition EMDEs*, World Bankl, available at: https://openknowledge.worldbank.org/handle/10986/9.

Further reading

Rossouw, S., Greyling, T. and Adhikari, T. (2021), *New Zealand's Happiness and COVID-19: A Markov Switching Dynamic Regression Model (No. 573 [rev.])*, GLO Discussion Paper.

Soh, A.N., Chin-Hong, P., Arip, M.A. and Tai-Hock, K. (2019), *Oil Price and Fijian Tourism Cycle: A Markov Regime-Switching Model*.

Song, Y. and Woźniak, T. (2020), *Markov Switching*, arXiv: Econometrics, New York, doi: 10.1093/acrefore/9780190625979.013.174.

Tomal, M. (2021), "Modelling the impact of different COVID-19 pandemic waves on real estate stock returns and their volatility using a GJR-GARCHX approach: an international perspective", *Journal of Risk and Financial Management*, Vol. 14 No. 8, p. 374.

UNDP (2021), *Analysing Long-Term Socio-Economic Impacts of COVID-19 across Diverse African Context*, UNDP Regional Bureau for Africa, available at: https://www.africa.undp.org/content/rba/en/home/library/reports/analysing-long-term-socio-economic-impacts-of-covid-19-across-di.html.

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