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COVID-19: RECESSION, POVERTY AND INEQUALITY AND REDISTRIBUTION

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ABSTRACT

In this paper, author attempted to show the recessionary impact of COVID-19 including a fall of HDI, increase in unemployment, burden of diseases, fiscal deficit with high debt burden. Increase in poverty and inequality were other effects of COVID-19 which were exclusively shown by author. Redistribution of income from the studies of eminent economists were incorporated by author with great care.

Keywords: COVID-19; Recession; Poverty; Inequality; Distribution of Income

INTRODUCTION

Every dimensions and sectors of the economy have been damaged by COVID-19 pandemic. It's a great disaster which has created endless crises. Health care system became surprised and helpless. This pandemic creates worldwide recession. The world economy has changed structurally. Income-wealth, consumption-expenditure, production-exchange reshuffled. New analysis is required for redistribution patterns. Human capital, human development indices, inequality showed great shifts. Technology and innovations failed to do all necessities. Maintenance of livelihood is a great stress to poverty-stricken people. Daily labour is in trouble with hunger. Worldwide lock down has stopped production and distribution system. Domestic and international trade remain suspended with no communication. This environment is quite new to everybody who have been shivering with the fear of death. The situation is more severe than the world wars. The economic loss surpassed the damaged caused by the previous wars and financial crises.

Dimensions of Post-COVID-19

Coronavirus disease 2019 has changed the world causing hundreds of thousands of deaths, shutting down economies, stopping international borders and causing huge damages of the economy on an unprecedented scale. It has raised insufficiency of healthcare services and personnel to the brink in many economies and has provoked countries' deep interest into medical researchers in the short and in the long run. More than 20,000 thousand medical research papers were published from December 2019 to October 2020 in the prestigious journals in which women contributed a few only and the quality of the papers were not up to the mark. In the field of medical research, existing gender inequalities, social, racial and economic health disparities during the COVID-19 had remarkable influence in all sectors of the economy because the virus changed the impact of the disease itself and even its reaction to the pandemic towards the long run.

UN Women response focuses on five priorities on COVID-19 crisis such as [i] Gender-based violence including domestic violence have been reduced and mitigated, [ii] Social protection and economic stimulus packages fulfilled the gender demand, [iii] people shared equally for care works, [iv] In planning and decision-making areas women and girls participated and took the leads, [v] Data and coordination mechanism should fill the gender perspectives.

Global impact of COVID-19 requires the urgent need of international institutional cooperation where the roles of WHO, IMF, World Bank, UN Refugee Agency, WFP, UNDP, World Tourism Organisation, UNCTAD, UNICEF, International Civil Aviation Organisation, ILO, and WTO are very much important in the fields of disaster, crises, protecting human rights, fiscal stimulus packages, aid programme, protect from unemployment crisis, gender disparities, poverty and hunger, to support service delivery system, advocacy communications, international medical cooperation initiatives and so on.

Selection of choices during the crisis, preparation for collective action, political cohesion, delivery management, and health care managerial efficiency considering world economy for a single nation are the crucial areas for action in securing inclusive economic growth during the period of COVID-19.

The COVID-19 has transformed the world economy into a new order in the shape of structural shifts, changed the nature of development finance,

development assistance, correction of imbalance of power of global institutions that can call for new agenda of reform led by UNO. Institutional leaders felt for reforming Bretton Woods system, fulfilling Paris Agreement under new lights, and trying to fit debt relief process into sustainable development goals and so on. Poverty, inequality, hunger, unemployment recovery goals in accordance with security measures have been targeted into a new rescheduled programme. All economic and political thinkers after collapse of COVID-19, assumed a new world economic order as a rise of China and other changes in geo-political trends and emerging digital currency.

RESULTS & DISCUSSION

COVID-19 and Recession

The IMF has shown the impact of COVID-19 which has an adverse effect on output in which world output showed a negative growth of -4.9% in 2020, Euro Area faced output growth of -10.2%, other advanced economy will face a negative output growth of -4.8%, Asia and emerging developing countries will grew negatively at -0.8% and only China will be able to grow positive output growth of 1% in 2020. It is hopefully assumed to project that all the economies may have positive output growth during 2021 ranging from 3% to 8% respectively which may imply a v shaped recovery of GDP growth rate in 2021. It is explained clearly in table 1. The recession that had shown by IMF report had not been observed even in the great depression in 1930s.

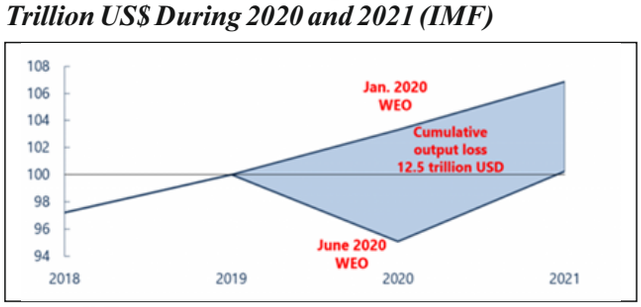
Table 1: COVID-19 and World Output Growth

World output Real GDP % per year	2019	2020 projection	2021 projection
World output	2.9	-4.9	5.4
Advanced economies	1.7	-8.0	4.8
USA	2.3	-8.0	4.5
Euro Area	1.3	-10.2	6.0
Germany	0.6	-7.8	5.4
France	1.5	-12.5	7.3
Italy	0.3	-12.8	6.3
Spain	2.0	-12.8	6.3
Japan	0.7	-5.8	2.4
United Kingdom	1.4	-10.2	6.3
Canada	1.7	-8.4	4.9
Other advanced economies	1.7	-4.8	4.2
Emerging markets and developing economies	3.7	-3.0	5.9
Emerging and developing Asia	5.5	-0.8	7.4
China	6.1	1.0	8.2
India	4.2	-4.5	6.0
ASEAN5	4.9	-2.0	6.2
Emerging and developing Europe	2.1	-5.8	4.3
Russia	1.3	-6.6	4.1
Latin America and the Caribbean	0.1	-9.4	3.7
Brazil	1.1	-9.1	3.6
Mexico	-0.3	-10.5	3.3
Middle East and central Asia	1.0	-4.7	3.3
Saudi Arabia	0.3	-6.8	3.1
Sub-Saharan Africa	3.1	-3.2	3.4
Nigeria	2.2	-5.4	2.6
South Africa	0.2	-8.0	3.5
Low income developing countries	5.2	-1.0	5.2

Source - IMF

In figure 1, the world economic outlook of IMF had shown where the upward straight line of world output is the business-as-usual growth rate but the line from 2019 to 2020 and from 2020 to 2021 is the v shaped output growth which resembled that the shaded region constituted 12.5 trillion US$ cumulative loss of world output due to COVID-19.

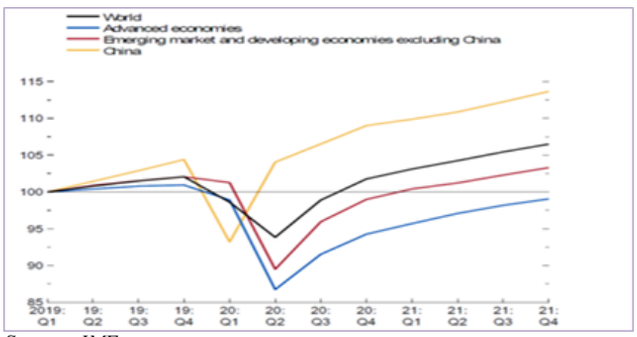
Figure 1: Cumulative Output Losses Account $12 Trillion US$ During 2020 and 2021 (IMF)



Source - IMF

In figure 2, it is vividly shown that China's recovery is swifter than the world but the emerging market and the developing economies and the advanced economies lie below the world average recovery.

Figure 2: V Shaped Recovery

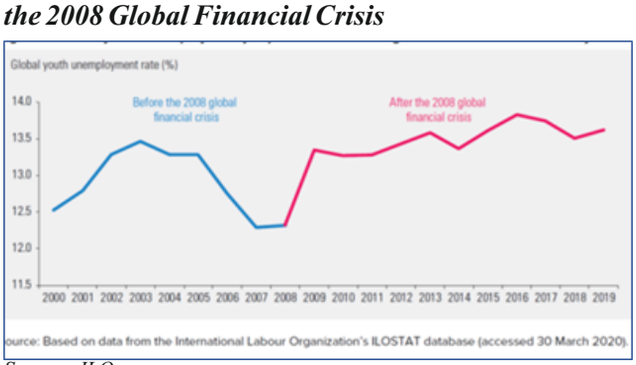


Source - IMF

The ILO has estimated the impact of COVID-19 on the employment in which it was observed that the 130 million is full time job loss in 2020Q1 which will catapult to 300 million in 2020Q2. The 80% of 2 billion informally employed women workers will significantly affected. And low skill workers have no work from home. On the other hand, IMF calculated that the global trade would decline by -3.5% per year because of shut down and global inflation will fall by 1.2% to 4.2% due to fall in aggregate demand. UNDP estimated that the value of job lost is expected to be 10 trillion US$. There will be limited job creation in growing sectors where the young people unemployment will increase, the college workers job will decline, employment for low-skill workers will fall and there will be a decrease of employment of daily wage earners.

Before the global financial crisis, the global youth unemployment declined after reaching a peak but after financial crisis the youth unemployment had been moving upswing continuously and had no sign of declining tendency till 2019 and is expected to peak a high level due to the impact of COVID-19. It is shown in Figure 3 below.

Figure 3: Global Youth Unemployment Jumped after the 2008 Global Financial Crisis



Source - ILO

Global debt burden has increased in 2020 and 2021 unprecedently as a result of huge fiscal deficit of the world. In 2019, the fiscal deficit of G-20 was -4.5% of GDP which catapulted to -15.4% of GDP and is expected to be -9.1% in 2021 which in turn rise debt burden to 105.2% of GDP in 2019 which increased to 131.2% of GDP and is expected to be 132.3% of GDP in 2021. Similarly, fiscal deficit of Euro Area in 2019 was -0.6% of GDP which accelerated to -11.7% of GDP in 2020 and is expected to -5.3% of GDP in 2021 that induced to debt burden 84.1% of GDP in 2019 which increased to 105.1% of GDP in 2020 and is expected to 103.0% of GDP in 2021. The impact in emerging economies in fiscal deficit and debt burden are somehow lower that the above, i.e., fiscal deficit in EME was -4.9% of GDP in 2019 which increased to -10.6% in 2020 and -8.5% of GDP in 2021 which effected to debt burden to 52.4% of GDP in 2019 which rose to 63.1% and 66.7% of GDP in 2020 and 2021 respectively. USA's fiscal deficit and debt burden also were mounting, e.g., fiscal deficit was -6.3% of GDP in 2019 which increased to -23.8% and -12.4% of GDP in 2020 and 2021 which affected debt burden as 108.7% of GDP in 2019 that increased to 141.4% in 2020 and 146.1% of GDP in 2021. In brief, fiscal deficit increased at a higher rate due to COVID-19 which affected a huge debt burden that could not be reduced till 2021 in the world economies. It is shown in the table 2.

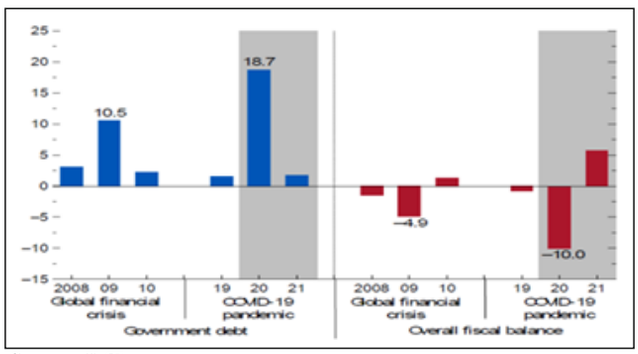
Table 2: Global Debt Burden and Fiscal Deficit (IMF)

	FD (% GDP)			GROSS DEBT (% GDP)		
	2019	**2020**	**2021**	**2019**	**2020**	**2021**
World	-3.9	-13.9	-8.2	82.8	101.5	103.2
G-20	-4.5	-15.4	-9.1	105.2	131.2	132.3
USA	-6.3	-23.8	-12.4	108.7	141.4	146.1
EA	-0.6	-11.7	-5.3	84.1	105.1	103.0
EME	-4.9	-10.6	-8.5	52.4	63.1	66.7
LDC	-4.1	-6.1	-5.1	43.1	48.2	49.0
Oil country	-1.0	-8.4	-5.5	45.1	56.1	56.6

Source - IMF

Global fiscal deficit and debt burden in post COVID-19 have surpassed by financial crisis 2008. In the regime of financial crisis, the fiscal deficit was -4.9% of GDP but the fiscal deficit in the COVID-19 regime was -10.0% of GDP. The debt burden in financial crisis was 10.5% of GDP in comparison to 18.7% of GDP in post COVID-19 era. This is shown in the figure 4 below.

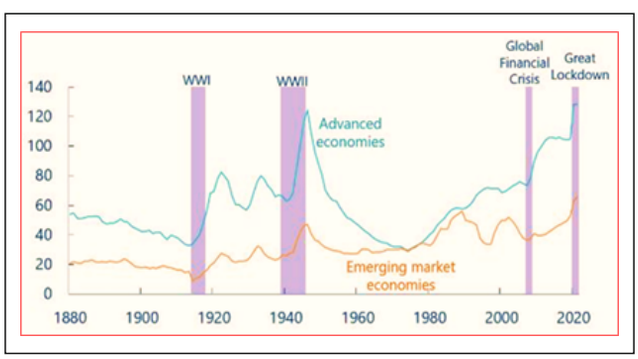
Figure 4: Financial Crisis, Fiscal Deficit and Debt Burden and COVID-19



Source - IMF

The global public debt has been falling from 1880 up to the first world war for both the advanced and emerging economies but in the period of second world war, their debt burdens reached peak in 1940 where both had been declining up to 1980 and afterwards both have been moving upswing during global financial crisis and reached peak in the global lockdown in 2020. It is seen in the figure 5.

Figure 5: Global Public Debt is Expected to Exceed the post- WW-II Peak (Debt % GDP)



COVID-19 has disrupted the global Financial market in the downswing in the following manner which are marked in the following heading.

[1] A spike of volatility in equity market signals higher uncertainty

[2] Increasing uncertainty credit spreads have widened across market

[3] Financial conditions indices tightened (standard deviation from mean)

[4] Govt. bond yields have dropped sharply as investors readjust rate expectations

[5] Bank equity prices falling after COVID-19

COVID-19 and Poverty and Inequality

The impact of COVID-19 in world economy on poverty is unprecedented because the poor became poorer, their income declined to a larger extent since there was no work as daily labor, casual labor, wage earners due to lock down in shops and factories etc. Therefore, income inequality and inequality of opportunity may worsen across nations.

According to the UNDP estimates, it was found that

[1] the global per capita income fell by 4%

[2] 40-60 million people will fall into extreme poverty (SSA highest)

[3] Value of job lost = 10 trillion US$

[4] 265 million people will face hunger

[5] ILO says more than 400 million people risk sliding into poverty because they are forced to rely on informal job

[6] Without health care, 100 million will fall into extreme poverty.

Research indicates that five major Pandemics viz SARS, HINI, MERS, EBOLA, ZIKA in last 17 years led to increase inequality; the Gini is above its pre-shock level by about 1.25% i.e., inequality worsened after the above pandemic.

In 2012, top 20% accounts 47% consumption share while bottom 20% accounts only 6%, so, the gap is 41%. Then after five years of COVID-19 i.e., in 2025-26, this gap will increase to 43.5%.

More affluent class have more power to consume durable goods, housing, entertainment health care, education etc. which will enhance inequality in near future because the poor are forced to cut consumption expenditure massively in COVID-19 and post-COVID-19 era.

The study of Abedi *et al.*, (2020) revealed that COVID-19 is an inequality virus since COVID-19 positive cases are in the poorest 60% and in the richest 35%.

Therefore, to combat emerging disparity in health impact for COVID-19 needs policy of equal access of medical facilities. Due to COVID-19, the gender inequality tends to high since unemployment and livelihood condition of 600 million women in India will be worse. World bank estimated that 55% women have no health access in the world.

UNDP estimated that 107 million are multi-dimensionally poor people aged 60 and above for COVID-19. Even, 490 million people in 70 countries will fall in Multi-dimensional Poverty due to increasing

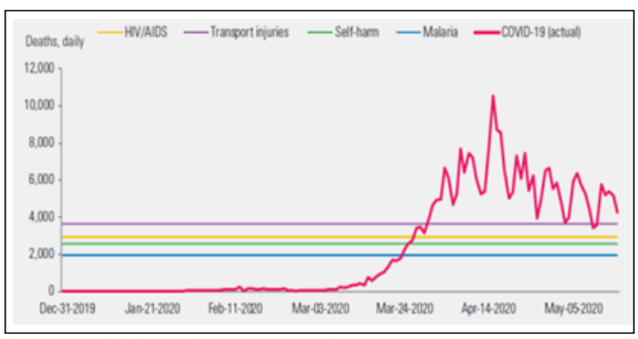
deprivation which implies MPI will increase from 0.095 to 0.125 in 2020, and HDI will fall by 0.020% due to COVID-19 as reported by UNDP. In figure 6, the annual change in human development index have plotted from 1990 to 2020 where the change is cyclical although the change is declining in last 8 years and it became negative which also states that global burden of diseases due to COVID-19 reach on 30th April and then started to decline although it is cyclical.

Figure 6: COVID-19 and HDI

Source - UNDP

UNDP also endeavored to show that the global burden of diseases due to COVID-19 reach peak on 30th April, 2020 and then started to decline although it is cyclical. It implies that the daily death has been increasing as an effect of COVID-19, but after April 30, the rate of death entered slow rate i.e., the burden of disease slowed down. It has a direct impact on HDI and inequality. High burden implies high inequality with low HDI. It is seen in figure 7.

Figure 7: Global Burden of Diseases



Source - HDR Office Calculations, 2020

Burden of disease due to impact of COVID-19 is also significant in the race or community of indigenous people throughout the world. The impact is unequal since there is significant income inequality and other economic and social access inequalities with the other communities. Wright (2020) emphasised some policy issues for the indigenous community in which the most important tasks are to recognise, authorise, inclusion for representation, provide supports, educate them on hygiene, physical distance, quarantine and prevention of the tribes providing in cooperation, access them pure water, food, shelter, education, sanitation and medical facilities, ensure data on infection, mortality, economic impacts, care burden, and incidence of violence, including gender-based violence from them.

Gamblin (2020) reported that more than 20 indigenous people died out of 1100 COVID-19 cases in Salt Lake City, San Jose and Seattle as on April 14, 2020 due to suffering from hunger, living in unhealthy places, lack of clean water, without access of medicine etc. Indigenous communities experience higher rates of heart disease, high blood pressure, diabetes, and other chronic illnesses which weaken their immune system and increases the likelihood of contracting the virus. The loss of many jobs, both on and off tribal land, may also increase the racial unemployment and income divides. The Indigenous unemployment rate is significantly higher than the white unemployment rate in both good and bad economies.

The issues of poverty, dimensions of poverty, regional differences of poverty as an impact of COVID-19 have shown new research areas in multi-dimensional poverty because the intensity and basic poverty line have been changed. Sumner, Ortiz-Juarez, & Hoy (2020) estimated post-COVID-19 poverty in the world taking $1.90 per day as poverty line and found that additional 80.1 million poor people will be added in the world with 1.1% increase in headcount ratio in comparison with pre-COVID-19 regime where the author estimated that world poverty consists of 807.5 million poor with 11.0% head count rate. It mentioned that 80-395 million poor will fall into extreme poverty but the figure will be 124-527 million when poverty line is assumed $5.50 per day. It also mentioned that 80-395 million poor will fall into extreme poverty but the figure will be 124-527 million when poverty line is assumed $5.50 per day.

Valensisi (2020) assessed using the data of IMF on global poverty that global poverty will increase by 68 million in 2020 assuming $1.90 per day as poverty line. Based on $3.20 per day as poverty line, world poor has increased 142.2 million and head count index has risen by 1.8% in post COVID-19 period. But the world poor has increased by 68.6 million along with 0.9% increase in headcount index in post COVID-19 period according to poverty line of $1.90 per day.

According to poverty line $5.50 per day, headcount index of world poverty increased by 1.9% with 148.1 million increment of poor people in which East Asia

and Pacific showed 1.9% increase in headcount index and 41.7 million increase of poor, Europe and Central Asia performed an increment of 7.8 million poor with 1.6% increase in headcount index, Latin America and Caribbean pulled up 16.5 million poor and 2.5% headcount index, Middle East and North Africa showed 14.4 million increment of poor with 3.6% increase in headcount index, South Asia has shot up 52.3 million poor with 2.8% increase in headcount index and Sub-Saharan Africa showed 13.9 million increase in poor and 1.2% increase in headcount index respectively (World Bank, 2020).

On behalf of John Hopkins University, Centre for System Science and Engineering, Oronce *et al.*, (2020) examined the relation between state level inequality and COVID-19 in UK using Spearman Rank-Order Correlation test and multivariate regression assuming Gini index as the inequality and took log transformed number of cases and deaths due to COVID-19 taking data between 22.1.2020 and 13.4.2020 for 50 states in USA. The authors found that states with higher income inequality experienced higher number of deaths or the states with higher Gini index experienced a higher number of death due to COVID-19 where the correlation between Gini index and number of cases was 0.38 (prob= 0.006) and the correlation between Gini index and deaths was 0.44 (prob=0.002) respectively.

Chen & Krieger (2021) estimated COVID-19 death rates (per capita) that are almost twice as high for poverty rates over 20% as for those under 5%. The gradient in death rates is even steeper (a factor of almost six) between the category with the highest percentage of the non-white population versus the lowest. More generally, large disparities in health outcomes along racial lines are well-documented. Black Americans have substantially lower life expectancy and higher infant mortality than other racial groups (Bond & Herman, 2016).

Picon *et al.*, (2020) estimated the regression equation between COVID-19 cumulative incidence rate and per capita income of 32 regions of Brazil from 7th April to 13th April 2020 for 2323 observations of the residence on their sex, age, no. of cases, per capita income based on 2010 census of 159 neighbours. Authors applied Shapiro-Walk Test with z statistic of 8.63 and 828 with probability of 0.001 and also used Breusch-Pagan & Look-Weishberg test (χ2=857.89 with probability less than equal to 0.001). The regression co-efficient were estimated for every five percentiles from 10th to 90th and the regression was found leftward skewed. The COVID-19 cumulative incidence rate in the city was found as 36.58 new cases per 100000 inhabitants' of 2312 new cases, of these 599 cases did not provide information regarding neighborhood of residence (34.74%) while 146 (11.83%) did not provide on age and were excluded. The Spearman Rank correlation was found as 0.524 with probability less than 0.001. The Beta coefficients of the per capita income variable also increased accordingly to percentile. Adjusted R2 increases as a function of the incidence rate percentiles while no of predicators with a statistically significant effect decreases where F= 4.18 with probability 0.003. Diseases incidence rate in Rio de Janeiro are related to per capita income regardless of other predicator. It implies that COVID-19 testing is more widely disseminated in the wealthiest regions of the city. It was found decreasing potentialities in the access to health services.

Gangemi, Billeci & Tonacci (2020) calculated Spearman Rank correlation among COVID-19 cases per 1 million and deaths from COVID-19 per 1 million with age, GDP per capita, Gini index, HDI, total fertility rate, flights used, and flight used per capita of the world data on 27th May 2020 collecting data from internet, world bank and Wikipedia. The authors found significant positive correlation of COVID-19 cases per 1 million and death cases from COVID-19 per 1 million with age, GDP per capita, HDI, fights and flights used per capita respectively and found significant negative correlation with Gini index and Total fertility rate. It implies that the rich men are at risk and the impact of COVID-19 on inequality is negative. In Table 3, the correlation coefficients are given.

Table 3: Spearman Rank Correlation

	Age	GDP per capita	Gini index	HDI	TFR	Flights used	Flights used per capita
COVID-19 cases per 1 million	0.371	0.632	-0.2	0.408	-0.328	0.211	0.520
Death COVID-19 per 1 million	0.402	0.325	-0.283	0.356	-0.277	0.20	0.190

COVID-19 and Redistribution

The COVID-19 has set a new pattern of income distribution in an individual economy as well as the world economy since source of income, hours of labour, the classification of labour have been changed into a new order. The new categories of the rich and the poor people have been emerged. The existing unequal patterns has been changed too. The distribution of gender inequality of income got its new shape. Some important studies regarding on this issue can be explained briefly.

Bonaccorsi *et al.*, (2020) explored that the variations in mobility due to disruption of connectivity tends to stronger in municipalities where average income level is lower with high income inequality so that redistribution effect is anti-poor especially after lockdown in Italy due to outbreak of COVID-19.

Chen (2020) claimed that 1.6 billion (80%) global workers out of 2 billion (61% of all workers) informal workers lost their jobs due to lockdowns. Their income drops by 60% in which 80% declined in Africa and America, 70% in Europe and Central Asia and 22% in Asia and the Pacific. The International Panel of Experts on Sustainable Food Systems (IPES-Food) expressed that COVID-19 has laid bare the underlying risks, fragilities, and inequities in global food systems, and pushed them close to breaking point.

The important study of Turgut (2020) examined the estimated regression of European Commission during 1996-2017, i.e., the author assumed that Inequality=$\alpha+\alpha i+\alpha t+\beta it$ unemployment+βt transfers+$\beta ixit+\varepsilon it$. The estimated regression results obtained by European Commission from the model is given as follows in Table 4.

Table 4: Regression Results

Variables	Coefficient	SE
Unemployment	0.096*	0.04
Transfers	-0.294*	0.06
GDP	0.896	2.53
Debt/GDP	-0.001	0.008
Inflation	0.032	0.025
Euro dummy	-0.339	0.228

**=sig at 5% level, Source - Turgut (2020)*

The result indicates that if unemployment rate increases by 1% the Gini index or income inequality increases by 0.096 units in the country. European Commission revised unemployment forecast for 2020 and predicted that Germany's rate will be from 3.4% to 4.0% and the rate of Spain will be 13.3% to 18.9% respectively. Thus COVID-19 can be expected to increase inequality in EU in 2020 by minimum of 0.06 unit in Germany and maximum of 0.54 units in Spain. Moreover, an increase in the social benefit and transfers between 2-3% of GDP in 2020 can reduce the negative impact of COVID-19 on the income inequality in EU.

O'Donnoghue *et al.*, (2020) used the EU-SILC data set on incomes, labour-market characteristics, demographics and living conditions to analyse poverty, inequality, and deprivation in Ireland to undertake a real-time analysis of the income distribution effects of the COVID-19 crisis in Ireland to identify those most likely to suffer from income losses. Author developed a calibrated microsimulation approach based upon actual data to generate counterfactual income distributions as a function of more timely external data than the underlying income surveys following the strategies of O'Donoghue, Loughrey & Morrissey (2013).

Author calculated and arranged the results in table 5 in which changes in inequality of different types of incomes during the crisis compared with the pre-crisis period were presented. The table expressed the contributions of benefits, taxes, and work-related and housing costs to these changes. The contribution of benefits to redistribution is derived as the difference in the Gini coefficients calculated for gross and market incomes. The contribution of taxes to redistribution is derived as the difference in the Gini coefficients calculated for disposable and gross incomes. The contribution of work-related and housing costs to redistribution is derived as the difference in the Gini coefficients for disposable income adjusted for work-related and housing expenditures and disposable income without these adjustments.

In table 5, it was found that inequality in market income increased by 0.103 points during the crisis as compared to the period before. On the other hand, inequality in gross income, disposable income, and disposable income adjusted for work-related and housing costs decreased by 0.009, 0.007 and 0.021 points, respectively. Among the three, the changes in benefits contributed the most to the decline in inequality, followed by the changes in work-related and housing costs. The redistributive role of taxes decreased slightly during the crisis compared with the pre-crisis period.

Table 5: Gini Coefficient before and During the Crisis (Bootstrapped Standard Errors in Parentheses)

Gini Coefficient	Market Income	Gross Income	Disposable Income	Disposable Income*
Before the crisis	0.499 (0.004)	0.355 (0.004)	0.295 (0.003)	0.317 (0.003)
During the crisis	0.602 (0.005)	0.346 (0.005)	0.288 (0.003)	0.296 (0.004)
Change	+0.103	–0.009	–0.007	–0.021
Redistribution	Benefits	Taxes	Work-related expenses and housing costs	
Before crisis	–0.144	–0.060	0.022	
During crisis	–0.256	–0.058	0.008	
Change	–0.112	+0.002	–0.014	

Source: O'Donoghue, Loughrey & Morrissey (2013)

In table 6, the changes in inequality of different types of incomes using the Theil index are shown. The results are consistent with the Gini index which showed that there exists an increase in market income inequality during the COVID-19 crisis but there exists a decrease in inequality in gross, disposable and adjusted disposable incomes due to a stronger redistributive role of public benefits and

changes in work-related and housing costs.

Table 6: Theil Coefficient before and During the Crisis (Bootstrapped Standard Errors in Parentheses)

Theil Coefficient	Market Income	Gross Income	Disposable Income	Disposable Income*
Before Crisis	0.449 (0.013)	0.225 (0.009)	0.145 (0.004)	0.171 (0.005)
During Crisis	0.668 (0.020)	0.221 (0.011)	0.141 (0.005)	0.149 (0.005)
Change	+0.219	–0.004	–0.004	–0.022
Redistribution	Benefits	Taxes	Work-related expenses and housing costs	
Before Crisis	–0.224	–0.080	0.026	
During crisis	–0.447	–0.080	0.008	
Change	–0.223	0	–0.018	

Source: O'Donoghue, Loughrey & Morrissey (2013)

Albert *et al.*, (2020) explored the impact of COVID-19 on attaining goal of a middle-class income group by poor income group of people on 2040 using simulation approach of their earlier work of Albert, Santos & Vizmanos (2018) taking 2018 FIES data assuming a v shaped recovery as predicted by IMF, and found that a growth rate of real income per capita of 2.5% per year would, on average, result in a low-income person transitioning into middle class in approximately 21.2 years if this growth rate in incomes were continuous and uniform across the population. Table 7 shows the average transition time (in years) for low-income persons to reach the middle-class income threshold.

Table 7: No. of Years for a Typical Low-Income Person to Transition into Middle Class Given Constant Annual Growth in Real Income and under Different Scenarios

Growth in household per capita income in %	Growth rate of GDP per capita (%)	Scenarios						
		Status quo	A0	A1	B0	B1	C0	C1
0.5	1.0	106.28	111.25	102.34	116.51	107.49	128.76	119.40
1.0	2.0	53.14	55.62	51.17	58.26	53.74	64.38	59.70
1.5	3.0	35.43	37.08	34.11	38.84	35.83	42.92	39.80
2.0	4.0	26.57	27.81	25.58	29.13	26.87	32.19	29.85
2.5	5.0	21.26	22.25	20.47	23.30	21.50	25.75	23.88
3.0	6.0	17.71	18.54	17.06	19.42	17.91	21.46	19.90
3.5	7.0	15.18	15.89	14.62	16.64	15.36	18.39	17.06
4.0	8.0	13.29	13.91	12.79	14.56	13.44	16.10	14.92
4.5	9.0	11.81	12.36	11.37	12.95	11.94	14.31	13.27
5.0	10.0	10.63	11.12	10.23	11.65	10.75	12.88	11.94
5.5	11.0	9.66	10.11	9.30	10.59	9.77	11.71	10.85
6.0	12.0	8.86	9.27	8.53	9.71	8.96	10.73	9.95
6.5	13.0	8.18	8.56	7.87	8.96	8.27	9.90	9.18
7.0	14.0	7.59	7.95	7.31	8.32	7.68	9.20	8.53
7.5	15.0	7.09	7.42	6.82	7.77	7.17	8.58	7.96
8.0	16.0	6.64	6.95	6.40	7.28	6.72	8.05	7.46
8.5	17.0	6.25	6.54	6.02	6.85	6.32	7.57	7.02
9.0	18.0	5.90	6.18	5.69	6.47	5.97	7.15	6.63
9.5	19.0	5.59	5.86	5.39	6.13	5.66	6.78	6.28
10.0	20.0	5.31	5.56	5.12	5.83	5.37	6.44	5.97

Source: Albert et al., (2020) calculation from 2018 FIES

Piyapromdee & Spittal (2020) studied the impact of COVID-19 on income and consumption of workers in UK using data of UK Household Longitudinal Study during 2017 and 2018 and UKHLS Supplemental COVID-19 module on income, tax, insurance, pensions, savings, household consumption etc. The paper found that lower income households had a smaller buffer between income and expenditure in the period of pandemic. Low-income households are less able to absorb income reduction than the richer households whose spending fell more than poor households because the richer spends more on luxuries.

Phillips, Mathew & Biddle (2020) estimated an econometric model of probability of receiving the two payments, conditional on demographic socioeconomic, geographic labor market characteristics in February 2020 which combined with ANU's microsimulation model of tax transfer system Policy Mod to create population level estimate of receipt of jobseekers and job-keepers under different economic and policy scenarios. Authors took data from August 2020 wave of the ANU Centre for Social Research and Methods COVID-19 impact monitoring survey. They categorized five scenarios, [i] From pre-COVID-19 to December 2020, [ii] Worst case, pre-COVID-19 to June 2020, [iii] Policy setting up to June 2020, [iv] Policy setting up to July,2020, [v] Policy setting from July to December 2020.

The paper estimated that the average poverty gap for households was $593 per year. In the absence of policy interventions post COVID-19, the gap would have nearly tripled to $ 1685 per year. The number of persons in poverty would have increased from around 1.6 million to 3.8 million. Using an After Housing Version of Poverty, the increase in poverty is from 3million to 5.8 million people. The poverty gap has lowered by 39% and number of people in poverty has been lowered by around 32%. July policy changes has pushed poverty and poverty gap increased from $361 to $684 per year. The lowering of payment in September increased the poverty rate to 13.1% and in December at 12.5%.

The study of Carter *et al.,* (2020) explored that unemployment rate in USA ranges from 3.5% to 10.3% due to COVID-19. In Korea it stood 8%. The extra unemployment rate will be borne by the households of lower half of wealth distribution because of positive relation between wealth and income and greater incidence of unemployment on lower income group. There is negative relation between the impact of COVID-19 on unemployment forecast and financial resilience. The countries of low wealth households and the countries of smaller liquid buffer adjusted debt service cost will be affected more. In Australia, Canada, Finland, Germany, Italy and UK and USA, households at bottom 20% wealth holders could not cover more than 3 months of lost income by drawing savings. The top 20% distribution of wealth holders' households could be able to mitigate dwarf subsistence consumption level. In Australia, Denmark, Finland, Italy, Netherlands, Norway, USA, the middle 20% of the net wealth distribution could not cover two years of subsistence consumption in cases of loss.

The COVID-19 is a new virus that disrupted the world health infrastructure meticulously and compelled health workers, physicians, doctors to think in a new dimension in order to protect from the virus. New expertise of WHO and the medical scientists of Europe and America tried hard to discover its medicine and the patterns of treatment. Hopefully, the vaccines have been discovered so that the definite treatment can be done in the offing. Medical Scientists also expect to discover some medicine for treatment.

The COVID-19 disrupted the world economy dangerously so that a new wave of recession has emerged, and it is more adversely affected the world than the world wars and financial crises. Its potential damages will differently affect in the different economies of the world. An unexpected redistribution of income and wealth flows will occur that can rebuild the inhabitants from poor to poorer and rich to richer. Unequal transfer of income and resources may shift the production relations. Occupational structure may change so that wage differentials will promote the natural change of inequality. International trade and finance can create new polarization of world order where the digital currency may play a pivotal role in the field of international monetary system.

CONCLUSION

This review study firmly attempts to establish that COVID-19 is the causal effect of global recession which is more adversely affect the world economy so that the recovery may not be v shaped within 2021 or it may be w shaped and may continue till two years or more and some economies will suffer many years since downfall of human development index and the increase in burden of diseases and the debt burden will create differential impact. Increase in poverty and inequality will reshuffled the income -wealth relation and the redistribution of income will not favor the labor class.

A new approach of assessment is urgent to cope with the

actual problems where statistical data base reserve in a proper way for particular variables should be more appropriate to the target variables concern. International institutions and national government should be enough responsible for realizing the goals so that future research may not be hampered.

Conflict of Interests

The author declares that he has no conflict of interest.

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