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COVID-19 FISCAL STIMULUS AND POST-PANDEMIC GROWTH OF INCOME AND EMPLOYMENT IN THE UNITED STATES

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ABSTRACT

The COVID-19 Pandemic compelled a large segment of the population to be confined to their homes for more than a year. As a result, the unemployment rate went up significantly affecting those below the median income level more than the population above the median income level. To minimize the negative effects of the Pandemic, the U.S. government provided $5.6 Trillion in several stimulus packages. In this paper, we analyze the impact of the COVID-19 fiscal stimulus on the employment and income of the lowest quintile of income earners. Three conclusions emerge from our analysis. First, contrary to many predictions, the U.S. economy recovered from the COVI-19 Pandemic-induced recession in a short period of time. Secondly, the Pandemic relief programs targeted to low- and medium-income population helped reduce the income inequality of the lowest 20 per cent of the population. Thirdly, the impact of total COVID-19 funding to the States enhanced the growth of employment while some states grew at a higher rate than the national average growth rate due to the unique industrial structures and the enhanced efforts of these states in attracting jobs.

JEL: E62, E65, G18

KEYWORDS: COVID-19, Fiscal Stimulus, Income Inequality, GDP Growth, Employment Growth

INTRODUCTION

On January 9, 2020, The World Health Organization (WHO) announced "a Mysterious Coronavirus-Related Pneumonia in Wuhan, China" which later became known as the Coronavirus Disease 19 or COVID-19 caused by Serious Acute Respiratory Syndrome or SARS-CoV2 virus. On January 21, 2020, the Centers for Disease Control (CDC) confirmed the first known case of COVID-19 in the U.S., still known as 2019 novel Coronavirus. The COVID-19 virus progressed fast and affected many countries of the world leading the WHO to declare it a "Global Health Emergency" on January 31, 2020. On March 11, 2020, the WHO declared COVID-19 a Pandemic (https://www.ajmc.com/view/a-timeline-of-covid19-developments-in-2020). On March 13, 2020, United States declared COVID-19 a National Emergency.

The COVID-19 Pandemic resulted in shutting down many sectors of the economy, thereby creating an unequal burden on the working-class population. March-April 2020 may be regarded as the high point of the Pandemic when most regions of the country and major industries suffered employment loss. By the end of April 2020, the unemployment rate went up to 14.7%. The Bureau of Labor Statistics reported "The unemployment rate in April 2020 increased by 10.3 percentage points to 14.7 percent. This is the highest rate and the largest over-the-month increase in the history of the data (available back to January 1948)." (https://www.bls.gov/opub/ted/2020/unemployment-rate-rises-to-record-high-14-point-7-percent-in-april-2020.htm)A large segment of the U.S. population gradually adapted to remote work and the unemployment rate started to go down; however, the overall unemployment rate remained at an elevated level of 6.3% in January 2021 (https://www.bls.gov/news.release/archives/empsit_02052021.pdf). According to the Bureau

of Economic Analysis, "Measured from the fourth quarter of 2019 to the fourth quarter of 2020, real GDP decreased 2.4 percent during the period (https://www.bea.gov/sites/default/files/2021-02/gdp4q20_2nd.pdf). The decline of the Real GDP and loss of employment affected the younger segment of the population with lower educational and technical skills, women workers, and ethnic groups more than the educated and skilled workers. In the early months of the Pandemic, unemployment was concentrated in industries that provide in-person services such as leisure and hospitality industry and health care services. A CNBC report dated May 8, 2020 stated that in April 2020, the leisure and hospitality industry lost 47 per cent of total positions (https://www.cnbc.com/2020/05/08/these-industries-suffered-the-biggest-job-losses-in-april-2020.html).

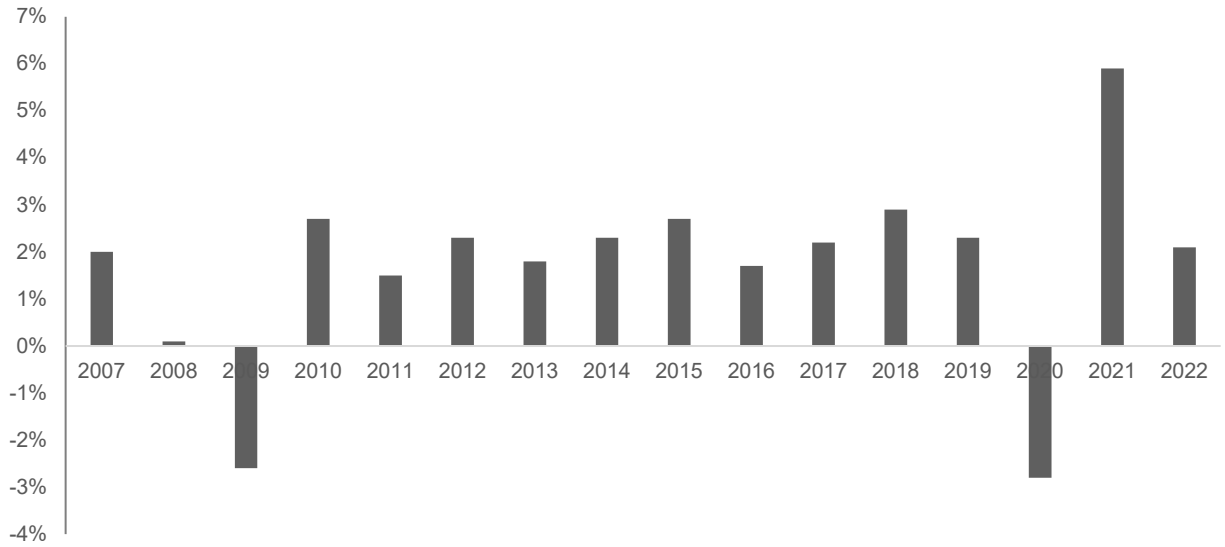
The government's policy measures to deal with the Pandemic were influenced by two specific goals: to reduce income inequality, particularly for the bottom 20 percent of the population, and to reduce the poverty rate. The purpose of this paper is to analyze the impacts of the fiscal policies pursued by the government during the Pandemic in reducing income inequality and increasing employment growth. The paper is organized into four main sections: literature review, a brief description of the stimulus package, effect of fiscal stimulus on income distribution and effect of fiscal stimulus aid to states on employment. Sources of data have been cited in each statistical analysis. The analysis and results derived are based on the author's own work. The paper makes important contributions to the body of knowledge on fiscal incentives, especially when such incentives are designed to improve income distribution and enhance employment growth. The remainder of the paper is organized as follows: The following section provides a literature review and some background information. The paper proceeds by discussing the data and methodology used in the analysis. Analysis is included in the results section. The paper closes with some concluding comments and suggestions for future research.

LITERATURE REVIEW AND BACKGROUND

Fiscal stimulus policies pursued by many nations during recessionary times predate the COVID-19 Pandemic. The economic principle guiding the stimulus package owes its origin to the works of John Maynard Keynes (Keynes,1933, 1936). The economy of the United States and many economies of the world suffered greatly during the Great Depression, which lasted in the United States for more than decade from 1929 to 1941. The epoch-making book of Keynes "The General Theory of Employment, Interest and Money" was published in 1936 but his ideas were influenced by the events of the Great Depression. In December 1933, Keynes published "An Open Letter to President Roosevelt" in which he argued, "public authority must be called in aid to create additional current incomes through the expenditure of borrowed or printed money" (http://www.la.utexas.edu/users/hcleaver/368/368KeynesOpenLetFDRtable.pdf). President Roosevelt restored to deficit financing for many of his New Deal provisions.

The fiscal stimulus packages have been generally successful in recovering from recent recessions. As Figure 1 shows, real GDP had declined during the past two recessions, namely the Great Recession of 2008 and the COVID-19 Pandemic. Congress enacted aid packages or fiscal stimulus packages of various types during both of these recessions, which resulted in the positive growth of real GDP. As described later, due to the severity of the COVID-19 Pandemic, the stimulus packages were significantly larger both in financial terms and in scope. As a result, the recession due to the COVID-19 Pandemic was significantly shorter, lasting only two quarters.

Figure 1: Annual Growth of Real GDP: 2007-2022



Source: https://www.statista.com/statistics/188165/annual-gdp-growth-of-the-united-states-since-1990/.Note: Data were included for the period from 2007 to 2022 from the above source.

During the Great Recession of 2008 which began in December 2007 and lasted until June 2009, various types of fiscal stimulus were provided by various nations depending on the severity and the timing of the recessions. Even though economists expressed different views on increased government spending by borrowing (Seidman, 2012), many countries including the United States have provided fiscal stimulus during recessionary times. In February 2008, at the beginning of the Great Recession, the U.S.

Congress passed the Economic Stimulus Act of 2008, which, among other provisions provided tax relief of up to $1,200.00 (https://www.congress.gov/bill/110th-congress/house-bill/5140) to eligible tax payers. The total cost of the Bill was $152 Billion. During the same year, the U.S. Congress enacted another fiscal stimulus package known as Troubled Asset Relief program (TARP) "to purchase, and to make and fund commitments to purchase, troubled assets from any financial institution" (https://www.govinfo.gov/content/pkg/BILLS-110hr1424enr/pdf/BILLS-110hr1424enr.pdf). The TARP was an innovative investment program where the government salvaged several big companies by buying their non-profitable or troubled assets and later recouping the fund by selling those assets back. The TARP program continued until mid-December 2014 with a total investment of $426.4 Billion. At the end of the investment program, the U.S. Government through the Treasury Department earned $441.7 Billion by selling those assets back, booking a profit of $15.3 Billion (https://en.wikipedia.org/wiki/Troubled_Asset_Relief_Program).

Fiscal stimulus provided during the COVID-19 Pandemic surpassed any such campaign in terms of total funding approved by the Congress in six legislative Acts. The government's early policy measures to ease the Pandemic crisis and to provide financial support to the low-income population included the following campaigns: three vaccines authorized for Emergency Use; aggressive vaccination campaign; stimulus package to boost demand and targeted support for low-income workers.

The fiscal policies for addressing the Pandemic, namely, stimulus package to boost demand, and targeted support for low-income workers constituted the highest fiscal measures adopted by the U.S. Government. Six fiscal stimulus packages dating back to March 6, 2020, pumped nearly $5.6 Trillion into U.S. Economy. The impact of these stimulus packages has been unequal among population groups (Lohbosko and Luhby,

2021). The following is a brief overview of the fiscal measures which dates back to the period before the WHO declared COVID-19 as a global Pandemic on March 11, 2020.

Table 1: COVID Pandemic Stimulus and Funding Levels

Stimulus	Date	Funding
Stimulus One: Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 (Also known as Phase One)	March 6, 2020	Total funding for this stimulus package was $8.38 Billion. Main provisions included research for a vaccine; aid to State and Local Governments and preventing the spread of the disease.
Stimulus Two: Families First Coronavirus Response Act (Also known as Phase Two)	March 18, 2020	Total funding for this stimulus package was $3.4 Billion. Main provisions included school lunches in lieu of School Closures; sick leave for companies employing less than 500 employees; $1 Billion for unemployment insurance and free COVID-19 test
Stimulus Three: Coronavirus Aid, Relief, and Economic Security Act (The CARES Act)	March 27, 2020	Total funding for this stimulus package was: $2.3 Trillion – largest stimulus package. Main provisions included; one-time, direct cash payment of $1,200 per person, plus $500 per child, additional $600 of unemployment per week until July 31, 2020; $500 billion in government lending to companies affected by the Pandemic; $367 billion in loans and grants to small businesses via Paycheck Protection Program (PPP) and expanded Economic Injury Disaster Loan (EIDL) program; $60 billion for schools and universities; $130 billion for hospitals and health care providers and $150 billion in grants to state and local governments.
Stimulus 3.5: Paycheck Protection Program Flexibility Act, 2020	April 24, 2020 Modified June 5, 2020	Total funding for this stimulus package was $484 Billion. Main provisions included 24 weeks for business to spend aid (up from 8 weeks); Allowed businesses that received PPP loans to delay paying payroll taxes and Increased loan maturity of PPP loans to five years.
Stimulus Four: Stimulus and Relief Bill, attached to the main Omnibus Budget Bill.	December 27, 2020	Total funding for this stimulus package was $900 Billion. Main provisions included direct payments of $600 per person, 16 and younger; individual Income of $75,000 or less per year and eleven weeks of expanded unemployment benefits starting on Dec. 27, 2020
Stimulus Five: Stimulus and Relief Bill, attached to the main Omnibus Budget Bill.	March 11, 2021	Total funding for this stimulus package was $1.9 Trillion, Second Largest Stimulus Package. Main provisions included direct cash payments of up to $1,400 for individuals earning less than $75,000 a year, plus $1,400 per dependent. The amount of the payment decreases for people with income over $75,000, phasing out completely for individuals with an income of $100,000 a year. Increase maximum annual Child Tax Credit from $2,000 a child to $3,000 per child ages 6 to 17, and $3,600 for each child under the age of 6. Immediate effect but phases out more than $150,00 joint or more than $112,500 head of household, $300 a week in expanded unemployment insurance through Sept. 6, 2021, $130 billion in funding for K–12 schools and $25 billion for SBA to make grants for "restaurants and other food and drinking establishments."

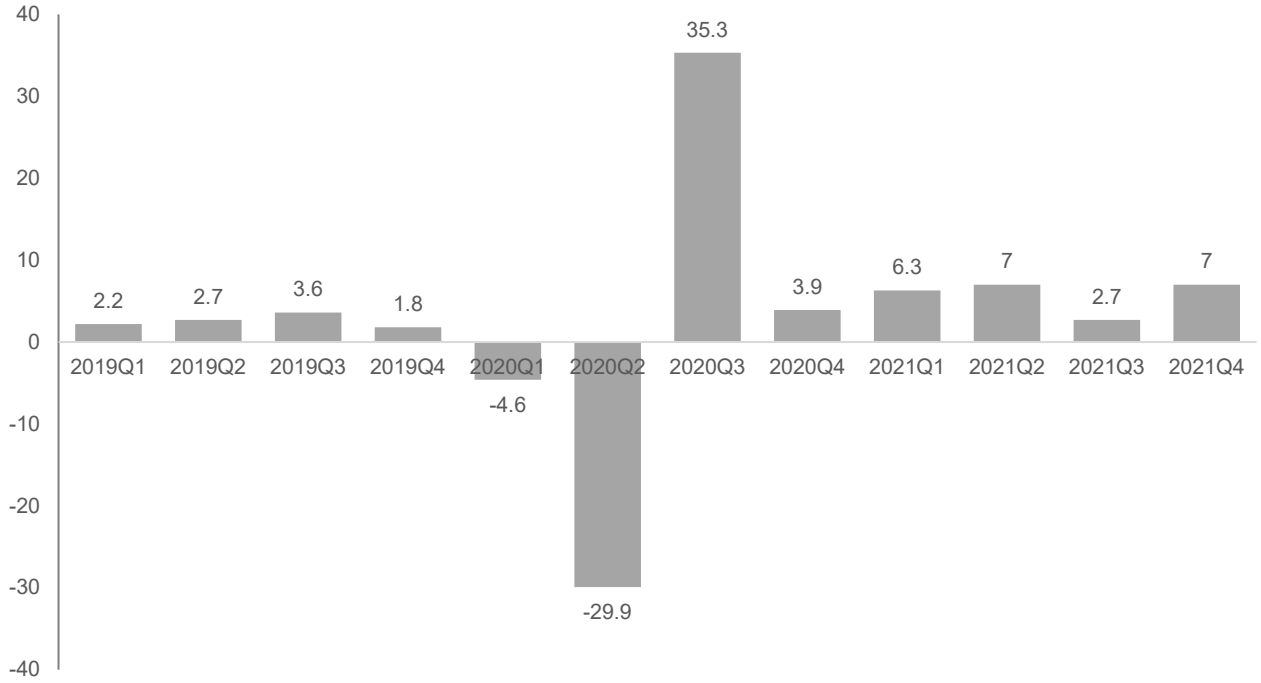
This table shows COVID pandemic relief measures along with associated funding.

Effects Of Fiscal Stimulus and Expected Growth of the Economy

Spanning over more than a year, the COVID-19 Pandemic disrupted production by shutting down the supply chains. The Pandemic also reduced aggregate demand since a large segment of the population did not have the pre-Pandemic purchasing power. The fiscal incentives described above seemed to boost demand. However, the high influx of financial support also led to a high inflation rate. Naturally therefore,

a question loomed large: will the temporary supply-shock inflation halt permanent recovery? The massive fiscal stimulus provided by the government was not seen favorably by many economists and research institutions. The Federal Open Market Committee (FOMC), International Monetary Fund (IMF), Congressional Budget Office (CBO), Blue Chip and Organization for Economic Development and Cooperation (OECD), all predicted a slower GDP growth rate and a longer time for recovery after the Pandemic (Furman, 2022). However, as shown in Figure 2, the actual GDP growth immediately following the COVID-19 year (2020) surpassed all predictions. At the peak of the Pandemic, real GDP had declined in only two consecutive quarters, quarter 1 and quarter 2 of 2020.

Figure 2: Quarterly Real GDP Growth Rate (%), 2019-2021

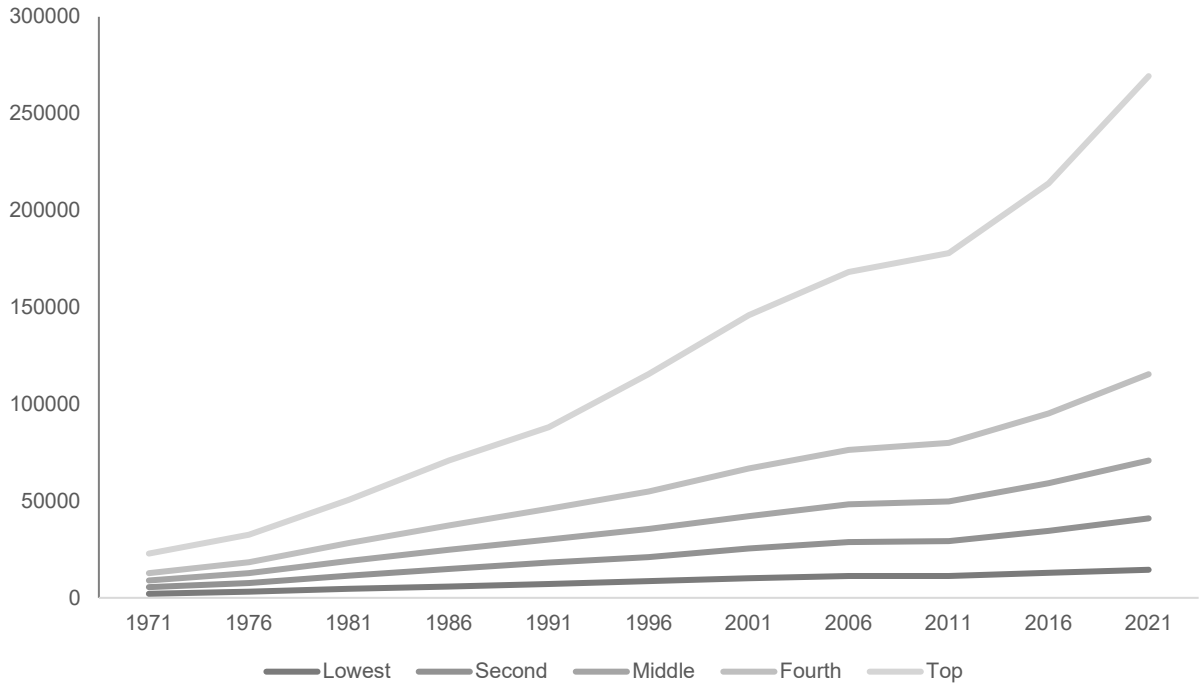


Legend: Horizontal axis: Quarter 1 2019 to Quarter 4, 2021. Vertical axis: Per cent growth rate. Source: https://www.statista.com/statistics/188185/percent-change-from-preceding-period-in-real-gdp-in-the-us/
Note: Data included are from Quarter 1, 2019 to Quarter 4, 2021.

Fiscal Stimulus and Income Inequality

Income inequality has persisted in our society for a long period of time for various reasons (Deaton, 2013). As Figure 3 shows, the share of income received by the lowest 20 per cent income earners or (lowest quintile) has remained flat from 1971 to 2021. A moderate growth is noted for the second and third quintile of income earners, but the income received by the top 20 per cent or the fifth quintile of income earners have risen much faster.

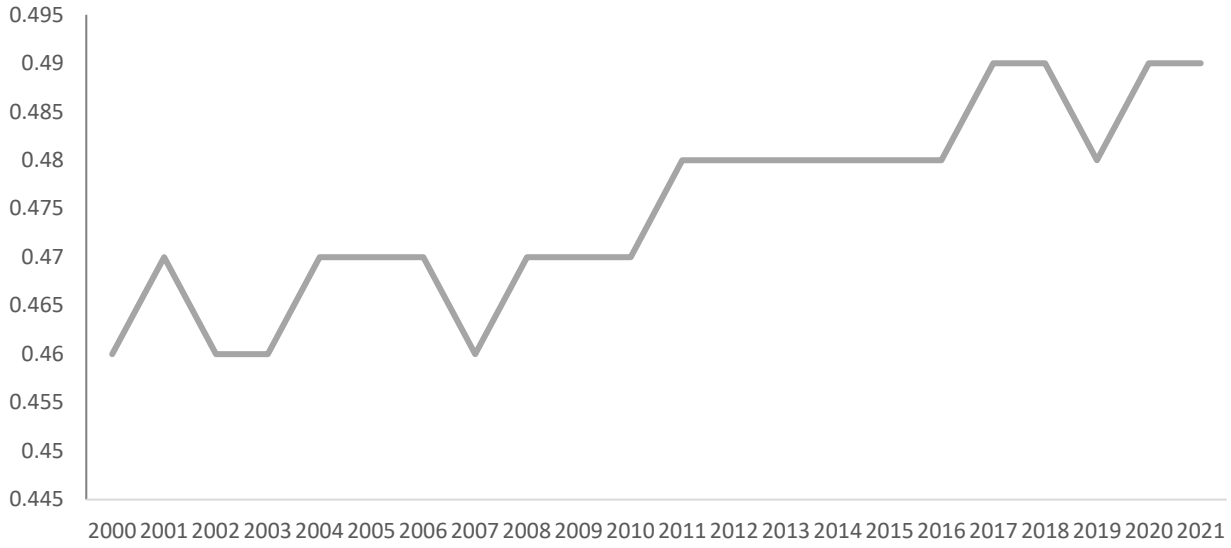
Figure 3: Mean Income (Current Dollars) by Quintile: 1971-2021



Source: https://www.taxpolicycenter.org/statistics/household-income-quintiles Note: Income distribution is shown for five -year interval from 1971 to 2021. Distribution of income is shown by progressively higher trend lines from the bottom 20 per cent of income earners or the lowest quintile to the top 20 percent of income earners or the highest quintile.

In a seminal paper titled "Inequality in the Time of COVID-19", Ferreira (2021) observed "Inequality is a notoriously challenging concept on which to make definitive statements." Ferreira further observed, "With both extreme poverty and billionaire wealth on the rise, the pandemic's effect on inequality may appear obvious". This observation is borne out in Figure 4 The Gini Index is a generally accepted measure of determining overall inequality of income distribution in a society. As Figure 3 shows, the U.S. Gini Index varied between .46 to .49 during the period 2000-2021. The index was fairly stable at .48 for a relatively long period of time from 2011 to 2016. The Index went up to .49 in 2020, which validates Ferreira's observation of a rise in Billionaire wealth. However, the policy measures adopted by the U.S. government in providing targeted fiscal assistance through the Fiscal Stimulus packages to the low-income population appears to have a positive impact as seen by the Gini index being constant at .49 during 2020-2021.

Figure 4: Gini Index, 2000-2021



Source: https://www.statista.com/statistics/219643/gini-coefficient-for-us-individuals-families-and-households/

A second measure of reduction of income inequality through Fiscal Stimulus packages is noted in the distribution of income by quintiles of U.S. population. Table 2 shows the share of aggregate income received by the bottom four quintiles increased in 2020 compared to 2019. Historically, the lowest income quintile has performed at or near 3.5 percent of aggregate income. Compared to 2019, the share of aggregate income of this group increased by 10.52 per cent, the highest increase among all five quintiles.

Table 2: Share of Income Received by Quintiles of Population During 2019-2020

Post-tax Income By Quintile*	% Share of Aggregate income 2019	% Share of Aggregate Income 2020	% Change 2019-2020
0-20	3.8	4.2	10.52
20-40	9.5	9.9	4.21
40-60	15.2	15.5	1.97
60-80	23.2	23.4	0.86
80-100	48.2	47.1	-2.28

**Includes income from COVID-19 Relief Program Source: https://www2.deloitte.com/xe/en/insights/economy/issues-by-the-numbers/covid-impact-on-income-inequality.html*

Post-Pandemic Employment Growth

According to the U.S. Bureau of Labor Statistics the Civilian Unemployment Rate peaked at 14.7 percent in April 2020 (https://www.bls.gov/charts/employment-situation/civilian-unemployment-rate.htm). Attributed to a number of targeted fiscal stimulus programs such as the Federal Pandemic Unemployment Compensation, Pandemic Emergency Unemployment Compensation, Pandemic Unemployment Assistance, Other Emergency Unemployment Funding and the Payroll Protection Plan (PPP), significant employment opportunities were created for communities based on their unique industrial mix. Consequently, the unemployment rate gradually started to go down reaching its current level of 3.7 percent as of May 2023.

DATA AND METHODOLOGY

Data analyzed in this study have been drawn from government publications including the Bureau of Labor Statistics and the Bureau of Economic Analysis, and private research organizations such as the Peter G. Peterson Foundation, Statista, and Deloitte insights. All sources have been cited at appropriate places.

As stated earlier, one of the objectives of this paper is to analyze the impact of COVID-19 fiscal stimulus to employment growth. The economy of the United States is diverse, and the growth of employment occurs in various economic sectors in response to local and state initiatives. The Bureau of Labor Statistics (BLS) of the U.S. Department of Labor collects and disseminates employment statistics on a regular basis. There are several formats in which the BLS disseminates employment and unemployment statistics including the growth of jobs in the 50 states and the District of Columbia. Employment and unemployment statistics are also disseminated by several research organizations, which are referenced below as sources of data.

With a view to analyzing the growth of employment generated by the COVID-19 "State by State Funding for Major Coronavirus Programs", the Shift Share model of employment growth was used to gage the impact of COVID-19 Economic Relief provided to the 50 states and the District of Columbia. As Buck (1970) explains, the Shift Share technique is an appropriate approach to decomposing the growth of employment occurring in a region due to three factors: national growth (NG), the unique industrial composition of a region or the industrial mix (IM) and the local competitiveness of a region, or competitive share in attracting jobs (CS). There are three components of employment growth: growth due to national employment growth, growth due to the unique industrial structure of a region, and growth due to the ability of a region in attracting employment. In this study, the "region" or the unit of analysis is the State (50 States and the District of Columbia). Knudsen (2000) and Mondal (2002-03) extended the model to analyzing regional employment growth by decomposing the total employment gain in a defined region. Hustedde, Shaffer and Pulver (1984) provide a step-by-step measure of decomposing the employment growth into national growth, industrial mix and competitive share components. The following illustrated definition of the Shift Share model is adapted from Mondal (2009):

"$SS + NG + IM + CS$ (1)

Where,

SS = Shift Share
NG = National Growth
IM = Industrials Mix
CS = Competitive Share.

and

$NG=\sum[(E_{oi})\delta]$
Eoi =Base year local (state) employment in sector i. i=1,2...k (number of sectors)
δ =National average employment growth rate.
$IM=\sum[(E_{oi})(\Omega_i - \delta]$
Ω_i =National employment growth rate in sector i.
$CS=\sum[(E_{oi})(\Omega_i - ß_i]$
$ß_i$ =local employment growth rate in sector i."
The above definition of the Shift-Share model indicates that in a given year, employment growth in some States would exceed national average employment growth than some other States because of the unique industrial composition and the ability of those states in attracting employment. Using employment data available from the Bureau of Labor Statistics (BLS), we have analyzed the impact of COVID-19 funding

to States on the growth of nonfarm employment. According to the BLS data updated as of June 17, 2023, nonfarm employment in the United States grew by 2.6 percent from May 2022 to May 2023, (https://www.bls.gov/web/laus/statewide_otm_oty_change.htm).
During the same period, nonfarm employment in the following 16 states grew at a rate equal to or higher than the national average employment rate: Arkansas, Delaware, Florida, Hawaii, Idaho, Indiana, Kentucky, Massachusetts, Nevada, New Hampshire, New Mexico, Oregon, South Carolina, Texas, Utah and West Virginia.

Since the objective of this paper is to examine the impact of COVID-19 targeted funding on employment growth rate, we analyzed the impact of such funding by framing the following hypothesis:
H_o: COVID-19 Relief Fund distributed to the States increased employment growth rate

Using the Bureau of Labor Statistics data (https://www.bls.gov/web/laus/statewide_otm_oty_change.htm) for statewide employment growth and the comparable data published by Peter G. Peterson Foundation (https://www.pgpf.org/understanding-the-coronavirus-crisis/coronavirus-funding-state-by-state), we ran a Regression with the following specification:

$$EG = \alpha + \beta_1 \text{ COVID} + \beta_2 \text{ Dummy}$$

Where:

EG equals the growth rate of total employment of 50 States and the District of Columbia from May 2022 to May 2023,

COVID is the Coronavirus Relief Fund Spent by the 50 states and the District of Columbia in 2022

DUMMY is a dichotomous or dummy variable, which is equal to 1 if the employment growth rate in a state equals or higher than 2.6 per cent and 0 otherwise.

RESULTS OF REGRESSION ANALYSIS

The a priori expectation for H_o is both β_1 and β_2 will be positive. The statistically significant and positive sign for β_1 will indicate COVID-19 Relief Fund spent by respective states increased employment growth, and the statistically significant and positive sign of β_2 will indicate employment in some states grew at a higher rate than the national average employment growth rate due to unique industrial mix and the enhanced efforts of those states in attracting jobs.

Table 3 shows the regression results. The results confirm that the Coronavirus funding to the states and the District of Columbia contributed to employment growth. Further, consistent with the Shift Share model, 16 states posted higher than national average employment growth rate due to the unique industrial mix and the competitive advantage in attracting jobs.

Table 3: Regression Statistics

	Coefficient	Standard Error	t-Stat
Intercept	1.746	0.119	14.714
COVID	1.810	0.840	2.154*
Dummy	1.146	0.180	6.361**

*This table shows regression results. $R^2 = 0.478$, N = 51 (50 states and the District of Columbia), *Significant at .05 **Significant at .01. Source of data for Regression: Employment data: https://www.bls.gov/news.release/laus.nr0.htm Note: data used was for the period following the COVID-19 year, 2021-22. COVID-19 Funding data: https://www.pgpf.org/understanding-the-coronavirus-crisis/coronavirus-funding-state-by-state*

CONCLUDING COMMENTS

The U.S. government spent approximately 5.6 trillion dollars in fiscal stimulus to deal with the COVID-19 pandemic. A significant part of various stimulus programs was targeted toward the low-income population for boosting demand and for generating employment growth opportunities. In this study, we briefly described the fiscal stimulus packages starting on March 6, 2020, and continuing until March 11, 2021. Three conclusions emerge from our analysis. First, contrary to many predictions, the U.S. economy recovered from the COVI-19 Pandemic-induced recession in a short period of time. Secondly, the Corona Virus Pandemic relief programs targeted to low- and medium-income population helped reduce the income inequality of the lowest 20 per cent of the population by 10.53 per cent. Thirdly, a Regression analysis conducted on the impact of total COVID-19 funding on employment growth in each of the 50 States and the District of Columbia shows there is a statistically significant positive relationship between the COVID-19 funding and employment growth. These conclusions contribute to the body of knowledge on fiscal stimulus provided during a Pandemic.

In this paper, we analyzed the impact of COVID-19 stimulus packages on income distribution and employment growth. Our analysis was focused on a relatively short period of time; from the onset of COVID-19 Pandemic in March 2020 to May 2022. Income inequality is a complex issue, and even though our findings lead to the conclusion that the conscious policy decisions of the government, particularly the fiscal policies helped reduce income inequality during and immediately after the Pandemic, such an analysis covering a longer time period may shed more light on the income inequality issue. Secondly, we used the Shift Share model with a view to decompose employment growth; however, conclusions were derived from the Competitive Share component only. A future study on the employment growth pattern of the United States using state data is recommended for a deeper understanding of the employment growth issue.

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