DBPC Research Team

Pioneer Open Summer Study

Pandemics and Globalisation

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Do stock market indices correlate with prominent economic indicators in accurately reflecting the state of the economy?

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ABSTRACT

The study looks into the efficacy of financial markets in tracking economic indicators to accurately reflect on the state and trends of the global economy. By utilising a multi-factor methodology; it analysed historical data from indices such as the Dow Jones Industrial Average and the S&P 500, compared it with trends emerging from other economic indicators such as unemployment, poverty, industrial production, consumer spending, median household income, business bankruptcy filings, and homelessness data . It compares previous significant financial events and the economic state as well as stock prices that they corresponded to, while keeping in mind the effect of non-economic factors such as the revocation of the Glass-Steagall Act. The study accounts for the effects of modern financial strategies and policies, as well as economic theories such as the forward-looking market hypothesis in the context of expected outcomes and indicators as compared to the actual data. Based on the historical data and the current patterns of financial indices, the study concludes that financial markets remain in conjunction with the underlying economic fundamentals, and that the rises during the pandemic are supported by rising employment levels, government actions, and other mitigating measures which have improved the state of the economy.

INTRODUCTION

Whilst the world is battling a once in a lifetime pandemic, and the economies of most countries lie in tatters, our financial markets seem to be eerily resilient to this huge paradigm shift. As of August, financial markets - outlined by indices such as the Dow Jones Industrial Average, S&P 500, and the NASDAQ - have erased their pandemic induced losses and reached historic highs- all of this while the World Bank says that approximately 93 countries are expected to face recession in 2020, more than at any other time in modern economic history. The Pandemic led to millions unemployed, at the risk of facing eviction, homelessness and inability to access insurance coverage. This wide gap between the performances of the economic - outlined by economic indicators such as unemployment, business closures, evictions, rent payments, consumer confidence, retail spending, jobless claims, unemployment insurance, and poverty - and the incredible rallying of financial markets encouraged this study into the effectiveness of financial markets to represent the state of economic progress.

Since the scope of such a study is broad, it shall focus on the United States of America which has the biggest and oldest system of financial markets in the world. This study analyses historic data starting from the 1950s and compares trends in prominent economic indicators mentioned above with data from the performances of various indices of the financial markets. It shall also go in depth into various events such as the recessions in the early 1980s, early 2000s, the Great Recession, and the recession during the pandemic to corroborate emerging trends or explain the special circumstances that prompted diversion from those trends.

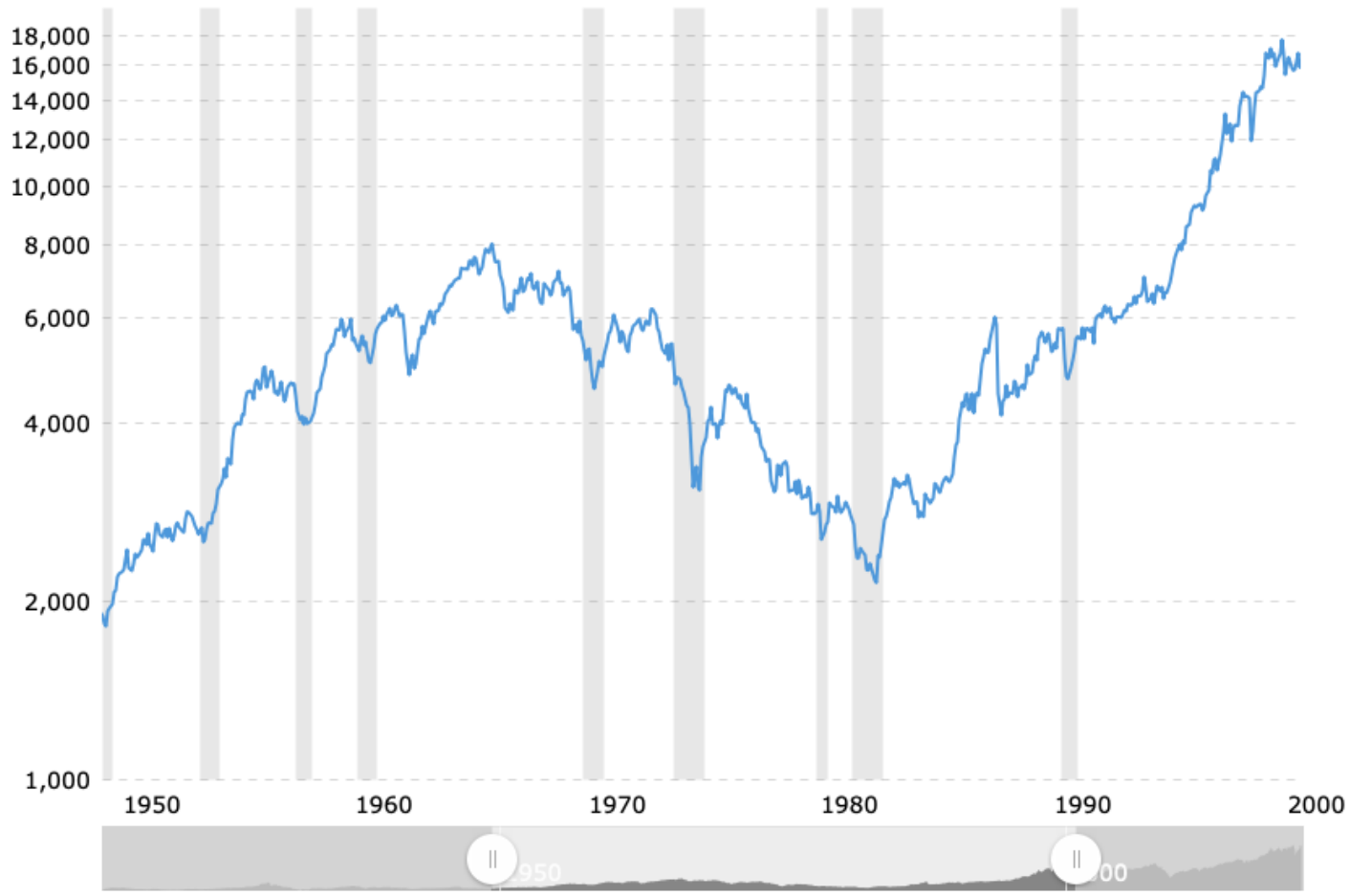
RESULTS

Analysis of Historical Data:

1950-2000:

The study shall first analyse historical data beginning from 1950 to 2000 to find trends emerging from indices such as the Dow Jones Industrial Average and the S&P 500 compared with trends emerging from other economic indicators such as unemployment, poverty, median household income (current prices and inflation adjusted to 2000), bankruptcies, and industrial production indices.

Dow Jones Industrial Average (1950 to 2000):



Source: macrotrends.net

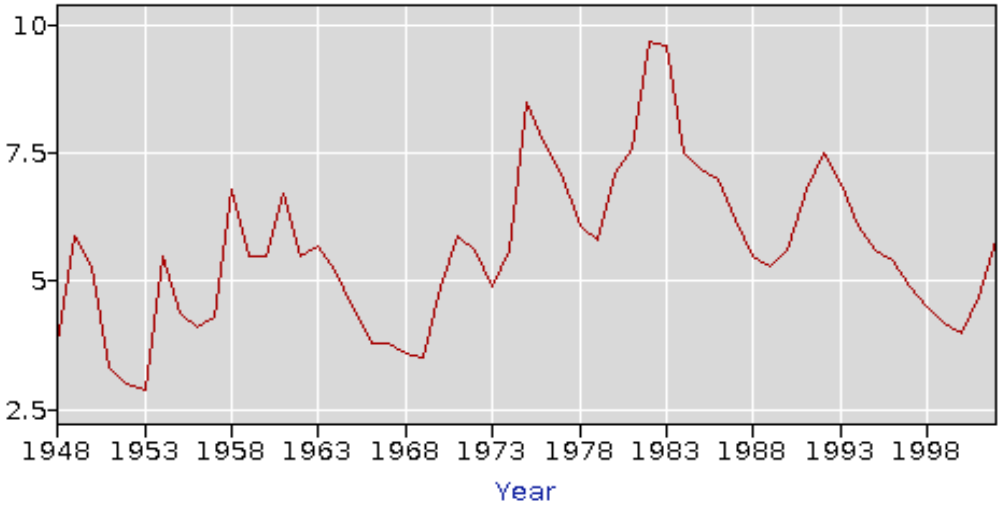
S&P 500 (1950-2000):

Source: macrotrends.net

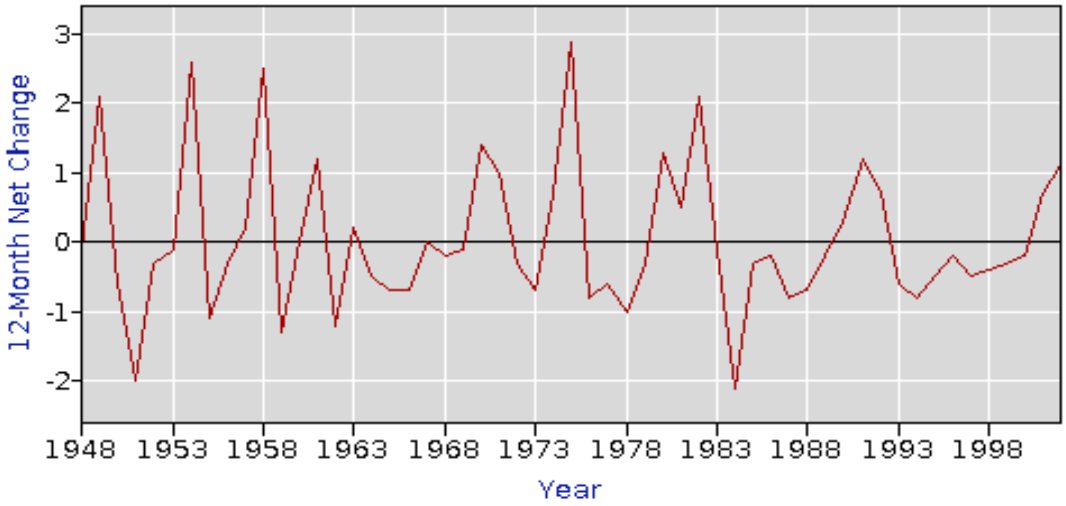
The two graphs show the DJIA and the S&P 500 indices during the period of 1950-2000. Below are other economic indicators such as unemployment, poverty, and business bankruptcy statistics for the same period:

Unemployment Rate:

Series Id: LNU04000000
Not Seasonally Adjusted
Series title: (Unadj) Unemployment Rate
Labor force status: Unemployment rate
Type of data: Percent or rate
Age: 16 years and over



12-Month Net Change
Series Id: LNU04000000
Not Seasonally Adjusted
Series title: (Unadj) Unemployment Rate
Labor force status: Unemployment rate
Type of data: Percent or rate
Age: 16 years and over



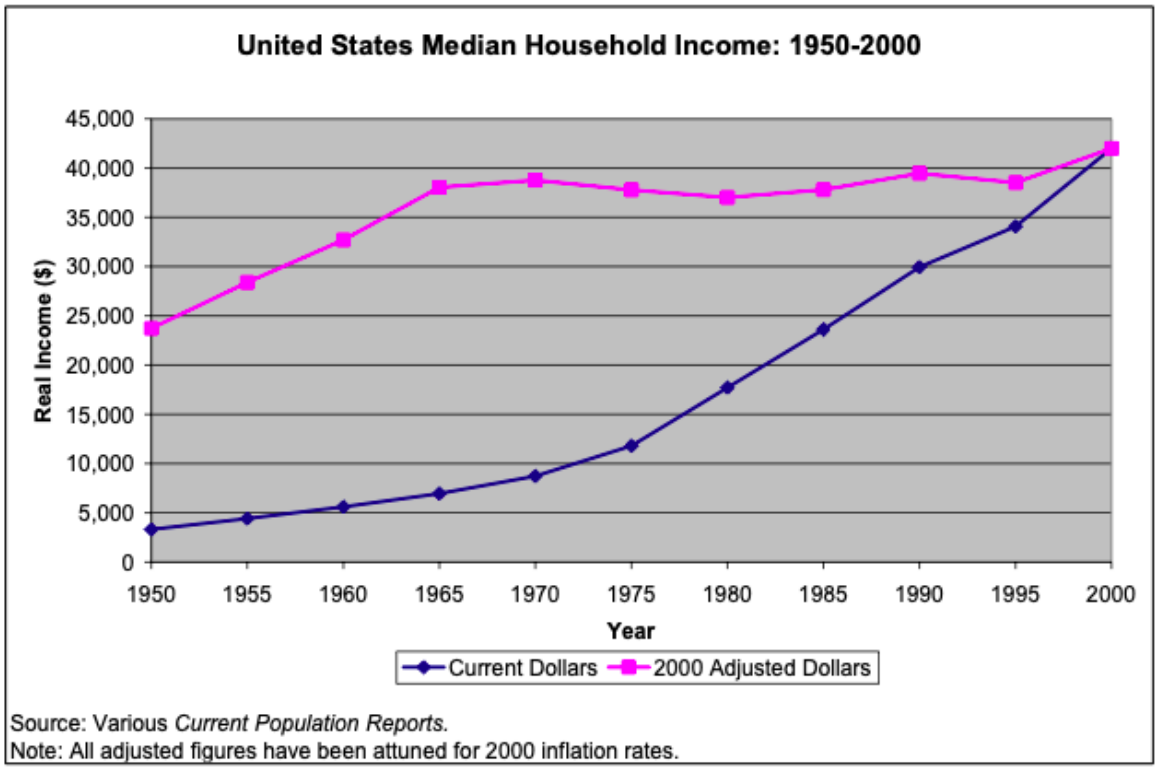
Source: Bureau of Labor Statistics

The two figures taken from the Bureau of Labor Statistics show the unemployment rate (annual) from 1950 to 2000 along with the net changes in the unemployment rate. It is seen that in the early 1950s, unemployment fell primarily as thousands of Americans signed up for the Korean war. At the same time, growth in financial markets was limited due to the uncertainty in the war, especially the fear of war with the Soviet Union. The Korean war ended in 1953. Hundreds of thousands of Americans returned from the war only to find that their old jobs had been taken and there was no work for them. Thus, the unemployment spiked by almost 2.3% in 1953 as shown in the 12 Month net change graph. Meanwhile investor confidence increased due to the prospects of the war having ended and the Dow Jones and the S&P 500 saw incredible gains. Although there is a divergence in trends as shown above, it is primarily due to the Korean War which lasted from 1950 to 1953. Subsequently, the net changes in the unemployment data does reflect the trends shown in the DJIA and the S&P 500. From 1960 to 1968, unemployment falls and the stock market makes gains as well gaining 2000 points (DJIA). There is a brief recession in the early 1970s during the Nixon Presidency and the data from both the indicators adequately track each other. In 1979, the oil crisis begins wherein there was massive inflation in the United States as Middle Eastern countries formed a cartel and cut exports to the United States for supporting Israel in the Yom-Kippur War. The recession lasted till 1982, and unemployment reached almost 10% (a local maxima) and the financial markets faced massive losses as well. There was quick recovery as oil prices stabilised in both unemployment and financial markets. Subsequently, unemployment rose briefly between 1988 and 1990, corresponded by a fall in the financial indicators as well. The economy entered 1982 in a severe recession and labour market conditions deteriorated throughout the year (“Reagan’s Recession” – Pew Research Centre). The unemployment rate, already high by historical standards at the onset of the recession in

mid-1981, reached 10.8 percent at the end of 1982, higher than at any time in the post-World War II history (Report from Bureau of Labor Statistics).

In the first quarter of 1982, non-farm payroll employment reduced by about a million. This trend continued till about December of 1982, wherein the total reduction of employment reached 2.9 million, superseding the previous high 2.3 million during the post-World War II history. Prior to the advent of the 2000's the recession of 1981-82 had been the worst the United States of America had ever experienced. This had been caused due to the mounting unemployment as well as the continually increasing inflation rate in the economy. During the 1960's and 1970's, policy makers utilised a trade-off policy known as the Phillips Curve-- wherein they followed a dual step procedure known as the "stop-go" policy. During the "go", they would reduce interest rates, increase the supply of money and hence target unemployment. Then during "stop" they would tighten money supply and target inflation. This procedure however failed to help the economy in the recession of 81-82 as the economy went through stagflation-- a recessionary phase with severely high inflation. In the midst of such an economic nightmare, the stock markets also dipped to their nadir-- indicating the strong correlation between the actual economy and the businesses.

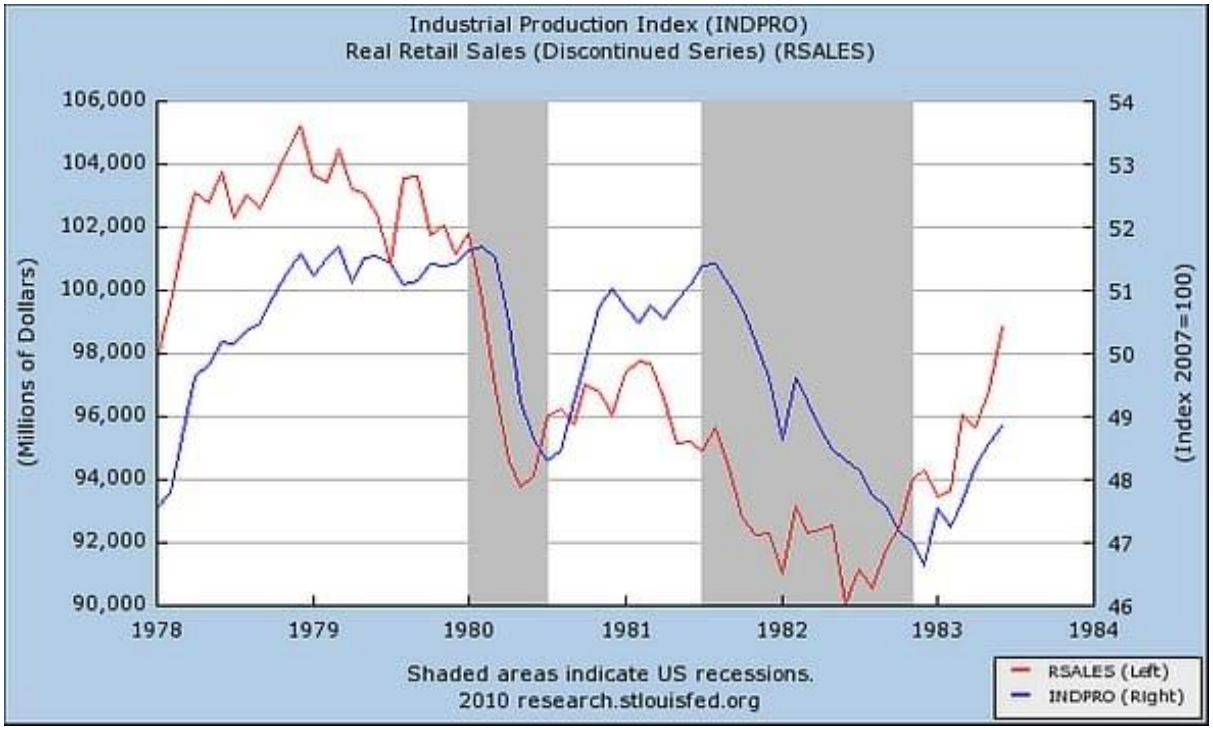
Median Household Income



Source: Current Population Reports from the US Census Bureau

Median Household Income in the United States rose consistently from 1950 to 1965 when it stabilised (inflation adjusted data). In the late 1970s, as there was high inflation, the median household income seemed to increase but when seeing the inflation adjusted data, we see that it largely remained stable. Household incomes remained stable especially during the recessions due to the Great Society legislation that protected household incomes. Thus, it remained stable throughout from 1965 to 2000.

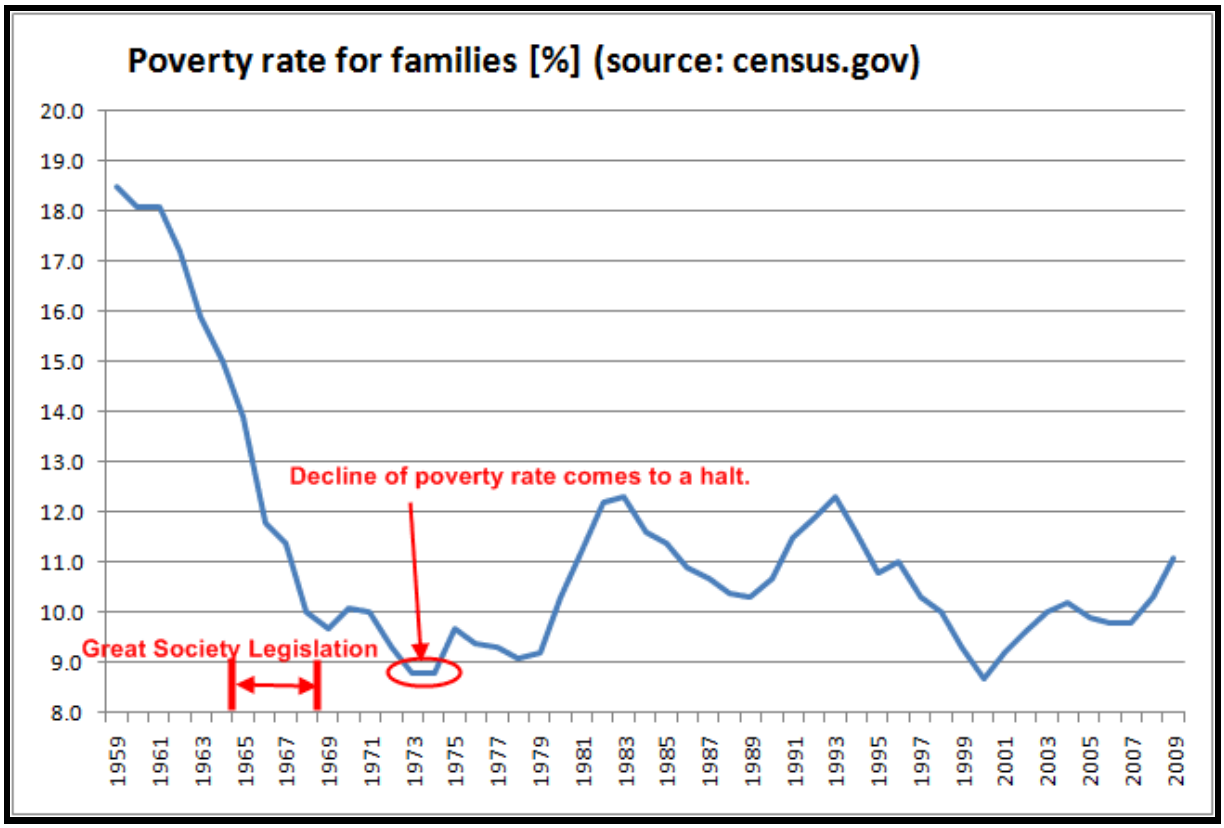
Retail Sales (in millions) and Industrial Production Index:



Source: St. Louis Fed

Productivity, as measured by output per employee hour, declined in 1982 in more than half of the industries for which the Bureau of Labor Statistics regularly publishes data ("Productivity Reports" – Bureau of Labor Statistics, Herman, Arthur S.) . This falloff was in contrast to 1981, when most industries recorded productivity gains. This was in correlation to the recessionary trend in the economy. Retail Sales fell massively from almost $101.5 billion to $90 billion in 1982. Industrial Production fell as well and recovered only in 1983.

Poverty (Percentage of population):



Source: US Census Bureau

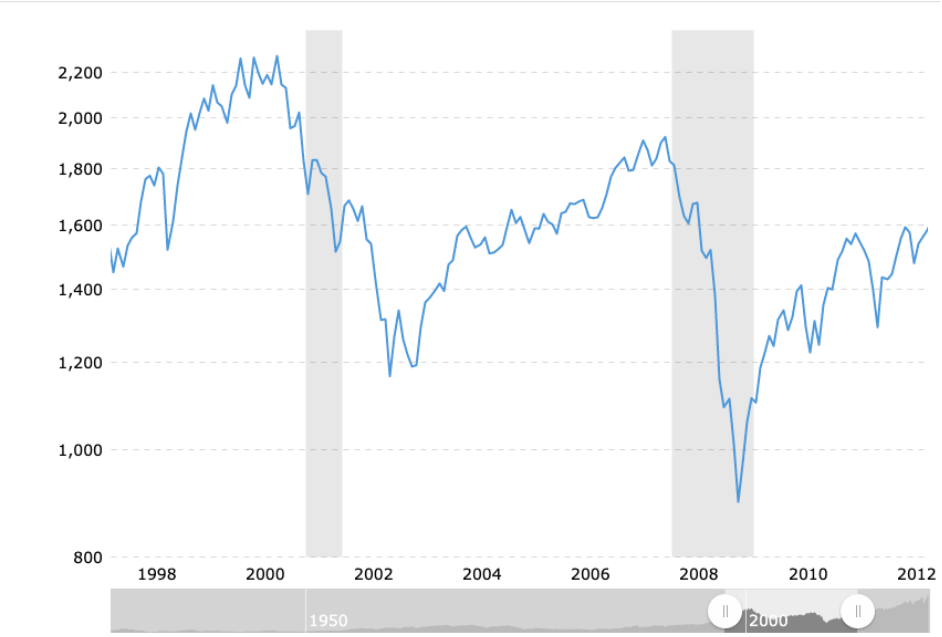
Poverty rates fell consistently from 1959 to 1973 as median household income rose and unemployment fell. But primarily, the reason behind the fall of poverty rates was the Great Society and Civil Rights Legislation in the 1960s which cut poverty rates among African Americans and social security lifted millions out of poverty. There is a sudden spike in the poverty level during the 1982-83 recession period which equals a staggering 12%. The number of Americans officially classified as poor increased by 2.2 million or 7.4%, to 31.9 million in 1982 from 29.6 million in 1981, the bureau said. A family of four was classified as poor if it had cash income of less than $9,287. Poverty remained high after the recession falling after 1983 to 10.3% and rising again during the 1988-92 recessionary period to 12% during the Bush Administration. However, financial markets were soaring at that time especially after 1988 when the Cold War seemed to be coming to an end. Poverty rates fell during the Clinton Administration due to renewed funding for social security to below 9%.

2000-2010:

After having analysed the trends emerging from both financial markets and economic indicators like unemployment for the period 1950-2000, the study shall analyse the past decade to understand the trends emerging from the economic data.

Dow Jones Industrial Average (1998 to 2012):

S&P 500 (1998-2012):



Source: macrotrends.net

The two graphs show the DJIA and the S&P 500 indices during the period of 2000-2010. Below are other economic indicators such as unemployment, poverty, and business bankruptcy statistics for the same period:

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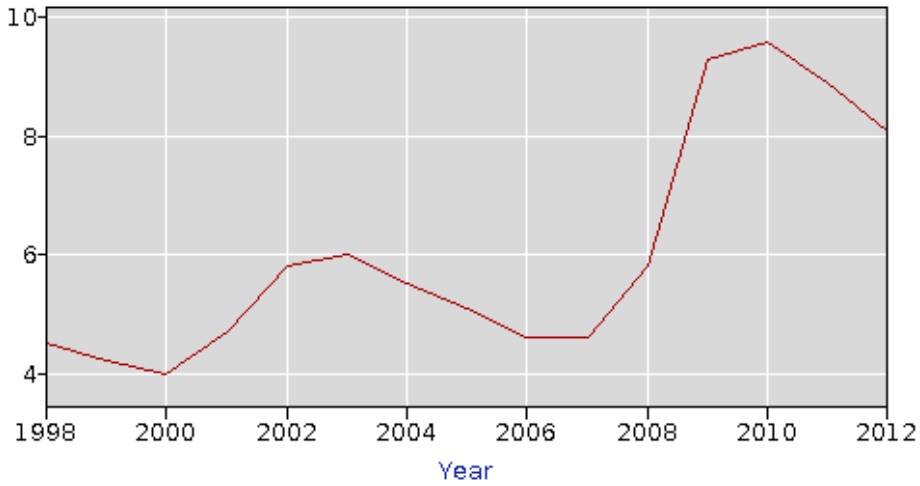


Source: Bureau of Labor Statistics

Unemployment rises from the period 2000-2003 while at the same time, data from DJIA and S&P 500 indicates that the indices fell during that period as well. This indicates a general economic downturn. However, unemployment reaches a local maxima in 2003 and falls consistently till 2007 after that. This is also supported by the gains in the indices mentioned above as well. After 2007, as the Great Recession started, unemployment rose meteorically while the indices fell to historic lows as well. Thus we see that the trends in unemployment data largely mirrors the trends seen in the stock indices during that period as well, showing that the financial markets did track well with arguably the most widely used economic indicator in the United States – unemployment data

Non-farm employment peaked in the year 2008 following which it steadily declined, as the graph shows most evidently. A steep fall in the number of people employed was seen across various spectrums especially in traditional cyclical industries such as manufacturing and construction. Given problems in the Middle East, rising oil prices strained the economy ("War at any price" - Senate Report). Crude oil production failed to keep up with demand causing prices to double from June 2007 to June 2008. For homeowners already feeling the effects of a decline in the value of their home, rising energy costs came as an unwelcome development expenditure on durable goods.

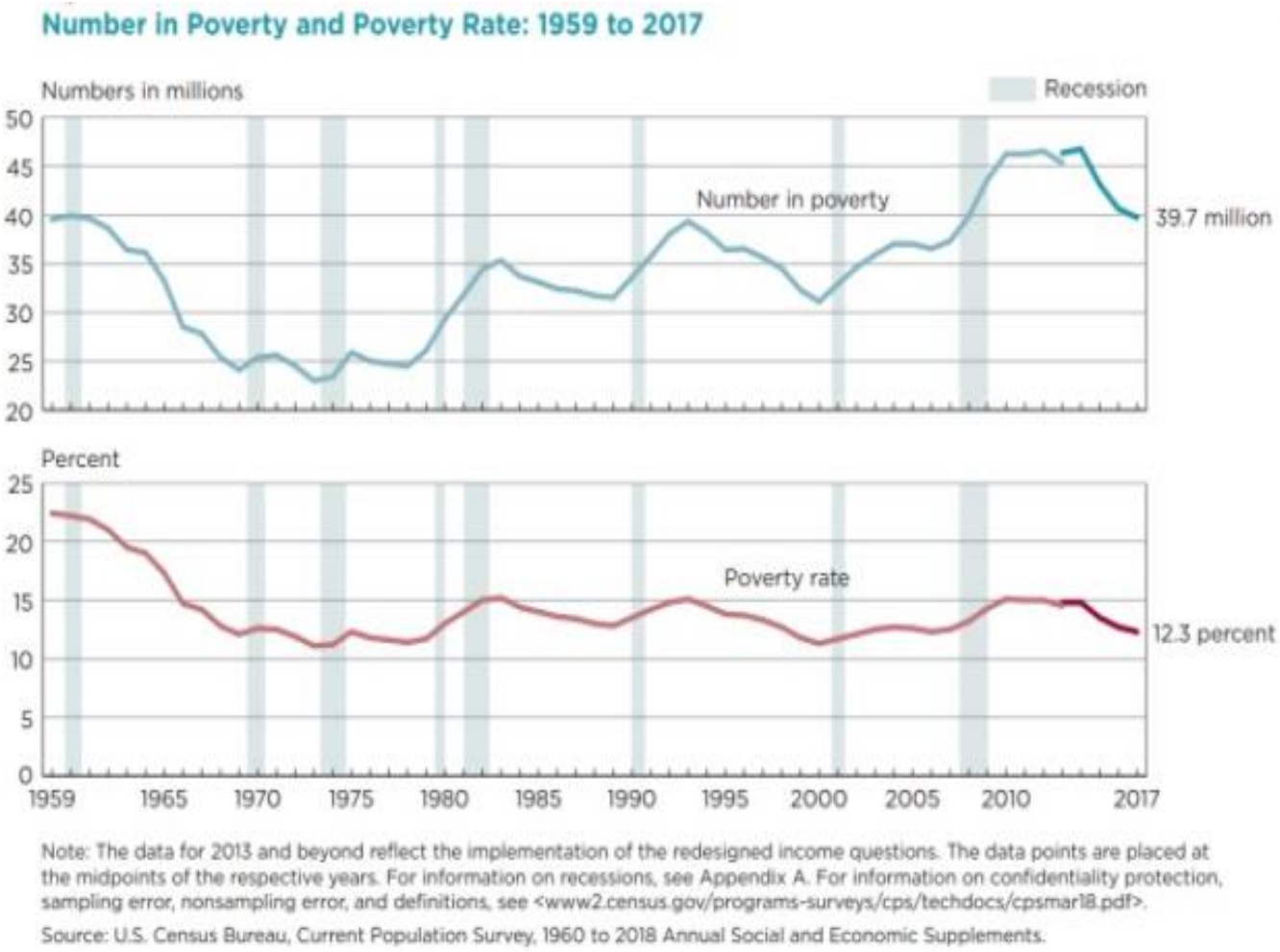
The Condition of manufacturing industries in the United States was already bad. Manufacturing which had been losing jobs for 10 years before the recession also experienced significant job losses. During that time, very few Industries attracted much attention as financial activities. Before the downturn the financial industry expanded rapidly for several years as credit and other financial markets grew. But as the housing market weakened in 2006 job growth in financial activities waned, and the markets started breaking down. Employment in professional and business services- a broad industry which includes a variety of services from administrative and waste services to accounting and bookkeeping- declined by over 1.6 million during the 2007 to 2009 recession. In absolute terms this decline was second only to that in Manufacturing Industries and represented a sharp reversal from economic growth and unemployment during the preceding 5 years.

Real GDP growth rate:

Source: World Bank

Real GDP growth rate in GDP fell by almost 3% between 2000 and 2001. This was marked by an increase in unemployment and a losses in the stock indices as well, corroborating with the downturn shown in the index. Similarly, the GDP growth rate expanded from 2001 to 2004. However, stock markets fell during 2001 rebounding only in the second quarter of 2002 with similar trends for unemployment. In 2004, the GDP growth rate was put at about 3.79%. These values seem to be quite normal, average GDP values and if compared with the 0.98% in 2001, these values seem to be quite stable. Similarly, for 2005-2010, the GDP growth rate trends corresponded with the trends in the indices and unemployment data. What we found most interesting about this graph was that as an indicator of the market economy, the GDP corroborated quite strongly with the condition of the stock market.

Poverty (Absolute and Percentage) in the United States:



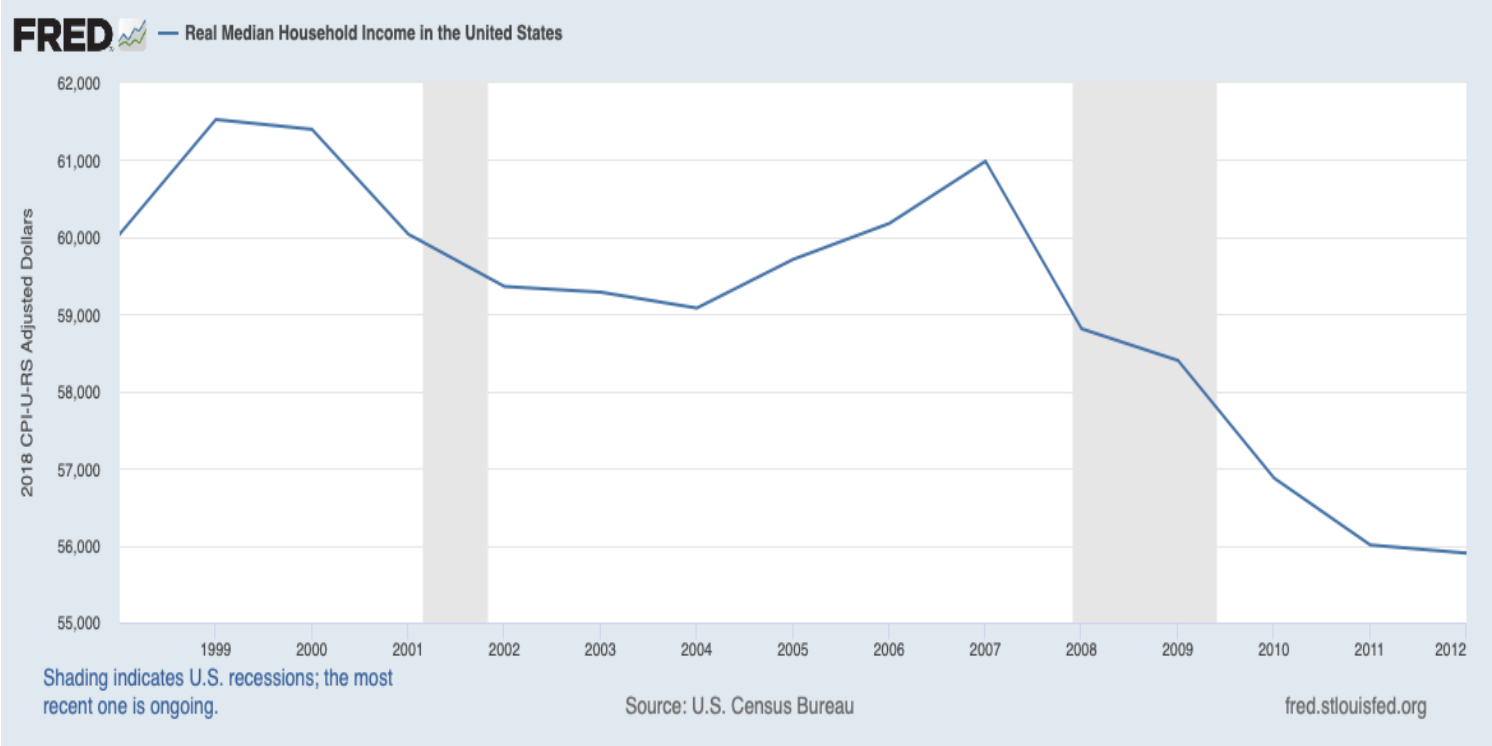
Source: US Census Bureau

It is natural to believe that Poverty rose during the Great Recession, but it was interesting to note also that during the 2003-05 period when the Stocks and the GDP were doing quite well, Poverty was quite high representing a contrast. During the 2003-05 time period, the percentage of people in poverty was put in the 12-14% range. As poverty rose, unemployment fell, GDP rose, and the stock markets soared. Statistics show that during the Iraq War, the Defense Budget rose by 16.15%, spending on community and regional development fell by 16.07%, and that on Income Security fell by 9.3%, compared to previous fiscal year's growth of +45.215% and +7% respectively. (Fiscal Budgets – 2003 to 2004)

Business filings for bankruptcy (1998 to 2014):

It is seen that up until 2006, bankruptcies were very high due to existing bankruptcy laws. While the number of filings for bankruptcies remained consistent, the other economic indicators showed positive trends. Only when the new Bankruptcy law come into effect did the number of bankruptcy filings drop sharply, only to rise again as the Great Recession started and hundreds of financial firms declared bankruptcy leading to a domino effect causing thousands of small businesses to declare bankruptcy. While this economic indicator displays a break from other trends, the legal codes that governed bankruptcy can be used to explain this phenomenon. As the code was reformed, this economic indicator came to closely represent and track economic performance.

USA Median Household Income:

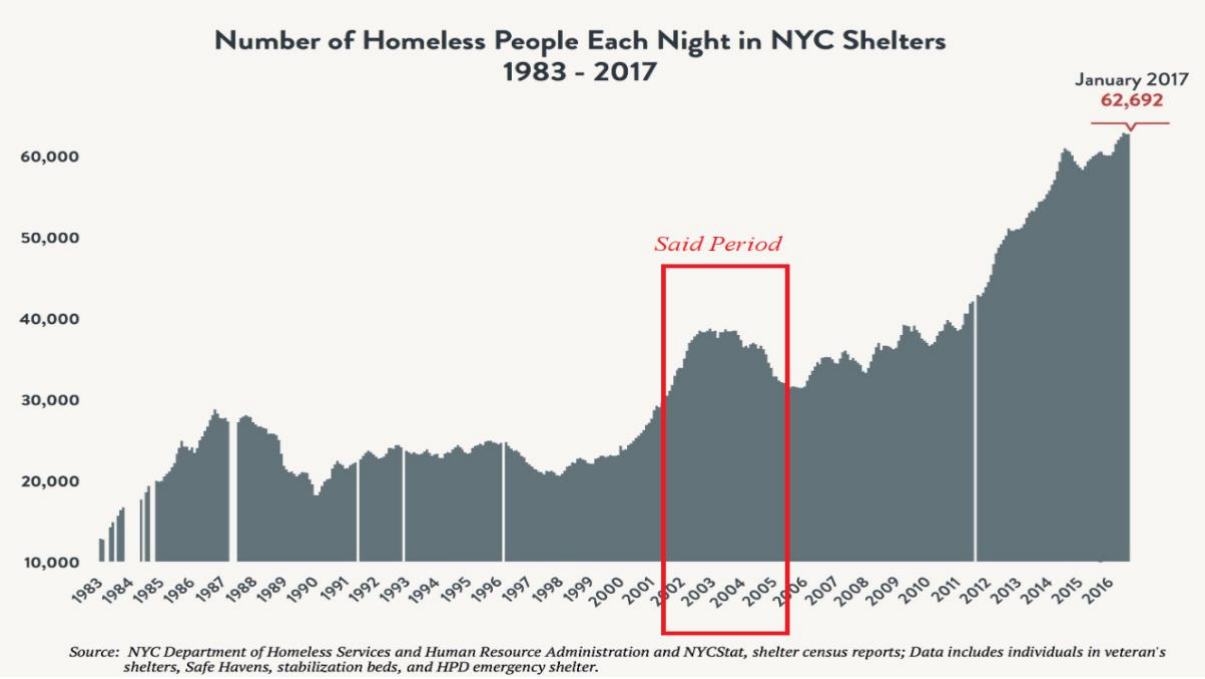


Source: US Census Bureau (Statistics)

The Median Household Income in the United States fell from 2000 to 2003. At the same time, the DJIA and the S&P 500 fell, unemployment increased to 6% and real GDP growth rate reached a local minima of just 1%. As median household income increased, so did these economic indicators show positive trends until 2007. Median Household Income is the prime indicator when it comes to understanding wealth and investments and prosperity in financial markets. It is simple economics. When the median household income is high and rising, households have more savings which can be invested in financial and capital markets, spurring not only the financial markets, but also providing greater capital availability and growth in real GDP. Thus we can use the median household income as one of the best indicators to connect other economic indicators. Median household income tumbled from 2007 to 2012, around the same time unemployment remained high, poverty remained high, housing market remained weaker than ever before, and real GDP growth remained low. Although the stock market started its recovery from 2009, it was limited in huge part due to

this low median income. Once Median household income rose from 2012 onwards, the growth in all the other indicators especially the NYSE and other stock exchanges was more sustained and healthy as household based investments reached highs once again.

Homelessness in New York City as a representative sample:



Source: NYC Department of Homeless Services and Human Resource Administration

New York City is taken as a sample space, and levels of homelessness were plotted on the graph. If the trends are noted with care, we find that the levels remain relatively low between 2000-2001 and rise in 2003, and reach a peak in 2004. Levels are similar during the Great recession as compared to the 2003-05 period. Homelessness rose throughout the United States of America but the other economic indicators kept on showing positive trends. Rents rose to unprecedented highs and housing became unaffordable for millions. However, since it was the homeowners who invested in stocks, the financial markets showed positive trends. Meanwhile, many of the homeless people had jobs but could not afford a house due to rising rents throughout major cities, primarily due to the financialization of housing markets due to the incredible rates of mortgages and housing loans provided by the big banks.

The Great Recession:

The Great Recession was a global economic downturn that devastated world financial markets as well as the banking and real estate industries. This Crisis led to mass layoffs , millions of bankruptcies and more than a trillion dollars in wealth erased. The crisis led to increases in home mortgage foreclosures worldwide and caused millions of people to lose their life savings, their jobs and their homes. It's generally considered to be the longest period of economic decline since the Great Depression of the 1930s. Although its effects were definitely global in nature, the Great Recession was most pronounced in the United States—where it originated as a result of the subprime mortgage crisis—and in Western Europe.

Since the Great Recession, the International Monetary Fund (IMF) has described a "global recession" as a decline in real per-capita world gross domestic product (GDP), as supported by other macroeconomic indicators such as industrial production, trade, oil consumption and unemployment, for a period of at least two consecutive quarters. As the housing market boomed in early 2000s , mortgage lenders wanting to capitalize on the rising prices started selling mortgage backed securities. Lenders started selling Prime AAA rating bonds with subprime mortgages hidden in them. Soon , in 2007 as the number of mortgage defaulters increased, there was no way to sell these bonds as AAA security bonds. This led to the collapse of the housing market and the banking sector. Housing prices began to fall as there was a flood of new homes in the market. and millions were left homeless as their houses were foreclosed on to minimize losses. With the civilian unemployment rate at 10% (Statistics) and almost 60,000 businesses filing for bankruptcy, the economic downturn was extreme. However, the Great Recession started with Wall Street firms which saw the initial losses as the recession began and the crisis spread out to other sectors of the economy. Thus, financial markets faced incredible losses as major financial firms went under and Wall Street saw a major overhaul.

Financial markets are generally forward looking. What this means is that financial markets do go by the Efficient Market Hypothesis and immediately reflect any developments and changes in the financial, political, or economic environment. Thus while it seems that financial markets started incredible recovery from 2009 while unemployment rose steadily until 2010, the primary reason behind such divergent trends is action by the government and by the Fed. After programs such as direct lending to financial firms and TARP (Troubled Asset Relief Program) were implemented, financial markets immediately saw a recovery as wall street and investors were assured that the crisis was coming to an end. Meanwhile since the effect of such actions is generally delayed when it comes to other economic indicators such as employment, they continued showing negative trends until 2010 ("Chart Book: The Legacy of the Great Recession").

There is correlation in the initial years especially in 2008-09. As the DJIA and the S&P 500 fell more than 50% once the subprime crisis began, unemployment increased by around 3% (around a 50% rise in unemployment). Similarly, business filings for bankruptcy spiked and the percentage of people in poverty rose to 15% and the real GDP growth rate fell to around -2.5%. More than half of the United States' metropolitan cities saw their poverty rates surge by a significant margin during the Great Recession. It is no surprise that the Worst Recession since the Great Depression caused an increase in Poverty Rates. The lack of investments, and a faulty banking, housing sector during this period took a toll on the people who depended on it for their day to day livelihood. In the first year of recession, the poor population grew by about 1.1 million people, and suburbs accounted for more than half of that growth. (Kneebone, Elizabeth. "The Great Recession and Poverty in Metropolitan America."). Several metro areas saw an increase in poverty by about 5%, whereas other major regions recorded a 3-4% increase in poverty during this period.

However, from 2009, as the Obama Administration rushed through the Recovery Act and the effects of the Bush Administration's actions set into effect, financial markets (here, represented by the DJIA and the S&P 500) started their recovery as manufacturing firms especially the auto industry was bailed out and the real GDP growth rate rose by 5%. As the credit availability in the economy improved and financial housing prices stabilised. Bankruptcy filings fell as new financial reforms and relief programs were implemented. The direct result of the Fed's actions were seen most prominently on the real GDP growth rate and the stock indices. Meanwhile it was the Recovery Act which was the turning point for unemployment which fell starting 2010.

In November 2011, the Census Bureau released the SPM- Supplemental Poverty Measure- a more efficient and proper system that gets rid of several fallacies in previous systems. The SPM tells us that Poverty in 2010 was perhaps lower than what was expected primarily due to the Stimulus Package which caused an increase in food stamps, et al.Danziger, Sheldon. "Poverty and the Great Recession.". This adds more credence to the already known fact that monetary policy actions have long term impacts on such indicators while direct budgetary actions by Congress have a direct effect on such indicators.

2010-2020:

After having analysed the trends emerging from both financial markets and economic indicators like unemployment for the period 1950-2010, the study shall analyse the past decade to understand the trends emerging from the economic data as there have been significant changes in the last decade with regard to financial policy, trading on wall street, and especially the Covid-19 Pandemic

Dow Jones Industrial Average (1998 to 2012):

Source: macrotrends.net

S&P 500 (1998-2012):

Source: macrotrends.net

The two graphs show the DJIA and the S&P 500 indices during the period of 2010-2020. Below are other economic indicators such as unemployment, poverty, and business bankruptcy statistics for the same period:

Unemployment Rate:

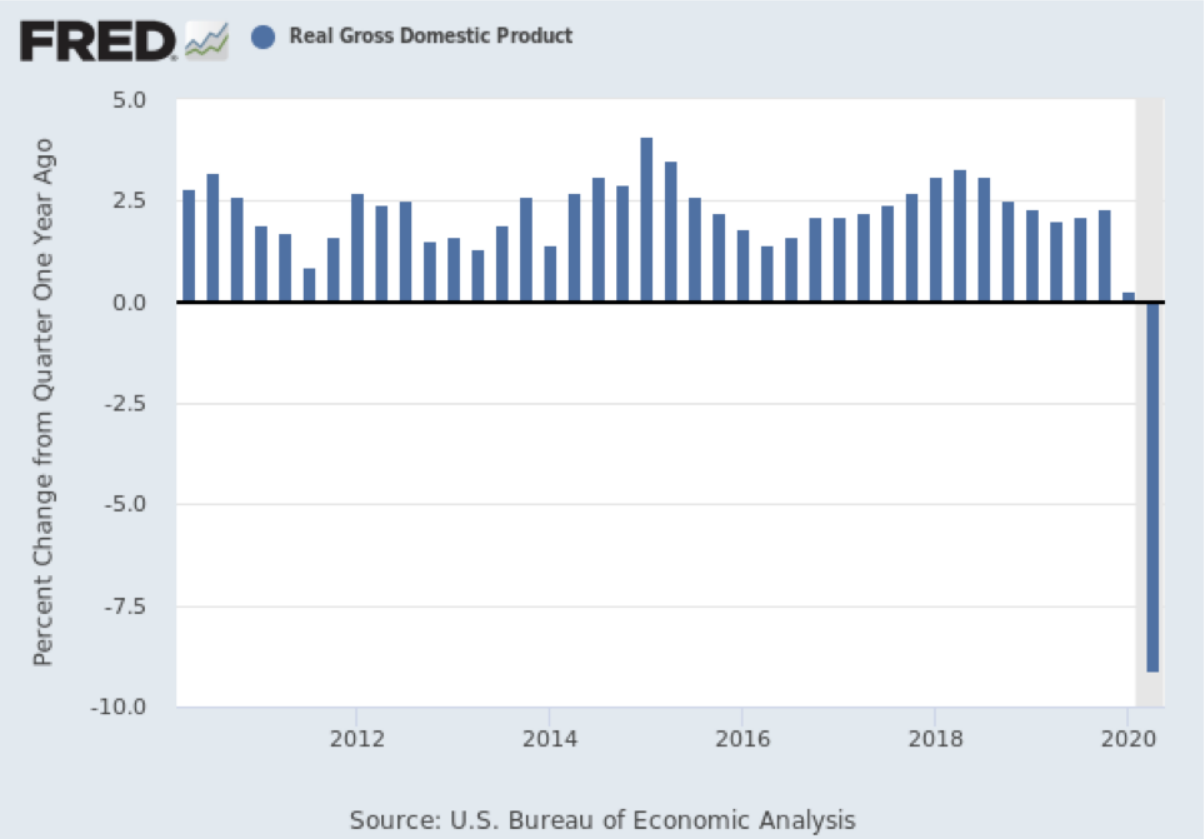
Source: Bureau of Labor Statistics

In the past decade, a steady decline in the unemployment rate is observed, which is in tandem with the performance of the stock market. It is a well-established fact that the years from 2010-20 were the best years of the stock market, characterised by a substantial rise in the number of publicly-traded tech companies, with tech companies also being the top-5 performers in the stock market. The economy smashed the all-time record for number of months of consecutive job gains — 110 months as of November 2019— and added a whopping 21,879,000 new jobs to payrolls during that stretch. This was a dramatic change from the starting of the decade, when the economy, still reeling from the impact of the 2008 crisis. The decade began with one of the weakest labor markets since the Great Depression.

Unemployment was nearly 10% in 2010, the Fed was in the midst of a second wave of panic-driven “quantitative easing” to stabilize financial markets, and the economy shed jobs in 5 of the first 12 monthly BLS job reports of the decade. The period from 2011 to 2019 saw the single largest economic expansion which was only reversed due to the pandemic (Bureau, US Census. “Income and Poverty in the United States: 2018.) Unemployment fell from 10% in 2010 to just under 3% in November 2019 under the Trump administration as firms gained wealth and hired millions more employees and manufacturing jobs saw a resurgence under the Trump administration.

During this same period, there is sustained growth in both the Dow Jones and the S&P 500 which show sustained and strong gains throughout the decade until February 2020 when covid-19 induced pandemic started causing losses. Financial markets gained in that period as unemployment fell and more than 21 million jobs were added in the Obama and the Trump administrations.

Real GDP growth rate:



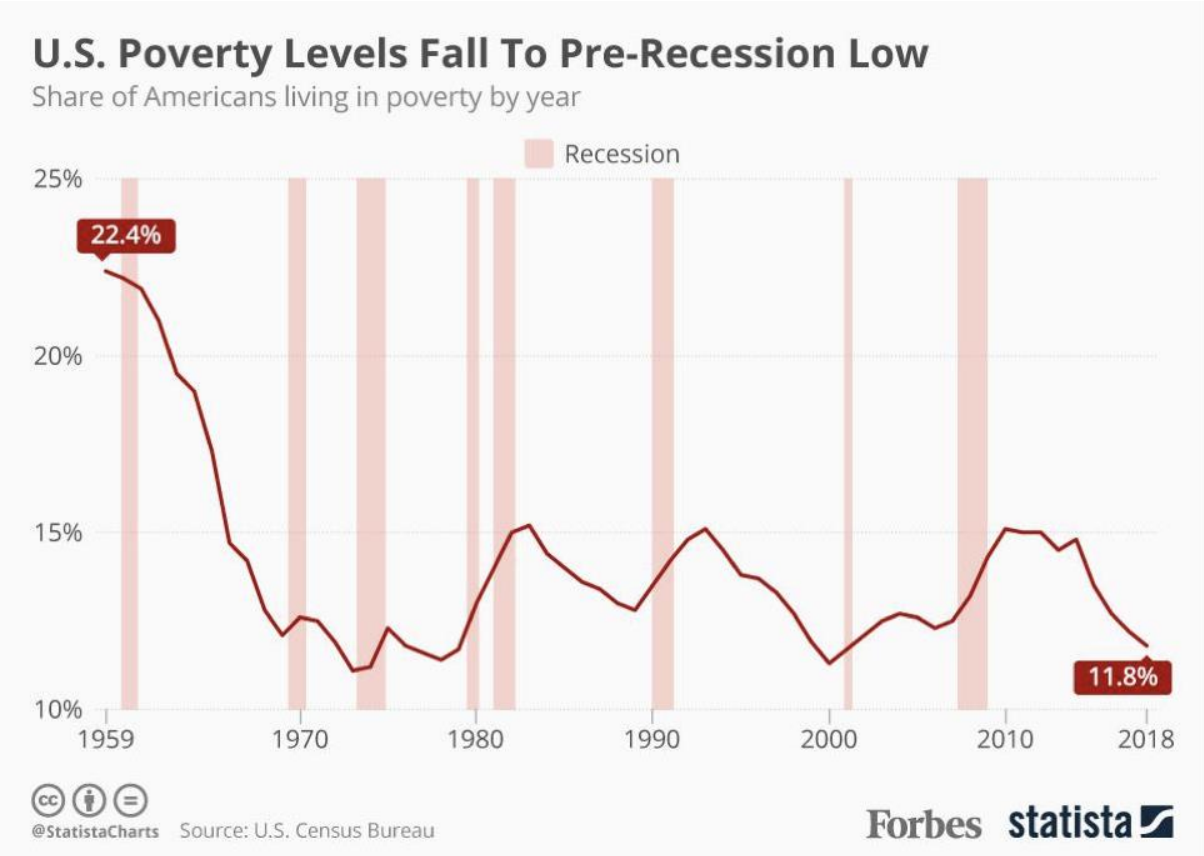
Source: World Bank

The real quarterly U.S. GDP growth in recent years since the recession has been mostly positive with some small exceptions. The GDP in the United States in the first quarter of 2009 experienced a 5.4 percent decrease. The National Bureau of Economic research dates the beginnings of the economic recession at December 2007. By 2009, the country's GDP finally began to improve again, reaching almost 15 trillion U.S. dollars in 2010. After contracting sharply in the Great Recession, the economy began growing in mid-2009, following enactment of the financial stabilization bill (TARP) and the American Recovery and Reinvestment Act. Economic growth averaged 2.3 percent per from mid-2009 through 2019. The pattern of quarterly growth was uneven, with the expansion including several quarters with growth well above 3.5 percent but also two where it was negative. Gradual sustained expansion in the level of economic activity was observed in the following years, with the exception of a few contractions in the growth in 2014 and 2016. This was largely in

keeping with the performance of the stock market, which saw unprecedented gains and rallies in this decade, excluding a select few instances. As the economy recover the losses of the 2008 recession, the real-GDP growth rate began flattening in 2014 and declined till 2016. When the Trump Administration took over in 2017, it brought back millions of manufacturing jobs and energy jobs as the United States became energy independent, and the real-GDP growth rate in the United States started increasing consistently till 2019.

The onset of COVID-19 produced a sharp contraction in economic activity in March 2020, resulting in a decline in real GDP of 5.0 percent at an annual rate in the year's first quarter and 31.7 percent in the second quarter, effectively negating the growth seen in recent years. This was in conformity with the stock market crash during the same period due to the implementation of lockdown measures throughout the United States.

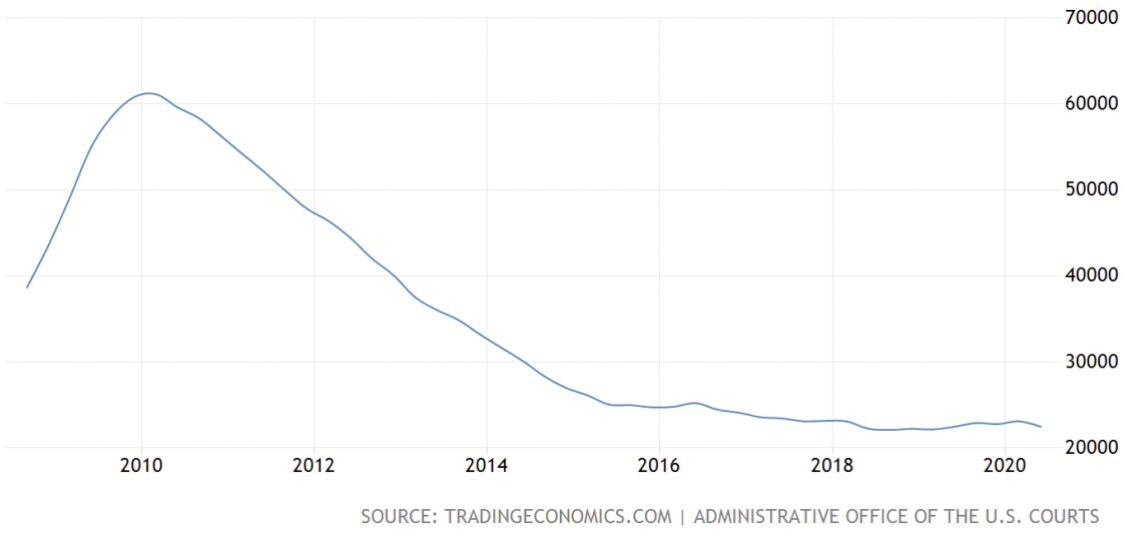
Poverty (Absolute and Percentage) in the United States:



Source: US Census Bureau

Accompanying the decline in unemployment was a steady decline in poverty in the economy, as it touched pre-Great Recession lows. This was an obvious consequence of falling unemployment, in keeping, once again, with the robust performance of the securities markets. With job creation on an incline, there was a steady decrease in poverty, with the purchasing power and disposable income of people on the rise. As per the report of the US Census Bureau in 2018, the official U.S. poverty rate was 11.8%, a reduction of 0.5 percentage points from 12.3% recorded in 2017. For the first time in 11 years, poverty levels were significantly lower than in 2007. This was apace with the growth trends of the securities markets, which saw strong rallies.

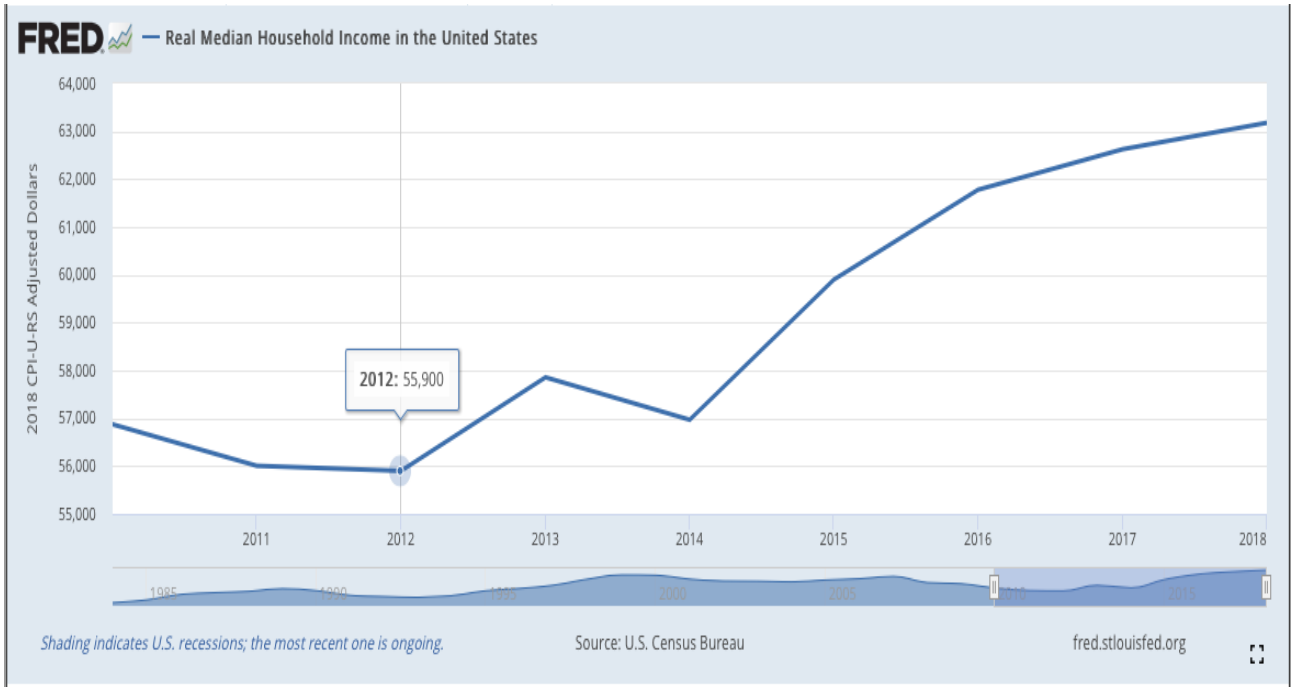
Business filings for bankruptcy (2010-2020):



Source: Administrative Office of the U.S. Courts

September 2010 court statistics show that during the depths of the Great Recession, almost 1.6 million bankruptcy petitions were filed, with 1.53 million consumer cases making up the vast majority of the case load. Eight years later, the amount of new cases had been cut by more than half. In September 2018, there were more than 770,000 cases filed from broke businesses and individuals looking to get their finances together through court-ordered debt-forgiveness and repayment plans. Consumers accounted for 97% of the cases. This drastic fall in the number of bankruptcy filings can be attributed to two major reasons- expansion in the level of economic activity and falling unemployment and poverty, and a rise in the cost of initiating bankruptcy proceedings. However, this was in conformity with the trends of the financial economy as well, as stocks continued to see higher and higher gains, which was mirrored by economic indicators like real-GDP, employment, the decline in poverty et al. (“Trends in Bankruptcies in the United States.” - Report)

USA Median Household Income:



Source: US Census Bureau (Statistics)

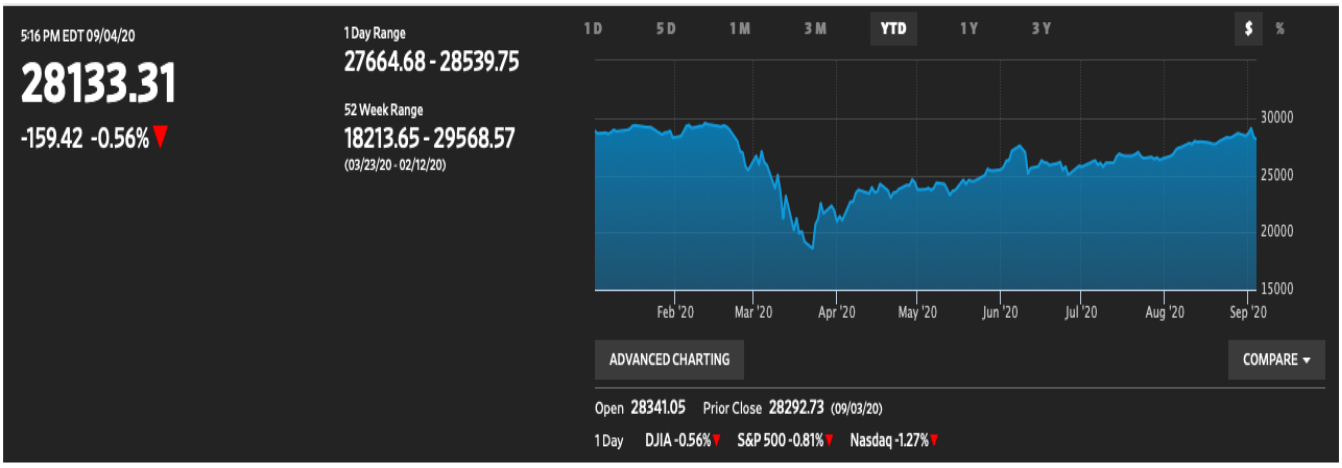
The data from the Income and Poverty Report, 2018 from the US Census Bureau reveals that the median household income rose from 2012 as the economy got back on track and rose from $55,900 to $63,179. The period was marked by falling unemployment. This has a causal relation as when millions of jobs are created, millions of households see new sources of income and thus the median household income increases. And when the median household income rises, the households have greater wealth to invest in the financial markets thus leading to the growth of the stock markets as well. This clearly indicates a clear positive trend from 2012 onwards with a consistent rise in median household income (adjusted to 2018 inflation rates), a fall in unemployment figures, and sustained growth in the financial markets. With tax cuts to the middle class, the median household income increased further and this growth continued even today as median household income has remained consistent due to the extensive and generous stimulus passed by the United States Congress.

Economic Situation during the Covid-19 Pandemic:

The start of the COVID-19 pandemic in the United States quickly resulted in an unprecedented decline in economic activity. In the 13 weeks starting in mid-March 2020, more than 49 million people filed for unemployment insurance. GDP in the first quarter fell 5%, the largest quarterly decline since the Great Recession, even though state stay-at-home orders were uncommon until the latter part of that quarter. The sharp decline in employment meant that earnings fell, and the significant decline, at least temporarily, in the value of the stock market reduced asset and retirement income. At the same time, the federal government responded with tax rebates in the form of Economic Impact Payments, small business loans, and an unprecedented expansion of unemployment insurance as part of the CARES Act and related stimulus legislation that all told committed more than three trillion dollars to countering the effects of the COVID-19 pandemic. However, whether this response has been adequate to offset the losses and what net effect it may have on income and poverty remains unclear.

In this section we will take a close look at various economic indicators, (GDP growth rate , household income, poverty, and unemployment). Stock market indices such as DJIA and the S&P 500 will be used as a benchmark to gauge the overall health of the stock market and to assess the trends in the financial markets. Certain other indices such as the CBOE Volatility index will also be used to bring out the investor sentiments. The main aim of this section is to assess whether financial markets efficiently and accurately enunciate the condition of the economy during the pandemic.

Dow Jones Industrial Average (YTD):



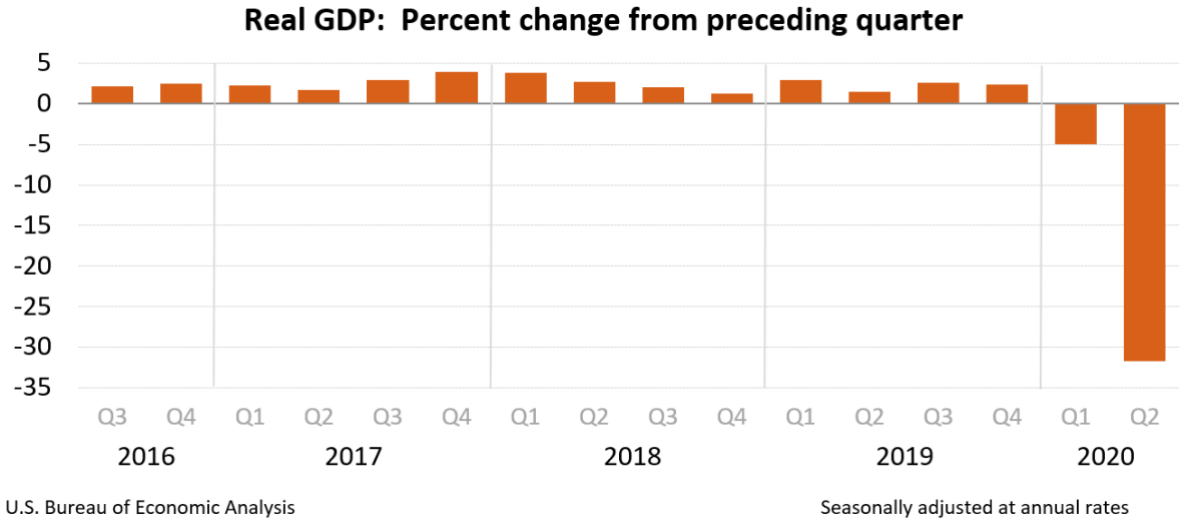
Source: Wall Street Journal

S&P 500 (YTD):

Source: Bloomberg

The Dow Jones Industrial Average and the S&P 500 indices clearly show that the stock markets crashed in March 2020, posting one day losses that mirrored what was seen during the Great Depression of the 1930s. However after stimulus packages, forward guidance and support from the Fed, Wall Street quickly took off and has almost erased all pandemic induced losses by September 2020.

Real GDP Growth Rate:

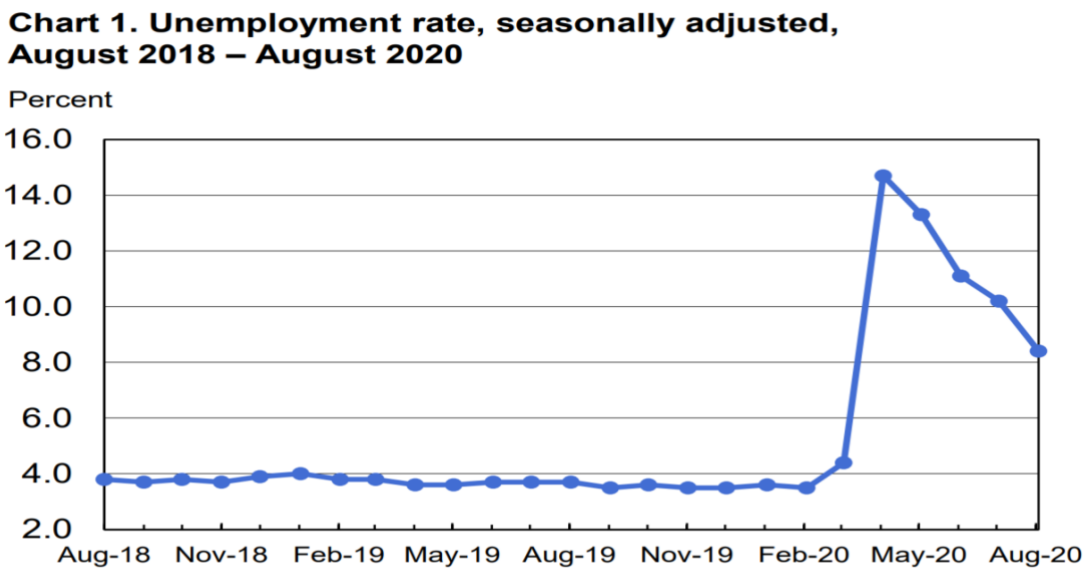


Source : US Bureau of Economic Analysis

The coronavirus pandemic caused a supply shock in the world economy. As countries went into lockdowns and trade fell, there was a global supply chain disruption with firms not being able to produce many products as they couldn't get the required raw materials. As lockdowns were imposed, demand also fell leading to a large decrease in the GDP. Taking the US GDP as a representative sample we can see that the GDP has contracted by 31.7% This does show a very large contraction in the economy, higher than that during the Great Recession. The GDP is not expected to rise to pre pandemic levels until the fourth quarter of 2022 according to estimates made by the Bureau of Labor Statistics. At the same time the DJIA and S&P 500 fell to historic lows in April and then started recovering , surpassing pre-pandemic levels. Although it may seem contradictory that the financial markets have almost completely recovered pandemic induced losses, when we analyse the primary nature of the recession today and other economic indicators – especially poverty, homelessness, eviction rates, household income, weekly jobless claims reports, retail spending reports, and overall consumption spending – we see that there is a relation between the growth seen in the stock markets and the other economic indicators as well.

Firstly, it is important to understand that the recession was caused by a pandemic which has resulted in universal social distancing guidelines and lockdowns. During such procedures, millions of businesses remain closed down and thus production of goods and services remains at a temporary halt. The GDP which effectively measures the gross production levels in the economy is bound to face the largest drop as the Short Run Aggregate Supply Curve shrinks massively while the Aggregate Demand in the economy doesn't seen much change. While GDP growth falls to a historic low of 31.7% in 2020 Q2, due to stimulus packages implemented by Congress, demand remains consistent and thus the other economic indicators remain stabilised. This is arguably one of the biggest comparisons of the current recession with the Great Recession when the failure of the financial system caused the crashing of the entire economy, wherein here it was the coronavirus which almost decimated the entire economy and its financial system.

Unemployment Rate:



Source : Bureau of Labour statistics.

As the Bureau of Labour Statistics puts it, the unemployment levels in the United States varied greatly during the pandemic. When in March, the Department of State imposed travel restrictions, California, New York and Illinois declared a lockdown, more and more people began moving into their homes, businesses incurred losses, and rates of unemployment shot up ("The Global Economic Outlook During the COVID-19 Pandemic: A Changed World." World Bank). In March, Unemployment reached a 2.5 year high. The number of people unemployed rose from 1.35 million to about 7.14 million ("The Employment Situation." Bls.gov, 2020,). Stocks tumbled massively in perhaps their largest one week drop since the Great Depression of the 1930s. But as we approach May, there is an unexpected drop in Jobless claims in the United States- the number fell by 2.1 million, and based on these trends, economists predicted a fall to a 10.3% unemployment rate, but in August the rate fell to 8.4 %, far below the market expectations. The stock market most clearly corroborates this data: In March when unemployment surged, financial markets plunged, and later when jobless

claims began falling to rates lower than expected, the growth in the stocks was positive, so much so that markets surpassed pre pandemic levels.

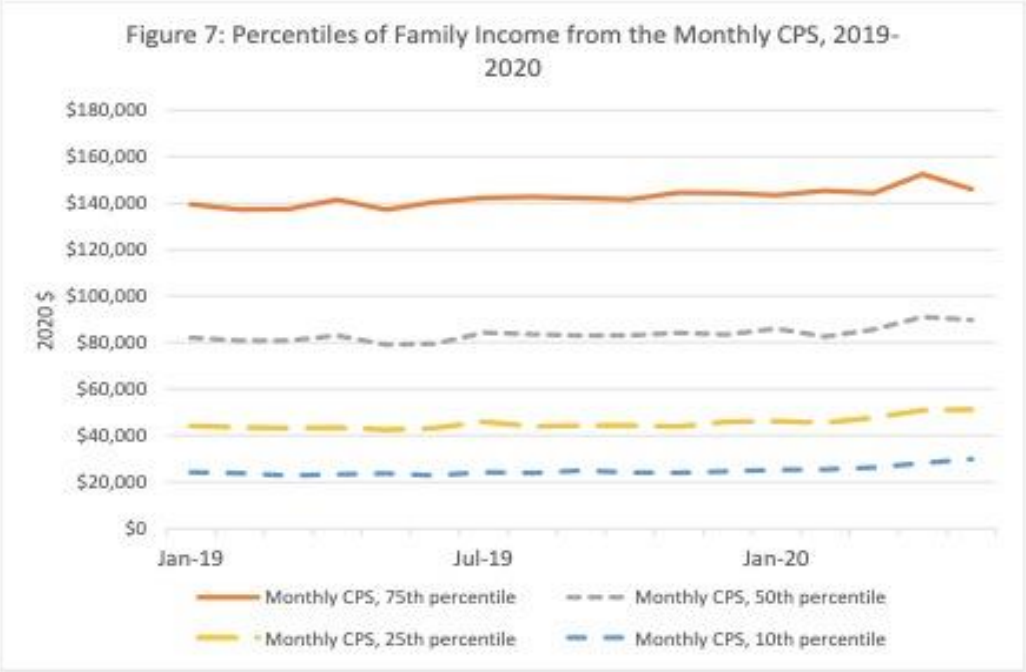
This unemployment, however for the most part, was temporary as millions are expected to get back their jobs once businesses can commence operations once again. In April approximately 18 million people were classified as unemployed and in August that number has dropped to 6.2 million, down considerably from the high of April. In another category , the number of people employed part time for economic reasons (involuntary part-time workers) declined by 871,000 to 7.6 million in August, reflecting a decrease in the number of workers who had to work part time due to slack business conditions. Although millions of small businesses have gone under, millions will still recover from the pandemic and reemploy a large part of their workforce, thus ensuring that the unemployment crisis shall recede quickly once social distancing ends.

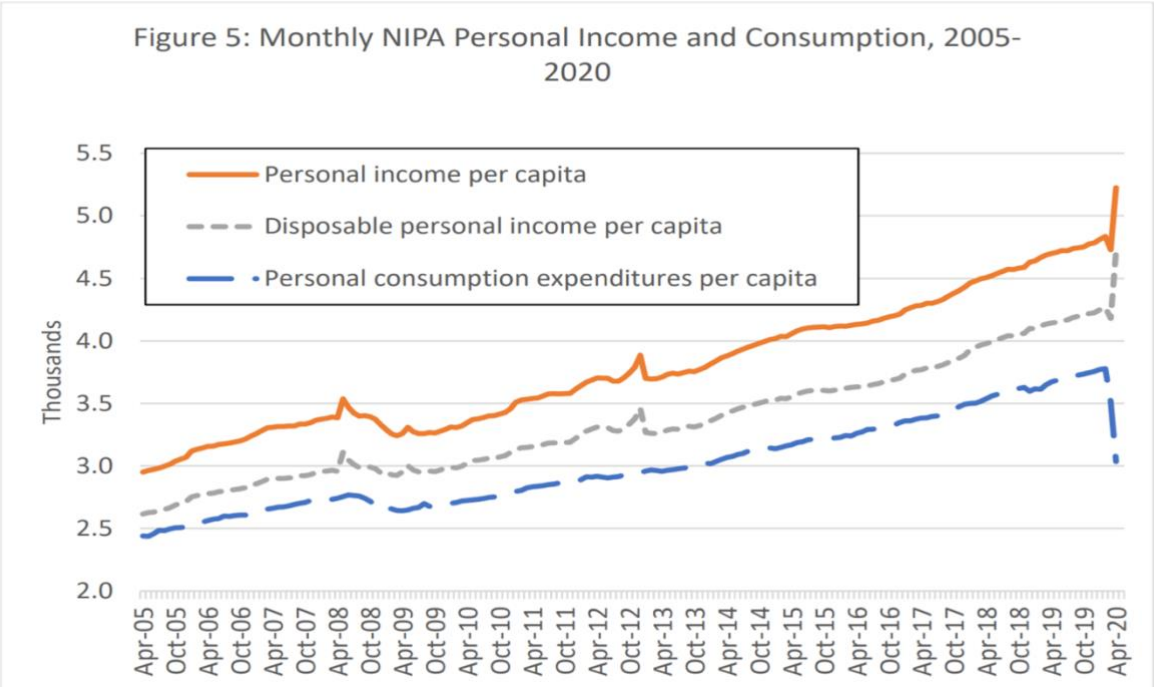
CBOE Volatility Index:

Source : "CBOE Volatility Index." MarketWatch

The fear index is a popular name for the Chicago Board Option Exchange's Volatility Index. It is a means of measuring the stock market's expectation of volatility based on S&P 500 index options, but overall it measures just how much investors are willing to pay for their stocks. Given its intrinsic connections with investor behaviour, it is only natural to expect that it runs just in tandem with Stock prices. When in March, the Stock Market collapsed at the prospect of a lockdown, the fear among investors began surging, as they began to contemplate if their investments were in vain. However, as the economy begins to open gradually in the months to follow, employment rates stabilise, and the stock prices rise, the fear index begins to level off. It is quite understandable, given the uncertainty brought forth by COVID that the levels of fear do not wane off completely-they stay higher than normal, but at the same time, they do drop as investors adapt themselves to the situation and investing once again becomes motivated by greed rather than fear.

Poverty, Household Income, and Personal Income:





Source : Brookings Papers on Economic Activity - Income & Poverty in the covid-19 Pandemic

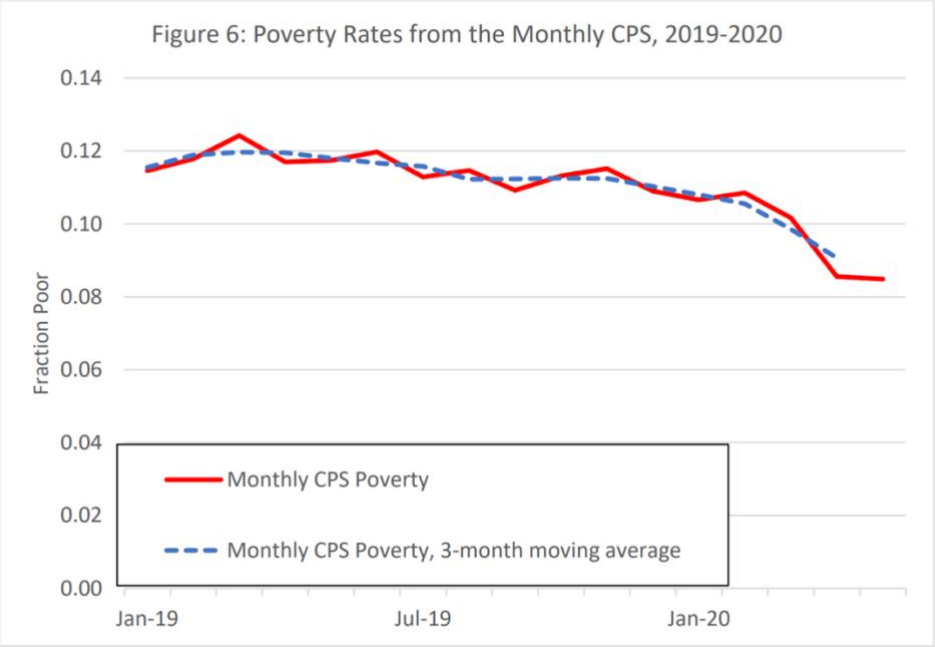
As discussed above, the onset of the COVID-19 pandemic was marked by a sharp decline in employment and earnings. At the same time, there was a sizable response from the federal government that transferred trillions of dollars to low and middle income individuals and families. A key question, then, is whether this government response was large enough to offset lost earnings. To address this question, we examine changes in poverty and percentiles of the income distribution for the period just prior to and after the start of the pandemic. Looking beyond poverty estimates, we also consider how the COVID-19 pandemic affected different points in the distribution of income. The figure above estimates the 10th, 25th , and 75th percentiles family income for the period from January 2019 to May 2020. Focusing in on the 25th percentile of family income for the five most recent months, we see annual family income increased from about $46,000 in January to about $51,000 in May, an increase of around 5% or 11 million. This is statistically significant. It is assumed that during a pandemic, family incomes fall due to unemployment and increasing poverty. However due to the impact of the CARES Act and stimulus measures taken by the Fed as well, family income has increased as family members get the one-time $1200 check and weekly unemployment benefits of $600. Thus families had enough income to spend on consumption. Additionally, due to the fall in consumption opportunities, the disposable personal income has risen for families across the nation to cushion the impact of the coronavirus which has increased healthcare costs and risks for many families and poses quite an unprecedented risk not only to the economy but also to every family.

The Bureau of Economic Analysis (BEA) Personal Income and Outlays data indicate that real disposable personal income fell by 1.8 percent in March but rebounded to rise by 13.4 percent in April calculated as the change from the previous month in both cases. Cox et al.

(2020) finds that income flows into household bank accounts and saving increased early in the pandemic. Thus, the income rise that we find is consistent with the other evidence

The BEA also reported that real personal consumption expenditures fell by 6.7 percent in April followed by an additional fall of 13.2 percent in May. Cox et al. (2020) and Chetty et al. (2020) also find a decline in April in spending as recorded in bank accounts or aggregated credit records, respectively, though they both find an uptick in May. The rise in income and savings can be reconciled with the decline in consumption because the opportunities for spending were limited by stay at home orders and travel bans as well as personal choices to avoid contracting or spreading the virus, and uncertainty about future income streams and other factors.

Poverty Rates in the USA from Monthly CPS:



Source : Brookings Papers on Economic Activity - Income & Poverty in the covid-19 Pandemic

Estimates of poverty by age group indicate that poverty declined for all three groups. Poverty declined by 2.8 percentage points (18.6 percent) for individuals aged 0-17, by 2.4 percentage points (24.2 percent) for individuals aged 18-64, and by 1.4 percentage points (17.2 percent) for individuals aged 0-17. All of these declines in poverty are statistically significant, but they are not significantly different from each other. We also see declines in poverty across racial groups and across groups defined by the educational attainment of the head. As stimulus checks were provided to people and unemployment insurance provided a sustainable source of income, the blow of the pandemic was incredibly softened by what was, arguably, the most generous stimulus package in the world. Although the pandemic brought great hardships economically and socially, the government tried to ensure that it mitigated its impact on the people and provided them with a source of income during the pandemic.

Role of Financial Regulations on the ability of financial markets to track real economic indicators such as unemployment, household wealth, and poverty:

Glass-Steagall Act:

The phrase "Glass-Steagall" generally refers to the separation of commercial banking from investment banking. In this context, commercial banking refers to the activities engaged in by depository institutions, which are conventionally referred to as "commercial banks". In contrast, investment banking refers to activities engaged in by securities dealers and brokerage firms, referred to as "investment banks" or "securities firms". The Glass Steagall Act ensured that financial markets were accessible to every American citizen and to prevent banks and financial firms from exploiting consumers and engaging in wild speculation and broadening volatility. However, after intense pressure from lobbyists, in 1999, the Gramm-Leach-Bliley Act, also known as the Financial Services Modernization Act, repealed the Glass-Steagall Act of 1933. The repeal allowed banks to use deposits to invest in derivatives. Bank lobbyists said they needed this change to compete with foreign firms. They promised to only invest in low-risk securities to protect their customers. The following year, the Commodity Futures Modernization Act exempted credit default swaps and other derivatives from regulations. This federal legislation overruled the state laws that had formerly prohibited this form of gambling. It specifically exempted trading in energy derivatives. (McDonald, Oonagh. "The Repeal of the Glass-Steagall Act: Myth and Reality.")

The repeal of Glass-Steagall saw a change in securities ownership trends, with investment banks, now merged with commercial banks and enjoying the benefits highlighted above, increasing their equity ownership, growing to far outweigh small business owners and households. This allowed for increased speculation and volatility in the markets as banks took

on very high levels of risk. Although multiple research papers and theses have effectively concluded that the repeal of the Glass-Steagall Act was not solely responsible for the volatility the markets saw in the coming years and the 2008 crash, the unprecedented deregulation undertaken by the Bush administration, coupled with the effect of the repeal of the Glass-Steagall Act, served as a huge incentive for increasingly erratic risk taking and irrational exuberance.

Dodd-Frank Wall Street Reform and Consumer Protection Act

The Dodd-Frank Act included measures to improve systemic stability, improve policy options for coping with flailing financial firms, increase transparency throughout the financial markets, and improve consumer and investor protection. The Act included provisions that affected virtually every financial market, and those that amended existing or granted new authority and responsibility to nearly every federal financial regulatory agency. Systemic risk refers to sources of instability for the financial system as a whole, often through “contagion” or “spill over” effects against which individual firms cannot protect themselves. Although regulators took systemic risk into account prior to the crisis, systemic risk can never be entirely eliminated; analysts have pointed to a number of ostensible weaknesses in the pre-crisis regulatory regime’s approach to systemic risk.

The implementation of the Dodd-Frank Wall Street Reform and Protection Act was a vital step in regulating financial markets. History stands testament to the fact that lack of regulations/deregulation incentivise risk-taking and erratic investment/expenditure tendencies in investment banks and individual investors, which in turn compounds the problem of systemic risk. Although, from a practical viewpoint, the elimination of systemic risk from the

financial economy is impossible, minimisation of systemic risk is a pre-requisite to ensuring the stability of the financial economy.

While this shows that financial regulations protect financial markets from collapsing due to excessive risk undertaken by financial firms, thus protecting Main Street as well, there is no evidence to support the theory that financial regulations prevent markets from showing trends opposing to the trends in the economic indicators like poverty rates, unemployment, homelessness, and household income.

Conclusion:

From the study, we can notice that throughout modern history, financial markets have shown essentially the same trends as other economic indicators (unless affected by external scenarios such as wars) which are widely taken as indicators of the "real" economy, such as poverty, unemployment, median household income, and personal consumption expenditures. Financial Markets truly follow the Efficient market hypothesis and show changes in the stock indices as soon as there is any economic development that would normally take years to affect the other economic indicators. For example, actions taken by the Fed (monetary policy actions) normally take years to affect unemployment or median household wealth. However, knowing that the actions will generate greater liquidity in the economy, financial markets immediately show an upward trend. Thus, any change that takes place is immediately reflected through financial markets without significant delay. This also shows the reason why Financial markets track other economic indicators. Any change in economic circumstances with regard to aspects such as unemployment, or productivity in the industrial sector, say, will immediately cause a change in stock indices, which always, under ceteris paribus conditions, moves in a similar trend to the economic indicator.

Although it is widely claimed that the stock markets are not the real economy since they have been facing such a quick and incredible recovery recently, it is important to understand that markets have followed the actual state of the economy. Since the timely stimulus CARES Act was passed by Congress, not only has poverty fallen but median household income and personal disposable income also increased. Markets fell at the peak of the pandemic in April and have improved since then. Similarly, jobless claims have fallen off since then and the unemployment rate has fallen by almost 5% in just 3 months. Thus, although financial markets may not be "real economy", they do represent the state of the other economic

indicators and track them. A close study of the trends in markets can illustrate economic trends in poverty, unemployment, and bankruptcies as well. Thus, after carefully analysing over 70 years of data, we conclude that financial markets do track prominent economic indicators to great success and have proven as powerful indicators of the economic state of a country.

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