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COVID-19 Pandemic Housing Boom and Its Impact on Household Finance and US Economy

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Abstract: **During the COVID-19 Pandemic, the US housing market has grown at its fastest pace in the past decade. In this paper, three pandemic related factors are analyzed which could possibly cause the housing boom, as well as its effects on household finance and the US economy. First, housing supply has been kept low by a pandemic induced labor shortage as well as high input prices such as lumber. Second, large number of households working from home due to the pandemic has led to increased housing demand. Third, historical low federal funds rate and mortgage rates have encouraged housing mortgage borrowing. As a result, the high cost of housing has had negative impacts on consumer finance, especially to people hit hard by COVID-19 with low income or unemployment. Government policy should be enacted to alleviate the effects of a high cost of housing. Yet, this housing boom has not reached pre-2008 levels so a severe economic crisis is unlikely.**

Keywords: **COVID-19 pandemic; housing market boom; work from home; mortgage rates; interest rates; housing supply; labor shortage; consumer finance; household financial behavior; rent growth.**

I. INTRODUCTION

This research paper seeks to investigate the causes of pandemic housing boom through house price, pandemic, unemployment rate, lumber price, and mortgage rates. Correlations between house price and three main factors are identified. Housing market growth is put in perspective with the timings of the pandemic and economic recovery throughout 2020 and the first half of 2021. This paper contributes a broader understanding of the pandemic housing boom through multiple factors.

II. CONTEXT

The COVID-19 pandemic has had significant effects on all aspects of the world. The pandemic originated in China in late 2019, and its effects began to be felt globally in March 2020 leading to global shutdowns and a huge cost of human lives. According to data compiled by the Johns Hopkins University Coronavirus Resource Center (JHU), by August 2021, there have been over 216 million COVID cases and over 4.5 million deaths globally, while the United States itself has accumulated over 38 million cases and a death toll over 637,000.

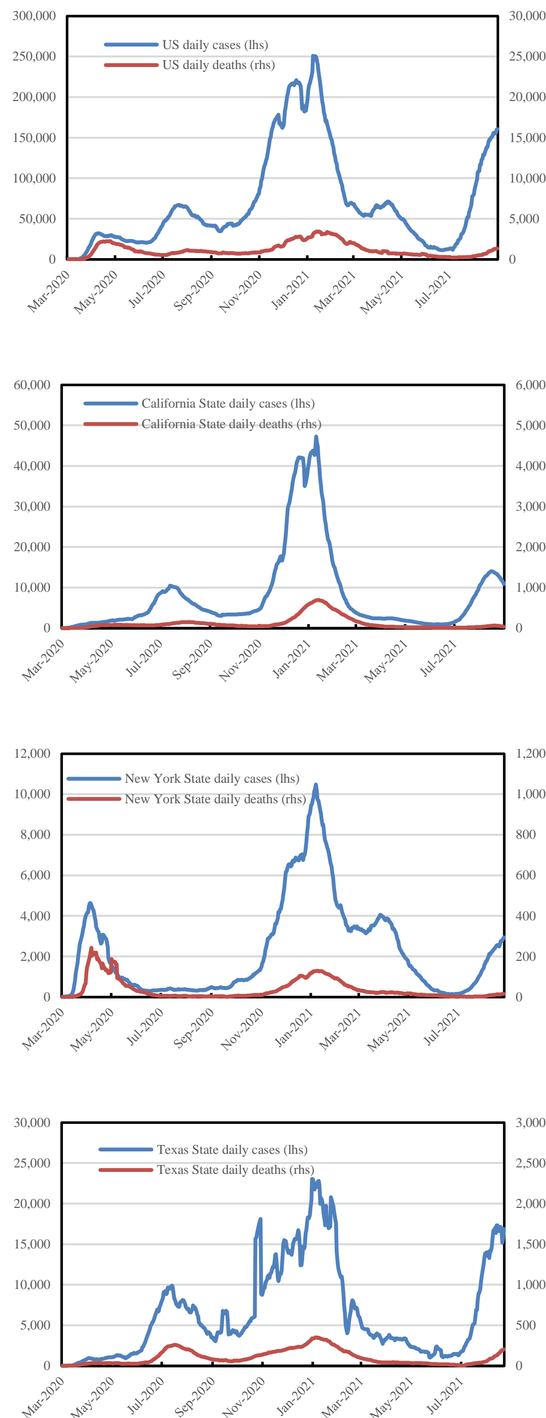

Figure 1: COVID cases and deaths, 7-day average as reported daily, Source: JHU

Figure 1 shows the COVID cases and deaths in a 7-day average as reported daily in the US, New York, California, and Texas, respectively. The pandemic has impacted different states with varying case numbers and timings. Compared to the overall United States, New York experienced a first wave of outbreaks earlier while Texas and California experienced a major outbreak later in May 2020. The first wave peaked nationwide at about 70,000 cases a day. The second wave of outbreaks started in late 2020 and lasted through April 2021. At its peak, over 250,000 Americans were being infected daily. Despite a relatively late second wave, California was hit especially hard and experienced the most state level cases with a peak of over 40,000 daily in February 2021.

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The second wave eased in April 2021 as nationwide daily cases fell below 100,000. This coincided with emergency FDA approval of vaccinations which dramatically reduced the number of cases starting April 2021. However, starting in July 2021, a third wave induced by the Delta variant brought US nationwide daily cases back to a level of around 150,000 daily. It has raised concerns that the COVID pandemic may persist [1].

III. CONTENT

COVID-19 has caused dramatic economic impacts such as volatile stock prices and a temporary stock market shock in March 2020. Global economic growth slowed in many developed and developing countries alike [2]. However, the stock market recovered significantly after its initial dip in March 2020 and grew throughout 2021 despite the on-going pandemic [3]. Surprisingly, US housing prices have been growing at its fastest rate in the last decade during the pandemic.

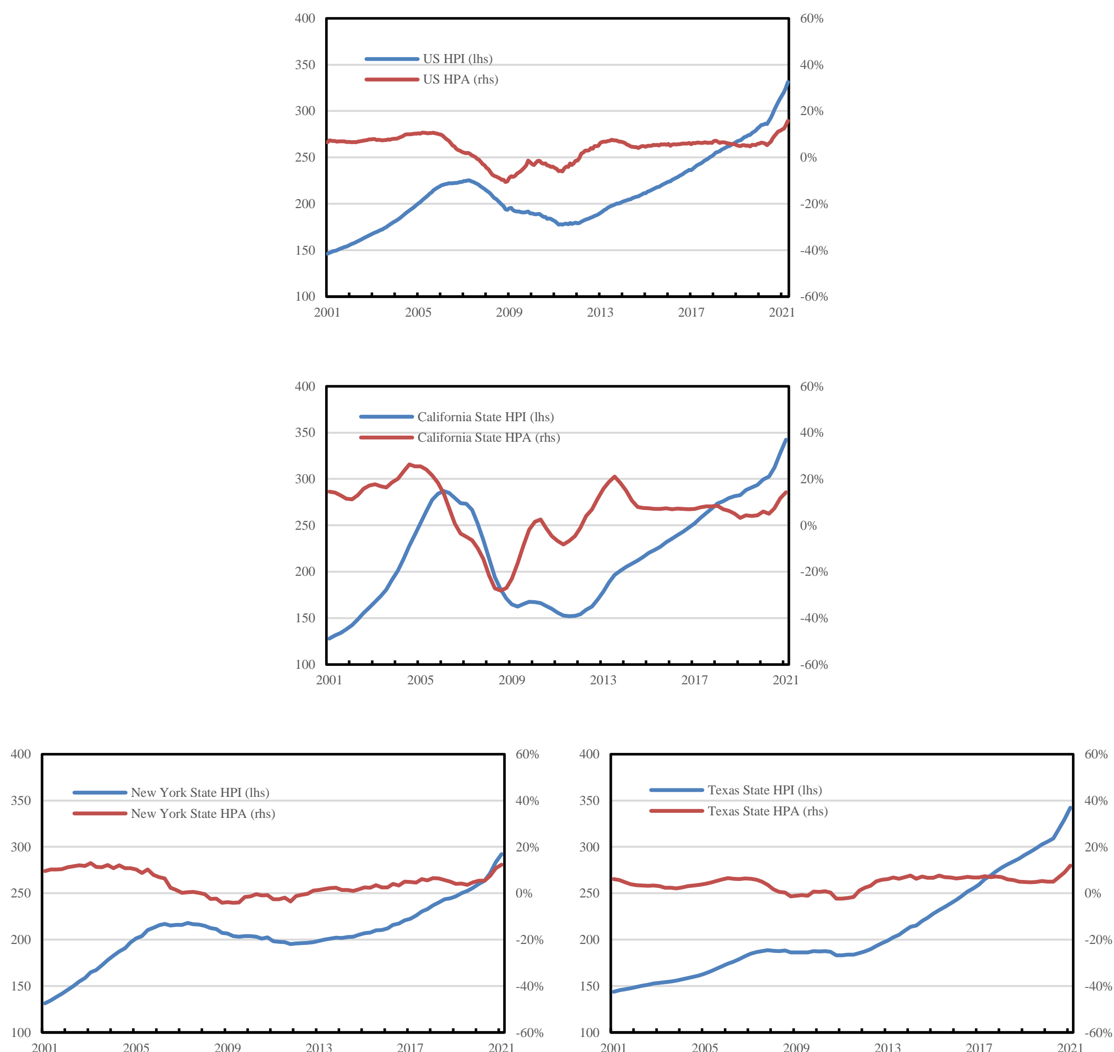

Figure 2: HPI and HPA in US, New York, California, Texas, Source: FHFA

Figure 2 shows the monthly House Price Index (HPI) and its annual growth rate (HPA) in the US, New York, California, and Texas, respectively, published by the Federal Housing Finance Agency (FHFA). Starting in the latter half of 2020, the overall US HPI has been growing rapidly at an annual rate over 10% and reached over 15% in April 2021, exceeding the peak of about 10% before the 2008 Great Recession.

Different states are experiencing varying amounts of housing price growth. California's HPI has been more volatile and has increased significantly since the 2008 housing bubble burst, but its sharp increase since the second half of 2020 can also be clearly seen. Meanwhile, housing market growth in New York and Texas has been more stable but still experienced strong growth with a HPA exceeding 10% during the pandemic.

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Knowing that a housing bubble was largely responsible for the 2008 Great Recession [4], it is important to understand the housing market today and analyze its effects.

IV. CAUSES

A. Supply of Houses

During the COVID-19 pandemic, housing supply was greatly interrupted due to an increase in construction unemployment and high lumber prices. Quarantine restrictions starting March 2020 led to many construction sites shutting down and laying off workers [5]. In addition, immigrant workers experienced significant unemployment growth and historically formed an important part of the construction workforce [6].

Figure 3 shows monthly unemployment rate (not seasonally adjusted) in the construction industry, which peaked at above 16% in April 2020 and decreased to around 8% thereafter. The construction industry is seasonal, so unemployment rate naturally increases during winter and decreases during spring. However, the pandemic has clearly affected this trend as unemployment shot up during the spring and has remained high. Similarly, following the housing bubble burst 2008, demand for housing decreased leading to construction unemployment skyrocketing. As the housing market recovered through the last decade, construction unemployment has also decreased, reaching under 4% in 2019. Yet as of July 2021, the construction unemployment has not returned to pre-pandemic levels and remains at around 8%.

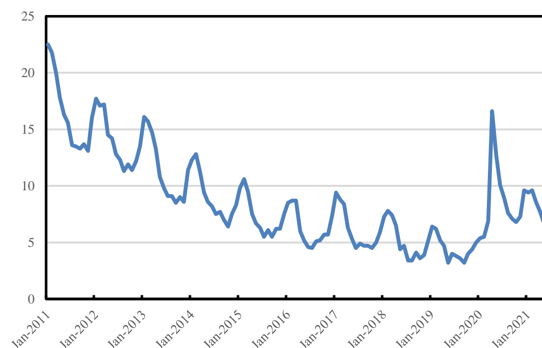

Figure 3: Unemployment Rate (%) in Construction Industry, Source: Bureau of Labor Statistics

Figure 4: Lumber Price (LBS), Source: Chicago Mercantile Exchange (CME)

Lumber is an input in housing construction, so high lumber prices will decrease the supply of housing and increase housing prices [7]. Figure 4 shows the lumber prices in the random length lumber futures (LBS) quotes. Since March 2020, the lumber price has increased from $400 per one thousand board feet of lumber to over $1,600 in May 2021. Although the price of lumber crashed in June 2021 to below $800, it’s still almost double pre-pandemic levels.

B. Demand of Houses

Strong housing demand has stemmed from the COVID pandemic. At the start of the pandemic, most people remained home except for many essential workers [8]. As people stayed home for much longer due to quarantine, many needed more space and decided to search for better housing. Even after many restrictions were lifted, many continued to work from home leading to a lasting demand for housing.

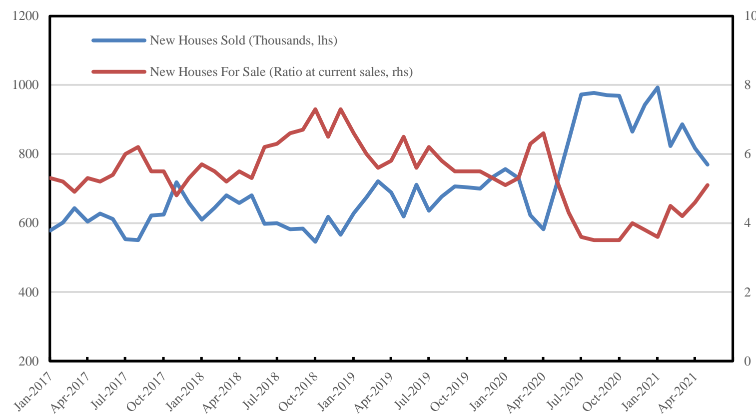

Figure 5: New Houses Sold and New Houses for Sale, Source: Census Bureau

In June 2020, Stanford [9] found that 42% of the US labor force was working from home while another 33% were not working. Even in May 2021, Pew Research [10] found that 40% of Americans prefer to work from home full-time. The pandemic may have permanently altered many Americans' habits leading to many permanently working from home, resulting in a persisting housing demand [11].

Figure 5 shows a general housing market supply-demand trend with new single-family houses sold in thousands juxtaposed against new single-family houses for sale as a ratio at current sales. As lockdowns started as a result of the pandemic, the trend was clearly reversed such that houses sold got a significant boost while houses for sale dropped simultaneously since April 2020 [12], [13].

C. Interest Rates and Mortgage Rates

It is generally known that a key factor affecting the housing market is the market interest rates and mortgage rates [14], [15]. The federal funds rate is an interest rate set by the Federal Open Market Committee (FOMC) at which banks charge each other for borrowing excess reserves. A low federal funds rate encourages growth as the cost of banks borrowing money from each other decreases. This encourages them to loan out more money and increase the money supply, increasing aggregate output.

In Figure 6, strong economic growth led to the effective federal funds rate increasing to over 2% before May 2019. To encourage further economic growth, the federal funds rate dropped to a little more than 1.5% in late 2019. However, in response to the initial economic shock from the COVID pandemic in Q1 2020, the federal funds rate was significantly decreased [16]. As shown in Figure 6, the FOMC set the federal funds rate at effectively 0%. This encouraged banks to provide loans to consumers using excess reserves from other financial institutions. Low interest rates encourage economic growth and borrowing, subsequently increasing the amount of housing borrowing, which increases housing prices.

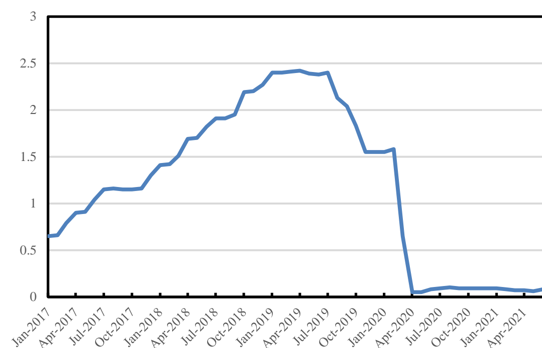

Figure 6: Effective Federal Funds Rate (%), Source: Federal Reserve Bank of St. Louis

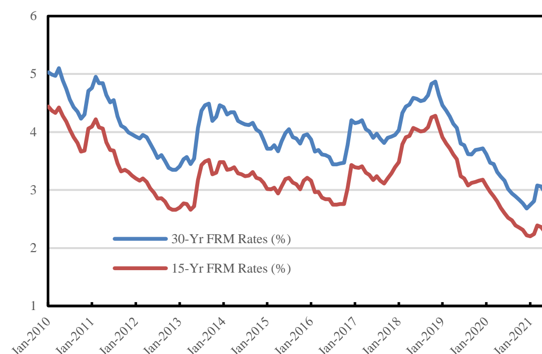

Figure 7: Freddie Mac Primary Mortgage Market Survey Rates, Source: Freddie Mac

A more direct correlation to the housing prices would be mortgage rates. A low mortgage rate would encourage housing borrowing as the cost of borrowing decreases [17], [18].

Throughout the 2010s, mortgage rates have been relatively stable with 30-yr fixed rate mortgage fluctuating between 3.5% to 5% and 15-yr fixed rate mortgage fluctuating between 2.5% to 4.5%, respectively. As shown in Figure 7, both mortgage rates have been simultaneously decreasing after the start of the COVID pandemic and throughout 2020. In January 2021, the 30-yr fixed rate mortgage fell to as low as 2.7%, while the 15-yr fixed rate mortgage reached about 2.2%. This greatly reduced mortgage costs and encouraged house buyers to take loans for housing during the pandemic. In addition, low mortgage rates allowed homeowners to refinance their existing mortgages. A low mortgage rate directly increases housing prices resulting in a booming housing market.

V. EFFECTS

The COVID pandemic has brought significant financial hardship among Americans, especially in low-income, vulnerable communities [19]. The government has taken several measures to protect financially disadvantaged Americans, including providing stimulus checks, rent relief funds, and an eviction moratorium, etc. These measures have prevented renters from being evicted for being unable to pay their rent, especially the eviction moratorium. Despite the moratorium, rent has been growing at a significantly higher rate due to increasing housing prices.

As shown in Figure 8, rent has generally increased steadily over the last few years by around 2% to 3% every year on average. Even during the COVID pandemic in 2020, the Zillow observed rent index remained stable under $1,700, which has largely been due to a drop in rental demand in cities [20]. However, average rent grew by an astonishing 9.2% in the first half of 2021 according to Business Insider [21]. This is highly correlated to US housing price increases.

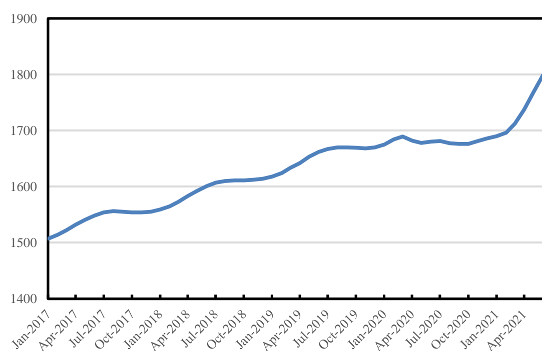

Figure 8: Zillow Observed Rent Index ($, not seasonally adjusted), Source: Zillow

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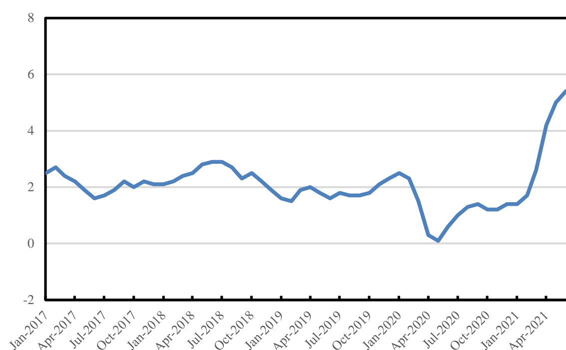

Figure 9: CPI (%, all items, yr/yr change), Source: Bureau of Labor Statistics

During the pandemic, government has used a variety of expansionary monetary and fiscal policies throughout the pandemic such as providing stimulus checks, passing massive trillion-dollar relief bills, and lowering the federal funds rate. Despite economic recovery and a strong stock market being supported by these policies, a side effect has been a massive increase in inflation. The inflation rate has hovered around 2% throughout the 2010s and even decreased to around 1% in April 2020. However, CPI has skyrocketed in 2021 to over 5% as shown in Figure 9. High inflation could have a variety of consequences, including a general increase in the price of all goods and services. This has brought extra hardship to financially disadvantaged families [22].

The COVID pandemic has created a unique economic situation. High housing prices have led people to compare the current housing boom with housing boom preceding the Great Recession, warning that another recession could occur if the housing bubble bursts [23]. Fortunately, the housing boom is unlikely to cause another recession as it is mainly driven by the unprecedented COVID pandemic. As vaccines start to take effect, the pandemic will eventually disappear, and the general economy and housing market are believed to go back to normal levels [16]. Some signals that have indicated this are that overheated lumber prices have started to cool down since June 2021, unemployment rate and job market became positive once again recently, and high inflation rate is believed to be temporary [5], [22].

VI. METHODOLOGY

All Figures use data from publicly available data sets that can be found online. The list of sources includes John Hopkins University, the Federal Housing Finance Agency, Bureau of Labor Statistics, Chicago Mercantile Exchange, Census Bureau, Federal Reserve Bank of St. Louis, Freddie Mac, and Zillow. Data is extrapolated onto a table in Excel and then graphed with magnitude of the vertical axis and time in months, quarters, or years on the horizontal axis. Correlations and trends are identified through comparison of Figures.

VII. CONCLUSION

The COVID pandemic has been an unprecedented crisis that has challenged modern medical, technological, and economic infrastructure throughout the world. Moreover, it has introduced uncertainty into global financial systems as governments take measures to mitigate the economic shocks of the pandemic. One such result of the pandemic has been a booming housing market in the United States, and in other housing hotspots throughout the world.

In 2021, the housing price index has been growing at a faster rate than during the housing boom preceding the 2008 Great Recession. This has been due to both high demand and low supply. Staying at home due to quarantine have led many to seek bigger homes or move away from high population density urban areas to suburban housing hot spots. In addition, low mortgage rates derived from a low federal funds rate have encouraged many to take loans to buy homes or refinance. Supply has been low as not enough homes are being built to keep up with the demand. High construction costs play a big factor and stem from a lack of lumber and construction workers willing to work through the pandemic.

While the resulting housing boom is unlikely to burst and cause another recession, it still has caused many hardships, especially among financially disadvantaged Americans. Government policy should be enacted to alleviate the effects of a high cost of housing.

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