**LITERATURE REVIEW**

The studies on the relationship between the COVID-19 pandemic and housing values can be grouped into three categories: studies that find no measurable effects on property values; studies that find all negative impacts on property values; studies that find all positive impacts on property values, and studies that find mixed results from different study areas or different periods during the pandemic.

**Group A: studies that find no measurable effects on property values.**

Zeng and Yi (2022) used the hedonic price model to compile the second-hand housing price index in Wuhan and its neighboring capital cities and then uses the difference-in-difference (DID) model to conduct a comprehensive study on new commercial housing and second-hand housing market. Their results showed that the negative impact of the pandemic on the housing market was mainly reflected in the volume and area of housing transactions, with little impact on housing prices.

**Group B: studies that find all negative impacts on property values.**

Hu et al. (2021) examined five Australian cities and found that for every doubling of newly confirmed COVID-19 cases, housing prices dropped by 0.35% to 1.26% annually. Qian et al. (2021) demonstrated that housing prices are negatively affected in regions with higher infection levels or inadequate healthcare, with a 2.47% reduction observed in Ireland as the pandemic persisted. Allen-Coghlan and McQuinn (2021) also observed an 18-month decline in housing prices in the Irish housing sector due to the COVID-19 pandemic. Francke and Korevaar (2021) noted a temporal increase in housing risk premia in Amsterdam and Paris caused by growing uncertainty and economic disruption from the pandemic, resulting in a reduction in housing prices. Liu and Su (2021) examined the COVID-19 pandemic's impact on housing location demand, revealing a shift away from high-density neighborhoods due to decreased necessity for proximity to telework-compatible jobs and declining value of access to consumption amenities. They also found that neighborhoods with higher pre-pandemic home values experience a greater drop in housing demand, and there is a significant but smaller shift away from large cities. Del Giudice et al. (2020) conducted a study in the Campania region of Italy, which revealed a short-term decrease of 4.16% and a mid-term decrease of 6.49% in housing prices between late 2020 and early 2021 because of the global pandemic.

**Group C: studies that find all positive impacts on property values.**

Yörük, B. K. (2022) studied 100 metropolitan areas in 2020 and found that state-level policies implemented to combat the COVID-19 pandemic, particularly the closure of non-essential businesses in certain states, resulted in significant decreases in new home listings (up to 11%) and total inventory (up to 3.5%) compared to the same period in 2019. Yang and Zhou (2022) examined COVID-19's impact on the housing market in the Yangtze River delta region in China by using the average selling price of commercial housing to capture the performance of local housing market. They found out that the COVID-19 has significantly increased housing prices, reflecting the need for families to stay together. Yang and Zhou (2021) examined the effects of the pandemic on the housing market in China and found a considerable and statistically significant increase in housing prices following the emergence of the pandemic, indicating the need for improved home quarantine measures. Kadi et al. (2020) conducted a study on the rental housing market in four major Austrian cities, analyzing real estate listings, and identified that property owners reconsidered their usage of units for tourism purposes, subsequently converting them back to the regular rental market due to increasing rental prices. Verma and Husain (2020) assessed the resilience and strength of the Canadian housing market during the pandemic and observed that cities near urban centers experienced an upswing in housing prices. In terms of reported COVID-19 cases, Arcaya et al. (2020) found that housing values increased with rising COVID-19 cases, primarily due to housing displacement pressures caused by the pandemic. Delgado and Katafuchi (2020) studied the relationship between the COVID-19 pandemic and the Japanese housing market during the state of emergency declaration. Their findings revealed a favorable demand for housing during this period. Regarding COVID -19 restrictions,

**Group D: studies that find mixed impacts on property values.**

Yang et.al. (2023) analyze the association between to-metro and by-metro accessibility and house prices in Chengdu, China and find different impacts on low-priced houses and high-priced houses. Gupta, A., et al. (2022) found that the COVID-19 pandemic led to house price and rent declines in city centers, while prices and rents increased in areas away from the center, resulting in a flattening of the bid-rent curve in most U.S. metropolitan areas. They also found that there was an urban revival in the housing markets with urban rent growth expected to surpass suburban rent growth as the prevalence of working from home diminishes. Jim and Huang (2022) empirically investigate urban residents' reaction to the Covid-19 pandemic, finding mixed evidence for a shift in housing preference to suburbs, with strong support for urban flight within metro areas but uneven geographical disparity across the United States, highlighting the local and regional nature of housing market conditions. D'Lima et al. (2022) find housing markets' pricing effects during COVID-19 government shutdown responses varied based on population density and property size, with densely populated locations experiencing a 1.4% decrease in three-bedroom property prices while low-density areas saw a 1.5% increase, and markets under shutdowns experienced a significant decrease in sales. Bricongne, Meunier, and Pouget (2022) analyze a large database and find that the listing prices after the lockdown experienced a continued decline in London but increased in other regions. Balemi, N., et al. (2021) offered a comprehensive review of scientific papers on the impact of the COVID-19 pandemic on real estate markets, encompassing commercial real estate, residential property, and the mortgage market. Their findings revealed that the outbreak affected all real estate markets differently due to their heterogeneity and various transmission channels from initial macroeconomic shocks, underscoring the significance of understanding these differences for governments, national banks, and investors in both private and public markets. Cheung et.al. (2021) investigate the COVID-19 epicenter in China and find the house prices fall immediately 4.8% by using hedonic pricing model and 5.0-7.0% by using price gradient model after the breakout. They also find that the house prices in the 62 areas in Wuhan City where the COVID-19 pandemic originated rebounded after the lockdown period, and price gradients were flattened from the epicenter to the urban peripherals. Li and Zhang (2021) examined housing price change rates across 2,856 U.S. counties during the COVID-19 pandemic. They found that the impact of the pandemic on housing prices varied spatially, with hotspots shifting away from densely populated urban areas to more affordable suburbs and smaller cities, suggesting a change in Americans' property-buying behavior in response to the virus. Wang (2021) investigated the impact of COVID-19 on house prices using individual-level transaction data and a revised difference-in-differences method. Among the studied areas (Houston, Santa Clara, Honolulu, Irvine, and Des Moines), this paper concluded that Honolulu witnessed significant house price declines, potentially linked to its heavier reliance on service industries; while Santa Clara and Irvine demonstrated the highest house price increase rates, highlighting the positive effects associated with stronger housing market fundamentals, better amenities, and reduced dependence on service industries.