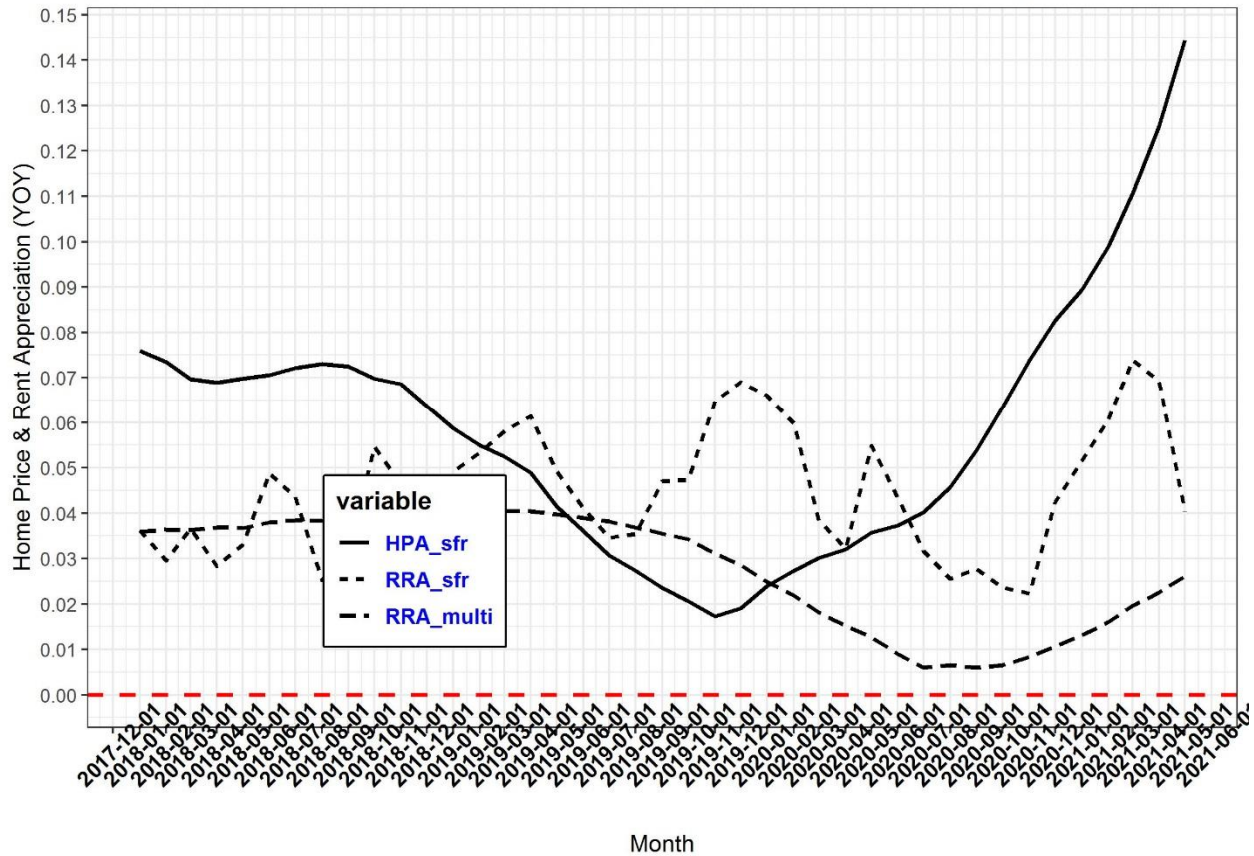


Denver, CO: May-21 The Three Bedroom Rental Market

1. Background

A combination of low mortgage rates, and a desire for more space in order to prevent infection and have additional room to work and play, have led some apartment dwellers in many U.S cities to terminate their rental lease and move during 2020 and 2021. Chart 1 shows how the year-over-year rent appreciation in multi-unit structures (RRA_multi) plummeted in Denver, CO since the start of the pandemic. The RRA_multi growth rate for the median apartment for the Denver, CO CBSA in May-21 was 2.6 percent. We measure a city as its core business statistical area (CBSA).

Chart 1. Denver, CO: Home Price Appreciation (HPA_sfr) & Rent Appreciation (RRA_sfr) for 3bd SFR detached & (RRA_multi) for Units in Multifamily Structures

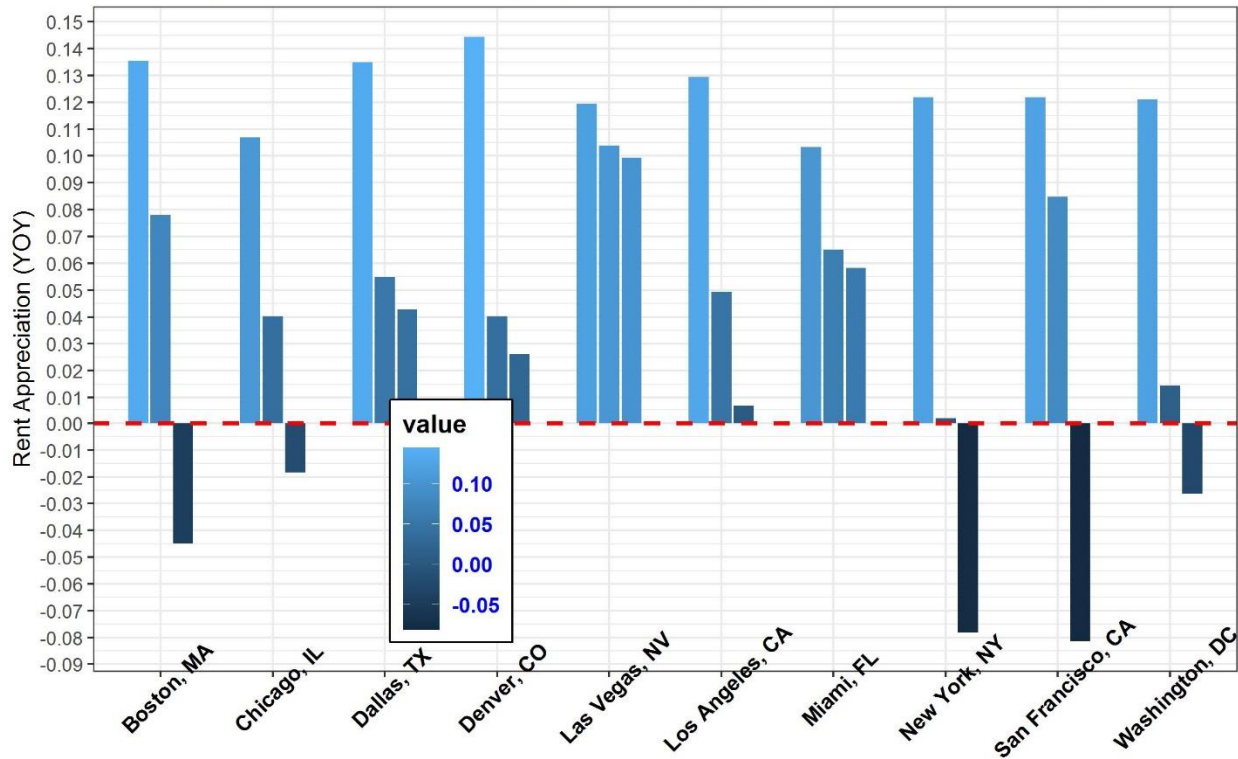


Sources: Zillow.com, Altisource.com, CHTR

It also has been widely reported that home price appreciation (HPA_sfr) during the 12 months ending in May-21 was very rapid in almost all cities. The year-over-year home price appreciation (HPA_sfr) for the Denver, CO CBSA was an amazing 14.4 percent. We can see the contrast between home price appreciation and apartment rent appreciation in Chart 1 and also in Chart 2. In Chart 2, we compare Denver, CO to nine other CBSAs. The dark blue bars show the rent appreciation for apartments. We also add

a third variable to both charts to show how rents for single family residential (SFR) detached properties (RRA_sfr) have had their own adjustment process. The RRA for detached 3 bedroom properties in May-21 was 4.0 percent for Denver, CO.

Chart 2. Ten City May-21, 3bd Appreciation: HPA_sfr (thin solid) & Rent Appreciation (RRA_sfr) for 3bd SFR detached properties & (RRA_multi), Units in Multifamily Structures



CBSA

Sources: Zillow.com, Altisource.com, CHTR

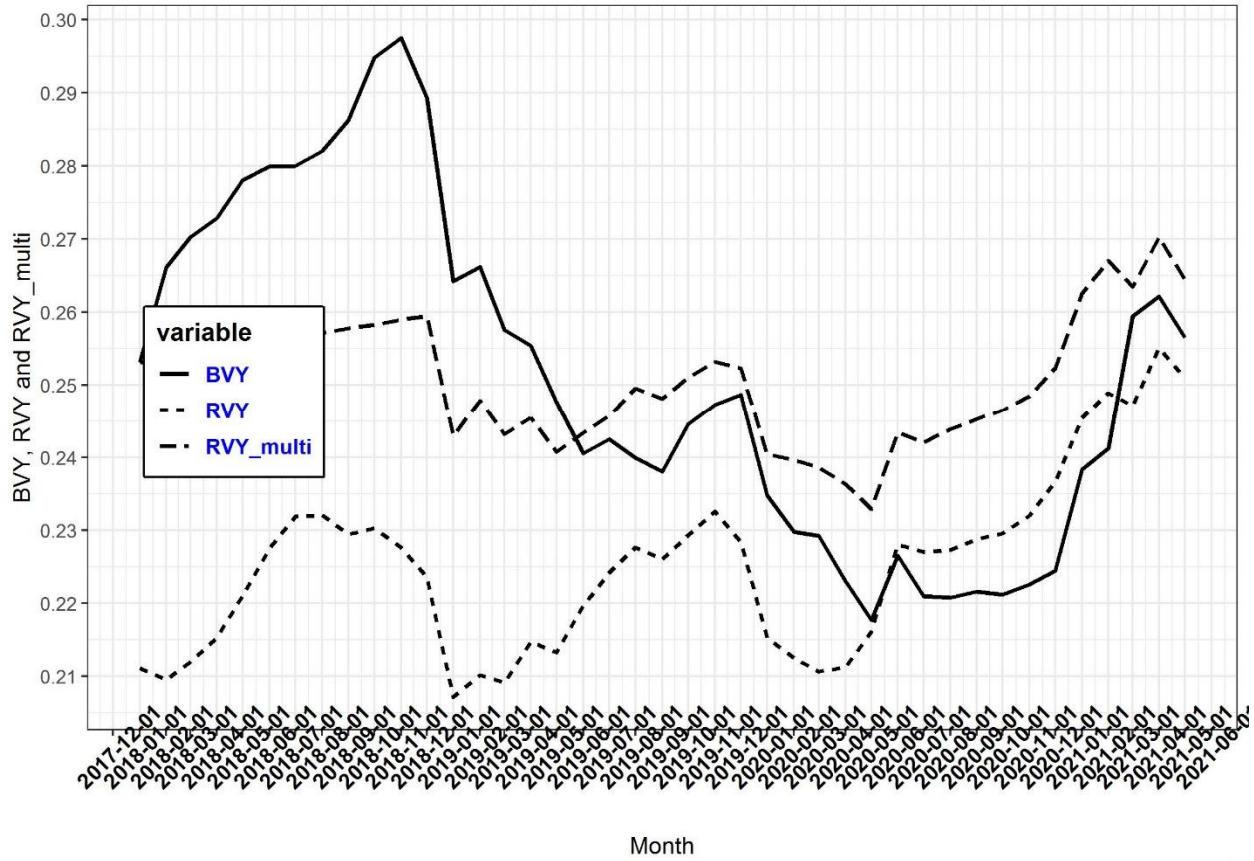
2. Question: How does renting compare to the cost of buying a three bedroom home in Denver, CO?

In Chart 3 we plot the cost to buy or to rent versus median household income (BVY, RVY and RVY_multi, or buy vs income, rent a detached home vs income, or rent an apartment vs income, respectively). We use a median income of about \$120k for households income in the denominator as necessary to buy a three bedroom house or rent a three bedroom property. Given the historical lows in mortgage rates, and despite the recent rises in home prices in Denver, CO it remains almost as expensive to rent a three bedroom SFR detached home as to buy a nearly identical SFR detached three bedroom home.

If we compare the changes in owning to buying we see that the renter who had the means to buy was made better off. The charts also show that renters of detached properties in the Denver, CO CBSA are worse off as the rental costs have gone up since 2018. Finally, the cost to rent a three bedroom apartment remains high due to scarcity and location in the central sections of the CBSA.

Chart 3. Denver, CO: Buy vs Income (solid line), Rent vs Income (dotted lines)

The yearly cost to rent a 3bd home rose above the yearly cost to own it in 2020:Q4.



Sources: Zillow.com, Altisource.com, zumper.com, CHTR.