Moving To/From Denver

During a Pandemic

Purpose

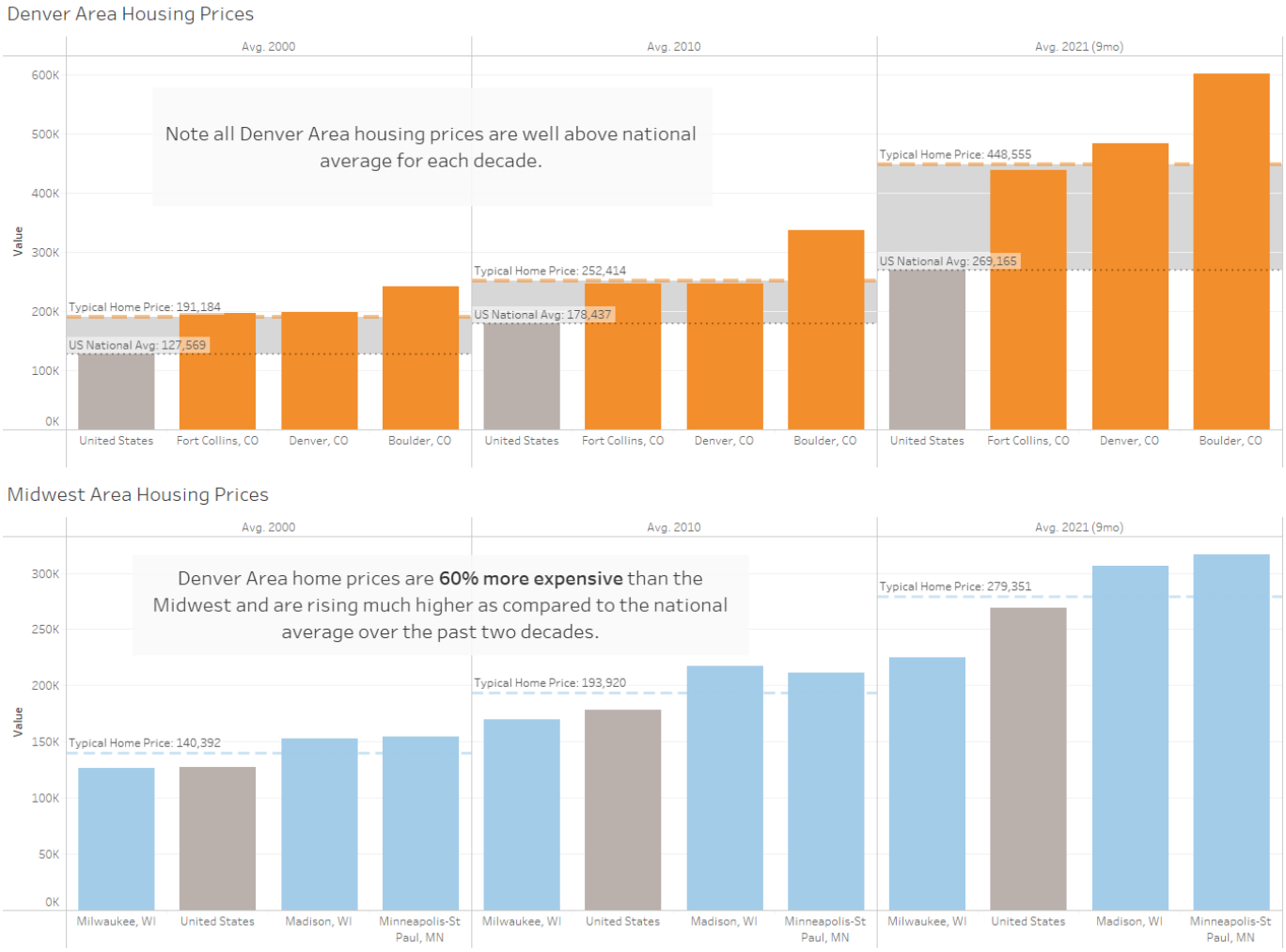
As populations change throughout America, certain states grow while others diminish. Here in Denver, as the data will show, my story is a common one shared my many others.

I chose my own personal account of living in Colorado for the past 13 years after moving from Wisconsin in 2008. Now, as my wife and I are ready to purchase a home, we have a choice to stay in the Denver area or move back to the Midwest. Though the research is specific to my situation, my experience is common – Colorado is in the top ten for both "moved-to" states as well as "moved-from" states according to a survey conducted by move.org (Wheelwright, 2021). The **purpose** of my visualizations is to help shed light on why the population in Colorado is so dynamic through the visual storytelling of my own account.

Visualization #1: The Current State of Housing Prices in Denver vs. the Midwest

For the first visual, it was important to establish a baseline for the current housing market. Since my wife and I have never owned a home, we wanted to weigh the tradeoffs of renting vs purchasing a home in both the Denver area and Midwest markets. To do that, I downloaded both current and historical data from Zillow.com (Zillow Home Value Index (ZHVI)). Though a relatively new company, I found Zillow to be much more current than any government data, especially with COVID-related delays in reporting. Variables in Visualization 1 include average housing value for typical homes filtered to our regions/cities of interest (Denver area: Boulder, Denver, Fort Collins and the Midwest: Madison, Milwaukee, and Minneapolis) to compare with the national average (gray bar). Adhering to Shaffer's 4 C's, I tried to keep the color palette simple so as not to distract from the data. I stuck with a colorblind-

friendly blue and orange. I offset the national average in both regions with the same gray but further used the preattentive attribute of color to separate the different regions.



Visualization 1: Current state of housing in both Denver and Midwest markets.

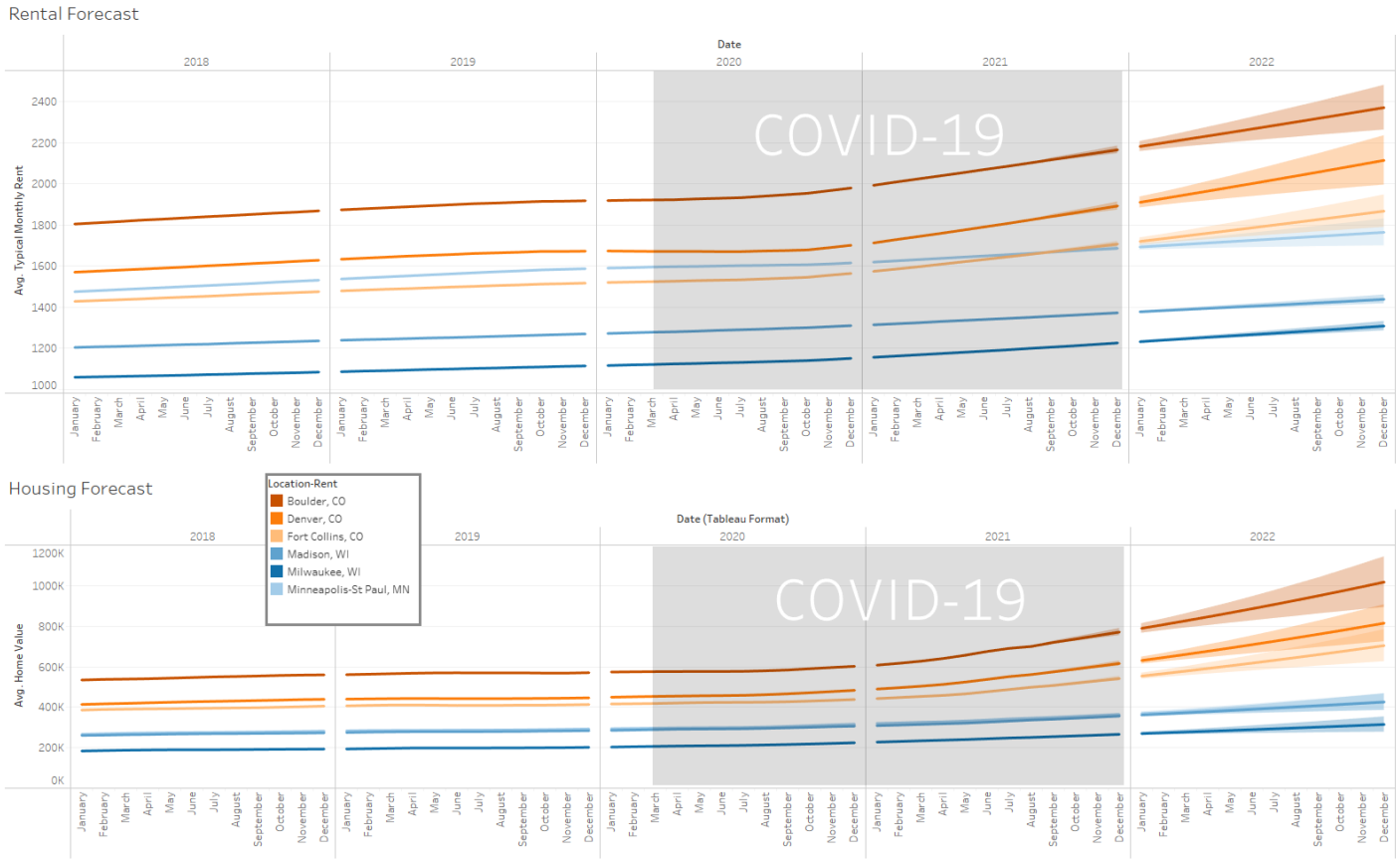
Trying to keep "chart junk" to a minimum, I eliminated many unnecessary labels and kept only those needed to draw interest to the main point of the dataviz – **purchasing a home is 60% more expensive in Colorado than the Midwest** ($\frac{\$450K-\$280K}{\$280K}$ = % difference for 2021).

The design choice to stack the two charts on each other has pros and cons: they maintain a clear separation between the two region choices, but it may have been more effective to

compare differences in home prices by putting everything in one bar chart and separating by color. The extreme differences in y-axis on the left may be lost on some viewers.

Visualization #2: Rent/Home Values Current/Forecasted in Denver vs. the Midwest

My wife and I currently rent in Thornton, a Denver area suburb. Along with the housing information, it is useful to account for typical rental prices of the locations of interest. Visualization 2 is built by adding another dataset from Zillow (Zillow Observed Rent Index (ZORI)).



Visualization 2 – Current rental/home prices for regions of interest going back to 2014 and projecting out to 2022. Note the steeper uptick for rentals in the Denver area (oranges) vs. the Midwest (blues).

From Visualization 2 we can clearly see an uptick in rental prices in the Denver area locations where little to none exist in the Midwest locations. From this visualization, it would certainly make more sense to rent in the Midwest.

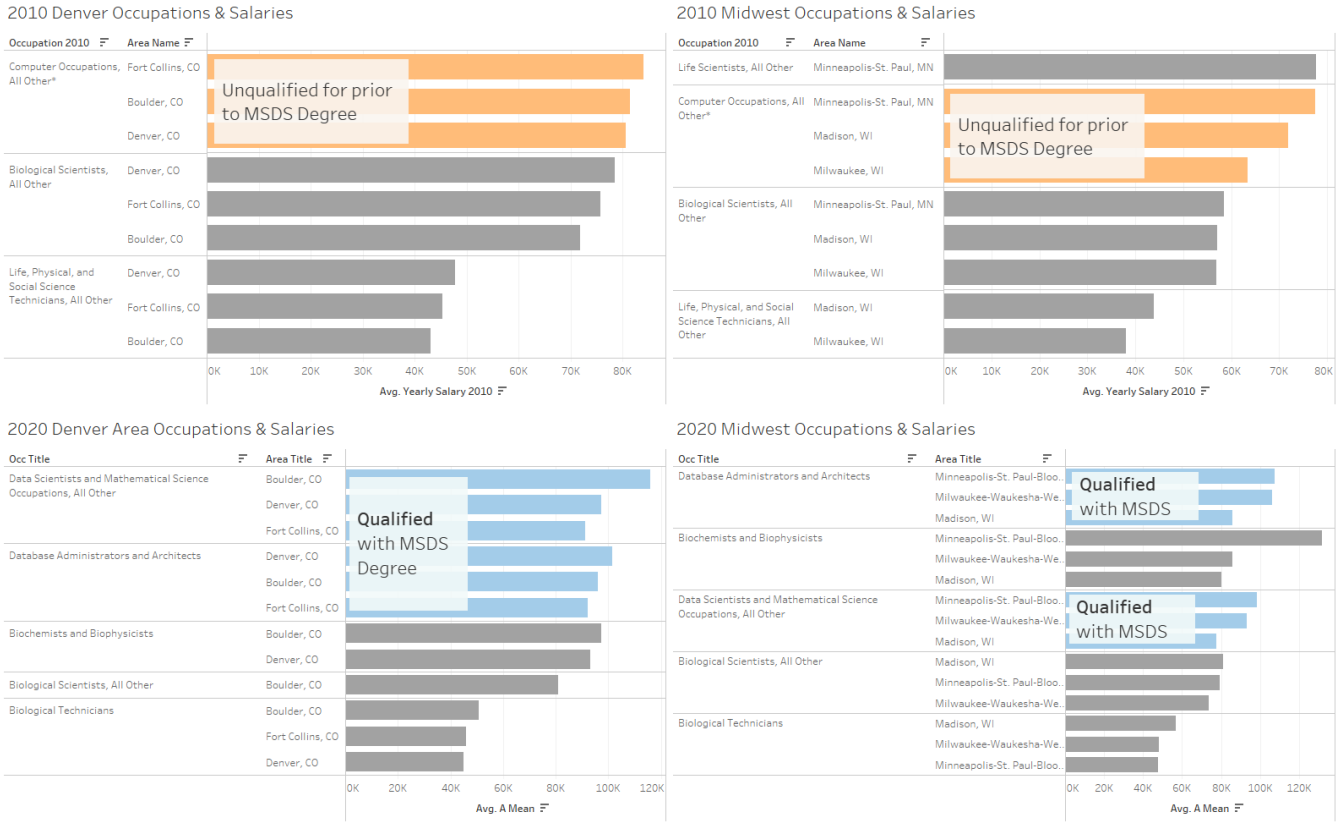
I felt putting all the data together was useful here because of the comparisons between the two different regions particularly in the COVID band. The viewer can also easily see the differences overall – for example, more of the blue lines (Midwest) are much lower than the orange (Denver area).

From a design perspective, again, I tried keeping the visual simple to call out the main point of this graph – **Denver area rent is more drastically affected by the uncertainty of COVID than the Midwest**. I stayed with a colorblind-sensitive palette for each of the lines, made some adjustments from Tableau's defaults to eliminate white space, and used Shaffer's 4 C's again for inspiration.

Visualization #3: Wages With/Without a Master's Degree in the Regions of Interest

Finally, to explain the housing differential, I plotted the wage differences (for which I was/will be qualified) between the two regions. For the dataset this time, I leveraged government records. I retrieved them from the Bureau of Labor and Statistics in the years closest to the most recent two housing datasets used (2020 and 2010 Occupational Employment and Wage Statistics – Metropolitan and nonmetropolitan area Metropolitan Area Report). This visualization resembles a dashboard in appearance. It utilizes a simple design with a high degree of information. The simplicity allows the main point to come across – **having a master's degree will allow for higher paying jobs in either location**. I chose to display the visual with four

panels: two with jobs from my qualifications in 2010 and two with jobs I will qualify for after earning a master's degree. One disadvantage of this visual is that it would be nice to have accounted for inflation from 2010 to 2020. The datasets also fall short for perfect comparisons because some job descriptions are different between the two decades (i.e. no category for "Data Scientists" or "Biochemists" in 2010). But I think the panels still work well for comparisons between both time and location for my specific situation. The viewer can compare the top two panels and bottom two panels to see that higher wages are available with a master's degree.



Visualization 3 – Four panel comparison between wages from jobs qualified for before and after a master's degree in data science.

Conclusion

This data story may have seemed extremely specific at first, but when we take the broader picture into account, it sheds light into why the Colorado living experience is so dynamic:

- Colorado is in the top ten states people move away from,
- 45% of movers said finding an upgraded housing option was a deciding factor in their decision to move, and
- 36% of movers said their move was work-related. (Source: Move.org)

From the data story I've laid out, we can see many of these same factors pushing me to move away from Colorado for lower-trending rent and cheaper home prices, while maintaining comparable wages once I earn my new degree. Hopefully, using this first-person account, along with the data visualizations, has given rise to a more personalized perspective capable of cutting through empty statistics. As Scott Berinato describes in his book *Good Charts*, I've attempted to shift from visualizing an idea to persuading the viewer that the idea is good (Berinato, 2016).

References

Berinato, S. (2016). Good Charts. Harvard Business School Publishing Corporation.

United States Bureau of Labor Statistics (2010). Occupational Employment and Wage Statistics – Metropolitan and nonmetropolitan area. United States Government. https://www.bls.gov/oes/tables.htm

United States Bureau of Labor Statistics (2020). Occupational Employment and Wage Statistics – Metropolitan and nonmetropolitan area. United States Government. https://www.bls.gov/oes/tables.htm

Wheelwright, T. (2021). State of Moving in 2020: Moving Stats and the Impact of COVID-19. https://www.move.org/2020-moving-stats-and-trends/#TopStatesWherePeopleMovedtoandFrom

Zillow. (2021) Zillow Home Value Index (ZHVI). Zillow Group Inc. https://files.zillowstatic.com/research/public_csvs/zhvi/Metro_zhvi_uc_sfrcondo_tier_0.33_0.67_sm_sa_month.csv?t=1635281948

Zillow. (2021) Zillow Observed Rent Index (ZORI). Zillow Group Inc. https://files.zillowstatic.com/research/public_csvs/zori/Metro_ZORI_AllHomesPlusMultifamily_SSA.csv?t=1635281948