# What to expect when you're expecting... a ton of supply

Multifamily real estate is experiencing very high levels of supply. In fact, it's hard to read about anything else in our sector these days. The sophistic analysis says supply is up, so rents are down. This is usually supplemented with a graph implying that the worst is yet to come. While this makes for good clickbait, it leaves more questions than answers. Namely, how can we be both oversupplied but in a 'housing shortage'? What's the correlation between supply and rent growth? And most importantly: how does demand factor into this?

To determine what we should expect from this current wave of supply, we studied the last 20 years of data across the largest 100 markets in the US. As any ECON101 student could have told you: the impact depends not on supply, but on *supply and demand*. And demand is hot.

Supply and Rent Growth: Very Distant Cousins

As to not bury the lead, supply change versus rent-growth has an R-square of *zero* with a slightly *positive* fit. We examined each of the largest 100 markets in the US, for each of the years between 2001 and 2023; each year, for each market we plot the supply growth (as a % of existing inventory) and their real rent growth (rent-growth minus CPI-ex-shelter) below.
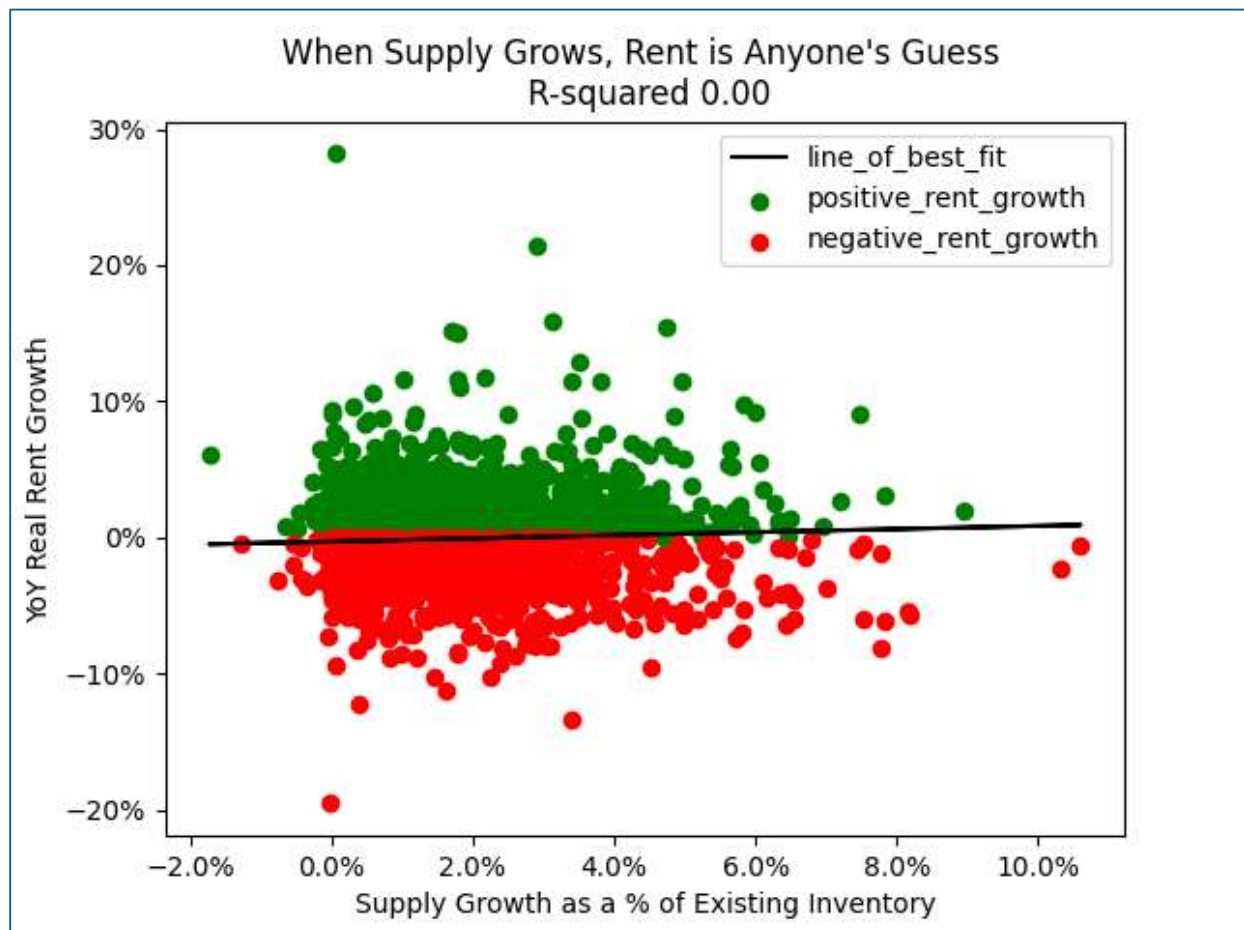
The R-squared is also near zero when comparing supply growth to real rent growth in the *following* twelve months.

When supply surges

Some will look at that relationship and concede perhaps supply does not matter in all cases. But 2024 is not 'all cases.' We find ourselves with extreme levels of supply growth (we're told). To contextualize this, we examine the historical impact of abnormally high supply. For each 100 markets, we found the year supply growth was at its maximum.

Real Rent Growth Following All-Time High Supply in the 100 Largest Markets
R-squared 0.03
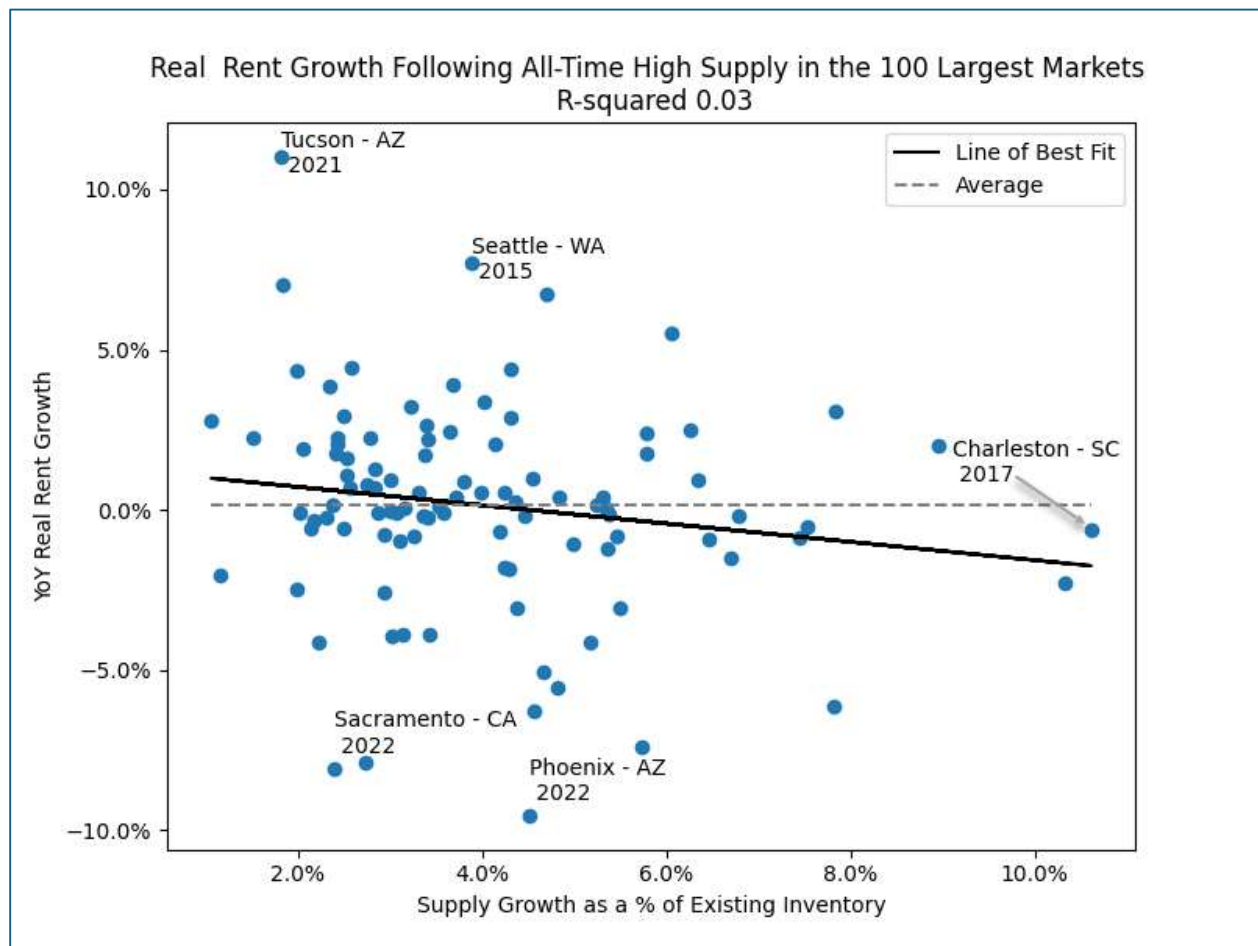
It presents evidence that is hard to square. First, the average real rent growth wasn't negative. This means that in 100 markets, at their highest year of supply on record, the safe bet was for rents to continue growing. And grow they did. In 53 out of 100 markets, the real rent growth was positive.

Surprisingly, in only seven markets was the highest supply year the lowest rent-growth year. Conversely, in six markets*, the highest supply growth year was the same as the highest rent-growth year*. This leads to our first conclusion: supply happens for a reason; the reason is generally (but not always) existing demand.

That result is not very satisfying to those who are convinced high supply is to blame for falling rents. A common strawman goes, "so you're saying supply doesn't matter *at all*?" That is, of course,

nonsense. Supply is half of the equation in the supply and demand balance that economists use to determine market-clearing rents. Where practitioners go wrong is by assuming that they can solve the equation without the demand variable.

The Demand Disaster

Measuring demand is hard. While you can measure supply, you can only find demand through deduction. I can observe that upwards of 80 million barrels of oil are produced each day, but I can only gauge the demand for that oil by looking at driving habits, contracts, and historical energy needs. So too in real estate where we can observe the units of inventory delivered, but we can only approximate the number of people who want to live in those units. It's made more difficult when you add in unsatisfied demand due to restrictions.

To work around this, the real estate industry uses a few stand-ins: occupancy, absorption, and 'demand units' (occupancy times inventory). The problem with all of these is the same: they can never be greater than existing stock. A building cannot be 101% occupied; a market cannot absorb more units than were net delivered; demand units can never be greater than inventory. This is a problem because it means, by definition, demand can never exceed supply.

The other more glaring issue is these demand variables are positively sloped, implying that a lessee would consume more units if they were at a higher price. It should be inverse.
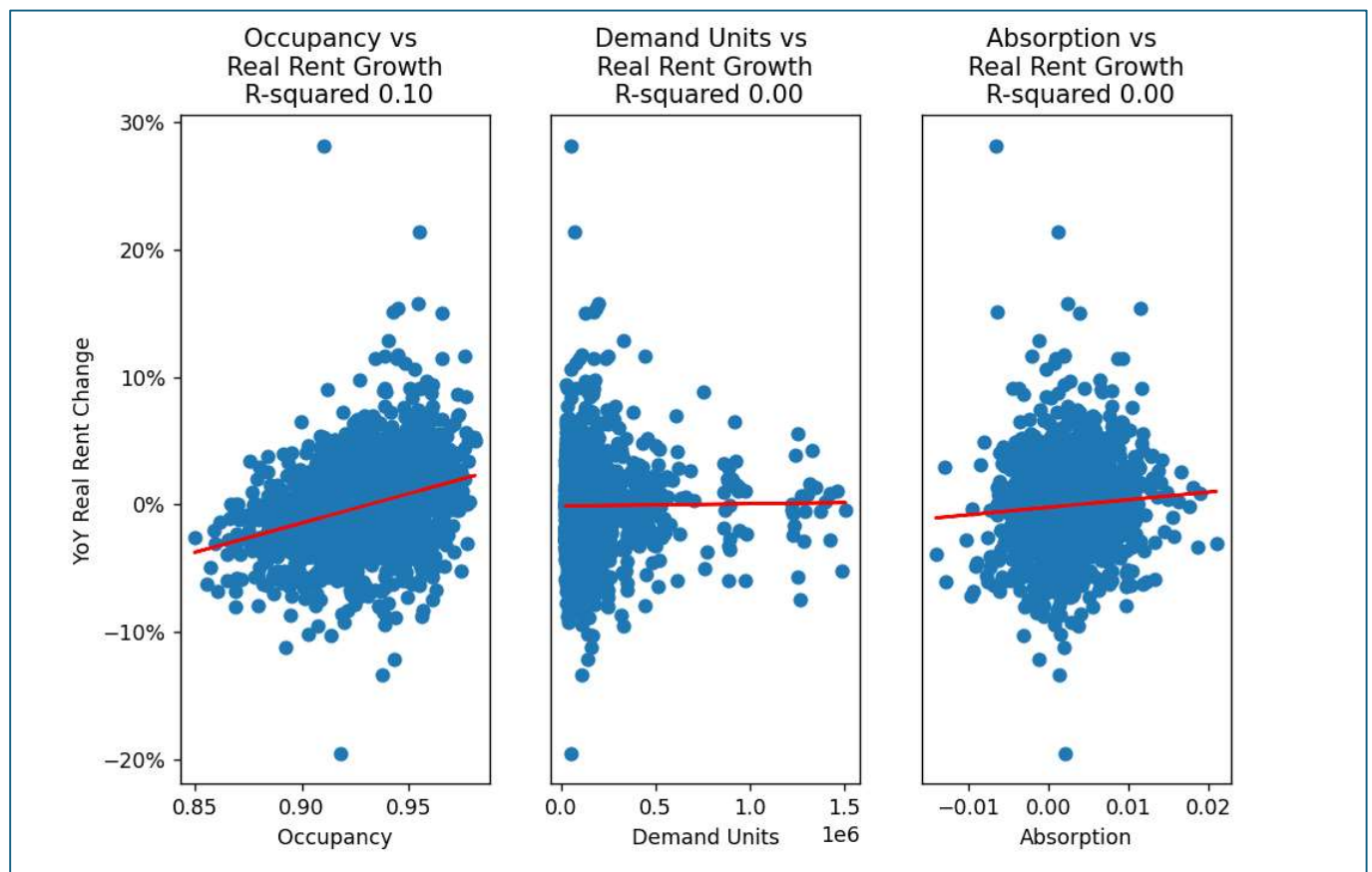
The Density Delta

Given the problems with the existing demand variables, we propose a new one: the change in density of a market. Dividing the population of an MSA by the number of occupied units gives a simple density measure. Taking its growth reveals a surprisingly flexible demand variable which we will call *implied demand*.
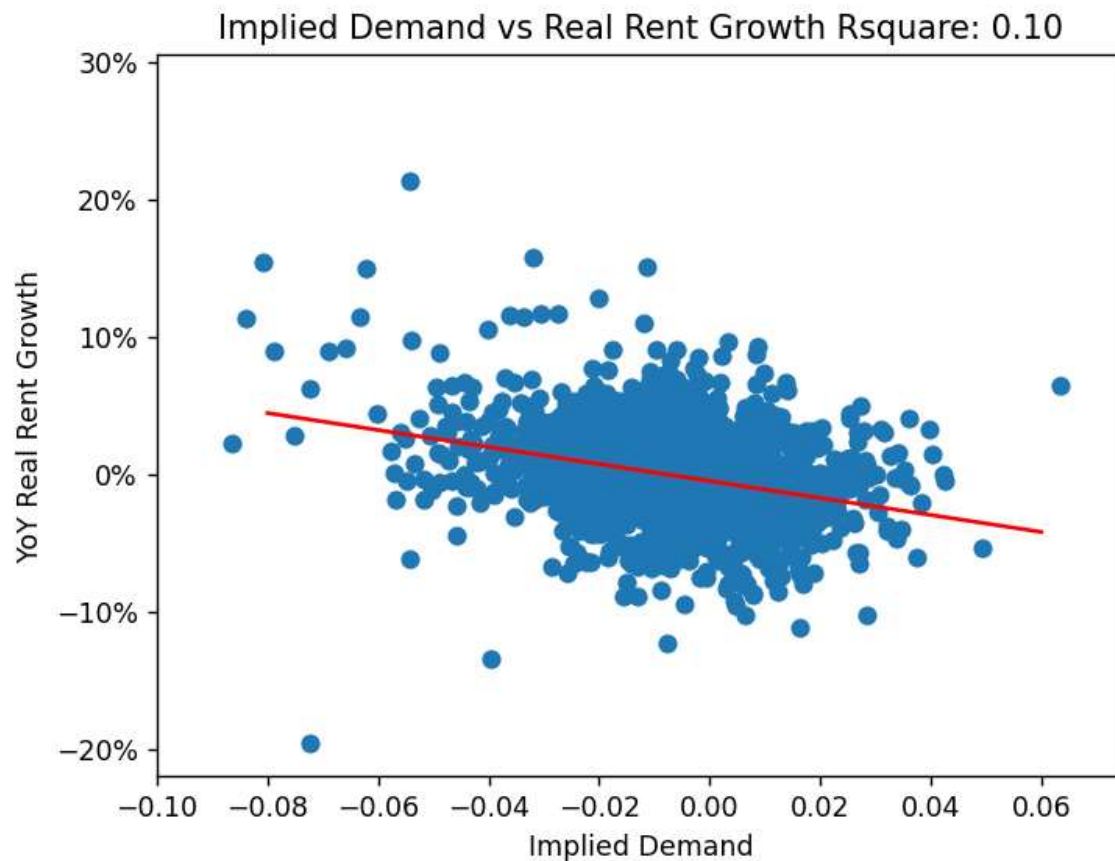

This variable is inversely related to real rent growth: any point on the line is an acceptable tradeoff between density and rent change. Renters will share units (move right on the curve and increase their density) if they can reduce their rent by enough, otherwise, they prefer their own unit and are willing to pay more for it (will move left on the curve and decrease their density).

The variable also helps us understand how markets will respond to record levels of supply. Using the same data from above (all-time high supply growth), we slice the markets into thirds, according to their implied demand. The lowest implied demand markets are on the left, increasing to the right. The average rent growth (dotted lines), the strength of the relationship (R-squared), and the slope of the line of best fit all decrease from left to right.
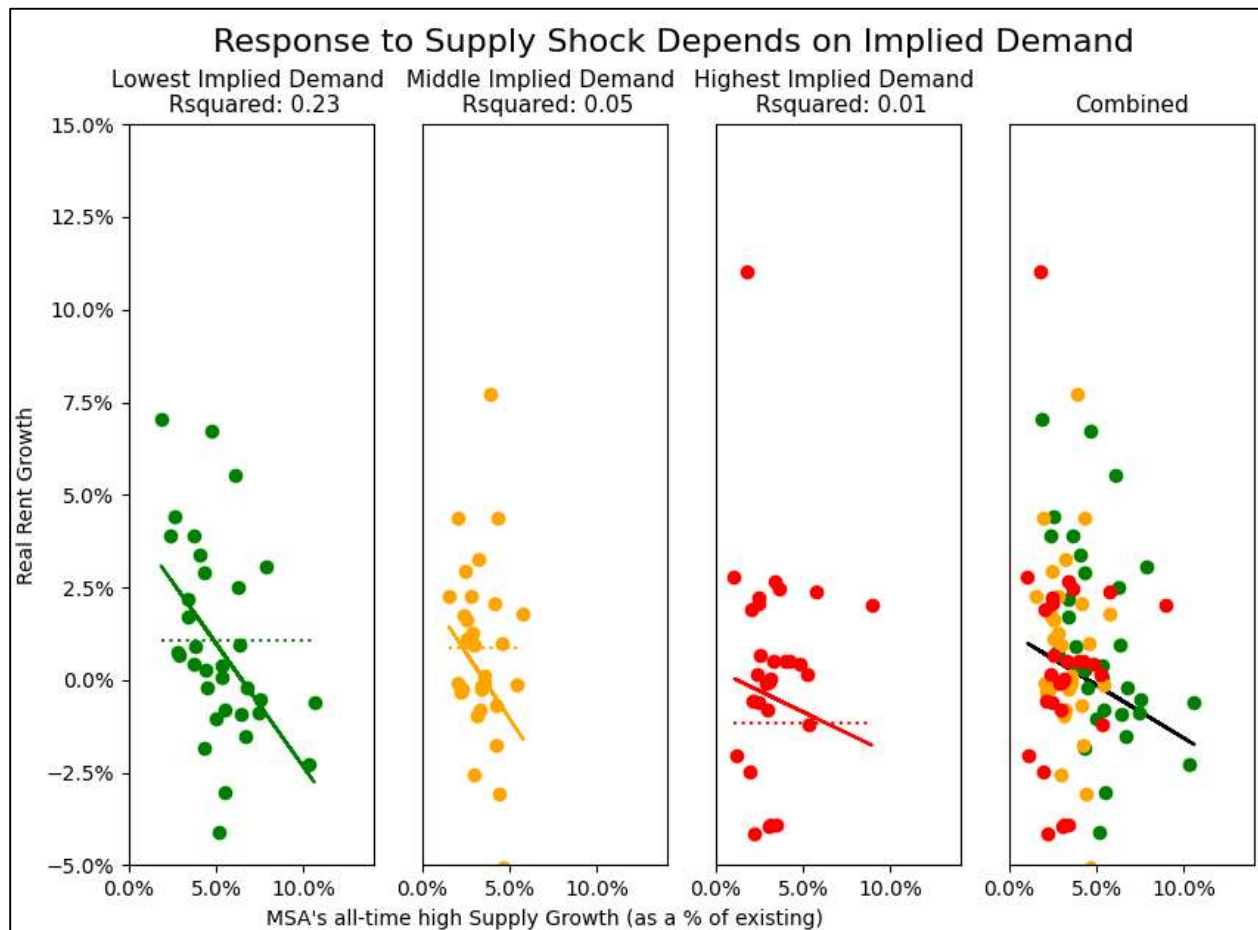
Remember: from the demand side, when prices are high consumers demand fewer units. Markets where that's true (on the left, in green) have a high average rent growth following record supply. In these markets, consumers are willing to pay higher rent-growth premiums, so when record supply hits, it is absorbed and paid for. At higher implied demand values (where consumers demand a higher quantity but at a lower price), the rent growth following record supply is negative. Consumers in those markets prefer to cohabitate than to pay higher rents, so when record supply hits, renters are unmoved, and the supply goes unabsorbed, resulting in lower rent growth.

To put a finer point on this: the implied demand curve tells you what the rent growth will be.

**To Understand Supply Shocks, Look at Implied Demand**
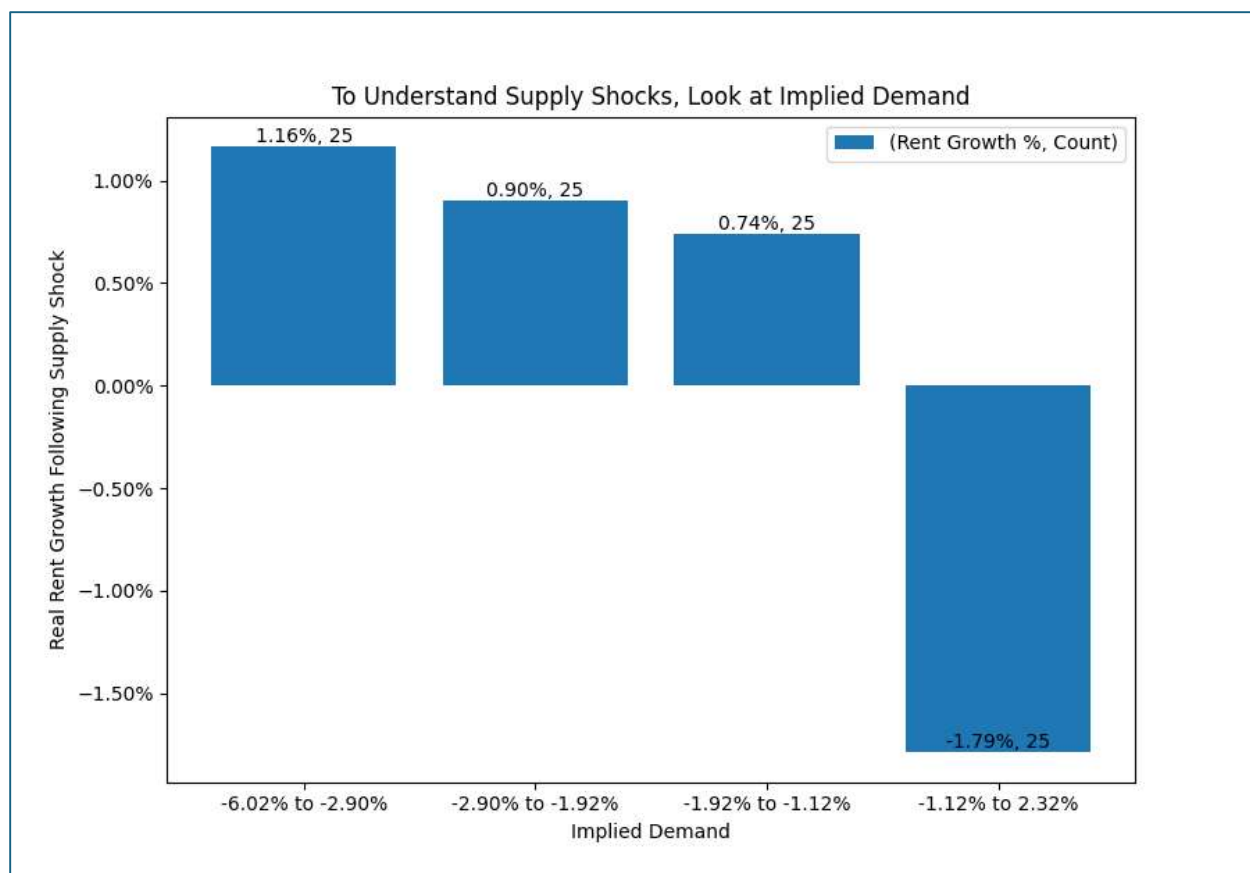
All renters want more space. In the 25 markets on the left, renters are willing to pay more for it. In the 25 markets on the right, renters will cohabitate, increase their density, and pay less.

## Supply only has meaning relative to Demand

The final feature of the implied demand variable is that it meets the supply curve at a theoretical market clearing rent.

The graph of Orange County over time is shown below:

Supply and Implied Demand Curves
Orange County - CA, 2001-2023
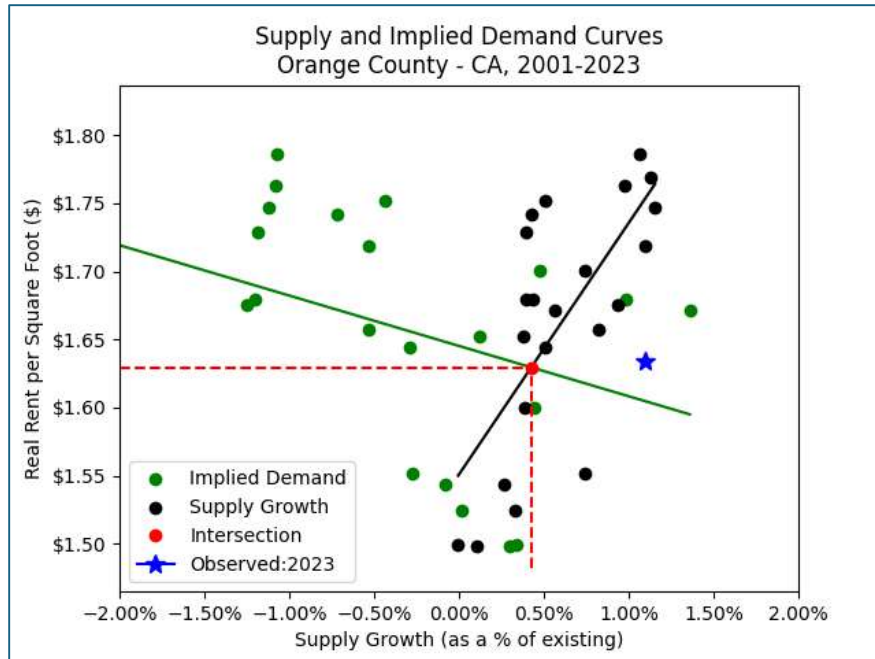
The derived rent and quantity (red dashed line) are always different from the observed values. And the derived intersection is very telling when forecasting rent the following year.

For each of 100 markets for each year from 2010 through 2022 we found the quantity where the supply and implied demand curves meet. The higher the point of intersection, the higher the next year's real rent growth.
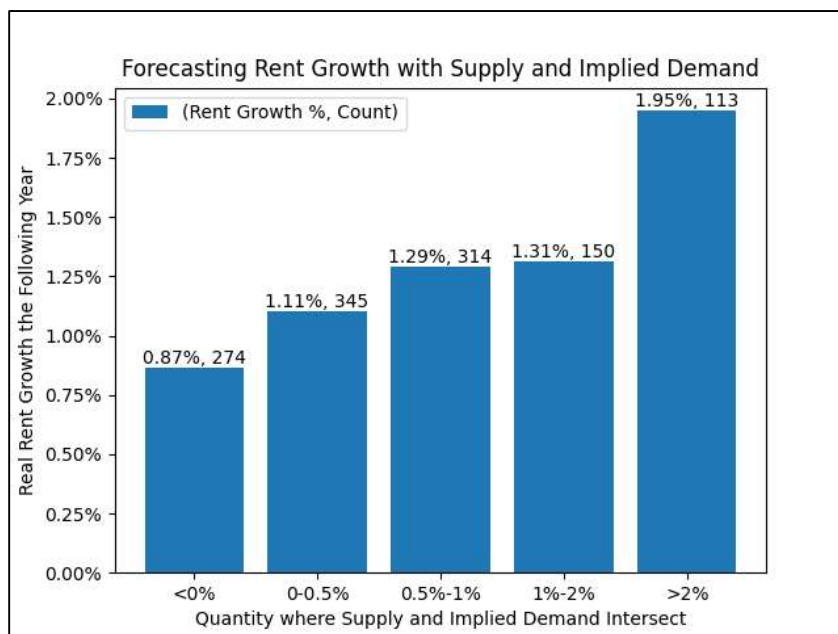
Where the indicated market-clearing quantity is higher, so too the rent growth, as the demand curve adjusts to a higher price point before the supply curve can adjust to a higher quantity.

Demand for Days

So where current supply levels stand? We expect markets with low implied demand values to fare well; and we expect markets with high market-clearing quantities to do well.

Here are the 25 markets with the highest supply growth (as a %) in 2024, along with their implied demand and market-clearing quantities. Markets with either low implied demand values (<-0.02) or high market-clearing quantities (>0.02) should fare fine despite high supply. Markets with neither values will likely see rent contraction.

MSA	Market-clearing Quantity	Implied Demand	2024 Supply as a % Existing	Forecast
Orlando - FL	2.05%	-4.23%	6.12%	
Jacksonville - FL	2.18%	-3.76%	6.28%	
Charlotte - NC	4.79%	-3.71%	7.51%	Good
Spokane - WA	5.16%	-2.49%	3.98%	
Colorado Springs - CO	1.11%	-5.84%	9.73%	
Raleigh - NC	1.75%	-5.31%	7.32%	
Nashville - TN	0.89%	-4.76%	7.56%	
Austin - TX	1.32%	-4.22%	9.21%	
Charleston - SC	0.79%	-3.53%	5.81%	
Salt Lake City - UT	1.07%	-3.51%	5.19%	
Greenville - SC	1.21%	-3.19%	3.86%	
Phoenix - AZ	1.97%	-2.82%	3.84%	Fair
Lincoln - NE	0.51%	-2.36%	5.15%	
Denver - CO	0.92%	-2.25%	3.90%	
Atlanta - GA	1.46%	-2.24%	4.26%	
Harrisburg - PA	0.53%	-2.08%	5.20%	
Northern New Jersey - NJ	0.25%	-3.34%	4.27%	
Miami - FL	0.29%	-2.36%	4.86%	
Louisville - KY	0.80%	-1.89%	4.14%	
Dallas-Fort Worth - TX	1.65%	-1.85%	4.07%	
Tulsa - OK	0.57%	-1.70%	3.78%	
Tampa - FL	1.33%	-1.60%	5.10%	Poor
Palm Beach - FL	0.50%	-1.47%	5.68%	
San Antonio - TX	0.52%	-1.42%	5.12%	
Durham - NC	0.63%	-1.07%	5.77%	

This model is limited, but hopefully it adds some nuance to the discussion. Supply is not a bad word, but it is a misused one. We would learn more if we looked at supply on a relative basis, and with regard to demand. Demand on the other hand is not a misused word but a miscalculated metric. We should use a variable that isn't capped at existing inventory, and we propose that implied demand may be a useful proxy.