

To Opendoor,

I felt compelled to apply to this *exact* position. Not because of the job title. There are many positions called Applied Scientist – Pricing. And not because we are both conveniently located in Miami. What made this role impossible for me to pass over was how directly it matches the core of my background: I am a Ph.D.-trained economist whose doctoral research used causal inference and spatial econometrics to study housing markets, and I have since carried that rigorous modeling discipline into production data science, machine learning, and applied AI.

Let me expand what makes the fit unusually specific. Opendoor needs to estimate what a home is worth as the conditions around it change. That was the question behind my first dissertation chapter. I combined 73,082 Miami-Dade single-family sales with data on 1,200 homicides, then used difference-in-differences to estimate how an unexpected neighborhood shock entered the price of a home. Values fell 4.8 percent within 0.1 miles, while the effect disappeared farther away. The practical question was the same one any valuation system must answer: which information should change the price, by how much, and for which homes?

Opendoor also needs to understand how changing conditions affect the likelihood of a transaction. My second chapter examined that question from the homeowner's perspective. I built a nearest-neighbor design across 67,578 parcels to estimate how a change from owner occupancy to rental occupancy next door affected an owner's likelihood of selling. The response depended on the surrounding market. Rental penetration, neighborhood churn, and corporate ownership all changed the result. A model could not treat the same signal as having the same meaning in every neighborhood.

My third chapter addressed the strange occurrences that can take place in the housing market because of a global shock. I studied how COVID-19 changed the value buyers placed on proximity to transit. Remote work changed commuting behavior, and an attribute that buyers had traditionally valued was repriced.

Across all three papers, I kept returning to the same question: when something changes in a housing market, where does the effect appear, how large is it, and whose behavior changes as a result? Answering that required causal inference, careful comparison groups, and close attention to differences across homes, neighborhoods, and market conditions. Opendoor's pricing and optimization systems ultimately depend on those answers.

In summary, I have chosen Opendoor deliberately. It is rare to find a position that aligns this closely with my background as a Ph.D. economist in Miami whose research focused on housing markets, and rarer still to find one centered on problems I would be genuinely excited to solve. Whatever I still need to learn, I can learn. The harder thing to manufacture is this degree of fit. I have included more of my research and background at prestonmonk.com, and I would welcome the opportunity to speak with you.

Call me. Text Me. Hire Me. ☺

Preston Monk, Ph.D.
251-222-1250
tpmonk@outlook.com