

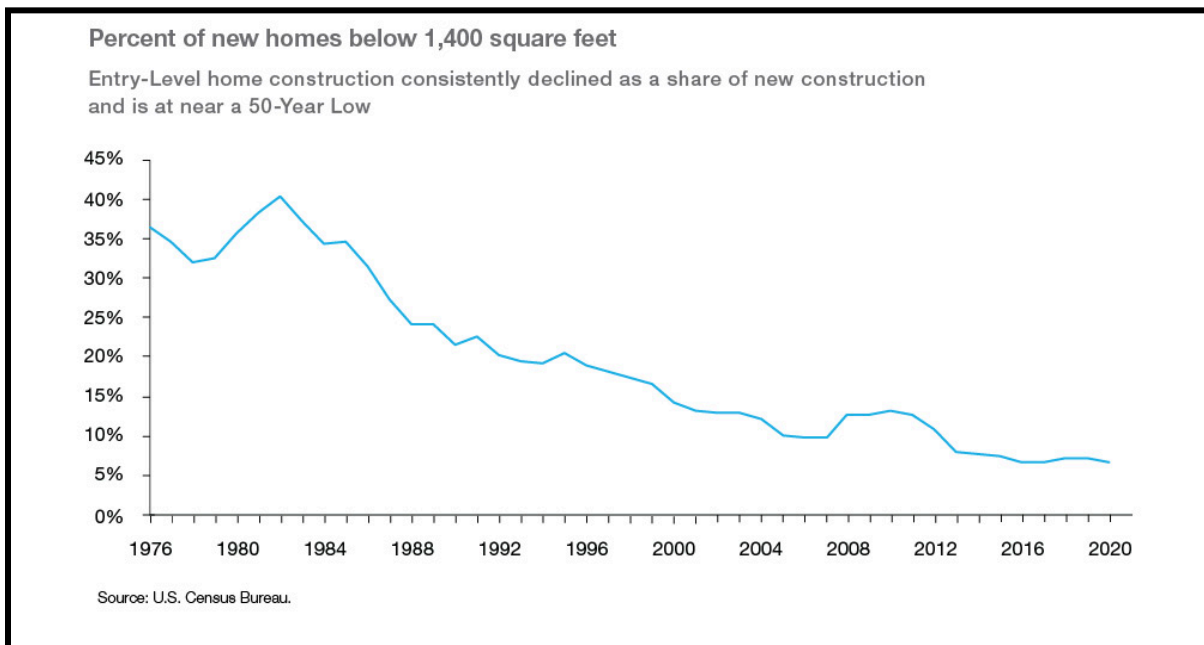
Notre Dame Venture Capital: Affordable Housing Industry Thesis

Executive Summary

Affordable housing encompasses a variety of sectors and touches on various applications. This thesis aims to paint a broad stroke across 1) market dynamics defining the industry, 2) headwinds impeding development, 3) tailwinds driving growth, and 4) opportunities awaiting disruptive innovation. The goal is to expand our knowledge among the specific applications and approaches within affordable housing by having this thesis serve as a living document of our shared knowledge within the Notre Dame community. Our shared knowledge will help curious students understand the fundamentals of the industry and learn how they can play a part in the next wave of change. This document is not intended to be comprehensive.

1. Market Dynamics

Recent census data reports that more than 19 million renters are burdened by the cost of housing.¹ Compared to baby boomers who spend roughly a third of their income on housing, millennials spend nearly half. Compounding this issue illustrated in the graph below, where entry-level home construction as a percentage of total new housing is at a 50-year low.²



¹ American Community Survey, “[More Than 19 Million Renters Burdened by Housing Costs](#),” *U.S. Census Bureau*, 8 December 2022.

² U.S. Census Bureau, “[Housing Supply: A Growing Deficit](#),” *Freddie Mac*, 7 May 2021.

The apartment rental industry in the U.S. was projected to have \$229M in total revenue for 2022, according to IBISWorld.³ Over 40% of renters (19 million households) are burdened by the cost of their rent, meaning they spend more than 30% of their income on housing.⁴ This results in a total market opportunity of \$91.6M, without accounting for homeless individuals or those in alternative living situations.

A huge burden that has historically prevented firms from reaching these Americans has been cost. For example, it costs almost \$13M to construct an average 50-unit apartment complex.⁵ With over 19 million households and more to build for, this will remain a significant hurdle for any company looking to enter the space.

The industry and its related verticals have seen significant recent venture funding. Nearly 1,800 companies seeking to solve problems related to affordable housing have raised VC financing, with a median deal size of \$6.98M, according to Pitchbook.⁶ In 2021, \$3.08 billion was invested in 83 deals.⁷

Competitive Landscape

Many urban metropolitan areas, especially those with supply shortages, have enacted policies that have grown the intensity of competition and the number of competing parties in the space. Specifically, forms of rent control, affordable housing minimums, density bonuses, tax credits, and zoning permitting have created a form of regulatory arbitrage. Combined with saturated markets that have scarce fix-and-flip opportunities, this shift has tilted the incentives of capital in favor of affordable housing. Three key factors to compete within this industry are:

1. Relations with local housing regulators
2. Building/conversion costs
3. Scalability of the model i.e. a deal-by-deal basis or same model applied at scale

Primary Submarkets of Competitors

The main affordable housing submarkets are prefabricated homes, ADU conversions, and shared ownership models.

Prefabricated homes are modular, transportable homes that are built off-site in a factory setting, and are then transported to the location where they will be occupied. These homes are often more affordable and involve a quicker building process than traditional homes, as they are built in a controlled, efficient environment, and fit into local zoning laws.

ADU (accessory dwelling unit) conversions are a growing trend in supply-constrained states like California. These involve converting an existing space, such as a garage or basement, into a separate living unit. ADU

³ Matt Pantaloni, “Apartment Rental in the U.S.,” *IBISWorld*, July 2022.

⁴ American Community Survey, “More than 19 million renters.”

⁵ Urban Institute, “The Cost of Affordable Housing: Does it Pencil Out?” *National Housing Conference*, 2022.

⁶ “[Companies in affordable housing](#),” *Pitchbook*, 2022.

⁷ *Ibid.*

conversions generate living space on existing properties without having to build ground-up or find a vacant lot. However, they are often unique to the singular property and hard to automate at scale, while also being subject to specific local zoning ordinances and HOA rules.

Shared ownership models involve a model in which owners grant equity to renters over time. This model grants an affordable housing option for individuals who may not be able to afford to purchase a property on their own and utilizes existing inventory, requiring no building. Rent-to-own is the most popular form of this model now. However, exiting the building may be tricky for tenants, with the potential to lose their down payment and/or equity in the building, and their rights are often muddy in this gray area of ownership.

Indirect Competitors

Indirect competitors to affordable housing options previously delineated are the hotel industry, the mobile home industry, the RV industry, and the home-sharing industry (i.e. Airbnb). These competitors are an enticing solution to customers who are unable to afford or finance these housing options or may not desire long-term housing solutions; however, they do not pose a viable threat of substitution to the permanent needs of the rapidly growing housing industry.

Stakeholders

Real estate is one of the most fragmented industries, due to its size, cost structure, and the highly differentiated nature of local markets. For instance, the 50 biggest multifamily owners in the United States own 2% of the total housing market.⁸ Thus, there are a large number of stakeholders and “middlemen” involved in transactions. For clarity, these stakeholders will be categorized into 2 distinct segments: the “supply” side and “demand” side. The supply side involves the capital allocators that control land: landlords, investors, developers, property managers, agents, and government agencies. The demand side constitutes the “customers” of the land that make monthly payments: homeowners and tenants.

The “Supply” Personas: concerned with capital efficiency and rent extraction (outside of govt agencies)

- **Larry Landlord**

- Larry is typically a Generation X, middle-age white male that owns multi-family properties and does business the old-fashioned way.
- Larry cares about more cash flow and ease-of-mind. In an ideal world, Larry wants to operate his property on autopilot and, in some cases, raise the cash flow enough to exit at a high cap multiple.
- Larry is afraid of “the hidden catch”: being screwed by contracts, legal risks of highly regulated municipalities, legal hassles with tenants, and insurance hassles. He is highly risk-averse, hates rent control, is reluctant to accept tax credits from the government, and is a hard sell to anything beyond the status quo.

⁸ John Wilhoit, Jr., “[Multifamily French Fries: a Fragmented Marketplace](#),” Multifamily Insight.

- **Ian Investor**
 - Ian fits a similar archetype to Larry: is likely a white male on the older side and oversees a highly appreciated portfolio from the decade-long run-up since 2008.
 - Ian is more organized, methodical, and mathematically savvy than Larry. He is an Excel wizard and a highly sophisticated investor. He is a big fan of opportunity zones and regulatory arbitrage in freshly funded markets. He studies macroeconomic conditions, comparing his investments with corporate bonds, treasury bills, REITs, and debt products.
 - Ian values risk optimization, competent teams, and a pipeline of deals. He is afraid of his bets going to zero, not having cash on hand to buy the bottom, and people that can't execute.
- **Developer Dan**
 - Dan is usually a young, male cut from a different cloth than owners and investors. Dan is extremely entrepreneurial and risk-savvy.
 - Dan typically operates in disorganized, muddy conditions and takes a different approach for every project he undertakes. He excels at piecing together deals, problem solving, and balancing the incentives of oppositely motivated stakeholders. He values clarity and transparency, triple checking all his projects to account for all factors.
 - Dan claims to make housing affordable and knows how to articulate his value to government funding agencies. Truth-be-told, his model is not replicable by nor desirable to most, and modular home builders are a better but neglected solution.
- **Amy Agent**
 - Amy is typically female and a bit younger than most other supply-side personas but still in Generation X. Amy has been in the local market for 5-10 years and knows it like the back of her hand, helping buy and sell homes. She is a multi-tasker, entrepreneurial, and a “people person.”
 - She values deal flow—that is, increasing the volume of homes she markets and sells. She is motivated by client conversions (to homeowners), client retention, and new lead generation.
 - She earns her income from commissions and prioritizes financial stability with her not-so-stable pay structure. Rightfully, she is panicking because people can't afford to buy houses, so commissions are down big-time while people rent instead.
- **Property Manager Pam**
 - Pam shares many of Amy's entrepreneurial traits and ambitions—in fact, property managers must have broker's licenses. Pam represents buyers and sellers in transactions while generating income on the side from property management fees.
 - Instead of a larger volume of residential properties, Pam seeks to service Larry Landlord and Ian Investor's commercial properties in exchange for the ability to sell them when he wants to exit.
 - Pam is similarly motivated to Amy, as she earns her income from commissions, but she is more targeted and individualistic with her execution, as a few properties comprise her yearly commissions. She values relationships and insider knowledge above all.
 - Pam is afraid of reputational damage and, consequently, is protective of her properties and

relationships.

- **Government Gary**

- Gary may have similar attributes to other stakeholders in terms of demographics, but he has a largely antithetical persona to other stakeholders. He has a strong commitment to public service, a deep knowledge of policy trade-offs, and an uncanny ability to navigate complex, bureaucratic systems. He has strong interpersonal skills and is at his best when collaborating with others.
- Gary's goal is to provide affordable housing options, which manifests in supply-side and demand-side work. This largely takes the form of creating new affordable housing units and providing rent assistance to existing units.
- Gary values sustainability, teams with a track record, efficient use of resources, and ability to provide affordable housing long-term.

The “Demand” Personas: concerned with upward mobility and the ability to accumulate wealth via ownership

- **Terry Tenant**

- Terry is aged 21-35. He is employed, with a salary around the median income. Terry is currently living with parents or renting a humble place with multiple roommates. He is looking for a starter home.
- Terry feels hopelessly priced out of market, frustrated, and perhaps even angry with his financial situation. He cares about fast wealth accumulation and has distaste for the system.
- Partly due to his circumstances, Terry is a high risk-taker and not great at risk assessment. He values leverage, is open to novel ideas, and is very tribalistic.

- **Homeowner Hannah**

- Hannah is a recently married millennial. She and her spouse are employed with an above-average salary, but they don't make enough to save significantly. She lives in a starter home and desires to eventually upgrade into dream home and build a family.
- Hannah is cost-sensitive and generally frugal as she saves up for her dream home. She is not a major risk-taker and enjoys safety.
- Hannah cares about assurance and stability. She values the peace of mind of knowing she is doing the right thing in owning a home, a proven means to accrue wealth. She believes if she keeps on this path, her life will go as planned.

External Market Factors

One of the biggest external factors affecting the affordable housing space is government policy. At the moment, the Low-Income Housing Tax Credit (LIHTC) passed in 1986 is the only supply-side federal subsidy for affordable housing which incentivizes private developers and investors to provide more low-income housing. Developers apply for the LIHTC tax credit from the government and if selected, they must develop the property in line with affordable standards set by the government; these projects must meet set standards for at least 30 years after they have been developed. The tax credit is then paid over the course of ten years. Developers tend to

sell the tax credit to investors for a present value lump sum, which they can use to develop the project. Recently, there have been calls to expand LIHTC, which would expand the affordable housing market.

2. Industry Headwinds

High Acquisition Costs

In real estate, capital requirements are extraordinary relative to other industries. One reason is that the cost of land and building materials has been on the rise in recent years, making it more expensive to construct new affordable housing units. Additionally, there is limited availability of affordable land in desirable locations, which drives up the cost of acquisition. Regulatory or zoning restrictions also make it more difficult or expensive to develop affordable housing projects. Unfortunately, as a result of the high acquisition costs that come with real estate, startups may struggle to generate large scales of success until they have been well established within the industry.

Establishing Reputation

Real estate is an industry that relies largely on trust between the buyer and seller. Therefore, startups will need to establish a strong reputation in order to maintain growth and succeed. As the industry continues to adopt technology, maintaining trust with clients can be particularly challenging, making it increasingly difficult to challenge the major players in the industry.

Demographic Risks

Affordable housing is typically targeted at specific populations, such as low-income households or seniors. Changes in the size or composition of these populations can impact the demand for affordable housing and the ability of residents to pay their rent. Affordable housing tenants may be more likely to experience financial hardship, which can lead to higher rates of rent delinquency and eviction. Poor school performance in related areas might also hamper long term prosperity of the immediate area. Negative stigma (crime, public safety etc.) associated with affordable housing can then make it difficult to attract residents and investors. This can impact the financial performance of affordable housing properties and the stability of the communities they serve.

Development Risks

Developing affordable housing can be complex and time-consuming, and projects can face numerous challenges, such as zoning, regulations, and permitting issues, construction delays and cost overruns, and resistance from local communities. Aging infrastructure can make supporting targeted populations difficult. There can also be limited availability of land and funding for affordable housing projects, in areas where housing is most needed.

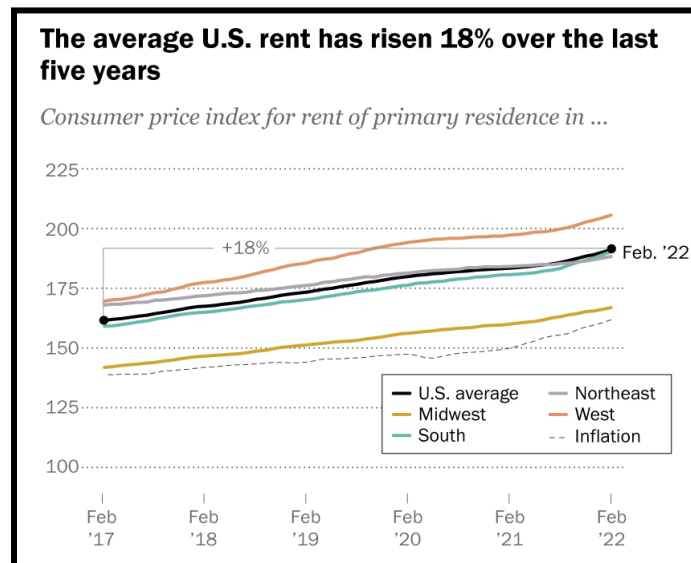
3. Industry Tailwinds

Rising Affordability Crisis Due to High Construction Costs

A rising percentage of Americans say that housing affordability is a major problem in their community. In 2021, 49% of Americans said this was a major problem compared to 39% in 2018.⁹ 70% of Americans also said they have found it more difficult to locate affordable housing compared to their parents' generation.¹⁰ Rising construction costs have slowed new construction of affordable units, as LIHTC developers are having a more difficult time finding financing. The United States Department of Housing and Urban Development (HUD) has seen a 13.9% decline in growth in LIHTC mortgages so far in 2022. Housing listings have also been rapidly declining, raising the price of the median listing. In October 2016, there were roughly 1.5M listings, compared to just 408,922 in January 2022, and the median price rose 25% from Q4 2019 to Q4 2022.¹¹

Rising Interest Rates Paired with Rising Rent Prices

Rising interest rates are making mortgages less attractive and people less inclined to buy a home.¹² When interest rates dropped during the pandemic, people locked into great mortgages, leaving them less likely to sell their homes. This comes at a time of soaring rent prices, where 46% of American renters spent 30% or more of their income on housing in 2020. The average rent has risen 18% over the past five years, outpacing inflation, which has grown at 16% over that period. Lower-income families are more likely to be affected as they are more likely to be renting, according to data from the Federal Reserve's Survey of Consumer Finances.¹³ In 2019, 61% of Americans in the lowest income quartile rented homes, as did 88% of people with net worths below the 25th quartile.¹⁴ The graph below from the Pew Research Center illustrates this dynamic by geography, showing an especially strong need for affordable housing on the West Coast of the U.S.



⁹ Katherine Schaeffer, "[Housing affordability in the U.S.: Key facts](#)," *Pew Research Center*, 23 March 2022.

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² Wilhoit, Jr., "[Multifamily French Fries: a Fragmented Marketplace](#)," Multifamily Insight.

¹³ "[Survey of Consumer Finances](#)," *The Federal Reserve*, 2019.

¹⁴ "[Survey of Consumer Finances](#)," *The Federal Reserve*.

Government Incentives and ESG

A key concern centers on the US government stepping in to subsidize alternative housing options, or providing public housing altogether. The rising importance of environmental, social, and governance standards as a whole for many investors will likely prove to be a strong tailwind for the affordable housing market. Affordable housing is seen as a social benefit, and those looking for high ESG-value investments may be inclined to invest in the industry. ESG financial securities are on the rise; perhaps a new securities market could arise specific to the affordable housing market. Overall, ESG-focused funds are likely to play a part in affordable housing's rising share of VC investment dollars going forward.

4. Investable Opportunities

The key to innovating in the affordable housing industry is being able to achieve mass production through cost-effective, sustainable methods. Below are key approaches that we see as opportunities for growth.

Renewable Energy Integrations

As the trend towards sustainability continues, it is a likelihood that the renewable energy sector may be a key player in the affordable housing industry. Renewable energy would generate operational cost-savings for property owners and tenants while removing reliance on the energy grid, mitigating fossil fuel usage, and potentially providing tax benefits on behalf of the state. These technologies include solar panels, EV charging stations, and hydrogen fuel cells. In the case of properties developed through a LIHTC, the government may start obligating that the properties be developed sustainably with renewable energy capabilities. Further, in states like California that incentivize renewable energy usage, there exist tax credits programs in which the state will subsidize electric vehicle charging stations. However, while it can be seamlessly incorporated into the construction of new homes, installing these technologies in existing homes would necessitate retrofitting, an expensive and arduous process. Tesla has become a growing leader in retrofitting existing homes with solar roofing panels paired with their home charging stations. However, Tesla has also had many shortcomings within the space, and it seems as though the technology has quite a bit of time till it's perfected for widespread use.

Modular Housing

Modular housing represents a unique solution to lower construction costs or to renovate dilapidated neighborhoods. Modular construction, employed by companies such as Cloud Apartments, takes a standardized approach: the individual components of the home are constructed in a factory before being shipped to the building site and assembled. This assembly-line approach is an efficient, faster, and cost-effective way to build homes. This method also may be more sustainable due to less waste and less energy being consumed. Modular housing represents a more scalable, seamless approach to a fragmented and high-cost construction industry, although it is applicable to many inelastically supplied urban markets with little development space and is hamstrung by the rising cost of construction materials. Companies such as Joe Gebbia's Samara are applying this model to ADUs and studio apartments in California garages and backyard. Others are planning to apply this at scale with multi family homes such as Rise Modular.

Shared Housing

A growing trend for younger generations has been a rise in travel due to growth in work from home, technology, and independence. This has opened a market for affordable housing solutions for young people seeking out temporary and affordable rental properties in high demand locations. Paired with real estate investors that struggle to achieve homeownership in these high demand areas, this business model brings a healthy ROI through homeownership while taking on the extra labor of vetting tenants, managing capital, and renting out properties by the room. Startups in this space focus on matching young travelers by interest and background so they can offer affordable rent in attractive cities while fostering community. While young, independent people are the target demographic, lower income individuals can also take advantage of this housing solution as leases can range anywhere from one month to two years, making this a plausible option for affordable housing. Some notable startups operating with this approach include HomeRoom (YC '22) and Outpost Club.

Rent-to-Own Models

Rent-to-own is a rising trend among first-time homebuyers who may not be able to afford a down payment or qualify for a mortgage. In a rent-to-own structure, part of the monthly rent goes towards the eventual purchase of the property, and for these tenants, rent-to-own can provide a way to build equity and eventually become a homeowner. Rent-to-own utilizes existing inventory, making it a more seamless fit to scale than the capital and labor-intense construction industry, although tenant rights and equity stakes are muddy and typically unfair in this model. Presently, the rent-to-own model has only been applied to individually zoned residential housing with companies like Divvy Homes, but even these forms of housing are overpriced for many first-time homebuyers. Companies like Adam Neumann's Flow and Key Homes are applying this model to multi-family housing.