A Time to Build: Unleashing the Construction Industry to Support American Families

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The construction industry in the United States plays a critical role for workers, consumers, and savers. It is a robust source of well-paying jobs, especially for workers who otherwise might struggle for opportunity. It also creates a product that end users value highly and genuinely need more of. Finally, it provides an outlet for savings in the economy: savers can fund construction projects, directly or indirectly, and earn a return on their saving.

In short, construction projects often result in large gains from trade. Left to their own devices, free people should pursue such projects often and enthusiastically. Unfortunately, though, the construction industry has been prevented from reaching its true potential by its regulatory and financial environment. U.S. construction output is lower than it should be. This shortfall does not come from issues with the underlying physical world, where workers want jobs and people want structures. Rather, it comes from policy choices in areas like zoning, regulation, taxes, and macroeconomic stabilization.

In all cases, these policy choices err on the side of slowing the construction industry down. The result is fewer jobs, fewer and lower-quality structures, and fewer places to earn a return on saving. The following report will discuss some of the unique benefits of the construction industry, some of the hurdles created for it by public policy, and some fixes to remove those hurdles.

THE CONSTRUCTION INDUSTRY HAS A UNIQUE EMPLOYMENT PROFILE

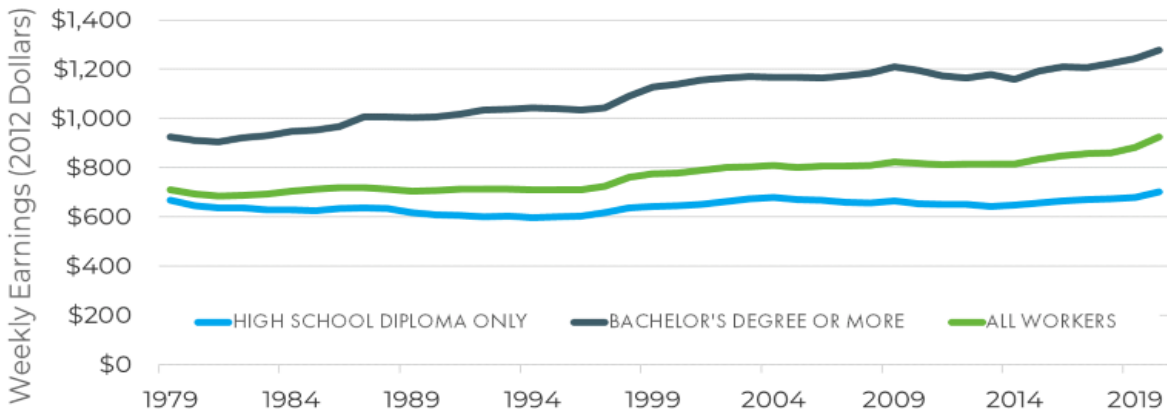
Formal employment provides people with a variety of economic, social, and psychological benefits. While jobs are sought out primarily to earn wages and finance consumption, they are also structured environments that can help forge social bonds, develop personal virtues, and create communities. Jobs are not merely transactions that generate economic surplus through gains from trade. They are a valuable part of the American social fabric.

The construction industry has a particularly strong role to play in employing Americans and strengthening the social fabric, employing more than seven million Americans. This is valuable in its own right, but perhaps especially valuable given the industry's unique demographic profile. It is disproportionately less-educated, disproportionately Hispanic, and disproportionately male. Each of these demographics is either disadvantaged on key measures, or losing ground on them, or both. With high wages for its education level, the construction industry is a much-needed lifeline.

Of all industry sectors in the North American Industry Classification System (NAICS), construction has perhaps the lowest overall educational demands. Just 13 percent of workers have a bachelor's degree, and 58 percent have no schooling beyond high school.

This is important because Americans with relatively less schooling have fallen far behind their more-educated counterparts in the labor market, and the gap is growing with time. In fact, adjusted for the PCE chain-type index, median usual weekly earnings for Americans with only a high school diploma are barely higher than weekly earnings for those with only a high school diploma in 1979. By contrast, earnings for their college-educated peers have risen substantially.

Figure 1. Real Weekly Earnings Are More Favorable For Those With Higher Education



Source: U.S. Bureau of Labor Statistics, Weekly and Hourly Earnings from the Current Population Survey; Bureau of Economic Analysis Personal Consumption Expenditures Chain-Type Price Index

There is an additional mitigating factor to consider; wages for workers as a whole have risen through composition effects. More Americans are earning bachelor's degrees than before, so the workforce is shifting from the less favorable earnings track to the more favorable one.

However, for Americans who have not completed any postsecondary education, the problem of low wages remains. The construction industry provides opportunities that alleviate that problem, in that it pays relatively high wages for workers at lower education levels.

Table 1. Common Construction Jobs and Wages

Title	Number Employed	Percent without Secondary Education	Wage
Carpenter	734,170	68%	$23.24
Electrician	688,620	44%	$27.01
Construction Laborer	1,020,350	72%	$17.72
Operating Engineers and Other Construction Equipment Operators	405,750	74%	$23.55
First Line Supervisor	626,180	57%	$31.83
Construction Manager	293,380	32%	$45.80
National Average for All Jobs		**32%**	**$19.14**

Source: U.S. Bureau of Labor Statistics, Educational Attainment for Workers 25 Years and Older by Detailed Occupation, https://www.bls.gov/emp/tables/educational-attainment.htm; May 2019 National Occupational Employment and Wage Estimates, https://www.bls.gov/oes/current/oes_nat.htm

Consider, for example, the role of the first-line supervisor in construction. Such workers are less educated than the national average; 57 percent of them have no schooling beyond high school, compared to an average of 32 percent across all occupations. Nonetheless, first-line construction supervisors are paid a median wage of $31.83 per hour, 66 percent higher than the national average wage of $19.14.

This is almost a uniquely high wage for its education level. There are only six jobs in the U.S. where the median worker has never attended college but earns $30 an hour. Most of them are niche jobs in the operation of specialized equipment. However, while these jobs employ a few thousand people at a time, there are more than six hundred thousand first-line construction supervisors in the United States. The job is arguably the most robust path to high wages for the non-college-educated.

Construction's relatively high wages for its education level also extend to other positions. There are also a variety of specialist trades, such as electrical work, that pay well. Even the median construction laborer, overwhelmingly high-school-educated or less, is paid close to the national average wage.

Construction also disproportionately employs another group that is relatively disadvantaged in the labor market: Hispanics or Latinos. According to the Current Population Survey, they comprise about 18 percent of all workers, but 30 percent of those in the construction industry.

In general, Hispanics and Latinos earn about 79 percent of the national average. This puts them about even with Black Americans, and well-behind White or Asian Americans. Relatively-high wages in the construction industry help offer this group some advantages.

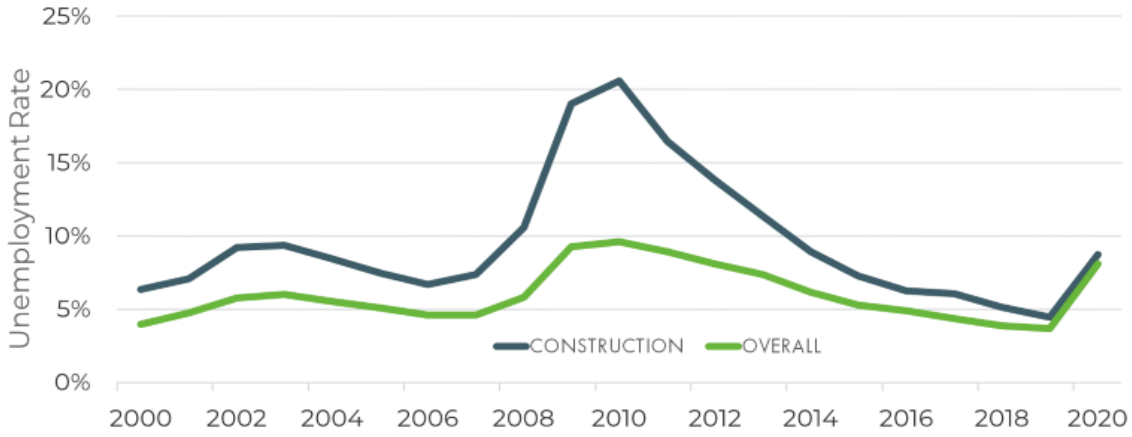
Finally construction is about 90 percent male. Unlike the previously-described demographics, men in the aggregate do earn more than the national average. However, male workers are a large and diverse group, especially with respect to education levels, and there are reasons to worry about some subsets of the male workforce.

For example, in 2018, 71.4% of recent female high school graduates had enrolled in college, but only 66.9% of recent male high school graduates had done the same. As discussed above, the relationship between worker wages and education includes a "composition effect;" while high-school-only workers have not seen much real wage growth, the population of workers as a whole has seen wage growth through increasing education. These gains have been helpful for millions, but there is still a substantial group of people without post-secondary education—and over time, that group is becoming more and more male. It will remain important to provide that group with opportunity, and the construction industry can play a big role in doing so.

There are some additional reasons to be concerned about men. The share of prime-age men that is neither working nor looking for work has been rising for decades. A lack of employment for men is associated with much worse measures, both subjective and objective, of well-being. While causation is never straightforward in such situations, there is plenty of reason to believe that additional employment opportunities may relieve some of the problems these men face, such as having fewer friends. The downside risk for men is also unusually high; for example, men in general are more likely to commit crimes than women are, and non-employed men are particularly at-risk.

One measure that illustrates the construction labor market well is the sector's unemployment rate. The unemployment rate for construction professionals tends to be higher than that of the rest of the economy. This fact is best understood to mean that people would like more construction jobs than are currently available to them. The lives of workers or would-be workers could therefore be improved by creating more construction jobs.

Figure 2. Unemployment Rates are Higher in Construction



Source: U.S. Bureau of Labor Statistics, Employment Situation

Overall, the construction industry creates many well-paying jobs, often with opportunities available for groups that are otherwise short on opportunities. From a worker's perspective, though, it would be good if there were even more of those jobs. Construction already contributes a great deal to our labor market, and it has the potential to help counteract some worrying trends in struggling demographics.

Its benefits may not be limited to just the workers directly employed in the industry. In a tight labor market, the comparatively high wages in construction may be helpful not just to the workers directly employed by construction; they also increase bargaining power for workers with similar skillsets across the board.

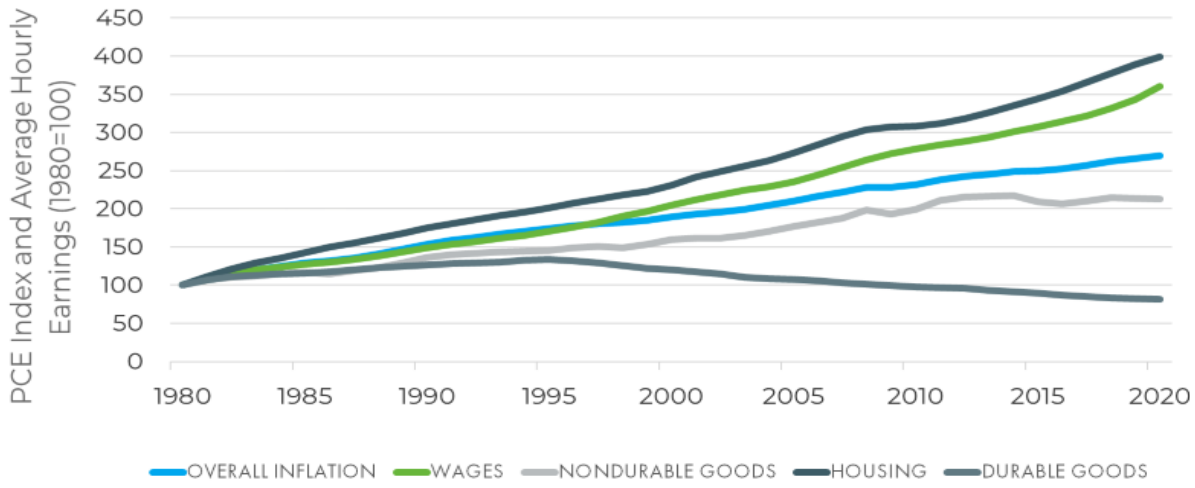
ROBUST CONSUMER DEMAND GIVES CONSTRUCTION ROOM TO PAY HIGH WAGES

The construction industry's ability to pay relatively-high wages comes in part from an environment of robust demand. Buildings and houses in the United States are valuable to their inhabitants. In recent years, the combination of high demand and comparatively-scarce supply have resulted in high prices. While the high prices can be unfortunate for end users, they do generate ample revenues for those who build new structures. The more revenue an enterprise brings in, the easier it is for that enterprise to pay high wages.

This lens of analysis is especially useful for comparing construction to its blue-collar peer, manufacturing. Many policy analysts in recent years have focused on the subject of employing men without college degrees, and many have looked to manufacturing as a good way of doing so. While manufacturing can be a path to high wages for men without college degrees, price data suggest

that construction may be more fruitful. The chart below shows overall inflation and wages, as well as the inflation for three end products that might be built or manufactured by blue-collar workers: housing, durable goods, and nondurable goods.

Figure 3. Housing Has Faster Price Growth Than Goods or Wages



Source: U.S. Bureau of Economic Analysis, Personal Consumption Expenditures Chain-Type Index; U.S. Bureau of Labor Statistics, Average Hourly Earnings of Production and Nonsupervisory Employees

In housing, prices have risen faster than overall inflation, and faster even than wages. In a market with this kind of rapid price growth, a firm might in principle be able to deliver roughly the same products as it had in the past and still come out ahead, even after allowing for higher worker pay.

In contrast, nondurable goods (quickly-used items like dish soap or paper towels) have risen only slowly in price, and durable goods (longer-lived items like appliances or computers) have declined in price. Firms in these industries may face a much more difficult calculus. With wages growing faster than revenues, firms cannot run the same playbook forever. They must innovate; either by increasing output per worker and shedding jobs (which would run contrary to the popular goal of increasing blue-collar employment) or by creating new, improved, complex products that can command a price premium, at least for some time. While these are broad sketches drawn from a handful of data series and inferences, there is enough information above to indicate what kind of blue-collar jobs can generally support high wages: construction and cutting-edge manufacturing. By contrast, low-tech manufacturing of cheap, plentiful commodity goods is unlikely to support many jobs at high wages.

It is good to be a producer when prices are high, and prices for housing and other structures are indeed high; this gives the construction industry a lot of room to offer good wages, especially for men without college degrees. An expansion of this industry, overall, would benefit workers. This potential improvement has its limits; expanding construction substantially could eventually make the market more competitive, reducing prices, and attenuating this ability to pay high wages. However, overall, a move from lower-wage industries to construction, with its higher wages, would benefit many people.

THE CONSTRUCTION INDUSTRY COULD SATISFY ROBUST CONSUMER DEMAND

A robust construction industry would also benefit people on the other end of the transaction—the end consumers of homes, business structures, or infrastructure. All of these can, at times, be expensive and scarce. More construction can make them more available and cheaper.

This is most significant, and most observable, in residential housing. Americans spend about $2.8 trillion a year on housing and utilities, more than they spend on healthcare ($2.4 trillion) or food ($2 trillion.) Rent or mortgage is the biggest line item in most family budgets. In addition to being the largest consumer expense, housing is also among the fastest-growing. As shown above, the price of housing has increased faster than wages or other components of inflation. A greater supply of housing could put some downward pressure on prices, making it more affordable. Furthermore, ideally, consumers would like to do more than keep up with inflation. When possible, consumers prefer better and larger houses than they had in the past. Construction is necessary to achieve this goal as well.

In some cases, this simply happens all by itself. After all, what has been described above is a situation with substantial surplus—or gains from trade—to keep both producers and consumers happy. In a normal free market, absent other constraints, people should keep making this trade until there are no more people left who stand to gain from trading.

At least in some cases, this is more or less what has happened. Some metropolitan areas, particularly in the Southwest, have built ample new housing to meet consumer demand. Furthermore, overall Americans have succeeded in improving their housing: for example, the median square footage of a house has increased from 1,525 to 2,301 since 1973; the mean has increased from 1,660 to 2,509 over the same period. In addition to improvement in square footage, it is likely that houses have also generally improved on quality. For example, in the 1970s just 65% of homes had central air conditioning, while by the 2000s, 89% did.

For areas where supply meets demand—where workers get jobs and people get newer, better, or larger houses—the industry is working as it should, and there is no policy issue to address. This is true of much of the United States. However, in some places, the available housing has not kept up with consumer desires.

For example, in San Jose, many people are buying the same homes that always existed, but at much higher prices than previous generations bought them for. A typical 1,525 square foot home built in 1973 in San Jose might easily command a price of over $1 million today. The San Jose real estate market is frequently characterized by intense bidding wars over houses that appear on their surface to be fairly average and fairly easy to construct.

Furthermore, even within some cities where overall price levels are reasonable, there are still areas that command a premium. For example, a resident of Richmond might note that prices in the Fan District, a desirable area close to the Virginia Commonwealth University campus, are substantially higher than prices for similar-sized homes outside of it.

At the extremes, when housing is particularly expensive or scarce in an otherwise-worthwhile area, there is a clear loss in standard of living. RentCafé, an apartment listing service, estimates that the average renter in Fremont or Santa Ana lives in less than half the square footage of the average renter in Louisville. This fact may seem shocking, but it is consistent with other attempts to understand the California housing market. The Urban Institute's Claudia Solari also argues that crowding is a growing problem, and it is most acute in California, where renter households are almost four times more likely to have multiple occupants per room than renter households in Kentucky. Households in California would undoubtedly prefer more living space if it were affordable and available. A more active construction industry in the state would help them.

Housing affordability is especially important to the Joint Economic Committee Social Capital Project (SCP) because it is the largest component of family affordability, and increasing family affordability is one of the five main objectives of the Project. Larger families—families with children—are likely to need more livable space, and livable space costs money. Places with higher costs per square foot are less hospitable to families, and this is a problem worth addressing.

There is an additional human cost to expensive housing in the form of long commutes. Typically, housing closer to work is more expensive per square foot than housing in exurbs. Workers who live in exurbs not by preference but because closer-in housing is too expensive, pay a price in time, rather than in dollars. Commutes are generally more onerous in cities that have problems with housing costs.

In many housing markets, residents could clearly be made better-off in the long run through either a reduction in prices, an increase in square footage, or housing closer to work. A stronger construction industry could help with all three of these problems.

Commercial real estate has some of the same basic issues as residential real estate; firms would prefer high-quality spacious offices in central locations, but—much like in housing—office space is becoming increasingly expensive, often in

the most desirable places. Much like in housing, construction could help alleviate the problem, by making office space more plentiful, cheaper, higher-quality, and more centrally located.

Finally, public investments like transportation infrastructure or parks or schools also can be extremely valuable. Of course, not all are—they are not necessarily disciplined by the need to satisfy paying customers—but at least some of them are extraordinarily valuable, and measurably so. The George Washington Bridge, for example, connects Manhattan to New Jersey and generates hundreds of millions of dollars in profit from paying users every year, even after paying for its own maintenance.

While it is more challenging to assess the costs and benefits of public investments than private homes, they are noted here to illustrate that robust demand for construction extends beyond the residential real estate market.

A STRONG CONSTRUCTION INDUSTRY HELPS SAVERS PUT THEIR MONEY TO USE

This report has so far discussed the construction industry as a match between producers and consumers, builders and residents. However, there is an additional activity involved in the process, beyond producing and consuming: housing is a long-lasting investment, and therefore has an impact on saving.

Long lasting investment, or production that is not immediately and fully consumed at the time it is created, is critical for saving. It is in fact one of the few ways that society as a whole can save for the future.

The distinction between individuals saving and the economy at-large saving is crucial here. A single American can save by holding dollars or treasury bonds. However, this saving of government-issued financial assets is perfectly matched by dissaving of a sort from the Federal government. The dollars are a liability on the government's balance sheet because it is charged with holding the dollar's value relatively steady. More obviously, treasury bonds are also a liability for the government as well. An American could also save by lending to some entity other than the Federal government—but that too would result in dissaving of an equal amount by the borrower. At least in these areas, one person's asset is another's liability.

However, not all saving is canceled out with dissaving. The greatest exception is in new investments. For example, consider a typical residential mortgage. By the homeowner's account, they have an asset (the home) and a liability (the mortgage.) From the lender's perspective, they have an asset (the mortgage). On net, the two parties have saved.

In general, a rule of thumb for understanding this is that all paper transactions cancel out in the aggregate; they may redistribute wealth between people, but

they cannot create new wealth. Aggregate wealth is only what exists in the real world, and one of the most obvious, tangible, and valuable forms of wealth is in buildings.

Finding outlets for aggregate investment is important because there is a lot of demand for investable opportunities. The 21st century has largely seen plentiful private saving for demographic reasons: aging and wealthy populations in developed markets expect to live a long time in retirement, and therefore like to hold large amounts of wealth in reserve.

Ideally savers would help fund new investments and earn a positive return. However, saving is so plentiful that it has been difficult to find sufficient new investments to spend on. The risk-free interest rates in many developed markets have been driven to zero, or close to zero, multiple times in the 21st century. These low interest rates were not artificial interventions by a specific government, but instead an accurate reflection of global supply-and-demand dynamics imposed by demographics.

This has made deficit-financing cheap for currency-issuing countries, which has some advantages and disadvantages. Debt is more manageable under low natural interest rates, but they also make recessions more likely because of dynamics known as “liquidity traps,” where it becomes difficult to hold the pace of spending steady. When debt is lower-interest and output is underutilized, it can be easier for governments to justify inefficient spending or practices that would not be optimal at full employment.

Overall, most economists would prefer avoiding liquidity traps, and one way to do that is to find more outlets for private-sector saving besides additional government debt. The construction of additional housing helps achieve this objective. Additionally, it makes the savers themselves happy, because they have a way to make a yield-bearing secured loan. From the perspective of savers, just as for workers and residents, construction is a helpful activity.

HOUSING IS HELD BACK BY ZONING

Described above is a situation where there should be gains from trade on all sides: people are eager to work in construction, people are eager to use new structures, and people are eager to provide financing for new structures. In at least some cases, there seems to be a massive amount of surplus available: end user willingness to pay seems to greatly exceed the combined costs of labor and capital, leaving plenty of gains from trade to distribute. This raises the natural question of why the construction projects don’t go forward in these cases. The most typical reason is that laws and political customs err too far on the side of hampering the construction industry.

The most important barrier to the construction industry is in residential land use laws: most precisely, in municipal or local governments drastically limiting the amount of livable indoor space per unit of land.

Recent academic work by Edward Glaeser and Joseph Gyourko can help quantify and identify this effect—the gains from trade foregone. In a 2018 paper, they construct a measure of "minimum profitable production cost" for housing, which includes cost of land, cost of construction, and a rate of entrepreneurial profit to compensate the builder. Then they note how cities' actual housing costs compare to the minimum profitable production cost. They find that cities fall into three rough categories. In some places, such as Detroit, houses are actually cheaper than the minimum profitable production cost. This suggests that demand for housing was greater in the past than it is now, and houses can therefore be purchased at a discount. In a second category of places, such as Atlanta, home prices are about on par with construction costs, suggesting that builders are capable of responding to new demand. In the final category of places, though, such as San Francisco, home prices exceed the minimum profitable production cost. This suggests that San Francisco is constrained by something other than demand or building costs.

While San Francisco is one of the most dramatic examples of the phenomenon—and one where an entire metropolitan area struggles—the phenomenon can also be seen in other cities, or at least, parts of other cities. It is common for some parts of a city to be noticeably more expensive than other parts, even for roughly identical structures. Glaeser and Gyourko's research concerns metropolitan areas, but the framework is sound for more granular analysis as well, and quantifies the gains from trade left on the table in places where prices exceed construction costs.

The most likely causes of the phenomenon are high demand coupled with limitations on constructing more livable space. This is a narrow and particular subset of housing regulations; many housing regulations have other objectives and effects. Building codes might promote home safety, for example, by limiting vulnerability to earthquakes or fires. Building codes also come at a cost in terms of additional work, which does raise home prices (and create more paid work for builders.) However, many of these effects are limited in scope since the codes do not explicitly restrict housing supply.

The strongest effects come when new construction is blocked almost entirely. Consider two metropolitan areas of similar size: North Port-Sarasota-Bradenton, FL, and Oxnard-Thousand Oaks-Ventura, CA. Both areas have a population of about 800,000, and both are relatively desirable places to live. However, the Floridian metropolitan area built about 10,000 housing units a year in both 2018 and 2019. In contrast, the Californian metropolitan area built just 1,146 units in 2019 and 1,204 in 2018.

The effects of these choices are very straightforward. North Port-Sarasota-Bradenton makes new housing available for the growing population that wants to live there. As a result, it has reasonable prices. In contrast, Oxnard-Thousand Oaks-Ventura keeps housing supply restricted, and forces people to bid competitively against each other—not to pay construction workers, but to grab limited admissions to the area. Unsurprisingly, Glaeser and Gyourko identify it as one of the areas with the highest ratios of price to minimum profitable production cost. This identification is further reinforced by the U.S. Census's estimates of regional price parities: rent in North Port-Sarasota-Bradenton is 20% above the national average, while rent in Oxnard-Thousand Oaks-Ventura is 75% above the national average. It leaves potential jobs, potential homes, and potential gains from trade on the table.

This raises the question: why landowners and homeowners in the area do not simply attempt to build more homes on their lots, or sell to someone who will? This happens because there are rules that prevent people from doing so. For example, in much of the land in these cities, multifamily designs such as duplexes or apartment buildings are simply illegal. Additionally, even the multi-family residences are very small; only a handful of buildings in the whole area are more than five floors. One reply to this critique might be that places like Oxnard-Thousand Oaks-Ventura are too "full" to build new housing. But it is hard to imagine why this would be the case without begging the question; the "fullness" is only evident if one already assumes that current land use must persist, and in fact, must be enshrined into law.

The same broad issues that are present in Oxnard-Thousand Oaks-Ventura are also present in many other areas, including some large ones: San Francisco, San Jose, Los Angeles, Washington, and New York. While the precise mechanisms differ, all have fewer and more expensive homes than an unrestricted market would generate. This is not just true of expensive cities, but also certain areas within smaller cities.

There are many ways that land use policy can effectively stop housing supply entirely. The most damaging policies either limit the number of families that can live in a unit of land area, or limit the amount of buildable indoor space per unit of land area, or both.

For example, single-family zoning prevents a property-owner from building any type of housing other than a detached single-family home, even if a location is very desirable and many families would like to live there. Minimum lot sizes force residents to buy larger yards than they might prefer. Maximum floor area ratios (FAR) place a cap on a building's total floor area (all levels, not just ground floor) as a percentage of the lot size. A related measure, building coverage ratio, looks only at the footprint size. Minimum setbacks establish a necessary distance between a building and a street or neighboring lot. When too onerous, these force residents to have smaller houses or larger yards than they would prefer. Height limits block the creation of livable space by adding stories. Finally, parking minimums, which

require off-street parking spaces, preclude builders from using that space for livable area.

While there are sometimes justifications for individual regulations, many of them restrict what property owners can do with their space, and they err consistently on the side of making less space available for people to live in.

The result is that housing is limited by a sort of collusive trust, similar to how oil-producing countries used to agree to limit production. It might be individually rational or profitable for people to add housing, but collective rules prevent them from doing so. The restricted supply results in higher prices, making it more difficult to join the neighborhood and more difficult to be able to afford to start a family.

Plenty has been written about these policies and their potential drawbacks individually, but it is best to address them with a single thesis that gets to the heart of the underlying concept: as Nolan Gray puts it, density is how the working poor outbid the rich for urban land. In a competitive market, few individual families with single-family homes could outbid the combined efforts of two families who would split a plot in half and pay for housing on each half. Fewer still could outbid four families paying for a pair of duplexes, and almost no one could outbid a dozen families or a hundred families in a larger building. The way that single-family homeowners win the bidding war for urban land is to preclude those options through the legal system—to make it illegal for larger-scale arrangements to even exist.

This behavior curbs the construction industry and the jobs it creates, as well as making it harder for many Americans to afford housing and start a family.

LEVELS OF GOVERNANCE AFFECT HOUSING REGULATION

Despite the efficiency and affordability case for building more housing, rules such as those described above are rather common at local levels of government. There are some fairly simple reasons for this: many of these choices are rational to the people choosing them, even though they produce outcomes that are socially suboptimal. The difficulty of bargaining over unclear property rights is another source of inefficiency. Below is an exploration of some of the political economy issues in housing: an examination of why suboptimal policies end up being created in the first place.

Several of these political economy issues have to do with the size and scope of different layers of government. The United States Constitution explicitly provides for a federal government while reserving many powers, both enumerated and otherwise, to states. A variety of local or municipal governments also exist. It is up to states to determine what authorities, if any, to delegate to the local level. States should consider this question carefully: by definition, the smaller levels of government in states do not represent all residents of the state. For example, in

Oregon, the mayor of Portland does not represent people from Salem. This is in general a useful feature for accountability, experimentation, and choice; Portland can try one thing, Salem can try another. If one of the cities' policies fails, it can look to a more successful city as a model, or risk losing those who vote with their feet. Alternatively, both cities might succeed but in different ways, allowing each set of people to live as they prefer without imposing those preferences on others.

A drawback of this model is that would-be movers or would-be residents may not have representation at the local level, creating a Catch 22 for those who would like to pay for new housing and move into a neighborhood: in order to do so, they must petition the local government to allow housing development, but in order to petition the local government, they must already live there.

This is a problem for state governments to consider. The Oregon state government does represent people who would like to move from Salem to Portland or vice versa, even if the cities do not. In fact, it has an interest in the free movement between the cities: the "voting with their feet" component of accountability for local governments is useful only if people can actually do it.

For these reasons, state governments should consider carefully how much power they would actually like to delegate. The right to enter into contracts, or homeowner associations, or, most formally, local governments, is a useful one. In fact, states enable these legal structures by providing them with use of the court system for enforcement. In effect, the state creates a limited power to write additional rules beyond the state's own laws.

However, states need not enforce absolutely every kind of contract imaginable. For example, California does not enforce a kind of labor contract known as a non-compete agreement, which would restrict an ex-employee of a firm from working at a competitor. California judged that allowing such an agreement in order to restrict commerce is not actually in the interest of the public at large. States could make similar considerations for housing restrictions.

Another issue to consider is the design of elections within cities. Cities sometimes divide themselves into wards, a smaller jurisdiction within the city that has its own representation within the city government. They also have at-large offices, elected by the city as a whole. Recent research by Evan Mast shows that cities that switch from at-large representation to ward-level representation tend to have more restrictive housing supply. This is in effect a microcosm of the larger issue in local representation. While it may be in a city's interest to allow more housing overall, an individual neighborhood may find it advantageous to restrict supply. Elected representatives follow through on the interests of their constituencies. Given these considerations, cities with housing affordability issues may be better off using more at-large seats and fewer ward-level seats.

Notions of efficiency, representation, and self-interest depend a great deal on the level of granularity: the size of the group of people or the jurisdiction. For example,

it might be individually rational or profitable to turn a property into a multi-family home, yet unpopular at the neighborhood level because of parking concerns, and still yet efficient at higher levels of analysis because of a citywide housing affordability crisis. Depending on the unit of analysis and the legal or political structure, different outcomes may look optimal and different outcomes may be reached. In general, though, large jurisdictions should be wary of delegating commerce-restricting powers.

FORMALIZING INFORMAL RIGHTS CAN IMPROVE EFFICIENCY

Another way to analyze the problem is to understand and address some of the reasons why voters are so interested in using government to curb housing development. Often, there are material reasons: preserving access to amenities. Particularly, their concerns are about amenities that economists would call "rivalrous:" that is, where one person's use may crowd out someone else's use. Some examples of these include roads, parks, transit systems, and street parking. While they have no explicit ownership of these amenities, they have an implicit share by living nearby, and that share would be diluted with more residents. They therefore support regulation that curbs housing development, not because they dislike housing per se, but because they would like to preserve their fractional share of rivalrous amenities.

For certain kinds of shares in amenities—parking, in particular—a better system may be available that could prevent concerns of share dilution while allocating parking more efficiently in the future. Counterintuitively, this involves giving people more control, not less, over their neighborhoods. Such a system would make formal the rights that were previously only implicit.

For example, a neighborhood with relatively-available street parking might be inclined to fight to keep that street parking by attacking new developments that might dilute residents' share of the street parking. The best solution may be to formalize their right: give them ownership over the parking spaces, and make that ownership tradeable or alienable. In doing this, a government can allow people to hold onto their space, if that is indeed important to them, or sell that space and reallocate it to someone else if it is not.

This same principle of formalizing rights and making them alienable is useful in other areas of urban land use, such as setback rules. Rather than making a hard rule that applies to a whole neighborhood, it would be better to formally distribute, and make alienable, the veto rights over some kinds of building. Consider, for example, setbacks to the side: these rules are designed to protect neighbors to the side. Those protectees should have a choice to waive those protections under whatever terms they see fit: for example, for a side payment or some other concession. Then they can choose how much they value a buffer zone between their property and the next, rather than having that choice made for them.

This idea of formalizing rights and making them tradeable or waivable comes from the most famous insight of Ronald Coase: if formal rights are made clear, and trading them is sufficiently possible and the costs of making the transaction is low, then an efficient outcome will ultimately be achieved, regardless of the initial allocation. Cities can take advantage of this insight by distributing formal rights where informal rights were previously understood to have existed. This is not a perfect solution: in practice, even with formal rights, there can be disputes and inefficiencies, especially if there are many of them and putting together a negotiation is difficult. But it can help, especially for relatively simple rights such as street parking, to allow finer and more efficient solutions than blanket rules.

DISCRETIONARY REVIEW SHOULD BE AVOIDED FOR SMALLER PROJECTS

If formal rights to property can increase efficiency and allow for speedy and consistent resolution, discretionary review tends to do the opposite. In some cities, almost any residential construction project—even ones that are fully within the law—can still be open to a politicized review process. Under such a system, would-be builders must do things like take part in hearings, conduct studies, and attend meetings, in order to get a project started.

A discretionary process has some merits for structures like airports or stadiums, which may have unusual or undesirable effects on neighbors, often known as externalities. The purpose of discretionary review is, at least in theory, to address those externalities. However, it is overkill for ordinary apartments, shops, and offices. Cities need large numbers of these basic building blocks, and a review of each one is a costly solution relative to general rules. Furthermore, the asymmetries of discretionary review can be too easily gamed by opponents.

For example, delays to acquire more information—even lengthy ones—are treated as a neutral choice, when in fact they contain, de facto, the same policy prescription as a decision against the project. Furthermore, the epistemological standards are often asymmetric. Casual claims against a project are effectively treated as true until rigorously refuted. Opponents may assert, proponents must prove. In effect, projects are presumed guilty until proven innocent. Finally, there is asymmetry in terms of the material risks taken by each side. A would-be builder has money tied up in the project, and suffers financial hardship from delays, while opponents often have no such material stake.

One particularly strong example of how all of these items fit together lies in the Mission District of San Francisco, with a case sometimes known as the “historic laundromat,” a five-year story of a laundromat owner, Robert Tillman, who attempted to redevelop his building into mixed-use housing. He began seeking authorization to do this in 2014. Local activists, some of whom wanted to purchase the property at below-market cost for a different purpose, attempted to stop or

delay this redevelopment. The proposal was within all of the explicit laws, but nonetheless was subject to discretionary review by local government officials. The case first became notorious when Tillman was forced to determine whether or not the laundromat was of historical significance, and provide a report on that matter. This drew some scoffs at the notion that a laundromat could be historic.

After Tillman proved the laundromat had no historic value, activists argued that the proposed development might cast new partial shadows on a nearby school. The school was to the south of the site, and San Francisco is in the northern hemisphere, so any shadows cast would be relatively minimal. However, shadows were investigated nonetheless. Tillman eventually won approval after five years and after suing the city, but many economic resources—by Tillman's estimates, close to a million dollars—were spent investigating largely-unimportant claims.

While this is usually given as a single anecdote of the barriers to construction in San Francisco, it is instructive; it shows flaws in the process that could easily repeat themselves in another case.

First, discretionary policy is wasted on a simple building remodel. San Francisco is a large city with many laundromats. Rather than governing each laundromat individually through meetings, it should have broad and consistent rules about how they can be modified, saving time.

Second is the issue of standing—nobody had come forward to say that the site had historical value to them, personally, as a laundromat in particular, and that the historical significance would be lost if the laundromat were turned into something else. Furthermore, those who raised the shadow complaints were not among those who might be affected by the shadows. A well-functioning legal system should generally address only the interests of real people who come forward; it should not shop around for hypothetical interests of people who may not want to bring legal opposition, and may not even exist at all.

Third is the asymmetry in burden of proof. It was Tillman's responsibility—not his opponents' responsibility—to provide a 137-page report on the historic value of the laundromat. The opponents were permitted to casually claim something, while Tillman was required to rigorously refute it.

Fourth is the asymmetry in terms of the default action taken (or, more pointedly, not taken) as the dispute was being resolved: while the dispute was in process, Tillman was not allowed to move forward. In effect, just by creating a dispute—any dispute—the opponents were immediately awarded the outcome they desired. Fifth is the lack of a time limit on bringing claims. Opponents could raise concerns serially, rather than in parallel, lengthening the conflict. This interacts strongly with the previous flaw—that the policy default while an argument was ongoing was identical to the outcome that the opponents wanted. They were therefore incentivized to lengthen the process by raising complaints one at a time, even if the complaints were relatively weak.

Sixth is the style of analysis—a lengthy breadth-first search for all possible arguments pertaining to the issue, no matter how ancillary. This is generally not an effective way to do cost-benefit analysis. Well-considered decisions are typically driven by a few key ideas—by weighing the primary costs against the primary benefits and evaluating the magnitude of those costs and benefits correctly. In the case of the Mission Street laundromat, all parties were clearly far more concerned with how the property would be used, not what kind of shadow it would cast. The decision should have been made on the important issues, with the unimportant claims ignored.

Discretionary review simply has too many pratfalls to be used for ordinary residential, commercial, or office buildings. For these, governments should instead elect a more streamlined approach. For example, the smallest externalities can be ignored, on the grounds that litigating them is more expensive than simply allowing them to continue. For larger externalities, there are a few options. Following the insights of Ronald Coase, a government can give people protection from certain nuisances by default, but also give them the option to waive that right on terms of their choosing—for example, in exchange for some kind of concession. Government could also charge fines or fees for inconveniencing behaviors. Finally, the largest externalities can be banned entirely. These approaches may not be better than discretionary review in all cases, but enforcement is relatively quick, consistent, and accountable.

DECISIONS SHOULD BE EXPEDITED FOR LARGER PROJECTS

Even much larger entities with far more political clout suffer problems like Robert Tillman's. For example, the University of California San Francisco (UCSF) is currently interested in expanding the hospital and medical research facilities at its Parnassus Heights campus, and has been met with opposition by neighboring property-owners, and even lawsuits. Hospitals are of course much more important and much less numerous than individual apartments or shops, so a discretionary and unique decision-making process for them makes some sense. However, if discretionary choices must be made, they still should be made with speed and clarity.

Unfortunately, in many jurisdictions, speed and clarity are not particularly forthcoming. UCSF, much like Tillman, has been met with complaints about shadows. UCSF, much like Tillman, has been met with requests for delay. While UCSF has greater political clout, and some protections from its status as a state institution, the same pattern of mistakes is present. Delaying to assess the situation delivers a default victory to the proponents of the status quo, and they are therefore incentivized to create such delays.

As with the laundromat, prominent opponents raised trivial issues, ones unlikely to change the final verdict, but likely to delay building and create a chilling effect on future builders. Prominent arguments against the expansion include issues such as obstructed views and bird strikes. It is unlikely that—during the worst year

for public health in living memory, in which three million Californians caught a potentially deadly disease—bird strikes would ultimately move the needle and cause the government to reject the need for a hospital. However, a decision-making structure that rewards any argument at all, no matter how trivial, results in the increased production of trivial arguments.

A key component in this decision-making structure is the California Environmental Quality Act (CEQA), which forces a drawn-out process of analysis and public disclosure for all projects. Critically, even if a concern is relatively unimportant, virtually anyone is able to sue by alleging that the concern was not sufficiently analyzed. The lawsuit against the UCSF Parnassus campus takes this approach.

The CEQA process contains many of the same pratfalls as those of the historic laundromat case. As with the laundromat, much higher burdens of proof are placed on the new plan rather than the status quo. For example, the aging current campus is not fully in compliance with modern seismic codes. The renovation would rectify this issue. Each day of delay is, in effect, a day of replacing a modern building with a non-compliant building for one more day. However, those who wished to delay and retain the current structure, rather than start construction, had no obligation to assess the environmental impact of reduced seismic compliance, even though that would be an outcome of fulfilling their request.

There are, of course, more consequential impacts to the expansion plans—ones worthy of some degree of consideration. However, even the more serious issues are plagued by a lack of formal principles of standing or specific rights.

For example, one objection of the opponents is that the hospital did not make sufficient plans on where new employees might live. This objection was not made by the prospective new employees themselves, but rather, other people not affiliated with the hospital. Their claim relied on a long chain of causality: that because the hospital was planning to pay new employees, those employees would have income that they might then use to buy or rent housing on the open market, and that they might outbid other unnamed people for those homes. While this is generally valid economic logic, there is no clear indication of which rights are violated, and who has the standing to challenge. Generally speaking, one does not have the right to object to other people's jobs, and certainly not on the grounds that those other people make purchases with their income.
Traffic is another commonly-raised objection, and one of the components of the legal effort to stop the hospital; hospital workers and patients would use the roads nearby. This proposition is undoubtedly true. However, the homeowners do not own roads, and certainly not major roads like Parnassus Avenue. They own only their homes. The question before the city is whether the incumbent homeowners have a kind of ownership right to the road that is so broad and so far-reaching that it extends not just to the roadway, but even to parcels of land nearby that do not belong to them.

Considering a formalization of the rights is often a clarifying exercise: it can help make explicit what is being demanded, and help one decide whether or not it is desirable. In many cases, such claims will then sound unreasonable, and they can be rejected. But formalization can also serve a practical purpose when the claims are relatively modest and paired with the principle of alienability: that is, make it possible for people to trade their formal rights to the things they have claims over.

There are many potential ways that construction can be held back by local governance. However, when considered carefully, they often can be reduced to the same abstract issue: people have some limited rights to ask neighbors to address externalities, but those limited rights are poorly-defined. Reforms that define those limited rights better—whether affirming or denying them—ultimately make for a quicker, less acrimonious, and more efficient process.

THE FEDERAL GOVERNMENT CAN GET OUT OF THE WAY

Although the sections above have largely concerned state and local laws, the federal government also hinders the construction industry. Sometimes it engages in costly delaying processes similar to the ones found in states. It also restricts the autonomy of growing western cities through an overly-zealous and inflexible program of federal land management.

The National Environmental Policy Act (NEPA) requires assessments of the environmental impacts of federal projects, or projects that would require a federal permit. While principled cost-benefit analysis is a useful way to make decisions, the process has become distorted over time through legal abuse. Whatever its original intentions, it is now one of the greatest obstacles to project development, and it should be reformed.

NEPA is not a binding environmental law in the way a layman might think. It does not prohibit specific actions, or demand that builders avoid specific environmental impacts. Instead, it requires review of federal actions that affect the quality of the environment. These reviews are typically called environmental assessments (EA) or, for more expansive reports, environmental impact statements (EIS). Included in these federal actions is the issuance of permitting to private projects, so NEPA also affects private projects.

As with local deliberation processes, the law has resulted in increasingly-long evaluation time and a persistent bias against building—even in cases where the new building would be more environmentally friendly. For example, the Federal Highway Administration completed 114 EIS from 2010-2017, with a mean time to completion of 7.30 years and a median of 6.85 years each. The Army Corps of Engineers completed 89, with a mean time of 6.13 years and a median of 5.16.

To understand what is wrong with NEPA, it is first worth outlining the key tradeoff it makes. The tradeoff is not one at the object-level: it is not about, for example, how much to prioritize animal welfare over human welfare, or how

much to prioritize industrial production over pollution. Those tradeoffs are up to policymakers, regardless of what the analysis shows; a NEPA review could conclude that a project harms the environment, and a federal agency could nonetheless approve it. This is not merely an academic point. NEPA regularly slows down environmentally-friendly construction, such as wind farms, or even the New York City plan for congestion pricing in Manhattan. NEPA is not a direct, substantive environmental protection.

Instead, NEPA is more like an environment-agnostic tradeoff at the abstract level: it is about the value of having additional information against the cost of acquiring that information. Spending time to write reports can help clarify the stakes of an issue, but that clarity comes at the cost of effort and time. To the extent that NEPA cheaply provides valuable information, it could be considered successful. However, to the extent that it expensively provides unimportant information, it fails.

Unfortunately, NEPA errs too far towards the latter. This is especially true at the margin. It is obviously helpful for the Federal Highway Administration to take some time and acquire some information before doing something or approving something. But at the margin, the question is not one of some information gathering against none. It is instead a question of six years' worth against five. The relevant tradeoff is whether additional years of study are worth it. This seems unlikely. If something is so obscure and so difficult to notice that one can only uncover it in a six-year process, not a five-year one, then it is also probably not important enough to be worth delaying decisions an additional year just to learn about it.

If the process is indeed too long—if it spends too much time in analysis paralysis—then one should ask why it hasn't been made shorter. The best answer is that its current structure creates incentives to delay. Specifically, proponents of the status quo, whatever that might be, can keep the status quo for longer if they push for more and more expansive acquisition of information. Even if the information is not actually important enough to be material to the decision, simply creating a new question to be answered can slow the process down, and get status quo proponents—temporarily—what they want. Reforms are difficult; those with expertise in navigating the process are paid handsomely to navigate it, and therefore benefit from its complexity.

The ultimate result of NEPA is substantially higher infrastructure costs and substantial delays to projects. Beyond the direct legal costs and the costs of delay, there are some more subtle costs. NEPA and other "citizen voice" measures tend to increase the cost of infrastructure substantially on average through demands for extremely costly improvements.

Many of these demands would fail a cost-benefit analysis on an individual basis. However, because they are attached to an otherwise-worthwhile infrastructure project, and because those making the demands have so much leverage, it is better for the builders to pay the ransom in order to move forward.

In the longer run, this process creates a chilling effect on construction. While some projects power through, many more are deterred by the uncertainty and cost of the process.

One of the best reforms to NEPA available is a suite of policy proposals from Senators Mike Lee, Ted Cruz, and Kevin Cramer. These reforms include many elements that would speed or clarify the process, including a requirement that plaintiffs bringing NEPA-related suits demonstrate tangible harm, require clear and convincing evidence for injunctions, a "shot clock" for review, and permission for agencies to reuse relevant previous EIS work. This style of reform would make the NEPA process more flexible and nimble, and substantially reduce its status quo bias.

Another way the federal government gets in the way of the construction industry is with an out-of-control federal land management program that strangles development of cities in western states. While Americans from the east half of the country typically think of federal lands as uninhabited wilderness, this is not the case for growing western states. Frequently, federal land ownership in states like Utah goes right up to the edges of, or even into, suburban areas.

According to the real estate company Geomancer, 650,000 acres of land are within one mile of city boundaries. These lands have been valued as part of a tax dispute; Utah could earn hundreds of millions of dollars in additional property tax revenue if lands were in private hands. The Department of the Interior offers an offset (though an insufficient one) for this lost property tax revenue, called "Payment in Lieu of Taxes," or PILT. The value of federal lands near fast-growing western cities therefore is a subject of considerable debate.

This tax debate can be informative, though, on what is being given up by the overreaching federal lands program: valuable housing construction. The federal government should return autonomy to Utah and other western states by relinquishing some portions of federal land—particularly areas nearest to growing populations and that contain no historical landmarks or hold cultural significance—for use by private citizens, who are more likely to employ that land in efficient valuable ways.

THE CONSTRUCTION INDUSTRY BENEFITS FROM MACROECONOMIC STABILIZATION AND NEUTRAL TAX AND TRADE POLICY

Most policy issues in construction are regulatory: policies that either delay or prevent building. However, additionally, there are a few macroeconomic or financial issues worth considering, where better policy could help make the construction industry more robust.

The first of these is in macroeconomic stabilization, which is especially important for investor confidence in long-lived assets such as buildings, or for lender confidence in the mortgages that help finance residential home construction. When investors fund the construction of a large building, or lenders issue a mortgage, they are exchanging a large amount of present money, or principal, in exchange for cash flows at a future date: for example, rent from tenants, or mortgage payments from the borrower. The structure of this arrangement—where people trade future cash for present cash—is heavily dependent on the discount rate. The higher the discount rate, the less likely it is for an investment in a new building to be worthwhile.

The most common model of cost of capital—one that is both simple and approximately true—is that investors choose a discount rate based on a combination of two factors: the risk-free nominal interest rate for the country as a whole, and a risk premium based on the systemic or market risk of the asset—that is, risk that cannot be diversified away because it is determined by the economy as a whole. This model is known as the Capital Asset Pricing Model (CAPM) and while it is not strictly true in all cases, it is a solid first approximation of investment returns.

The key insight of the CAPM is that in a deep and efficient market where diversification is possible, idiosyncratic risk does not matter, and instead only market risk—the risk that income throughout the economy all falls at once—creates the premium.

For example, in construction, an idiosyncratic risk might be the idea that a particular building, or particular kind of building, would be less popular than the builder had hoped. While this is a problem, it also has a solution: simply invest in a diversity of structures, so that one individual mistake is not particularly costly.

However, the market risk, or "beta," is that people everywhere will have lower incomes, all at the same time, and therefore be less willing to spend on rent. This risk cannot be diversified, so it still commands a premium from investors, raising the discount rate. The higher discount rate then causes some construction to be foregone.

It would be possible to lower or even eliminate the market risk premium by successfully stabilizing nominal income in the economy. This would prevent the source of market risk for construction—if nominal income is expected to grow at a stable rate, there will always be willing renters for construction in the aggregate, and rent levels will be more predictable. Stable nominal income growth, and the reduction of market risk, could reduce the cost of capital for all sorts of assets, and increase investment generally, including in construction.

A second financial consideration for the construction industry is the tax code. Business-level taxes are biased against new construction because they do not allow businesses to immediately deduct construction expenses, as they would for almost all other expenses. Instead, they deduct the value of those expenses over several years—up to 39 years for nonresidential buildings.

From an investor's perspective, this asymmetric treatment biases businesses against construction, relative to other expenses that might bring in revenue. This is misaligned with the motives of investors, who are taught to care about free cash flow, not income, when evaluating business ventures.

Under most circumstances, these two concepts are closely related. However, they differ when it comes to longer-lived assets owned by the business. If a business builds a new factory, for example, it has a major cash outflow but not a loss of income because it traded away cash for an equally-valued factory.

The investment in a structure compares unfavorably to other kinds of investment—for example, hiring a management consultant to improve the process at an existing factory. This is written off as an immediate expense: a "loss" on the business's income statement.

One could note that these are actually identical from an investor's perspective: both are ways of spending cash now to earn better returns later. And one could note that the income statement treatment is mostly an artifact of subjective accounting principles. The consultant's contract was an exchange of cash for hopefully-long-lived advice that presumably is worth what was paid for it. The fact that the factory goes on the balance sheet and the income statement, but the consultant advice is written off, is mostly a concession to practicality and simplicity, not a real distinction with economic merit.

However, an even better concession to practicality and simplicity would be to equalize the treatment of all expenses by moving entirely to a cash flow treatment and allowing the full expensing of structures. This would align the tax code more fully with investor incentives, and not create a bias against construction.

One of the seminal attempts to quantify the effect of taxes on investment behavior came from Robert Hall and Dale Jorgenson (1967), who derived an expression for the cost of capital. An extension of the Jorgensen-Hall framework can actually show that tax rates do not distort time preferences if capital costs are deductible. This is not to say that taxes do not matter at all—they do take money from the private sector, they do disincentivize some productive behaviors, and they do impose administrative costs for payers and collectors. However, under full expensing, taxes no longer bias the private sector against long-term assets relative to other kinds of production.

Finally, trade policy in recent years has been a contributor to extraordinarily high lumber prices. In a long-running political dispute, U.S. lumber producers have accused their Canadian counterparts of gaining an unfair advantage through the use of Canadian public lands, and sought retaliatory tariffs. These tariffs have, in turn, been passed onto U.S. homebuilders, making it more expensive to build a home. And finally, those expenses have been passed onto American families, making homes less affordable. It should be a high priority to find a way to reduce or remove these tariffs.

CONCLUSION

Construction has a great role to play in two of the most important aspects of economic life: connecting people to work, and making family life more affordable. It provides a great deal of opportunity and fairly high wages to workers who otherwise have weaker opportunities in the job market: particularly, men without college educations and Latinos. Furthermore, the high and growing demand for structures makes it a much more sustainable source of blue-collar jobs than many manufacturing industries.

Construction also helps make it more affordable to raise a family. It is often said that housing, health, and education are three of the largest and fastest-growing costs for raising a family. Housing in urban areas, particularly, has become especially expensive—a problem that disproportionately impacts households with more people to house.

Construction is also often important for public or quasi-public infrastructure in sectors like transportation, defense, and energy.

Given its substantial benefits to both users and builders, it is a puzzle that Americans do not build things more often. Above are some of the answers to that puzzle—some of the impediments to the construction industry that keeps it from reaching its full potential. Clarity in regulatory frameworks, reforms at the local level, an improved tax code, reduced tariffs, and stable monetary policy would all help the construction industry reach its full potential.

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