

## Topic 13: Economics and Real Estate Markets

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### I. Supply and Demand

A *market* is an arrangement that facilitates exchange between parties that want to obtain goods or services and parties that have them or can produce them. Think of the market for a commodity like wheat, or for shares of stock in a large corporation. These markets would be informationally *efficient* as described in your other finance courses, or would exhibit features of the model described as *perfect competition* in your economics courses: many buyers and sellers of essentially identical units, each acting with reasonably complete information about a market that can quickly adjust to new conditions, but each buying or selling amounts that are small relative to the overall market.

Real estate does not tend to follow this pattern:

- Supply is inelastic, or unresponsive to price changes, in the short run (however, we may see property used more intensively or converted to other uses in response to changing needs). The supply of particular types of improvements can be changed over the longer run, but long periods needed for constructing or renovating mean that by the time those changes have been made the demand for various types of real estate services may have changed.
- Information is incomplete; several developers may respond at the same time to a perceived need for more improvements of a given type, resulting in an oversupply – or is it the “master carpenter” theory at work (economist Peter Colwell’s suggestion that it might be more long-run efficient for a construction firm to keep its best workers employed, building things the market will not absorb for a while, than to watch those workers leave the area, and then bear the even higher cost of starting a business from scratch when demand picks up again)? [If this outcome were expected it would become part of the industry’s pricing structure.]
- Markets are largely localized; knowing the value of office buildings in Chicago tells you essentially nothing about the values of student apartment buildings in Carbondale. Someone wanting to open a health food store near their home in Springfield cares essentially nothing about available land in a Joliet industrial park. And local economic conditions (such as significant hiring or layoffs at a major employer) can have a substantial impact on the prices paid for real estate in the area when transactions occur.
- Purchases/sales are of sufficient dollar magnitude to require financing, such that financing availability can affect (or even drive) the market (as may have happened in the early 2000s housing “bubble”), and seems to have been an issue as home prices leveled off or fell amid higher interest rates starting in the fall of 2022.
- The market for major companies’ common stocks traditionally has been viewed as informationally *efficient*. All shares of Microsoft confer equal rights, so all are perfect substitutes for each other; you do not care which 100 shares you are buying from among the millions that exist – and huge numbers of transactions involving those identical rights take place all day, every day. With so many financial claims conferring identical rights it can make economic sense for professional analysts worldwide to study an issuing company’s activities and make recommendations to stock-buying investors, and if we place some faith in the *Efficient Markets Hypothesis* you likely discussed in investments class we can view the current price observed in the market, based on the dollar amounts bid and asked by so many intelligent and motivated individuals across the globe carefully monitoring the exact same things continuously, as the informed consensus view of the theoretically correct per-share value.

But each parcel of real estate is unique, at least in its location, which is such a critical determinant of real estate’s usefulness or desirability, and therefore of its financial value (recall “location, location, location ...”). And that all-important location can not be changed, so even reasonably physically similar homes or income-producing properties are not perfect substitutes for each other. Furthermore, a specific parcel tends to be bought in a sales transaction only once over a period of many years, and when it happens there likely will be only one seller and perhaps a few potential buyers, so it will not make economic sense for multiple professional analysts to actively examine and report on any specific parcel within a localized area. Thus, the real estate market must generally be viewed as informationally *inefficient*. An appraiser or two may be called on to provide a value estimate at some stage of a transaction, but even they can merely give opinions based on analyzing the limited information that comes from other recent transactions that reflect the same limitations. So, generally, we can not view the price observed when a specific parcel of land is sold as a wide consensus view of a theoretically correct value within a broadly informed market.

Demand is the relationship, in the market for a particular product or service at a particular time, between price and quantity demanded. Supply is the relationship, in the market for a particular product or service at a particular time,

between price and quantity supplied. Real estate does adhere to the demand/supply relationships seen in the markets for other economic goods: prices rise (fall) with increases (decreases) in demand and fall (rise) with increases (decreases) in supply, other things held equal, and the equilibrium price and quantity are identified by the point where the supply and demand functions intersect. Simple example: In early 2022 there was a shortage of available houses relative to what buyers wanted (people able to work remotely sought bigger and nicer places to live, Covid shutdowns and high lumber prices had reduced building activity, and low mortgage loan interest rates kept monthly payments affordable even when prices paid were high), and home listings brought forth multiple offers, often for considerably more than the asking prices. But then later in 2022, after the Federal Reserve had increased interest rates multiple times, individual buyers largely exited the market, and some home construction companies offered bargain prices to institutional residential landlords willing to buy large numbers of newly-built houses at once.<sup>1</sup>

Of course in one sense, the supply of land is fixed. But the amount of land available for a given use depends on the specific location and the intended use (in the U.S., with vast open spaces in the western states, most land is vacant, and most of the population lives on a small fraction of the country's total land). In a local area, the supply of land available for development to particular uses depends on a variety of natural (Chicago can not grow to the east), constructed (a lack of good roads or other infrastructure keeps some towns from growing, at least in the short run), and legal (zoning, growth restrictions) features.

With respect to commercial real estate we can talk about *space markets* and *asset markets*. Users of commercial real estate services offer to pay prices based on the specific location and configuration of available *space*; a party wishing to open a produce store in Uptown Normal has very specific space needs. Purchasers of commercial real estate *assets* are looking for cash flows, which can come from a wide range of real estate or other sources – so the prices they offer to accept reflect other opportunities available in the capital markets (stocks or bonds, for example), and the expected periodic return relative to perceived risks as reflected in the measured periodic cost of capital.

Effective demand for real estate services of various types is affected by economic (income, employment, interest rates) and demographic (population, age, household formation) features.

Land value also can be expected generally to follow other economic principles, such as decreasing marginal utility. Each added unit of land would, in most cases, be expected to add less to value than the previous unit that was added; the owner of a mid-sized retail location would be likely to offer more money for the amount of land needed to add ten extra parking spaces if there currently are only two spaces available than would be offered for that amount of land if currently there were ninety spaces available. This *plattage* effect would be expected if the currently owned tract is large enough to minimally meet the needs of the use that exists or is being considered. But in the less typical case of a parcel that is too small for a potential user's needs we could see an assemblage or *plottage* effect, with added units showing increasing marginal value. Think of a developer considering a large project near a downtown area where existing uses are primarily small shops on identically sized small parcels developed a century ago. That party might not offer much for the first parcel or two if there were little assurance of getting enough total land for the project, but if 18 of 20 required parcels have been obtained the developer might offer especially high prices for the final needed two. (This increasing marginal value, caused by the needed land's fixed location, can lead to a *holdout* problem, in which the owner of the desired remaining land seeks a price far above what it would be worth had the potential buyer not already made a substantial investment.)

The configuration of a land parcel also can affect its value. An obvious example is that a plot 150 feet wide and 150 feet long (22,500 square feet) would likely be far more valuable, in most instances, than one that has equal square footage but is ¼ foot wide and 90,000 feet long. Added *frontage*, which is length along a street or other means of public access, usually is seen as more valuable than an equal amount of added depth, especially for commercial users because of better exposure to customers, but more frontage also can be desired by residential users because a wider lot provides a privacy buffer from neighbors. One rule of thumb for measuring depth value, which is of some use to us only because it has been shown in actual transactions to have some validity, is the 4-3-2-1 rule: 40% of a lot's value is provided by 25% of its depth, while the remaining three quarters of depth provide 30%, 20%, and 10% of the value, respectively. By this measure if a governmental unit used eminent domain to acquire half of the depth of someone's lot, the amount owed as compensation at fair market value would be just 10% + 20% = 30% of the land's value before the taking (because the two fourths that account for 40% + 30% = 70% of value would remain).

Illinois crop land value has risen (need to generalize) from perhaps \$5,000 per acre in the 1980s to about \$20,000 for the best acreage by summer of 2023<sup>2</sup> (the 2023 state-wide average was \$9,300<sup>3</sup>); an Illinois farm land value index shows 2023 values five times as high as those in 1979.<sup>4</sup> One factor in higher values is today's ability to rent

spots for wind turbines or solar fields. A larger parcel tends to be more “farmable,” and thus worth more, than a similar land total in smaller tracts. Being surrounded by other financially successful farms also enhances value; reasons may include more economical access to services also used by surrounding farms, and the greater likelihood that a neighboring owner would one day offer to buy the land at a favorable price.<sup>5</sup>

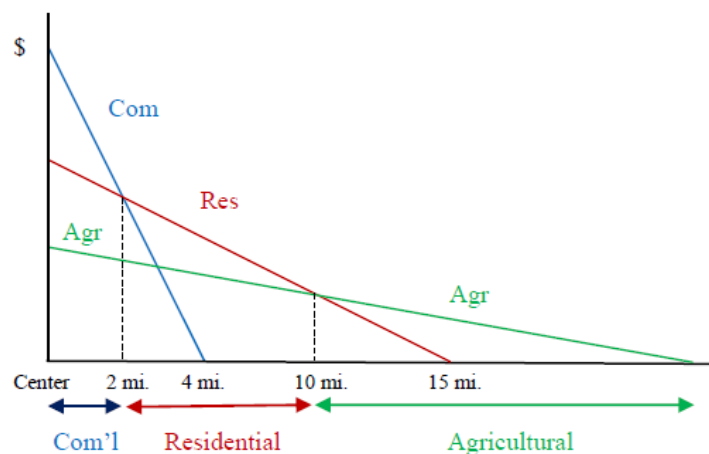
## II. The Price/Distance (“Bid-Rent”) Relationship

The academic study of real estate originated with the sub-field within economics called urban economics. One of the foundational ideas of urban economics is the bid-rent curve. Observers of land markets have long treated land value as a function of what people would pay to use it (the rent the land can produce), which depends on location, the desirability of which depends on distance to some important place (accessibility).

Under traditional “bid-rent” analysis, the important place that land users tend to wish to be near is the heart of the “Central Business District” (CBD), or the center of the “downtown” area. As distance from the CBD increases, it costs more for activity conducted on that more distant land to gain access to the focal point of commercial activity.

Uses traditionally requiring face-to-face contact (office) tended to be located nearest the CBD center, then successive uses (industrial, residential, agricultural) were expected to appear based on their need to minimize the cost of access to the CBD center. So users that want to build office buildings will bid higher rents than all other bidders will for land nearest the CBD center, but will not bid any rent at all after some distance from the center has been reached. (The use consistent with the highest rent offered at a particular location is the highest and best use.) Agricultural users bid more to be at the CBD center than they bid for more distant locations, but commercial use outbids agricultural at the CBD center. However, agricultural users bid the highest rents – indeed they may be the only bidders – at distances far from the urban center. (A simpler but clearly overgeneralized story in support of this traditional model would be that commercial parties transact all day long so they need to be at the CBD center and will pay the most to be there near other major transactors, households sell labor services at the CBD center only once each day and thus would pay something to be there but less than commercial users would, and farmers sell their crops at the CBD center only once each year following the harvest, and thus would pay something to be close to the center but not as much as households would – of course, modern farmers do not sell their harvests downtown.)

In the bid-rent graph below commercial users bid more to use land than any other user type would from the CBD’s very center to 2 miles out. Commercial users would bid something for land 2-4 miles out, but that range is not where they really desire to be, and at those distances they are outbid by residential users. (Beyond 4 miles from the very center commercial users would bid nothing to use the land; their transaction-heavy activities can not function that far from the midst of the action.) Agricultural users would pay more to be 0-10 miles from the center than to be farther out, but in that distance range they are outbid first by commercial and then, over the 2-10 mile span, by residential. Finally, residential users dominate from 2-10 miles out, and would pay something to be as far as 15 miles out (recall commercial users lost all interest after 4 miles), but at distances 10-15 miles from the center agricultural users would outbid them. Farm operations do not suffer appreciably by being far from the CBD center, but residential users say: I could accept living at that distance for cheap enough land, but it is not where I have much desire to be. Beyond 15 miles from the CBD center agricultural users are the only bidders. (Commercial is the highest and best use or HBU from the CBD center to two miles out, residential is the HBU from two to ten miles out, and agricultural is the HBU beyond 10 miles from the center; HBU is discussed in more detail below.)



(We could show an industrial sector bidding more for land a short distance away from the CBD center than would commercial or residential users; think of old factories and warehouses you see on the edges of downtown areas of cities, between the skyscrapers and the residential neighborhoods. That addition would likely create far more clutter to the graph than clarification. And of course this type of model can provide only the most general explanation; some people pay premium prices for land to live on far from employment centers, or to live in downtown high-rises, for example. Between its 2012 purchase and later redevelopment activity, Alchemy Property spent close to \$300 million to turn the top 30 floors of downtown Manhattan's historic Woolworth Building into luxury condominium units, including a five-story penthouse.)

The slope of the "bid-rent" line for a given land use is a value *gradient*. The question is whether values fall by a large or a small relative magnitude as distance from the CBD center or other important place increases. In a traditional bid-rent graph, the value gradient for commercial land is fairly steep; that for agricultural land is fairly flat. If transportation costs were zero, value gradients for all types of activity would be essentially flat (no user would have any particular reason to want to locate near the CBD center). [Because farmers need to travel to the CBD center only occasionally, it seems plausible that the price per acre of land they would offer at the CBD center would be only slightly higher than the price per acre they would bid at much more remote locations, especially since the prices farm operators would have to pay to get some needed services in a congested area would likely be high.]

The desire to minimize transportation costs explains why early cities tended to grow in circular patterns, with "rings" of differing uses. (Over time urban growth came to be associated more with "axial" wedge-shaped patterns, with lower-cost housing near industrial employment and higher-cost housing located farther from the urban center, along major roads or rail lines that the more affluent could afford to use.) Of course, the relationship is not perfect; rather than absolute decreases in per-unit land values as distance from the CBD increases, we observe a "lumpy" relationship as a result of geographic features (rivers, lakes) or some of the economic factors discussed below. This traditional method of analysis provides a good explanation of the historical growth of major cities, and gives us a general theoretical basis for understanding the relationship between value and location. However, the traditional view has come to provide a less reliable basis for land value analysis as certain changes have come about:

- Overlapping market areas: as urban growth has proceeded, market areas have become less distinct. Land located farther from one market's CBD becomes, at some point, closer to a different market's CBD; which one dominates?
- Multiple centers: the important place to be close to need not be a CBD center. Other possibilities might be major transportation (airports), entertainment (sports complexes), retail (malls), or leisure (vacation) centers. For example, as we move farther west from downtown Chicago, we get closer to the important O'Hare location; which effect dominates?
- Technological change, particularly with respect to:

1) **Transportation** – as roads and rail transportation have improved, it has become cheaper and easier to gain access to the CBD center or other important place from more distant starting points. Value gradients should become flatter as the cost of accessing the important centers continues to fall with improved transportation capabilities.

2) **Telecommunications** – as we have less need for face-to-face contact in the commercial/workplace arena, the value/distance-from-CBD-center relationship can be expected to become less and less important. Note that major business activity began relocating from major CBDs to the suburbs (Sears, Walgreens) or the hinterlands (Citibank's credit card operation in South Dakota) several decades ago. In a post-Covid, Zoom-fueled future we might expect to see even more movement of corporate headquarters and other business activity to non-traditional locations. However, some headquarters have moved to Chicago in recent years (KraftHeinz, United Airlines).

Perhaps land values in the future will be affected more by distance to a different type of important place, such as entertainment or leisure (private, secluded) sites.

### III. Highest and Best Use

Highest and best use is the use of land that creates the greatest value for the land's owner. It is determined by physical (size, topography), legal (what zoning officials allow or likely would allow), and economic (what is on the land now, and what is located nearby) issues. Some points to note:

- The long lives of improvements (along with long-term leases), and the long lead times needed for redevelopment to a new use, can cause the current use of land to differ from its theoretical "as if vacant" optimum. The observed

value of a site may reflect elements both of the sub-optimal current (“interim”) use and the theoretically “highest and best” use. We can also see such “adaptive” uses as turning an old mansion into a bed and breakfast, a house into an insurance agent’s office, a grocery store building into an auto body shop or post office or university alumni center (all seen in BloNo), an old stone church into a craft brewery (Peoria), or a famous newspaper building into residential condominiums (the Tribune Tower in Chicago).

- Regulation: property taxes reduce the owner’s residual claim, and therefore reduce land values below what they otherwise would be (although the accompanying public services can enhance values). Zoning can raise or lower values of particular types of land if zoning’s allocation differs from what an unrestricted market would provide. (Often it seems that land zoned for commercial use sells for more than land similar in topography and location that is zoned for residential use – but the use to which something is put normally does not affect its value. Carpenters or chefs do not pay more for specific tools or food than do-it-yourselfers and home cooks do, so why should land sell for more just because the buyer plans to build offices rather than houses on it? Zoning officials may systematically allocate too little land for commercial use and too much for residential, perhaps over concerns about negative externalities the commercial uses would impose on residents. Those concerns could be addressed with zoning plans that put appropriate buffers between commercial and residential uses.)

According to the *Tiebout hypothesis*, named for 1950s economist Charles Tiebout, a home buyer might shop among communities to find a local jurisdiction with the mix of taxes and public service spending that best meets the buyer’s preferences. A community might offer a tax/service mix that its leaders think will attract the right population size for efficient public administration. (Home owners also can vote for public officials who will change the tax/service mix to the home owners’ liking, but once a jurisdiction has a particular mix the population is then likely to consist increasingly of people who prefer that mix, so further changes through the ballot box become unlikely. The Tiebout hypothesis sometimes is cited as evidence for why government functions should be moved as much as possible to lower level jurisdictions, where politicians may be more responsive to the specific preferences of the affected population – this type of choice would be quite difficult to apply at a national government level, of course.)<sup>6</sup>

The tradeoff can not be taken to extremes (with no taxes, no services), because there always must be some level of public services, particularly schools and some provision for law enforcement, and changing an existing mix can be costly. And the imbalance between the actual mix and desired mix would have to be fairly pronounced for most households to consider moving, since selling means giving up the amount by which an individual’s investment value in a home exceeds its market value, because of sentimental attachment, individualized improvements, and social arrangements that can include proximity to family members’ residences. Proximity to employment also could play a role, although Tiebout envisioned a household that is mobile because it earns dividend rather than wage income – but with today’s technology we might think of someone who can work remotely from home. The phenomenon may be what we observe when a family moves from/opts not to buy a home in a city (with local police and full-time paid fire department), choosing instead a nearby small town (with law enforcement provided by a less geographically concentrated sheriff’s office, and a well-trained and equipped yet still volunteer fire department – but also with lower property taxes, since the more intensive level of public service does not have to be paid for). A late 2022 National Association of Realtors® survey showed historic highs in distances buyers moved from prior homes, and in relocation to rural areas and small towns; both seem to have been driven by the ability to work remotely.<sup>7</sup>

#### IV. Neighborhood Influences

Textbooks often define “neighborhood” as a contiguous geographic area, all of which is affected more-or-less equally on some dimension by its market setting. Of course, this general common-sense idea is complicated by the fact that neighborhood (or “district” for non-residential properties) boundaries are not always easily identified. (Property types and ages, and socioeconomic traits, also sometimes are factors used in identifying neighborhoods.)

Features of a neighborhood that can affect values are:

- Proximity – location relative to important places or services.
- Stability – compatibility of land uses, protection from negative externalities. For example, often it is desirable for residential neighborhoods to be close, but not *too* close, to major highway interchanges or commercial centers.
- Environmental/governmental influences – government services generally produce positive influences on value; negative influences can result from airport/highway noise, or from location near natural (floods, earthquakes) or human-made (power lines, landfills, or toxic waste sites) hazards. The presence of such influences can cause so much uncertainty that the market ceases to function (Love Canal, NY or Times Beach, MO after widely reported toxic waste scares many years ago). Concerns over bad influences on quality of life and property values

have led to the NIMBY (not in my back yard) syndrome, critics of which say its more extreme adherents would prefer a BANANA (build absolutely nothing anywhere near anything) regulatory approach. [YIMBY is a group that advocates for more housing construction; it has a Chicago affiliate.]

- Demographics – age, income, education characteristics of the population. These features are not viewed as causing higher values, but they may serve as proxies for things like the expected levels of property maintenance and the quality of schools/public services. If you were doing an appraisal of a house or commercial building, and you were to select *comparables* (similar, recently sold properties whose sale prices and other characteristics provide information on values) from a neighborhood distant from the subject property, it would be best to select a neighborhood with the same general economic and demographic features.
- Neighborhood life cycle – neighborhoods tend to experience growth, followed by stability, followed by decline (as the location becomes less desirable because of age of the improvements or the changing locations of nearby important places). Two interesting points:

1) Decline sometimes is reversed, if older properties become attractive for renovation because of their locations or historical/aesthetic features. However, “gentrification” is not always viewed positively; critics fear that it prices long-time residents out of the local housing market. And the phenomenon is not seen only in older American cities; soaring prices amid housing shortages have emerged on Islay as whisky distillers’ expanded operations have brought many highly paid skilled workers to the Scottish island.<sup>8</sup>

2) Neighborhood decline, while not a desirable occurrence, does lead to the “filtering” process through which lower income people in our country obtain high-quality (albeit old) housing originally built for the more affluent. Think of a large, old but sturdy house near the downtown of a typical midsized city that has been converted into an apartment building with multiple units. (In other parts of the world housing for lower-income families often is built to be low-quality from the outset, with lower quality materials and less durable construction techniques.)

The neighborhood or “district” influences for non-residential properties can be somewhat different from those for residential neighborhoods. For example, users of industrial property may value being very close to transportation hubs, and may not be disturbed by nearby loud noises or bad smells.

## V. Real Estate Market Analysis

Key statistics for analyzing real estate markets include rents, vacancy rates, and absorption rates (how long it has been taking for vacant properties to become occupied). Vacancy reflects both completed properties that are vacant, and those under construction that will be available when completed. A common measure of strength in a particular market segment is “months supply,” defined as

$$\frac{\text{Available Vacant Space} + \text{Space Under Construction}}{\text{Net Absorption per Month}}$$

If there are 145 mid-priced condominium units available in a community and another 35 under construction, and if experience shows a net absorption of 30 units per month (30 more units become newly occupied than are vacated), then the months supply is  $(145 + 35)/30 = 180/30 = 6$ . Even if no new ground is broken there are enough units in the pipeline to serve the market’s needs for the next 6 months. If the construction process takes two months, a builder who starts some new units today might logically expect to find them sitting on the market for four months.

Of course, if the builder can differentiate the new units from others in the market by location, amenities, or image, then other units may be the ones to sit vacant. (But we might argue that if buyers deem the new units to differ in important ways, then they are not part of the same “market.”)

## VI. Community Growth and Economic Base Analysis

Economists often analyze “communities” in terms of measures called “statistical areas.” This approach lets us look at a unified economic area without regard to local political jurisdictions. If a firm closed its facility in Bloomington, would we be concerned about local job losses? Not if it moved the activity to a newly built facility in Normal or Heyworth. Bloomington, Normal, and the smaller nearby towns constitute the Bloomington “metropolitan statistical area.” A *metropolitan statistical area* (MSA) has an urban core with a population of at least 50,000 that attracts commuters from nearby outlying towns. A *micropolitan statistical area* has an “urbanized” core with a population of at least 10,000 that attracts commuters from surrounding environs. The more comprehensive term that includes

both metropolitan and micropolitan statistical areas is *core-based statistical areas* (CBSAs). A *combined* statistical area joins together a metropolitan statistical area with at least one additional metropolitan or micropolitan statistical area. Statistical areas are identified by the U.S. Office of Management and Budget, based on federal census data. The Bureau of the Census also classifies locations as “urban” (population of 5,000 or more) or “rural,” with rural areas often qualifying for special federal or state government assistance with housing, health care, or transportation.

Examples we see in Illinois are the Chicago-Naperville-Elgin metropolitan statistical area (with a huge combined footprint that reaches into Indiana and Wisconsin), Peoria metropolitan statistical area (with a Peoria-Canton combined statistical area), Rockford metropolitan statistical area, Dixon micropolitan statistical area, Effingham micropolitan statistical area, Harrisburg micropolitan statistical area, and Ottawa-Streator micropolitan statistical area. There is also a Bloomington-Pontiac combined metropolitan statistical area.

A community can grow *physically* by expanding horizontally (making use of undeveloped land beyond its current borders), expanding vertically (building taller, using air rights), or in-filling (building on land within its current borders that was never developed, or that becomes vacant when old improvements are torn down). A community can grow in terms of *population* and *economic activity* by exploiting its *comparative advantage* (doing what it does best, even if others could do it better in absolute terms) on such dimensions as:

- climate (tourism) and natural resources (mining, distilling).
- transportation – urban growth in the earliest times had to be on a water port (New York, Cincinnati); later growth took place along rail lines (Chicago); now growth tends to follow major highways or good airports; think of areas that saw growth in more recent decades like Aurora/Naperville or Bloomington/Normal.
- workforce/educational facilities/“created environment” like electric power, supportive political leadership. Intel announced in early 2022 that it would build two new semiconductor (chip) factories in central Ohio because of tax breaks provided by the state, infrastructure upgrades offered by local government, and the availability of a huge site that would allow for possible future growth. Tech industry expert and California Congressman Ro Kanna notes that 90% of new technology jobs in recent decades have been located in Austin, Boston, New York City, San Francisco, and Seattle, and predicts that future growth in tech employment will be largely limited to areas with reliable high-speed broadband service.

We sometimes see *agglomeration economies* take hold: as a company grows in a local area, supporting activities (law, consulting, and repair firms that specialize in that industry’s needs; companies that produce component parts) congregate nearby, making it economically sensible for other companies in the same industry to locate in the area. Good historical examples: cereal in Battle Creek, MI; entertainment in Los Angeles; tires in Akron; and the Detroit auto industry. Hubs of technology industry growth frequently have been cities that house major universities with cutting-edge engineering research – think of Silicon Valley’s roots with Hewlett-Packard and Stanford University.

Traditionally the degree of a community’s ultimate growth has depended on whether activity occurs in *basic* or *non-basic* industries. Basic (“export”): brings in money from buyers/users located outside the local community. Non-basic (“population-serving”) activity does not bring in money from outside the local area. Basic industries in Bloomington-Normal are financial services (State Farm, Country), education (ISU, IWU), and to an increasing degree manufacturing (Bridgestone, Rivian, Ferrero); most of the consumers earn the money they spend on these organizations’ products or services outside our local area. Rivian’s growing presence and Heartland Community College’s training programs for the electric vehicle industry may attract more supporting firms to the area (Samsung may even open a vehicle battery facility nearby). Non-basic firms include local retailers, plumbers, dry cleaners, and most lawyers and health care providers; payments for their products or services come from local residents’ pockets. (But health care is a basic industry in Rochester, MN where the Mayo Clinic is headquartered.)

Why does the distinction matter for real estate analysts? Growth in a basic industry brings about a need for more housing and other real estate services; growth in a non-basic organization does not. ISU’s planned new engineering school likely will require hiring staff people who do not have jobs in the local area now, and their pay will come primarily from payers of tuition and state taxes who reside in more distant areas, so these new workers will occupy housing units that will have to be built (unless enough housing units currently are sitting empty). Plus their presence will generate the need for more retailers and plumbers and dry cleaners (unless there is excess capacity in those fields already), and a need for real estate services to support those businesses. But if a local grocery store expands capacity when there is no increase in population from growth in the economic base, the increase in sales at that store is likely to come at the expense of competing local stores, so the people hired to handle the increased sales often are people who vacate jobs at the stores suffering reduced sales – no net new jobs are created when a non-basic firm

expands (unless needs filled by that firm are not currently being met), and thus there is no need to plan for additional housing and additional supporting real estate services. (The Cub food store in Bloomington closed down shortly after HyVee opened several years ago, and I actually noticed some former Cub workers on staff at Hyvee.)

We stress that this is the traditional view. Experience with the 2020/21 Covid shutdowns may change our thinking considerably going forward. When people can work remotely a community might not gain population when a local company does some added hiring; the related population growth might occur in one or more other areas seen by employees as good places to live (as noted earlier, the important places to be near need not continue to be work-based). Areas that grew during the pandemic, in many cases because they are near popular outdoor recreation sites, gained the name “Zoom towns.” In 2018 Oklahoma City started offering \$10,000 grants to people who could show that they would work remotely after moving to the city; more than 250 households took advantage of that program.

Other cities have followed suit; by 2022 nearby Tulsa had attracted approximately 2,000 relocating remote workers after offering \$10,000 awards, and small town Greensburg, Indiana was offering \$5,000 hoping to bring in a few residents each year. Economists note that attracting remote workers adds to an area’s tax base and creates additional jobs to serve the new residents. It does not generate as many jobs proportionally as a new physical facility would, with related construction activity – but from a cost/benefit standpoint the tradeoffs can be favorable. Employers of these remote workers may also like the arrangement, because the smaller cities and towns offering such incentives generally have lower living costs, which means the employers can pay lower salaries than those demanded by workers with comparable skills based in large urban locales with much higher costs of living. (Then again Boise, ID became a Zoom town in 2020 because of perceived low living costs, but demand led to sizable increases in housing prices, and then when interest rates shot up in mid 2022 sellers could not sell without big asking price cuts.)

## VII. Property Rights and the Coase Theorem

Nobel Prize-winning (1991) economist Ronald Coase theorized that when there is a conflict involving property rights, with one party’s actions imposing costs on another party, the efficient outcome (also called the most highly-valued use) will be reached no matter which side initially holds the power to act (efficient means lower in cost, such that fewer societal resources are wasted, if we can think of money spent as relating to resources used up – which is why economists advocate for internalizing costs/preventing externalities, to account for the harm done by things like pollution), as long as

- both sides have equal access to information, including knowing each others’ costs of dealing with the conflict, and each side has a reasonable degree of subsequent bargaining power, and
- there are no high costs or other impediments to negotiating, including personal animosity that would prevent one side from dealing with the other, and no goals other than reaching the best solution to the problem at hand.

(The “Coase Theorem” is one of the bedrock ideas in the field of “law and economics,” in which we view economic efficiency as a desirable outcome of laws and the legal system.)<sup>9</sup> Think of a railroad whose “right of way” (strip of land on which the tracks are run, which could be owned land or an easement) abuts the wheat fields of a series of farmers. The train’s wheels create sparks that could catch the wheat growing close to the tracks on fire, spreading quickly across the fields and destroying an important food source, which would be a serious problem for society. One solution would be for farmers to plant right up to the tracks, thereby earning more profit from the crops, and for the railroad to install and maintain shields that redirect sparks underneath the train where they could do no damage, at a cost to the railroad of \$20,000 per year. (We will assume that such contraptions actually could exist; remember that your aging instructor is a property rights advocate, not an engineer.) The other solution would be for the farmers to plant only up to ten feet from the tracks, leaving a buffer area for flying sparks to safely fizzle and never touch the wheat, at a cost to the farmers in lost profits from growing less wheat totaling \$12,000 per year. The more efficient (less costly, at \$12,000) solution is for the farmers to leave a ten-foot buffer. We can confirm that leaving the buffer is the more efficient approach because it is the “merger solution:” what would occur if one entity came to own both the railroad and the affected farms.

What if laws give the railroad the right to generate sparks (perhaps the legislature has a pro-industrial bent)? Then the farmers will voluntarily stop planting ten feet short of the tracks, and the efficient solution is directly reached; no negotiation is needed to promote what is best for society (saving the bulk of the food, albeit at the farmers’ expense). But what if instead laws give farmers the right to be free of the threat of sparks from passing trains (perhaps the legislature is more sympathetic to agricultural interests)? According to the Coase Theorem the railroad will not install the shields; instead, it will reach the efficient solution by negotiating (perhaps with an organization that represents all farmers’ interests) to pay the member farmers for not planting on a ten-foot safety zone. If the



railroad does not offer more than \$12,000 per year the farmers will have no incentive to negotiate, and if the farmers demand more than \$20,000 per year the railroad would be better off installing the shields. But through a payment by the railroad to the farmers that is greater than \$12,000 but less than \$20,000 per year the societally efficient outcome of not planting near the tracks is reached, and both sides end up better off than if they did not negotiate and cooperate. The difference between the higher-cost solution and the lower-cost solution is a *cooperative surplus*, here  $\$20,000 - \$12,000 = \$8,000$ ; if both sides bargained effectively they might settle at having the railroad pay the farmers  $\$12,000 + \$4,000 = \$16,000$  per year (with each gaining half of the cooperative surplus, or \$4,000, relative to the situation without bargaining: the railroad spends \$4,000 less than the cost of shields, and the farmers as a group get \$4,000 more than if wheat were planted on the ten-foot strip next to the tracks).

If the party that can address the issue most efficiently/cost-effectively has the power to act as it wishes, or if the two sides simply feel motivated to cooperate (perhaps each side fears that a non-negotiated solution could be unfavorable to its interests, *e.g.*, an uncertain potential ruling from a judge, arbitrator, or administrative body), the Coase Theorem predicts that the two sides will negotiate to the more efficient outcome – the solution that is less expensive, and thus uses up fewer societal resources. If the farmers have the right to a safe crop, or if it is unclear who might end up with the superior rights if negotiating failed, then the ability of the two sides to cooperate creates the \$8,000 cooperative surplus described above. (If the railroad has the right to create sparks there is no surplus to split; as noted the farmers maximize their benefits and society's by leaving the ten-foot strip unplanted, at a \$12,000 annual cost.) Splitting the surplus equally, which we might predict if there is no reason to think one side is more able in negotiating than the other, has the party that would face the higher cost without negotiating pay the lower-cost party to solve the problem, plus half of the surplus.

The overall explanation does not change if one party is more skilled or has a stronger bargaining position; the surplus might just be split unequally. The powerful railroad might offer the farmers  $\$12,000 + \$1,000 = \$13,000$  per year not to plant near the tracks, giving the farm group a \$1,000 yearly gain relative to not bargaining while saving the railroad \$7,000 per year relative to installing the hypothetical spark shields. But pushing an advantaged position too far could lead to the kind of animosity that, as Coase noted, would leave the offended party unwilling to continue negotiating, and everyone would recognize that possibility, so it may not be simplistic to assume there generally would be an equal split of the cooperative surplus. So, in summary, the Coase Theorem predicts that:

- If the burden falls on the party with access to the cheaper solution, then that party will address the problem and achieve the societally efficient outcome directly; the farmers would plant less at a \$12,000 yearly cost.
- If the burden falls on the party that would face the costlier solution, that party will negotiate to have the party with the cheaper solution address the problem, and again the societally efficient outcome is reached. The high-cost party pays the low-cost party the cost of the cheaper solution, plus a portion (usually we will assume half in our examples) of the cooperative surplus that is the difference between the higher and lower cost solutions. Here the railroad would not spend \$20,000 per year to maintain shields, but instead would pay the farmers  $\$12,000 + \text{half of the } (\$20,000 - \$12,000) \text{ cooperative surplus} = \$16,000$  per year to plant less wheat. The railroad gains  $\$20,000 - \$16,000 = \$4,000$  per year and the farmers acting jointly gain  $\$16,000 - \$12,000 = \$4,000$  per year, relative to where each side would stand if it did not negotiate and cooperate.
- If it is unclear who might be assigned the burden of solving and neither side is confident that it would prevail, such as in court or before an administrative body, then we would predict that the two sides would negotiate to the socially efficient outcome in the same manner, with the high-cost party paying the low-cost party the price of the cheaper solution plus a portion (again, we will assume half) of the cooperative surplus.

An argument Coase seemed to be making was that government does not need to pass endless laws (which may reflect legislators' own biases rather than societally efficient outcomes) to assign property rights, because private parties will tend to reach sensibly efficient results on their own if they can negotiate. (Critics of the theorem say it is of little practical value because conditions like equal information and bargaining power so rarely are observed, such that the theorem's power comes in showing why we can encounter situations with inefficient outcomes.) The initial assignment of rights also plays an important role; note that in our train and wheat fields example the efficient outcome is reached for society, but still if one party has an absolute right to act as it wishes then the opposing party must give up some money or some profitable crop production for that societally optimal outcome to be achieved. So we would not want a system in which initial rights were assigned through a process that consistently favored parties with the right political connections, for example. Of course, if the two affected parties are businesses they will try to pass all costs along to their customers, and if, for example, the most efficient way to protect crops from various

types of outside harm generally is for farmers to take any needed action, then the farmers in our example should be able to fully pass the \$12,000 annual cost of solving the spark issue along to their customers, thereby internalizing the cost in the most societally efficient manner. (The railroad likely could not fully pass a \$20,000 yearly cost along to its customers, because having the railroad install spark shields is not the more efficient solution.)

Your superannuated instructor likes the Coase theorem for the more general insight it gives on how an existing set of rights is not necessarily the final outcome, but rather provides a well-defined starting point for possible negotiating. Consider owner *O* who buys a small commercial building and wants to use it as the headquarters for her business, but current tenant *T* has a valid lease with several years remaining. *T*'s unquestioned right to remain gives a clear starting point for voluntary negotiations in which *O* could offer incentives for *T* to vacate the lease. If *O* places a higher value on using the facility than *T* does, then a splitting of the resulting cooperative surplus would leave both *O* and *T* better off than they would be without negotiating and cooperating.

Or think of dominant estate holder *D*, who has an easement to cross servient estate holder *S*'s land based on a voluntary contract formed by earlier owners of the dominant and servient tracts. *D* does get some minor benefit from the right the easement conveys, while *S* suffers serious costs, in terms of lost flexibility in using that land or just feelings of invaded privacy, from *D*'s ongoing ability to use the easement. *D* has every right to continue, but *S* could offer *D* compensation to terminate the easement, in a dollar amount that exceeds *D*'s enjoyment value but is less than the negative value *S* suffers, and an outcome reached voluntarily would leave both sides better off, splitting a cooperative surplus – without the need for intervention by the government or any other third party, aside from the government's important role of enforcing contracts. In fact, one provision of a well-designed private contract would be assigning the burdens of identified risks to the party that can bear them most efficiently, with the party that could not bear them as efficiently providing appropriate additional consideration as compensation.

Or consider the long-ago *Jacob & Youngs v. Kent* case from our Topic 7 discussion.<sup>10</sup> The contract to build a custom home contained an express condition that all the water piping was to be a specified brand, but instead of letting the buyer rescind the contract when a different brand was used – which violating an express condition normally would allow – a court gave the buyer no relief, on the reasoning that it would be economically wasteful to tear out finished walls to do the required work, and that the pipe used was also of good quality so the buyer suffered no loss in value.

But recall that economists favor the remedy of specific performance because there is no way for a third party, such as a court, to know how much value a contracting party placed on a contract provision – and here the pipe issue was specifically bargained for, presumably with added money paid. (There might have been no loss in market value, but the client's own investment value is likely to have suffered.)

Perhaps home buyer Kent had business dealings with the pipe company and would be professionally embarrassed not to use its product, or maybe the specified pipe was made in the buyer's struggling home town and he wanted to do his small part to help the local economy. If the court had ordered specific performance, giving the buyer the right to compel the builder to replace the wrong pipe at the builder's expense, the result might not have been the destruction of many thousands of dollars' worth of completed construction. Having rights clearly defined opens the door to negotiation. The builder could ask the buyer: what other steps could I take to compensate for the utility you lost through our use of the wrong brand of pipe? The answer could be: make a \$20,000 donation to social service agencies in the specified pipe maker's community. That figure might be more than the \$10,000 benefit the use of the designated pipe would have netted the old home town economy, while still far less than the \$30,000 cost of tearing out the finished walls and replacing the pipes.

Or think of Mr. Holm, discussed in Topic 3,<sup>11</sup> whom the Illinois Supreme Court ruled could not kayak up the Mazon River to extract fossils without getting express approval from all land owners along affected sections of the river. Once the rights of those land owners have been established, Mr. Holm could try to negotiate for their permission. If the fossils were worth more to Mr. Holm and his buyers than the total value the land owners lost by ceding their fossils and their privacy through Mr. Holm's digging in their river beds, then there would be a cooperative surplus, and Mr. Holm would be able to reach an efficient outcome by paying them more than the losses they would suffer.

Economists would be pleased by an early 19<sup>th</sup> century legal ruling, in which the Massachusetts supreme court held (think back again to our Topic 3 coverage) that house seller Gray could reclaim ownership because buyer Blanchard violated a condition subsequent on the estate, by putting windows into the structure's north wall – even though the condition initially was thought (though never explicitly stated) to have been imposed to protect privacy for Gray's

sister who lived on the lot to the north, and Blanchard had already bought the sister's property. The court noted that Gray had bargained for this provision and accepted a lower price because of it, and the court could not know all reasons why a 30-year restriction on putting in windows was important to him.<sup>12</sup> •

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<sup>1</sup> Parker, Will. "Investor Home Purchases Drop 30% as Rising Rates, High Prices Cool Housing Market." *The Wall Street Journal*, November 2, 2022.

<sup>2</sup> McDaniel-Ogletree, Samantha. "Farmland Values Inching Higher in Central, Southern Illinois." *Jacksonville Journal-Courier*, September 1, 2023.

<sup>3</sup> Illinois farm land values are monitored and recorded by the University of Illinois College of Agriculture; see <https://farmdocdaily.illinois.edu>.

<sup>4</sup> *Index Numbers of Illinois Farmland Values*, long provided by the University of Illinois College of Agriculture, shows a 100 value for 1979 and a 501 value in 2023. See <https://farmdoc.illinois.edu/handbook/index-numbers-of-illinois-farmland-values>.

<sup>5</sup> Thanks to west-central Illinois farm land expert Luke Worrell for insights shared on this point in a late 2022 e-mail.

<sup>6</sup> Tiebout, Charles, "A Pure Theory of Local Expenditures," *Journal of Political Economy*, October 1956, 416 – 424.

<sup>7</sup> Kochkodin, Brandon. "In Real Estate, 2022 Has Been the Year of Moving Farther Away." *Forbes*, November 3, 2022.

<sup>8</sup> Moss, Trefor, "Whisky Boom Strains Isle's Makers," *The Wall Street Journal*, September 19, 2022.

<sup>9</sup> Coase, Ronald H. "The Problem of Social Cost." *The Journal of Law and Economics*, October 1960, 1-44.

<sup>10</sup> *Jacob & Youngs v. Kent* (New York appellate court, 1921).

<sup>11</sup> *Holm v. Kodat et al.* (Illinois supreme court, 2022).

<sup>12</sup> *Gray v. Blanchard* (Massachusetts supreme court, 1829).