The Efficiency of Bay Area Real Estate and Open Space

By

Nicholas Rogers

Professor Park

Econ 111: Economics of the Environment

16 March 2018

Table of Contents

Introduction

While exclaiming that "there is no such thing as a free lunch," Milton likely would have felt just as comfortable stating that there is no such thing as free land, either. The Bay Area contains some of the most valuable and by consequence, expensive, land in the United States. Data from 2017 shows that the average home price in the Bay hovers around $742,000 (Graff). Compare this with the average home price in the state of California, which was around $393,000 in 2015 (Reese). For areas like Palo Alto, the housing crunch gets worse; in 2015 residents would need an annual income of $442,000 just to afford a median-priced home (Reese). Price increases by themselves do not signal inefficiency, for it may be the case that the land in the Bay Area *is* just that valuable. However, if this presupposition were true, then an increase in the price of housing should also be accompanied by an expansion in supply or at the very least, an indication thereof. Construction and contractor data from the Bay Area indicates that this is not so. The Bay Area has recently observed a downtick in construction (Baldassari and Kendall). Over roughly a decade between 1999 and 2006, only one county kept up with population and employment growth (Perkins). For these reasons, home prices place extreme pressure on the value of unused land in California's Bay Area.

With the cost of land at a premium and supply running short, government interference in the Bay Area real estate market artificially drives up prices and constrains supply. This paper will examine how setting aside land for permanent, open and undeveloped space, particularly Midpeninsula Regional Open Space preserve, is economically wasteful. These so-called "open space preserves" ensure that no commercial developments arise on designated land. Even with the Bay Area's housing crunch, the nine counties in the region continue to set aside valuable land for open space preserves. As recent as November of 2017, the state designated 6,142 acres in San

Mateo as a preserve (Rogers). Instead, the state should turn these lands over to the private sector so that the market may do with them as it pleases.

Fundamental Assumptions

For the sake of analysis, we will assume that housing supply in the long-run should be relatively elastic such that consistent trends of rising demand should see equally consistent trends of rising supply to reach equilibrium in a complete market. Thus, we have reason to believe that the market for Bay Area real estate is incomplete or broken, evidenced by a continuous rise in demand not accompanied by an equal rise in supply over the course of more than three decades. Further, we will assume a steady birth rate and rate of immigration and emigration for the Bay Area. This assumption helps make the value of future real estate more predictable. We will also assume that residential space is a normal good that people continue to consume as their incomes increase. Finally, we will assume that residential real estate is the most demanded use for land in the Bay Area, so available land will likely, for the most part, be converted into residential properties. This is a fair assumption because all other major types of real estate use rely on the presence of a workforce, which in turn relies on space in which to live.

Open Space Preserve Benefits

Quantifying the benefits of open space preserves in the Bay Area poses a challenge since the land is often free for the public to use and the districts do not keep a strict count of the number of people who do venture onto the public space. Some rough metrics exist to deduce a value, however. In the Midpeninsula Regional Open Space, for example, a permit is required for most activities, but the only charge for such permits pertains to camping, photography and large events;

all other permits may freely be obtained online. The cost for these categories comes to $2.00 per-person per-night/day. In its 2015-2016 annual update, the Midpeninsula Regional Open Space fails to release specific numbers for visitors to the preserve, but it does claim that its services amount to $536,460 in fiscal value, which it calculates by assuming the worth of the space is $26.87 per-hour. The report neither breaks down this number nor explains from where it is derived. However, this half-a-million value appears specious, for multiplying $26.87 by 8,766, the number of hours in one year, produces roughly $235,542 in annual value and that also assumes the parks are open all day, every day.

Another way of estimating the value of this preserve is to analyze the data that the report does reveal and deduce a rough number of visitors per year. The report claims that there were 56 community events, 3,060 persons greeted by "Nature Center Hosts" and 43 school field trips. Assuming each event was attended by a modest 100 people and the average class size for school trips is 30, an estimate for the total number of visitors comes to 9,950, which we can round to 10,000. Further assuming that all of these people required a $2.00 permit, we estimate the use-value of the preserve for one year to be $20,000. Two other methods remain to estimate the value of these preserves: analyzing operating expenses and analyzing total revenue. The report claims that operating expenses came to $42.85 million for the 2015-2016 fiscal year and that revenue totaled $49.12 million. The revenue is broken down into five categories: property taxes from the surrounding areas ($44.98 million), property management ($1.64 million), interest and investments ($0.67 million), other revenue ($0.64 million) and grants ($1.19 million). Due to estimation errors and lack of precise attendance numbers, we will hold that the total benefit this land provides to the public equals the total revenue that the open space preserve generates. This number is also a good estimate for analysis since it represents the direct opportunity cost of forfeiting the preserve.

Open Space Preserve Costs

The most significant cost of open space preserves comes from the opportunity costs of its real estate, which is anything else that the real estate could be used for had it not been set aside as open space. Two methods arise to estimate this value: analysis of supply and demand for homes in the Bay Area and an estimate of the value per-square-foot for land. In the Bay Area as a whole, environmental groups and anti-housing alliances over the past four decades have successfully led

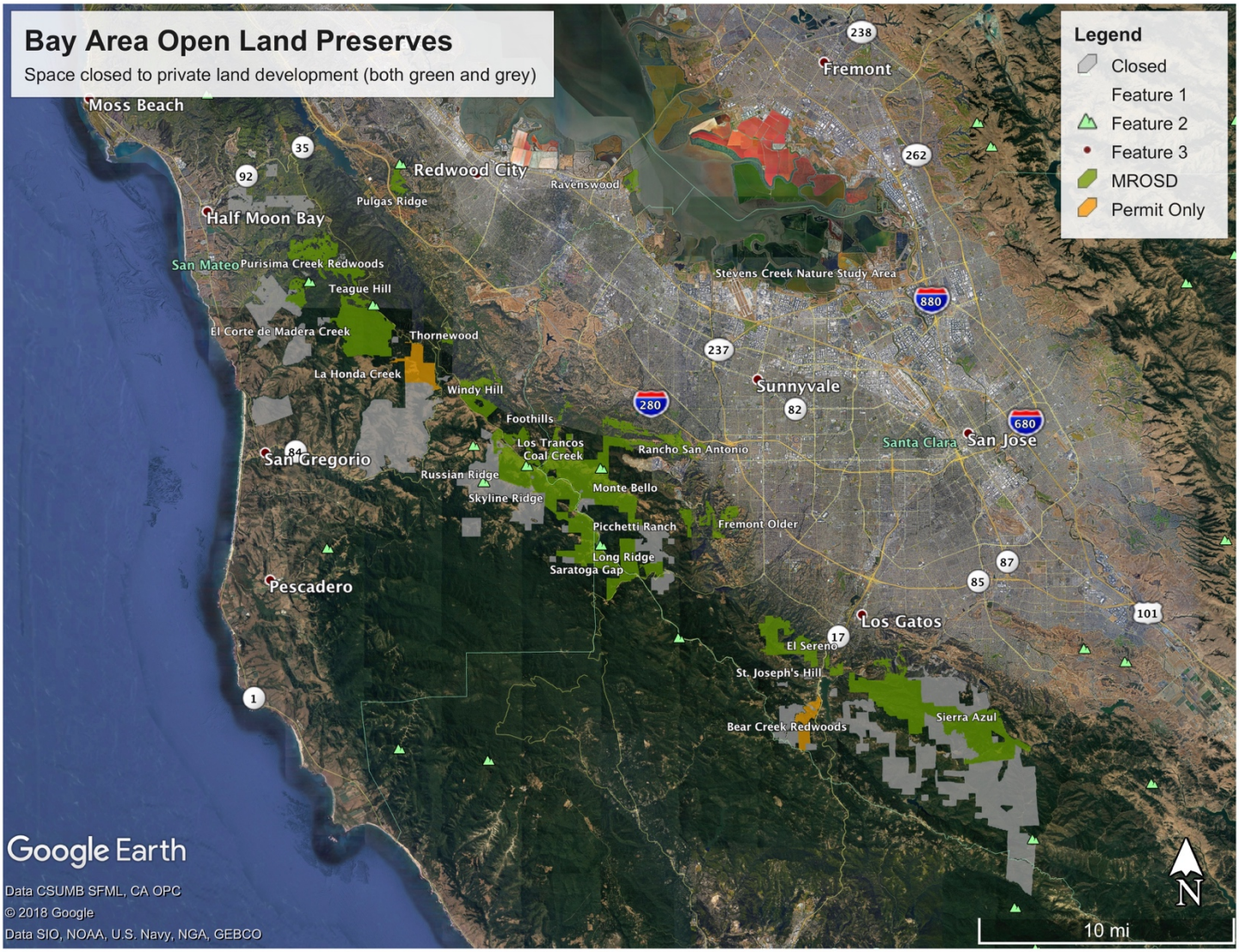

Figure 1

the designation of over 1 million acres of land as permanent open space (Perkins). Further, the Midpeninsula Regional Open Space alone accounts for 63,000 acres of protected land (figure 1).

Examining the supply and demand of real estate in the Bay Area poses a challenge insofar as the region currently suffers from a housing shortage and therefore will consume as many homes

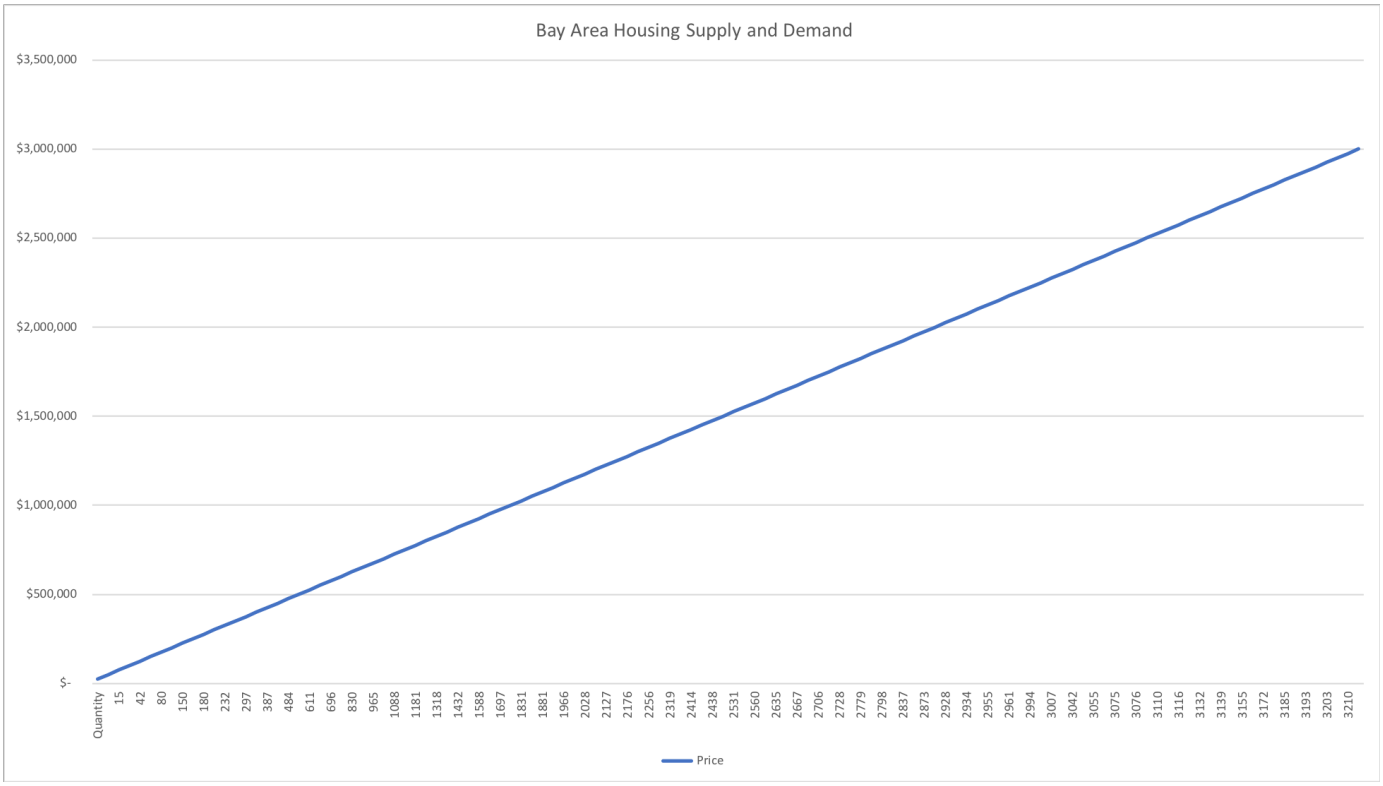

Figure 2

as can be built. By consequence, deriving a supply curve is fairly simple while understanding the demand curve is relatively more challenging. Figure 2 shows the supply curve for residential Bay Area housing derived from data provided by Zillow, the online real estate tracking site. Other information affects our understanding of housing demand. For example, recent data from 2017 shows that the average person moving into the Bay Area earns and about $90,000, while the average person leaving the Bay earns $81,500 (Scheinin). This $8,500 difference indicates that current residences are getting out-priced by wealthier ones. Therefore, somewhere between a

salary of $81,500 and $90,000 likely lies a salary choke-price for housing demand. Measuring the effect that removing open space preserves has on this price is nebulous. Instead, cost-per-square-foot serves as a far superior metric for analyzing the value of land in the Bay Area.

Deriving the average cost-per-square-foot in the Bay Area comes from averaging the square-footage cost of areas around the top ten most and least expensive BART stops. Data from Estately.com reveals this number to be $638.15 per-square-foot. With one acre as 43,560 square-feet, this means the average per-acre cost in the Bay Area should verge on $28 million. Therefore, the total value of the 63,000 acres set aside by the Midpeninsula Regional Open Space preserve comes to an astonishing $1.7 trillion. There is good reason to believe that the land, in actuality, would not be this egregiously valuable. For example, different land-uses yield different value; a home varies in value from a gas station and not 100% of this land would be devoted to residential space, of course. Additionally, there may be plenty of unusable land packed into these preserves as a result of poor soil quality, fire hazards, etc. Notwithstanding, even within a very wide margin of error, the potential value of this land as real estate greatly outweighs the generous value of $49.12 million in revenue from the Midpeninsula Regional Open Space preserve.

If real estate in California did perfectly obey the law of supply and demand, one might expect that expanding the supply of land would reduce the total land value. To account for this, we will assume a one-to-one relationship between the percentage of expansion in available land and the percentage of decline in that land's value. The San-Francisco-Oakland-Fremont metro area encompasses 2,473 square-miles, amounting to 1,582,720 acres. Increasing the current acreage by the size of the Midpeninsula Regional Open Space preserve would increase the total usable acreage in the Bay by 3.98% to 1,645,720 acres. Assuming a proportionate decline in acre-value by 3.98%, our estimated land-value still comes to $1.6 trillion.

Additional Considerations

It is possible that construction prices are affected by other variables for which an expansion of available, cheap land would not solve. For example, some claim that a shortage in construction workers has driven up construction costs, which gets passed onto homebuyers (HomeGuard). Despite its appeal, these claims ignore the fact that the potential labor supply is not the issue, but instead there is a noticeable shortage of labor at the current market wages for construction (Hunter). Indeed, the price of labor may rise as wages increase to expand supply, but little evidence suggests that this price would get passed onto homebuyers; even if it did, it is not clear to what extent homebuyers would foot the costs. Further, if one considers construction wages as an input to the supply of homes, one can compare the relative rise in wages with the absolute decline in land costs that arise from expanding the supply of land for construction. This logic assumes that land costs constitute a larger percentage of real estate prices than do construction labor costs. This assumption is backed by the evidence that the majority of homes sold in the Bay Area, notorious for their sky-high prices, are not just brand-new homes, but instead homes being sold by previous owners; construction costs do not affect already constructed, resold homes.

Conclusion

From a cost-benefit analysis, the benefits of open space preserves in the Bay Area, specifically the Midpeninsula Regional Open Space preserve, do not outweigh the costs of such preserves when considering the benefits of alternative uses. By an order of hundreds of billions of dollars, more land for real estate development takes economic priority over open space preserves.

Due to these greater benefits, open space preserves are inefficient compared to alternative land uses and should be curbed and returned to the public.

Works Cited

Baldassari, Erin, and Marisa Kendall. "Hidden cost of housing: How a shortage of construction workers is making our crisis worse." *The Mercury News,* 25 February 2018, https://www.mercurynews.com/2018/02/25/hidden-cost-of-housing-how-a-shortage-of-construction-workers-is-making-our-crisis-worse. Accessed 5 March 2018.

Graff, Amy. "$742,000 is the new median home price in Bay Area: Here's what that buys you." *SF Gate,* 26 September 2017, http://www.sfgate.com/realestate/article/median-home-price-Bay-Area-CoreLogic-SF-CA-12221743.php. Accessed 30 January 2018.

HomeGuard. "Construction Worker Shortage Drives Up Costs and Slows Growth." *HomeGuard,* 28 February 2018, https://homeguard.com/construction-worker-shortage-drives-up-costs-and-slows-growth. Accessed 5 March 2018.

Hunter, Robbie. "What labor shortage? California has plenty of construction workers, for a fair wage." *The Sacramento Bee,* 31 January 2018, http://www.sacbee.com/opinion/california-forum/article197313454.html. Accessed 6 March 2018.

Midpeninsula Regional Open Space. "Annual Update." *Midpeninsula Regional Open Space,* 2016, https://www.openspace.org/sites/default/files/AR_15-16.pdf. Accessed 3 March 2018.

Perkins, Joseph. "Bay Area needs to rethink rules on land use, zoning." *SF Gate,* 20 October 2007, https://www.sfgate.com/bayarea/article/Bay-Area-needs-to-rethink-rules-on-land-use-2495633.php. Accessed 20 January 2018.

Reese, Phillip. "See how much income you'd need to afford a home in most California cities." *The Sacramento Bee,* no date, http://www.sacbee.com/site-services/databases/article13255952.html. Accessed 5 March 2018.

Rogers, Paul. "Huge new Bay Area open space preserve opens to public." *The Mercury News,* 29 November 2017, https://www.mercurynews.com/2017/11/29/huge-new-open-space-preserve-opens-to-public-friday. Accessed 5 March 2018.

Scheinin, Richard. "Unpacking the Bay Area housing market: Why does the inventory keep shrinking and will prices ever (gulp) go down?" *The Mercury News,* 11 Jan. 2018, mercurynews.com/2018/01/11/unpacking-the-bay-area-housing-market-why-does-the-inventory-keep-shrinking-and-will-prices-ever-gulp-go-down. Accessed 2 Feb. 2018.