

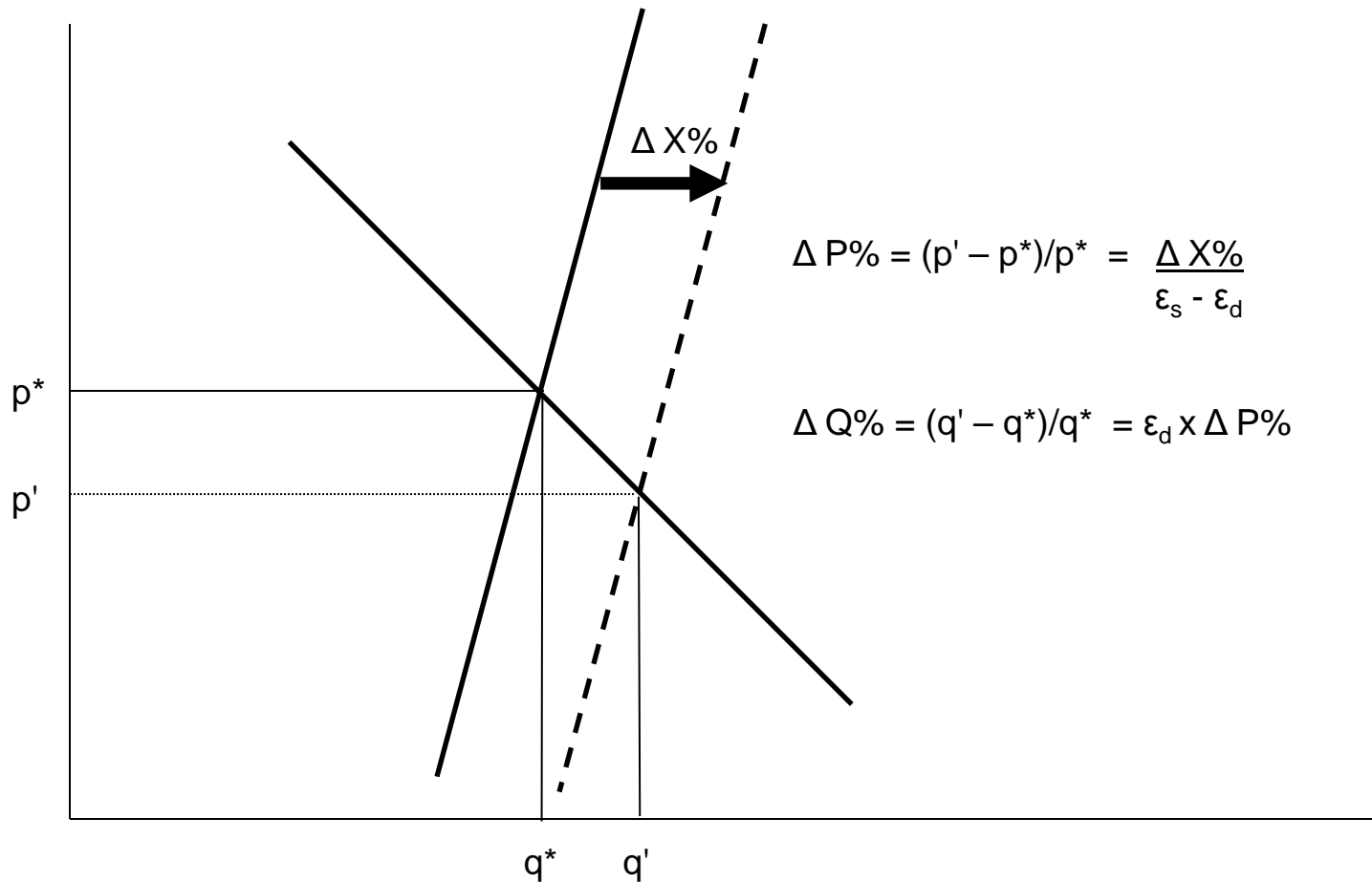
The Economics of San Francisco Housing

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Key Question: What's the Price Impact of an X% Increase in Development Capacity (e.g. through rezoning)



Estimating the Elasticity of Supply of Housing

Suppose:

$$Q = ap^{\beta}$$

so:

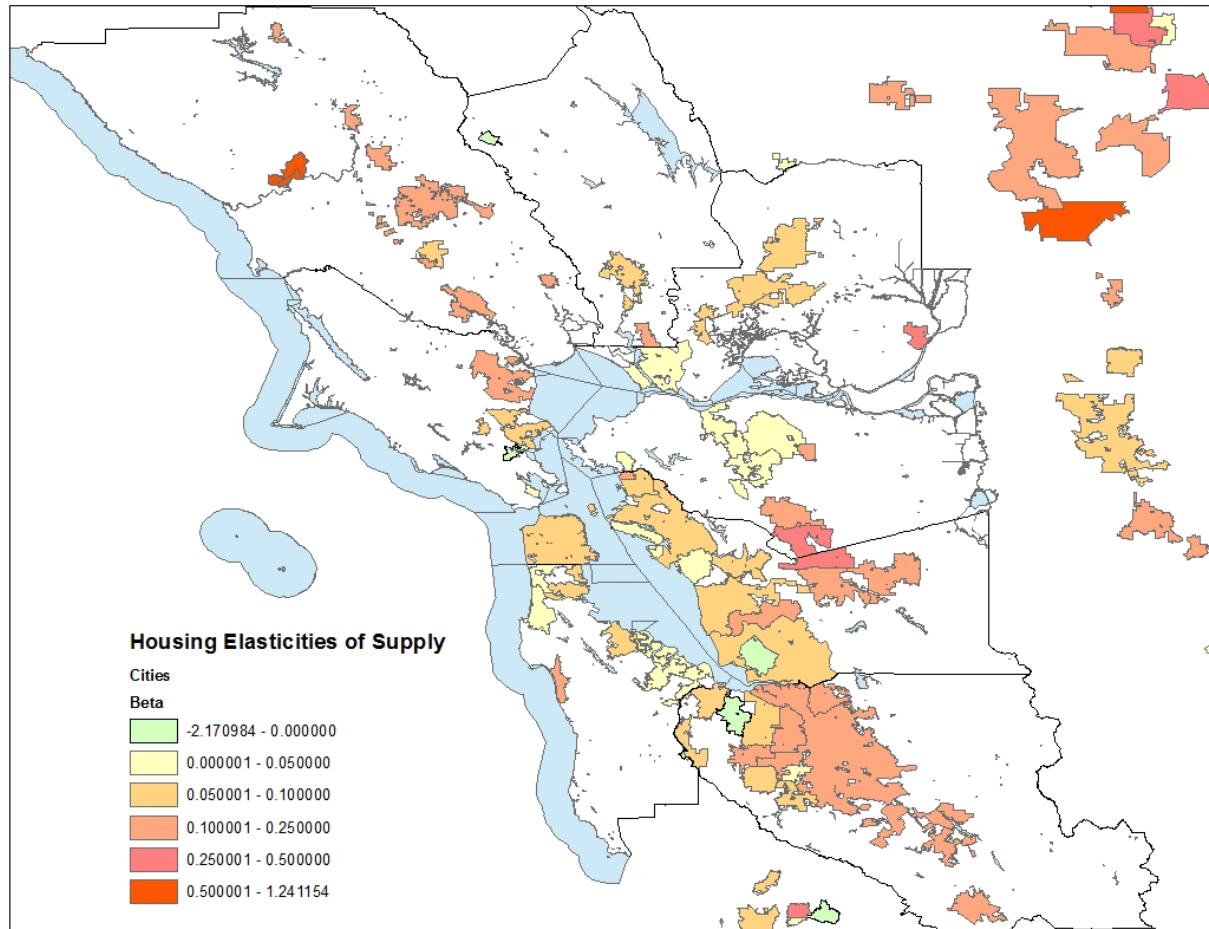
$$\ln(Q) = \alpha + \beta(\ln(p))$$

Q – total housing units in a city (census counts incremented by annual HUD building permits)

p – a price index (we use Zillow's average value, all units in a city)

- Regressions was estimated using data for 400 cities across California
- San Francisco's ϵ_s was, as expected, quite low: **0.09**

Elasticities of Housing Supply in the Region- Low Across the "Built-Out" Inner Bay Area, Higher Further Out



Estimating the Elasticity of Demand for Housing in San Francisco

Housing demand is a function of household incomes and housing prices:

$$Q = ap^{\beta_1}y^{\beta_2}$$

Household-level data is available annually, 2005-11, from the ACS PUMS.

Problem is observing "Q" when the unit of analysis is the household. However, multiplying p by both sides yields:

$$pQ = ap^{(1+\beta_1)}y^{\beta_2}$$

and pQ is household housing expense, which is available for owners and renters from the Census. The final equation becomes:

$$\ln(pQ) = \ln(a) + (1+\beta_1)\ln(p) + \beta_2\ln(y)$$

and ϵ_d is the price coefficient - 1

Elasticity of Demand Results

- We used 2005-2011 PUMS data for all San Francisco households, and a price index constructed from Zillow's average housing value for San Francisco for the same period.
- Separate regressions were run for renters and owners.
- Owner-occupied results: -1.0
- Renter-occupied units: -0.6
- Blended (with 64% of households renting): **-0.74**

- Separate regressions were also run for households at less than 120% of Area Median Income (the low- and moderate-income households targeted by the City's affordable housing programs):
 - For low- and moderate-income renters: -0.53
 - For low- and moderate-income owners: -0.85
 - Blended: **-0.65**

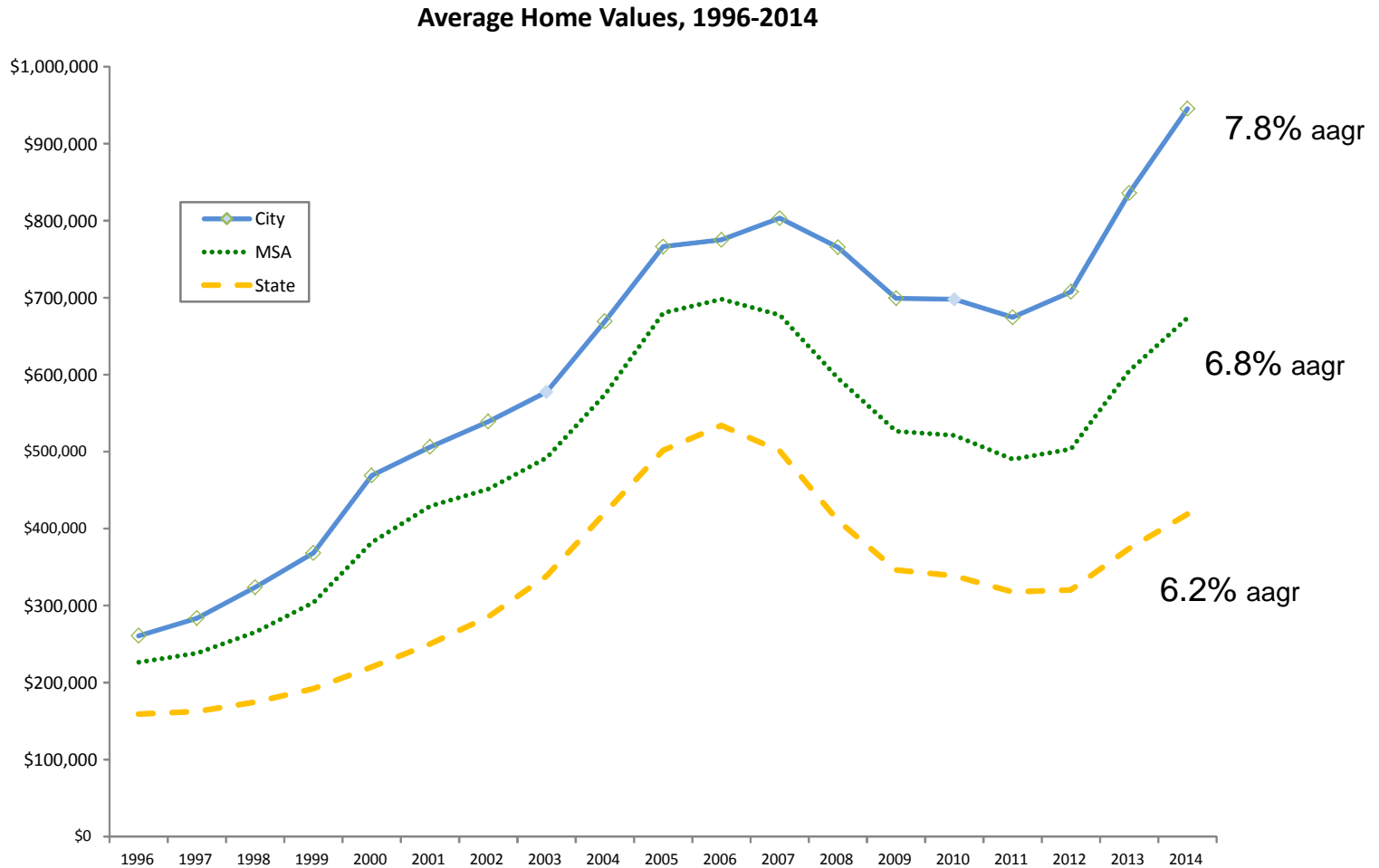
San Francisco's "Housing Crisis": Some Perspective Using These Results

- Highest housing values of any large city in the U.S.
- Building a lot now, but "underbuilt housing for decades"
- Underbuilt relative to what?
- What is the target?
- Per State housing law, the City's housing element contains its ABAG-determined share of regional housing "needs".
- But these "needs" do not reflect an affordability or price target, at either the regional or the local level.

- Suppose we had a different goal – build housing to the point that San Francisco prices only grew in the future at the same rate as prices have risen across the San Francisco MSA (SF, Alameda, Contra Costa, Marin, and San Mateo counties together).

- The elasticities of supply and demand can provide an estimate of how much construction would be necessary to achieve that level of price reduction.

Housing Value Trends in the City, San Francisco MSA, and State



How Much Additional Housing to Close the Gap?

The 1.0% gap in average housing prices between the city and the MSA suggests that the city needs a 0.83% increase in housing production every year to maintain, on average, price rises in line with the state:

Remember:

$$\Delta P\% = \frac{\Delta X\%}{\epsilon_s - \epsilon_d}$$

So:

$$-1.0\% = \frac{\Delta X\%}{0.09 - (-0.74)}$$

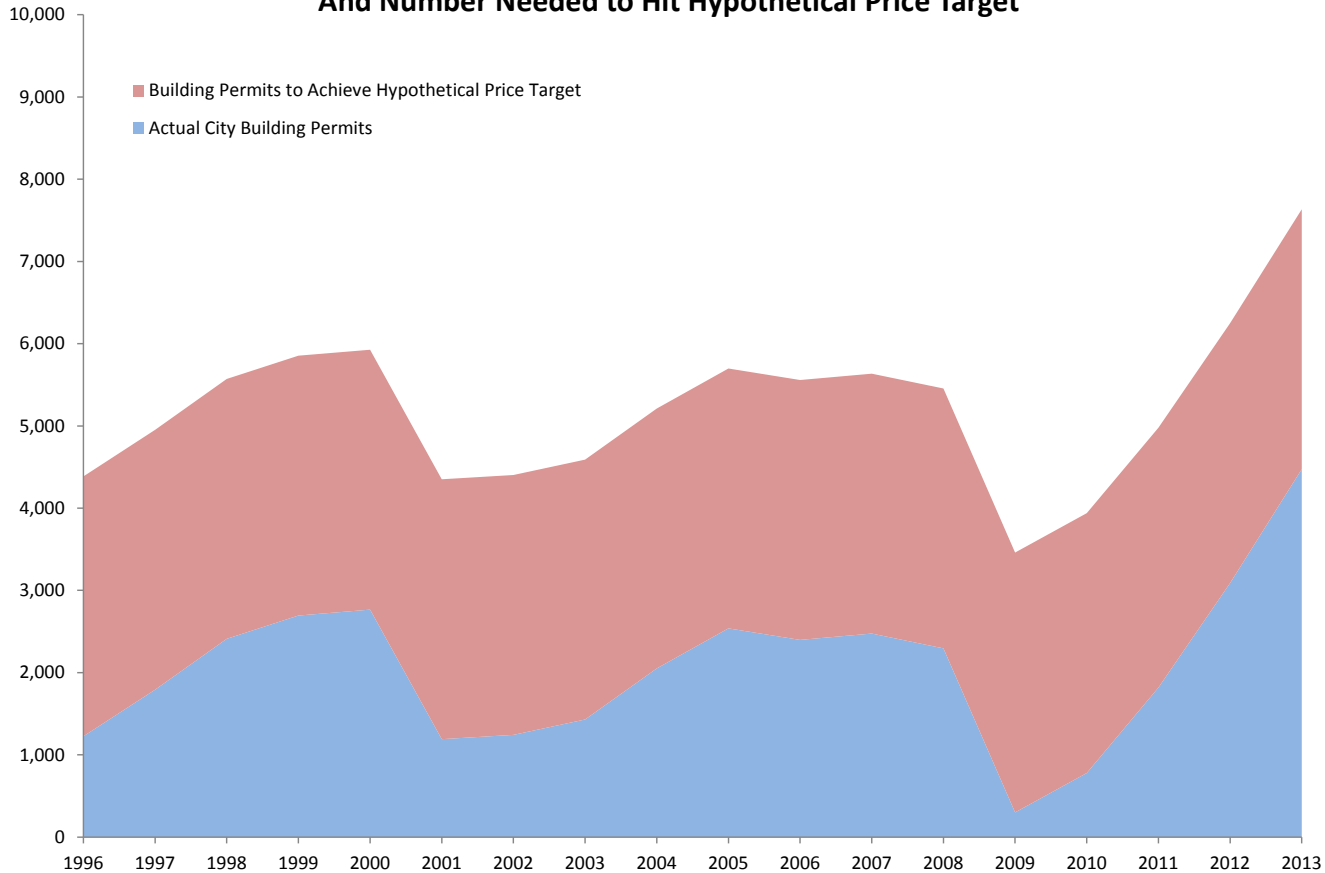
And:

$$\Delta X\% = 0.83\%$$

The city now has about 381,000 units, so a .83% increase is 3,160 *additional* units of development capacity per year.

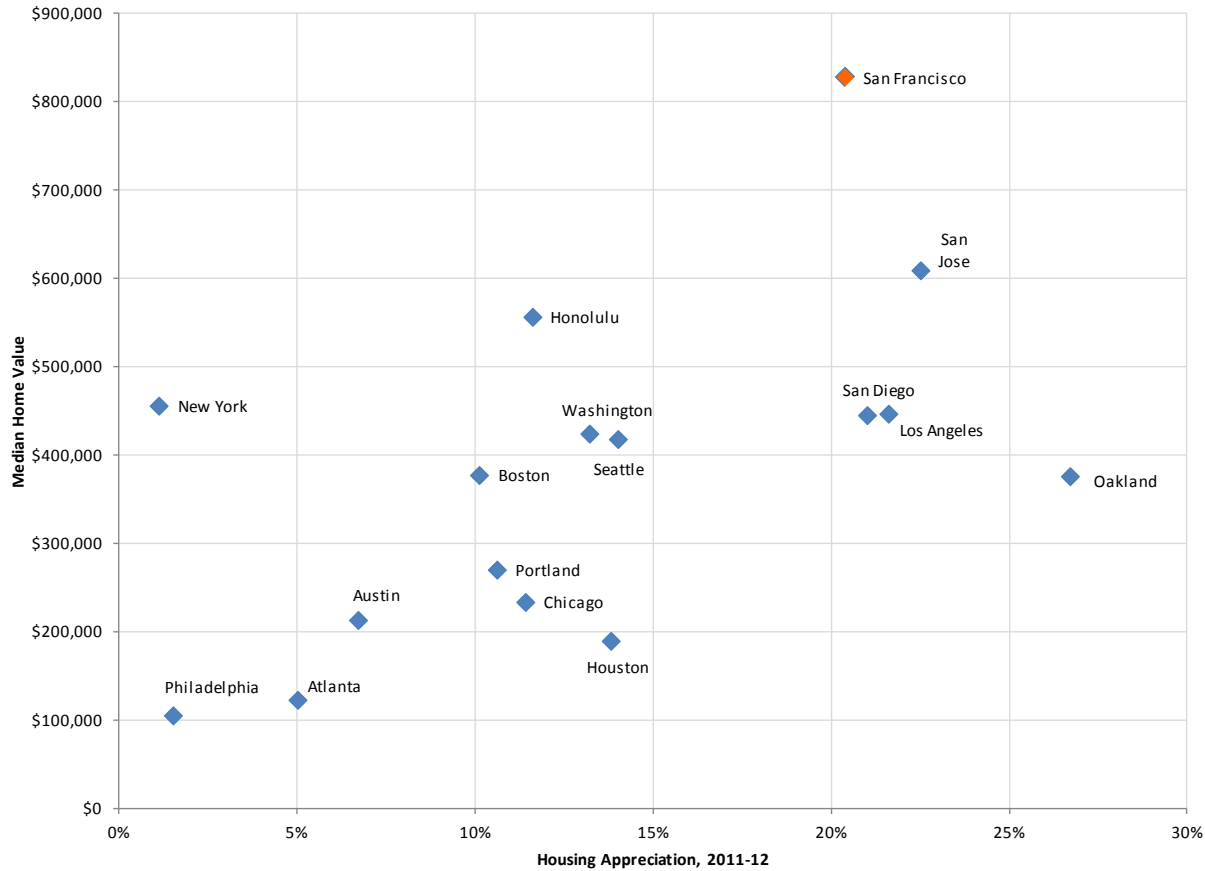
This Target is High in the Context of the City's Recent Housing Production History – Which Itself is Historically High

**Actual San Francisco Building Permits, 1996-2013,
And Number Needed to Hit Hypothetical Price Target**



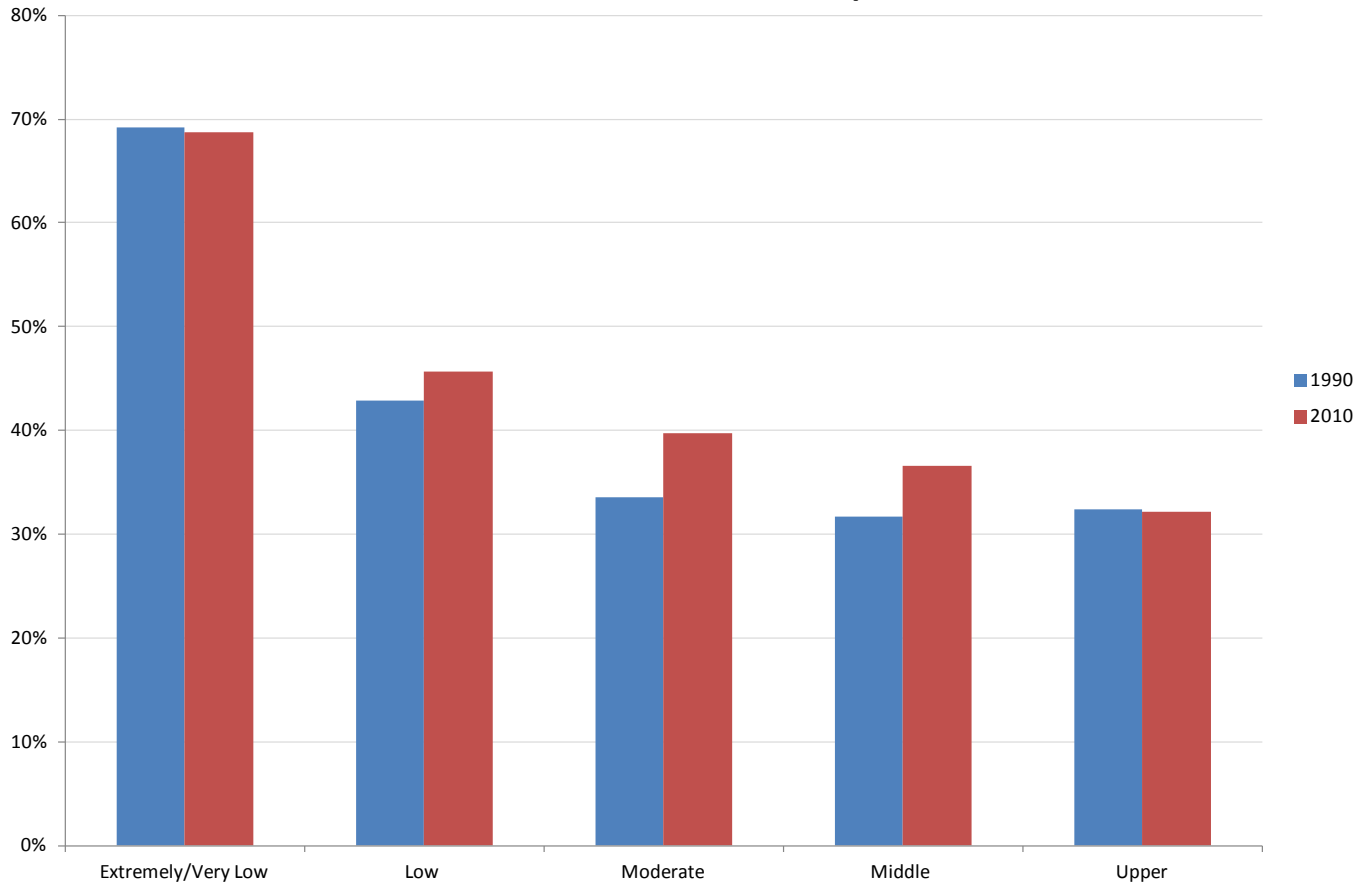
San Francisco's Housing is the Most Expensive of Any Large City in the U.S.

**Median Housing Value and Housing Appreciation, 2011-12:
San Francisco and Fifteen Other U.S. Cities**



High Prices Have Exacerbated Affordability Issues for Low and Moderate Income Households in the City

Average Housing Costs as a % of Wage & Salary Income, San Francisco Household Income Groups, 1990 & 2010



Housing Balance?

- Because of San Francisco's chronic affordability problems, increasing the supply of subsidized affordable housing is a popular policy choice.
- In addition, because new unsubsidized, market rate, housing is only affordable to those with high incomes, it can be seen as "housing for the rich".
- Affordable housing advocates make the argument that the development of market rate housing consumes sites that could have been occupied by affordable housing, reducing its supply.
- A Housing Balance proposal could require special approvals for new market rate construction, unless the city achieves a balance in new construction of 30% affordable, and 70% market-rate.
- Although the legislation does not explicitly tie the regulatory requirements to a goal of preserving sites for affordable housing, if the market rate projects did not receive approval, more sites would be available for affordable housing.
- What are the costs and benefits of such a trade-off?

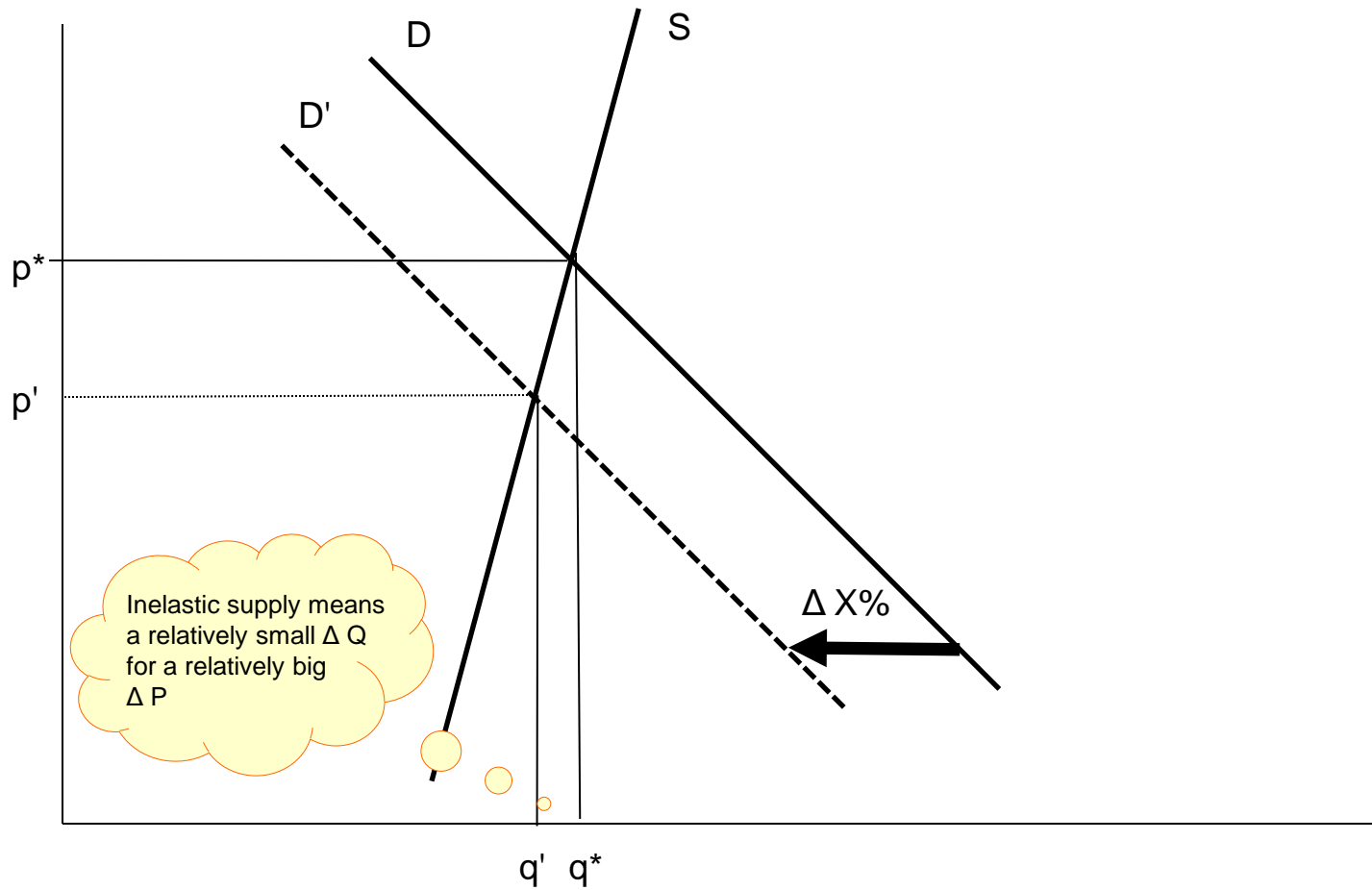
New Construction and Housing Prices

- New housing is a very small share of total housing stock in the city.
- 97% of people who moved into San Francisco between 2007 and 2011 lived in housing that was built before 2005. 98% of SF residents who did not move here lived in pre-2005 housing. There is virtually no difference, so the idea that new housing attracts new people to the city is unsupported.
- Based on the elasticities discussed earlier, approval for an increase of 3,160 units, yields a 1% reduction in prices – equivalent today to about a \$10,000 price reduction, or \$35/month asking rent reduction.
- Since housing prices for high, moderate, and low income households move in tandem, as well as rents and housing prices (in general), house-seekers in all income groups would benefit from such a policy – or harmed by a restriction.
- So restricting housing development imposes costs on all house-seekers – does affordable housing create greater benefits for low-income groups?

Affordable Housing Construction as Housing Policy

- Affordable Housing directs housing subsidy towards developers, and in return requires that the units remain affordable to households with specified income levels.
- As the next page shows, while affordable housing creates particular benefits to the "winners" who get to live in the subsidized units, it also provides broad price relief to *all households* in the targeted income bands.
- Although it's a supply-side policy, it increases affordability for all low-income households by limiting the demand for lower-end housing in the private market, where most low-income households live and compete for housing.
- As discussed earlier, by reducing prices, such a policy risks crowding out private housing development. But when supply elasticity is low – like San Francisco – the crowding-out effects can be negligible.
- So – in comparison with a demand-side policy like rent vouchers – it makes sense for a city like San Francisco.

Price Impact (in the Unsubsidized Market) of providing X% of Low-Income Households with Affordable Housing



Elasticities and Price Impacts of Affordable Housing on Low- and Moderate-Income Households

- We used data on San Francisco affordable housing developments that received the Low-Income Housing Tax Credit (LIHTC), and Zillow's "lower-tier" housing value, to estimate a supply elasticity specific to San Francisco affordable housing.
- The result was identical to the all-housing elasticity, 0.09.
- As stated earlier, the low-income demand is slightly less elastic than market-rate demand, -0.65.
- These results suggest that affordable housing for 1% of the low- and moderate-income households in the city would reduce their prices by 1.35%, compared to 1.19% for all housing.

An Affordable Housing "Multiplier"

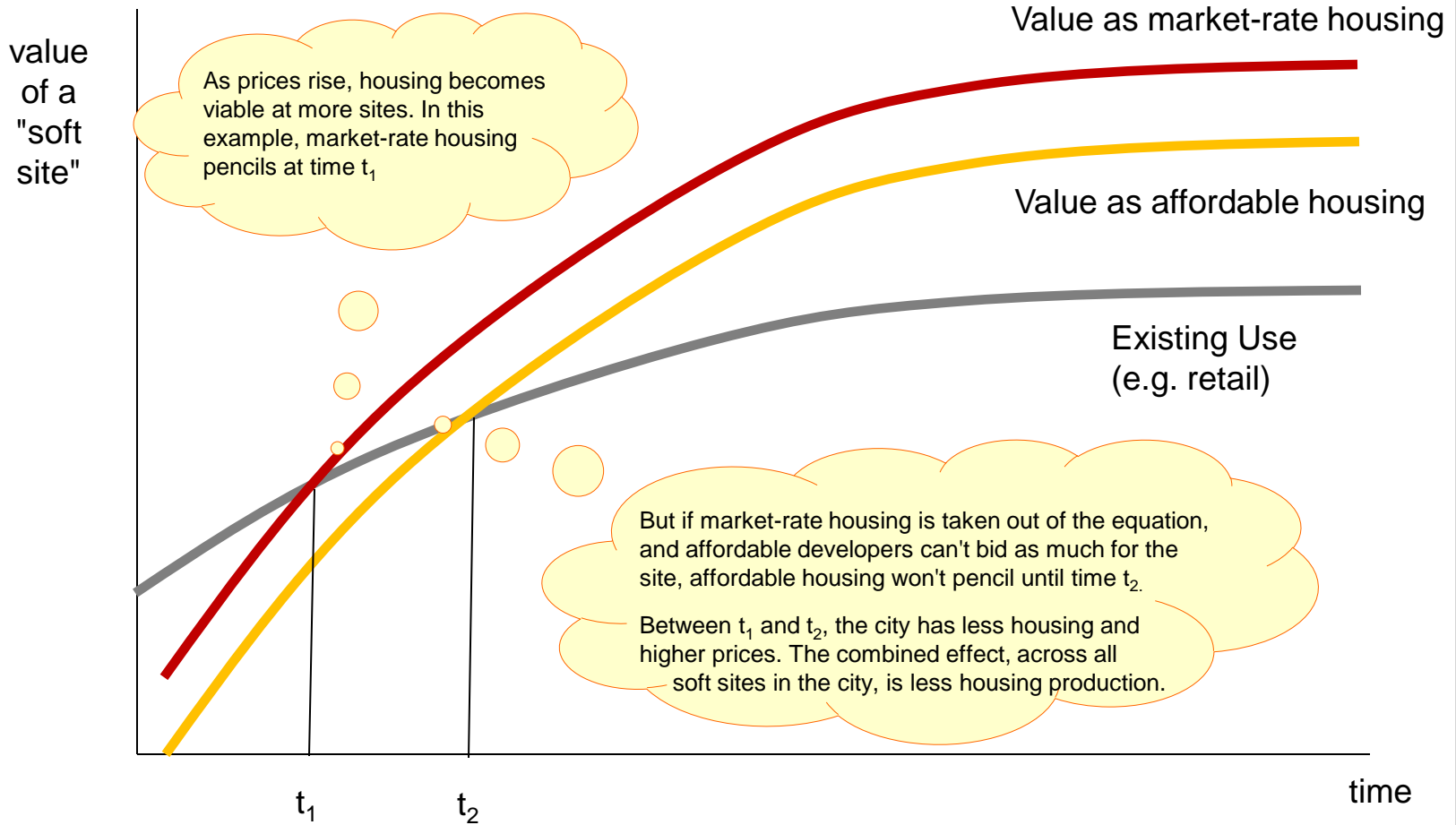
- Critical to understanding the economics of housing balance is the fact that a given development site can provide a bigger *percentage* increase in low- and moderate income housing, than in all housing, because the base is smaller.
- Low and moderate income households are about 60% of the city's total. So a given parcel that could increase the supply of housing by 1%, could provide affordable housing for 1%/60% or 1.67% of low/moderate income households.
- Compared with a 1.19% across-the-board price reduction, then, devoting the parcel to affordable housing yields a $1.67\% / (.09 + .65) = 2.25\%$ price reduction for low- and moderate-income households – and none for higher-income households.
- Is it that simple? Give up a 1.2% price reduction for all groups, for a 2.25% price reduction for low and moderate income?
- Actually it's not that simple...

Three Complexities

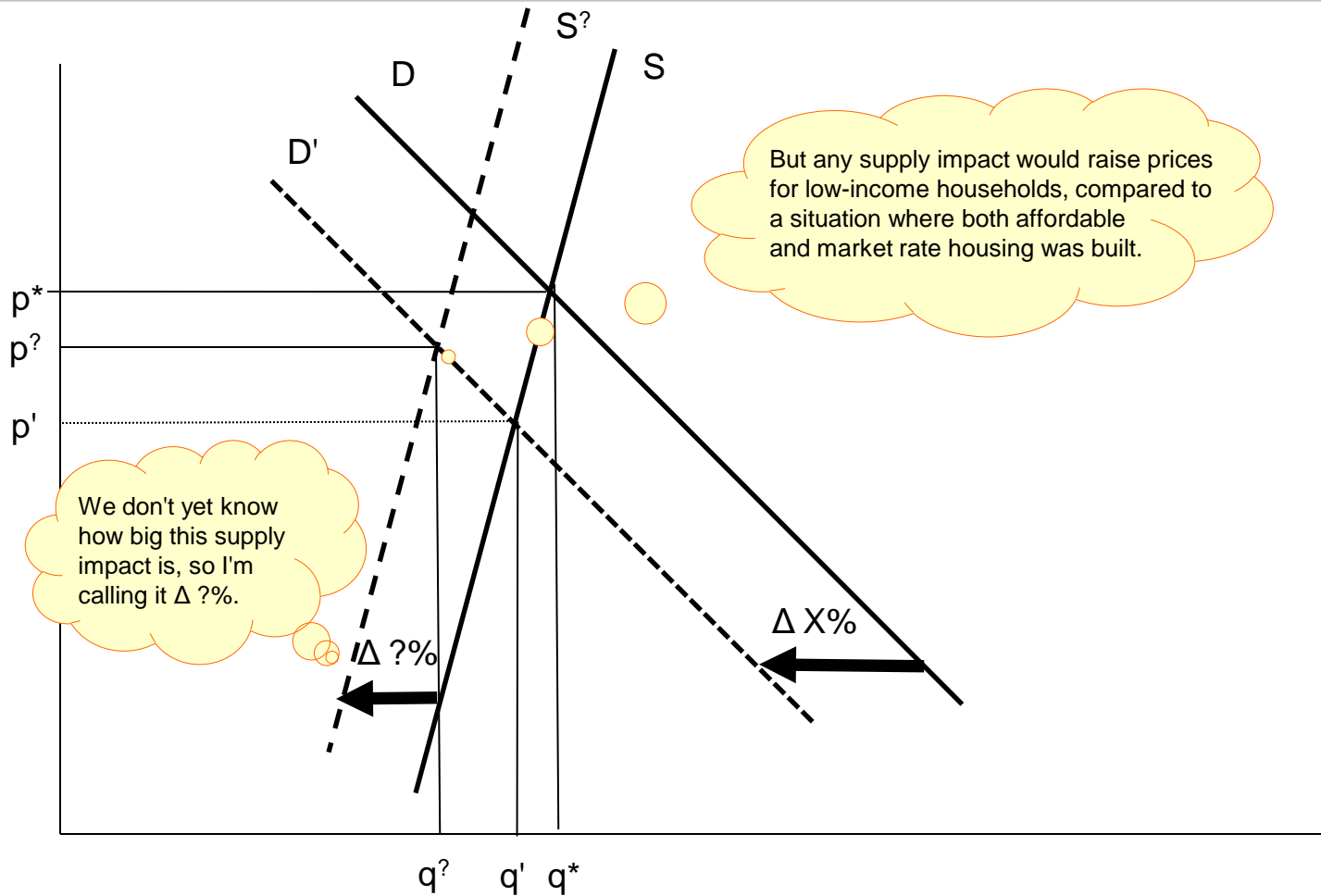
- Affordable Housing projects don't only compete with market-rate projects – but also with existing uses.
- Affordable Housing projects don't have the same incentive to economize on land – so fewer units may be produced at a given site.
- Market rate projects generate money for affordable housing – affordable housing projects don't.

- All three of these issues suggest that a Housing Balance approach should not be expected to yield a 1:1 replacement of affordable for market-rate housing.
- So, the trade-off described earlier is not so clear cut.
- It is even possible that so little affordable housing is built that the costs of constricting market-rate housing outweigh the affordable housing benefits, *even for low and moderate income households.*

Being Able to Pay Less for Land Means Waiting for Affordable Housing to be Feasible



Both the Supply and Demand of Low-Income Housing Would be Reduced, Leading to Ambiguous Price Impacts



Implications

- We need more data to figure out how much we would slow down housing production by limiting market rate development.
- Affordable Housing funnels benefits to the income groups with the greatest affordability challenges, and given the expense of housing development in San Francisco, it's a sensible approach.
- But trying to subsidize affordable housing's land costs indirectly, by removing competition from market rate, is probably not the most efficient solution.
- It would likely be preferable to identify other sources of subsidy, which do not indirectly reduce or slow down overall housing production.
- It would also be preferable, in order to maximize the impact of the investment in affordable housing, to allow development capacity for affordable housing to rise along with the subsidy, so both affordable and market rate housing could be built.
- This would maximize the impact of affordable housing investment on the affordability crisis that confronts low- and moderate-income households in San Francisco.