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# *Housing Supply and Policy*

Albert Saiz

Massachusetts Institute of Technology

Center for Real Estate and Department of Urban Studies and Planning



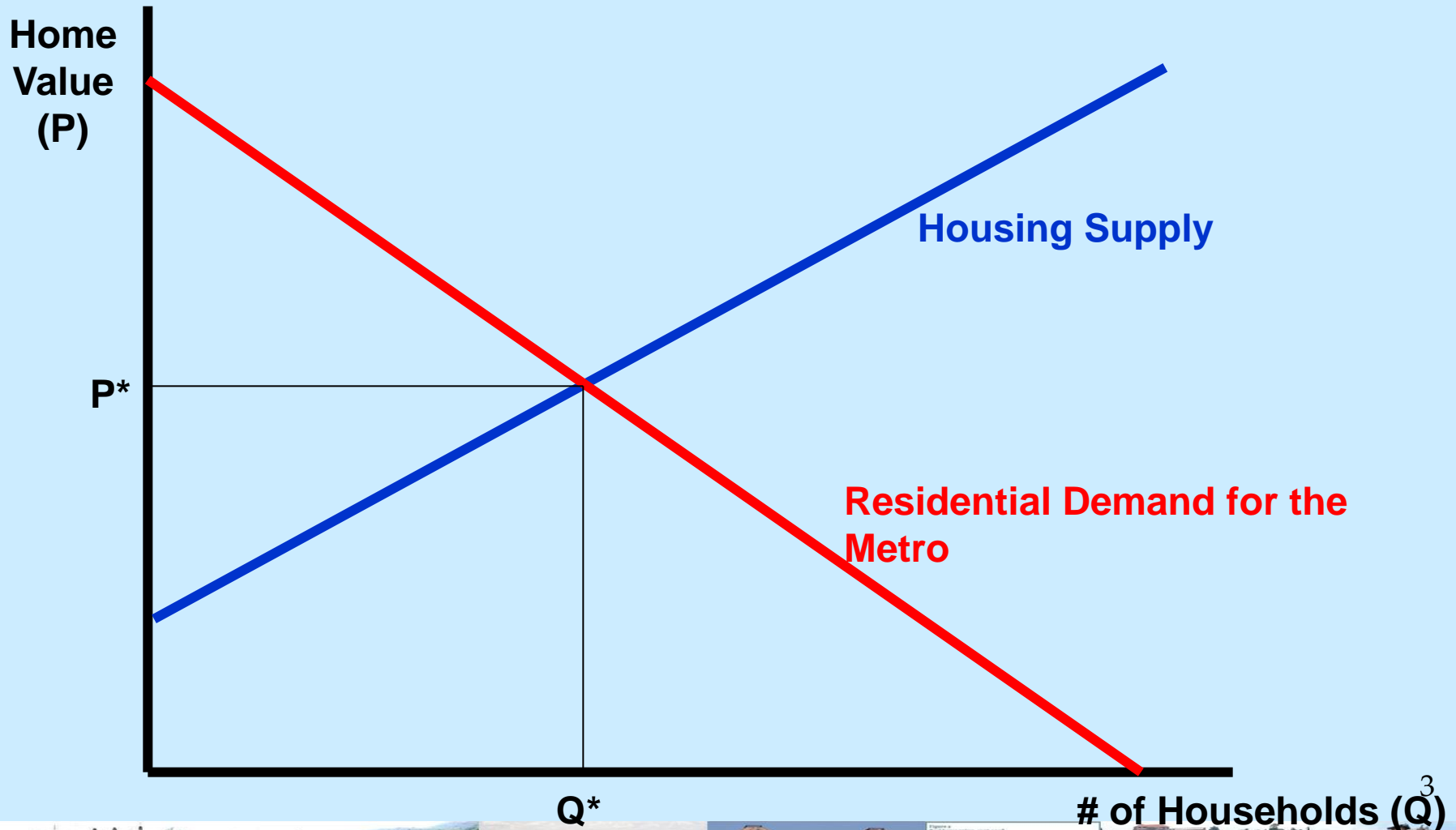
## *The Key Role of Housing Supply*

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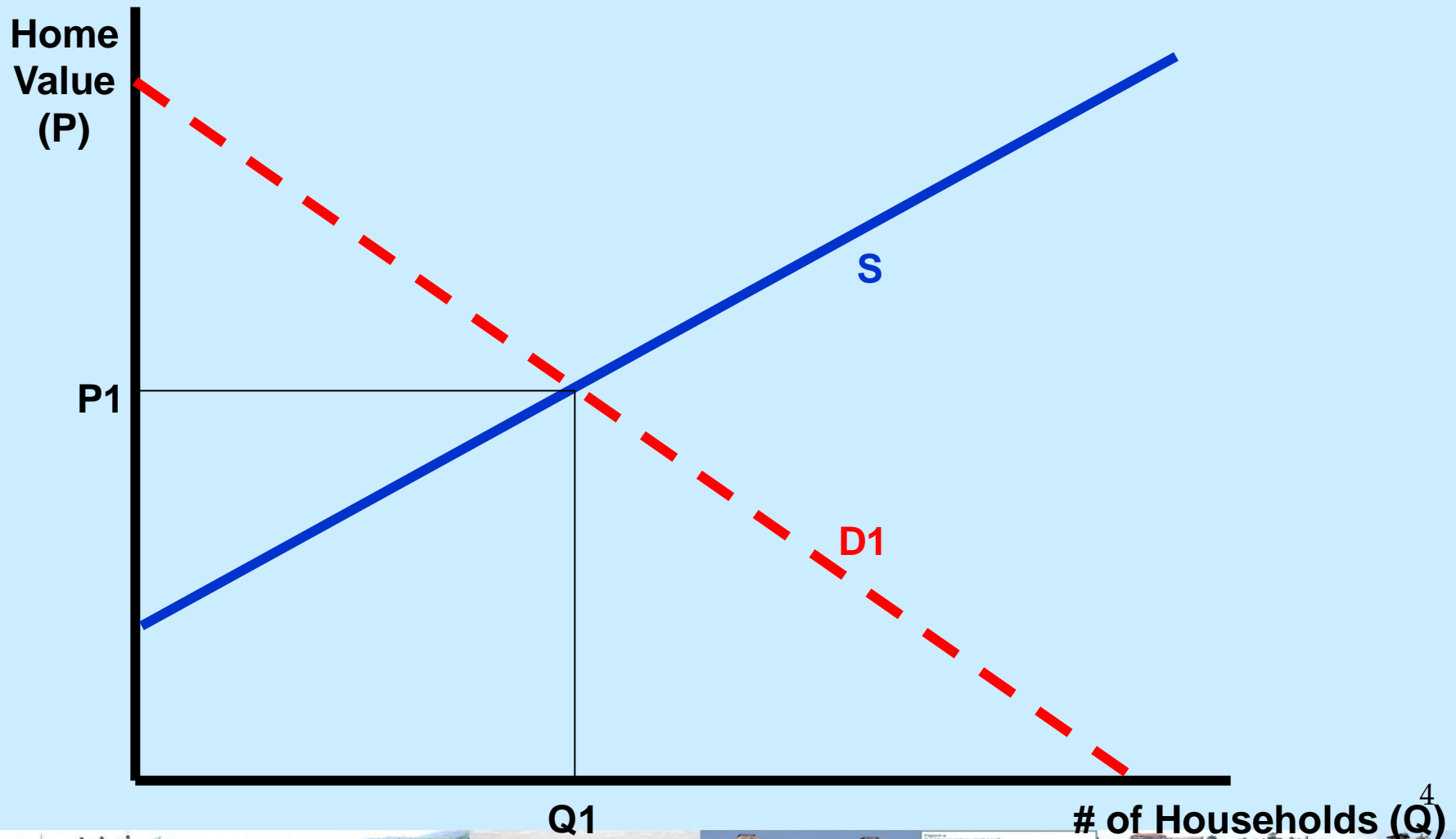
- Housing supply examines the cost and competitive environment at which housing is produced and sold
- The value of a house in the market is equal to
 
$$=$$
  - land value + cost of construction – physical depreciation – functional obsolescence
- Policies have an impact on all of these!



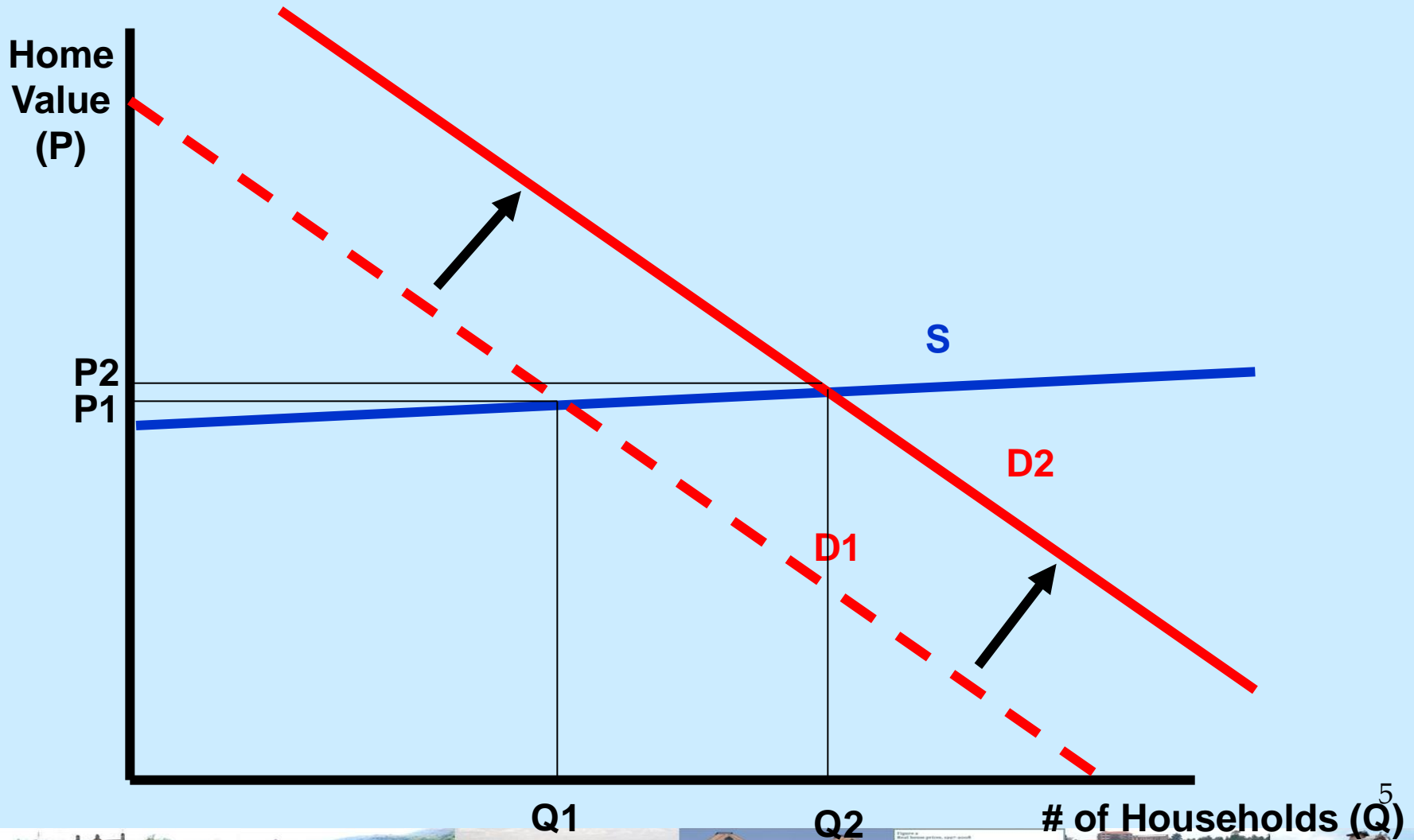
# Housing Supply and Demand for a Metropolitan Area



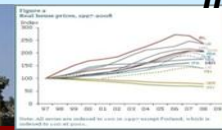
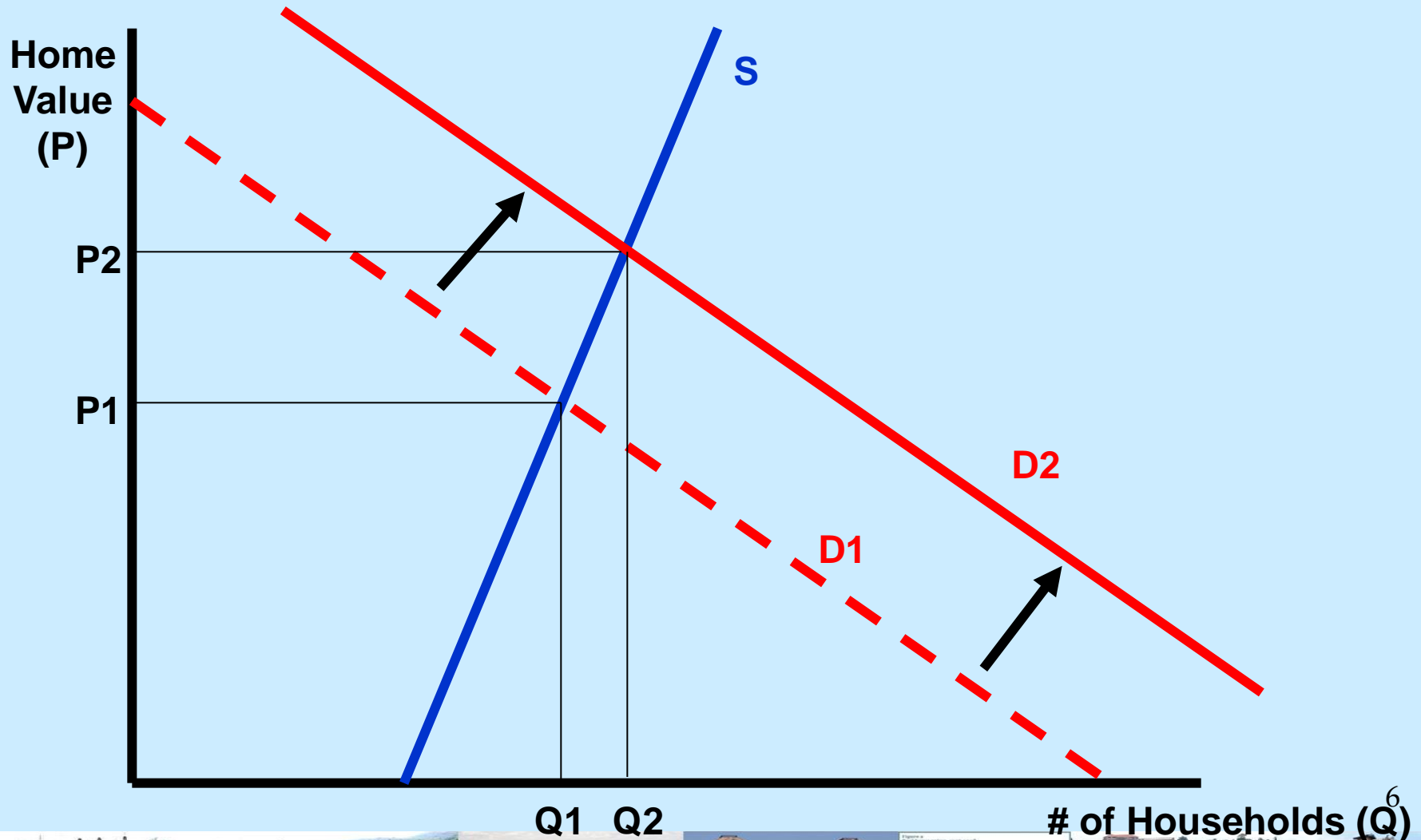
# Housing Supply and Urban Growth



# Housing Supply and Urban Growth: Elastic Supply



# Housing Supply and Urban Growth: Inelastic Supply



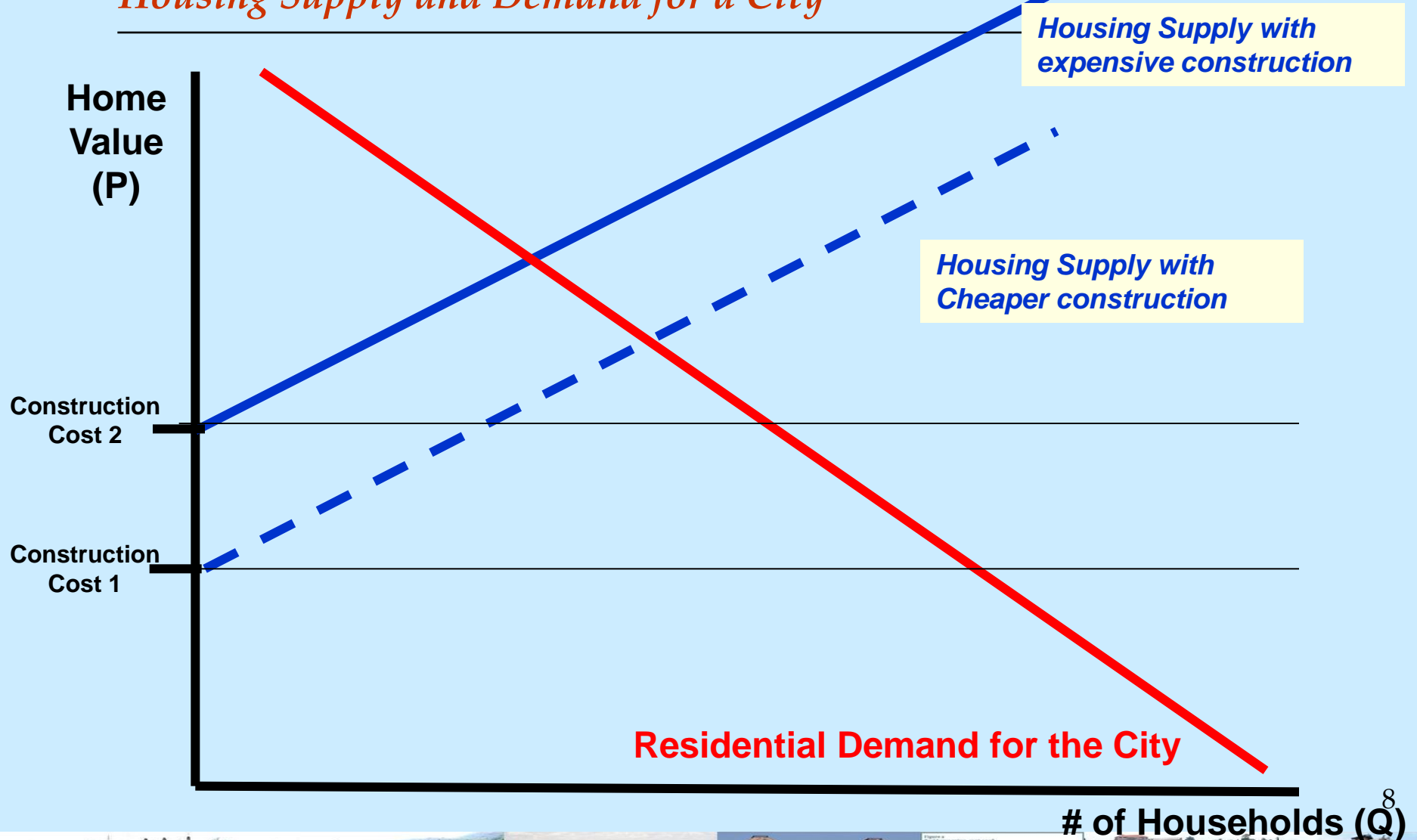
## *Housing Supply Issues*

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- **Construction costs**
  - Supply extremely elastic: but effect to levels!
  - Differences across cities
- **Supply or renovations/additions**
  - Sensitive to construction costs
- **Supply of rental properties**
  - Sensitive to legal environment
- **Geography and Land**
- **Land Use Policy for new Development**
  - Wharton Residential Land Regulatory Index: US

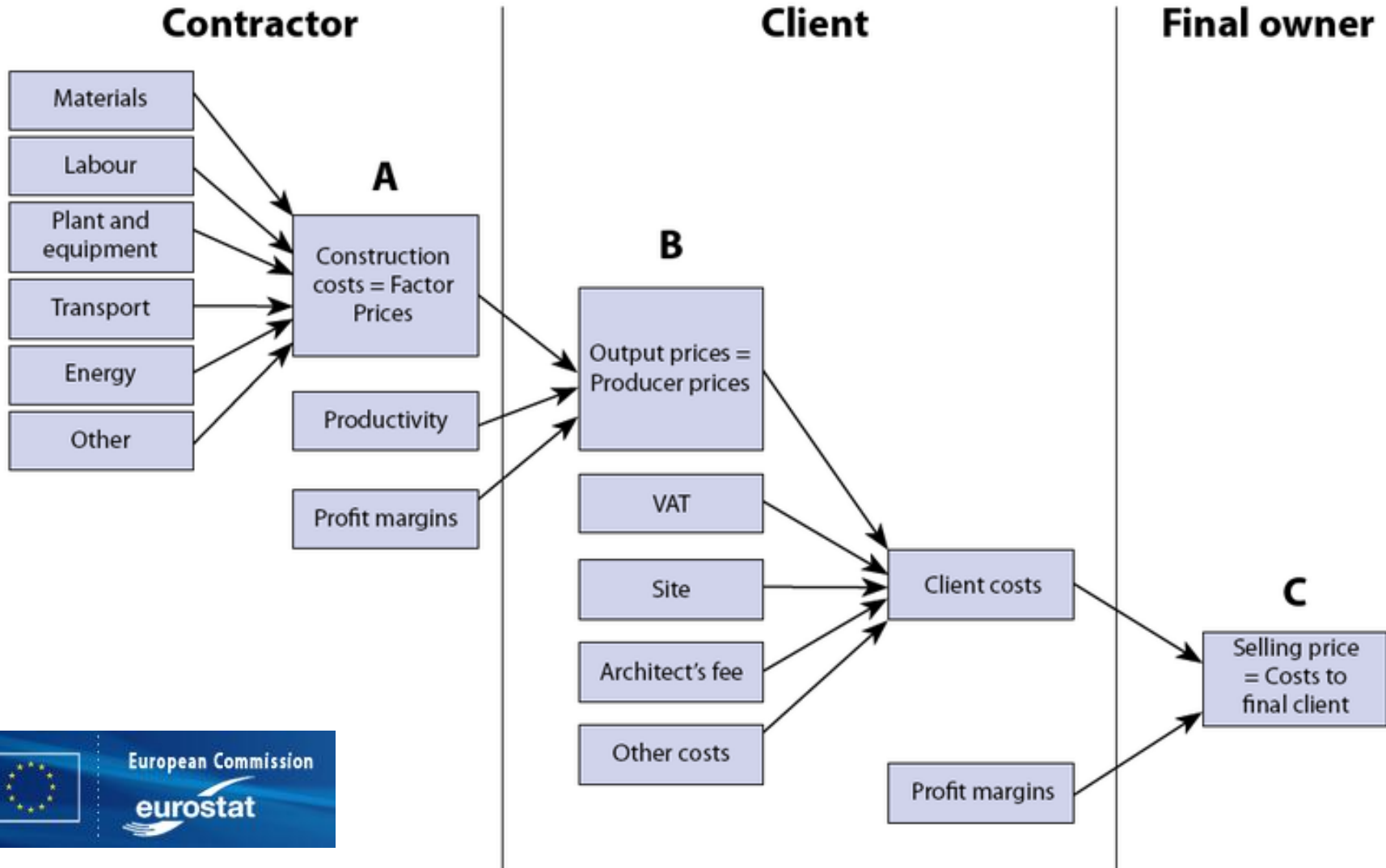


# Housing Supply and Demand for a City





# Construction costs: a global perspective



**Australia – international building costs per m<sup>2</sup> of internal area**

	2008 AUD	2009 AUD	2010 AUD	2011 AUD	2011 USD
<b>Residential</b>					
Detached house – medium standard	1,518	1,445	1,445	1,474	1,517
Detached house – prestige	2,250	2,150	2,100	2,142	2,205
Townhouse – medium standard	1,715	1,640	1,650	1,683	1,732
Apartments – private medium density	2,050	1,950	1,900	1,938	1,985
<b>Apartments – high rise</b>	<b>2,500</b>	<b>2,400</b>	<b>2,350</b>	<b>2,397</b>	<b>2,467</b>

39,721

**Canada – international building costs per m<sup>2</sup> of internal area**

	2008 CAD	2009 CAD	2010 CAD	2011 CAD	2011 USD
<b>Residential</b>					
Detached house – medium standard	3,000	2,750	2,700	2,800	2,836
Detached house – prestige	4,000	3,750	3,700	3,800	3,849
Townhouse – medium standard	1,379	1,313	1,300	1,400	1,418
Apartments – private medium density	1,909	1,818	1,800	1,900	1,925
<b>Apartments – high rise</b>	<b>1,697</b>	<b>1,616</b>	<b>1,600</b>	<b>1,700</b>	<b>1,722</b>
Aged care/affordable units	2,057	1,959	1,940	2,000	2,026

40,370

**Germany – international building costs per m<sup>2</sup> of internal area**

	2008 EUR	2009 EUR	2010 EUR	2011 EUR	2011 USD
<b>Residential</b>					
Detached house – medium standard	820	830	833	857	1,192
Detached house – prestige	1,160	1,170	1,174	1,208	1,680
Townhouse – medium standard	1,740	1,760	1,766	1,817	2,528
Apartments – private medium density	1,071	1,068	1,085	1,105	1,526
<b>Apartments – high rise</b>	<b>1,020</b>	<b>1,017</b>	<b>1,033</b>	<b>1,052</b>	<b>1,463</b>
Aged care/affordable units	780	778	790	804	1,119

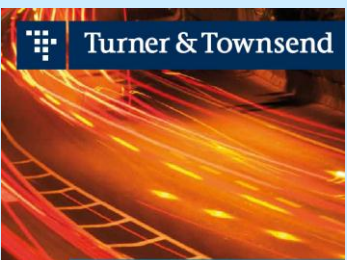
39,491

**South Korea – international building costs per m<sup>2</sup> of internal area**

	2008 KRW	2009 KRW	2010 KRW	2011 KRW	2011 USD
<b>Residential</b>					
Detached house – medium standard	1,167,307	1,155,750	1,150,000	1,150,000	1,038
Detached house – prestige	1,725,585	1,708,500	1,700,000	1,700,000	1,535
Townhouse – medium standard	1,380,468	1,366,800	1,360,000	1,360,000	1,228
Apartments – private medium density	1,116,555	1,105,500	1,100,000	1,100,000	993
<b>Apartments – high rise</b>	<b>1,421,070</b>	<b>1,407,000</b>	<b>1,400,000</b>	<b>1,400,000</b>	<b>1,264</b>
Aged care/affordable units	1,220,000	1,200,000	1,180,000	1,200,000	1,083

30,286

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International construction cost survey 2012



**GDP/capita  
2011 US \$**

<b>Ireland – international building costs per m<sup>2</sup> of internal area</b>					
	2008	2009	2010	2011	2011
	EUR	EUR	EUR	EUR	USD
<b>Residential</b>					
Detached house – medium standard	1,500	1,100	1,000	1,000	1,391
Detached house – prestige	2,200	1,800	1,700	1,600	2,225
Townhouse – medium standard	1,400	1,080	1,000	1,000	1,391
Apartments – private medium density	1,750	1,500	1,375	1,350	1,878
<b>Apartments – high rise</b>	1,800	1,650	1,525	1,500	<b>2,086</b>
Aged care/affordable units	2,500	2,000	1,850	1,825	2,538

**41,682**

<b>Japan – international building costs per m<sup>2</sup> of internal area</b>		
	2011	2011
	Yen	USD
<b>Residential</b>		
Detached house – medium standard	201,500	2,506
Detached house – prestige	235,800	2,933
Townhouse – medium standard	186,700	2,322
Apartments – private medium density	189,300	2,355
<b>Apartments – high rise</b>	284,000	<b>3,533</b>
Aged care/affordable units	164,800	2,050

**34,314**

<b>Singapore – international building costs per m<sup>2</sup> of internal area</b>					
	2008	2009	2010	2011	2011
	SGD	SGD	SGD	SGD	USD
<b>Residential</b>					
Detached house – medium standard	4,000	3,500	3,850	4,000	3,178
Detached house – prestige	4,900	4,400	4,400	4,600	3,655
Townhouse – medium standard	3,400	2,800	2,800	2,800	2,225
Apartments – private medium density	3,000	2,000	2,000	2,100	1,669
<b>Apartments – high rise</b>	3,400	2,500	2,700	2,700	<b>2,145</b>
Aged care/affordable units	1,500	1,350	1,450	1,500	1,192

**60,688**

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International construction cost survey 2012



**UAE – international building costs per m<sup>2</sup> of internal area**

	2008 AED	2009 AED	2010 AED	2011 AED	2011 USD
<b>Residential</b>					
Detached house – medium standard	7,500	7,000	6,500	6,000	1,634
Detached house – prestige	9,500	9,250	9,000	9,750	2,654
Townhouse – medium standard	7,500	6,525	5,550	5,250	1,429
Apartments – private medium density	7,000	6,500	6,000	5,500	1,497
<b>Apartments – high rise</b>	9,000	8,500	8,000	6,500	<b>1,770</b>
Aged care/affordable units	5,720	5,340	4,960	4,750	1,293

**GDP/capita  
2011 US \$  
47,893**

**UK – international building costs per m<sup>2</sup> of internal area**

	2008 GBP	2009 GBP	2010 GBP	2011 GBP	2011 USD
<b>Residential</b>					
Detached house – medium standard	1,050	1,050	1,020	1,058	1,696
Detached house – prestige	1,465	1,465	1,465	1,519	2,436
Townhouse – medium standard	1,008	1,200	1,200	1,244	1,995
Apartments – private medium density	1,624	1,800	1,800	1,867	2,921
<b>Apartments – high rise</b>	2,170	2,300	2,300	2,385	<b>3,824</b>
Aged care/affordable units	1,800	1,820	1,820	1,887	3,026


**35,657**

**US – international building costs per m<sup>2</sup> of internal area**

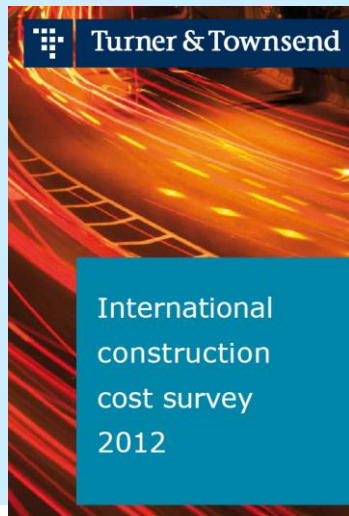
	2008 USD	2009 USD	2010 USD	2011 USD
<b>Residential</b>				
Detached house – medium standard	1,570	1,475	1,435	1,495
Detached house – prestige	1,925	1,750	1,710	1,800
Townhouse – medium standard	1,475	1,330	1,300	1,350
Apartments – private medium density	1,420	1,590	1,520	1,600
<b>Apartments – high rise</b>	2,075	2,045	2,020	<b>2,100</b>
Aged care/affordable units	1,300	1,400	1,420	1,550

**48,112**

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**Turner & Townsend**



**International  
construction  
cost survey  
2012**



## *Determinants of Construction Costs*

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- Technology
- Wages
- Competition in Construction and Inputs (Cement, Electricity)
- Efficiency in Practices (Unions)
- Efficiency in the Enforcement of Building Codes
- Efficiency of Governments in Moving forward Projects that Comply with Codes and Zoning



- *Absolutely necessary and paramount for safety and civic use of space!*
- However, key has to be on efficiently implementing needed ones
  1. Minimize costs conditional on successful enforcement
  2. Minimize time conditional on successful enforcement
  3. Minimize uncertainty
  4. The burden has to be on government/s to deliver
  5. Can't ask for government originated or registered documents
  6. Better to charge appropriate fees for swift enforcement
  7. Opacity and entry costs create duality: well-connected insiders versus others

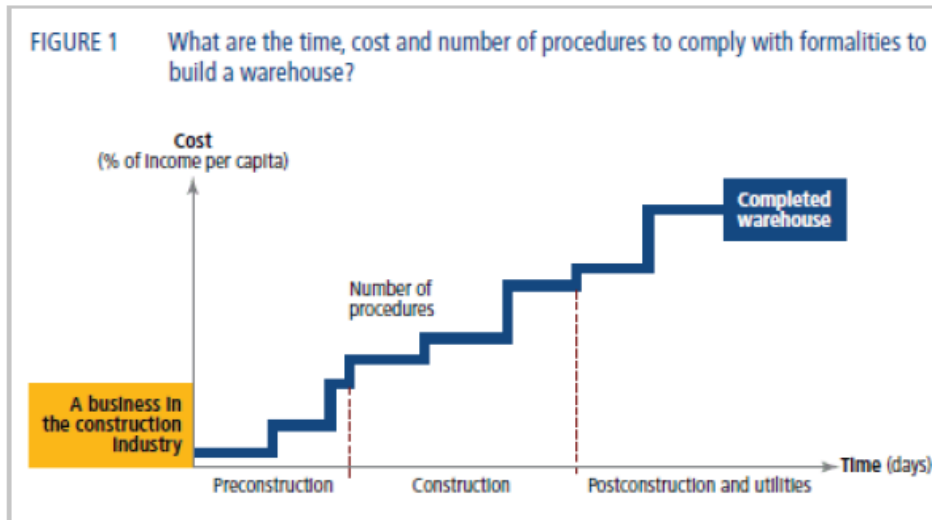


*Empirically, places where new construction burdens tend to be higher tend also to be places where actual enforcement of safety, etc... is extremely poor!*

## Dealing with Construction Permits Methodology

*Doing Business* records all procedures required for a business in the construction industry to build a warehouse (figure 1). These procedures include submitting all relevant project-specific documents (for example, building plans and site maps) to the authorities; obtaining all necessary clearances, licenses, permits and certificates;

completing all required notifications; and receiving all necessary inspections. *Doing Business* also records procedures for obtaining connections for water, sewerage and a fixed landline (following the inclusion of getting electricity indicators in the ease of doing business index in *Doing Business 2012*, additional procedures, time and cost related to obtaining an electricity connection in the preconstruction stage were removed from the dealing with construction permits indicators this year to avoid double counting). Procedures necessary to register the property so that it can be used as collateral or transferred to another entity are also counted. The survey divides the process of building a warehouse into distinct procedures and calculates the time and cost of completing each procedure. The ranking on the ease of dealing with construction permits is the simple average of the percentile rankings on its component indicators (figure A.1).





Country	Rank	Procedures (number)	Time (days)	Cost (% of income per capita)
New Zealand	6	6	89	29.8
United States	17	15	27	14.4
Denmark	8	8	68	57.1
Hong Kong	1	6	67	16.3
Taiwan, China	9	11	94	16.3
Japan	72	14	193	28.5
Sweden	25	7	116	77.3
United Kingdom	20	9	99	62.4

Country	Rank	Procedures (number)	Time (days)	Cost (% of income per capita)
Turkey	142	20	180	164.3
Haiti	136	9	1,129	692
Russian Federation	178	42	344	129.2
Egypt, Arab Rep.	165	22	218	135
Lebanon	172	19	219	301.8
Côte d'Ivoire	169	17	475	155.1
Ukraine	183	20	375	1,262.60
Papua New Guinea	159	21	219	114.7







Country	Rank	Procedures (number)	Time (days)	Cost (% of income per capita)
India	182	34	196	1,528.00
Indonesia	75	13	158	95
Iran, Islamic Rep.	166	16	320	262.3
Iraq	84	12	187	109.8
Ireland	106	12	156	626.1

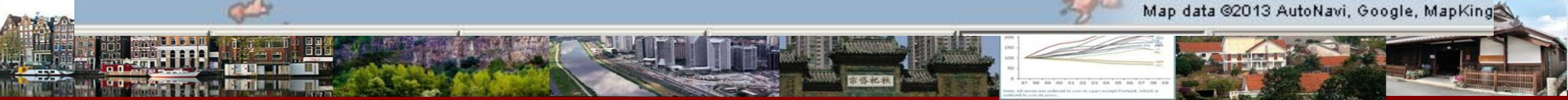


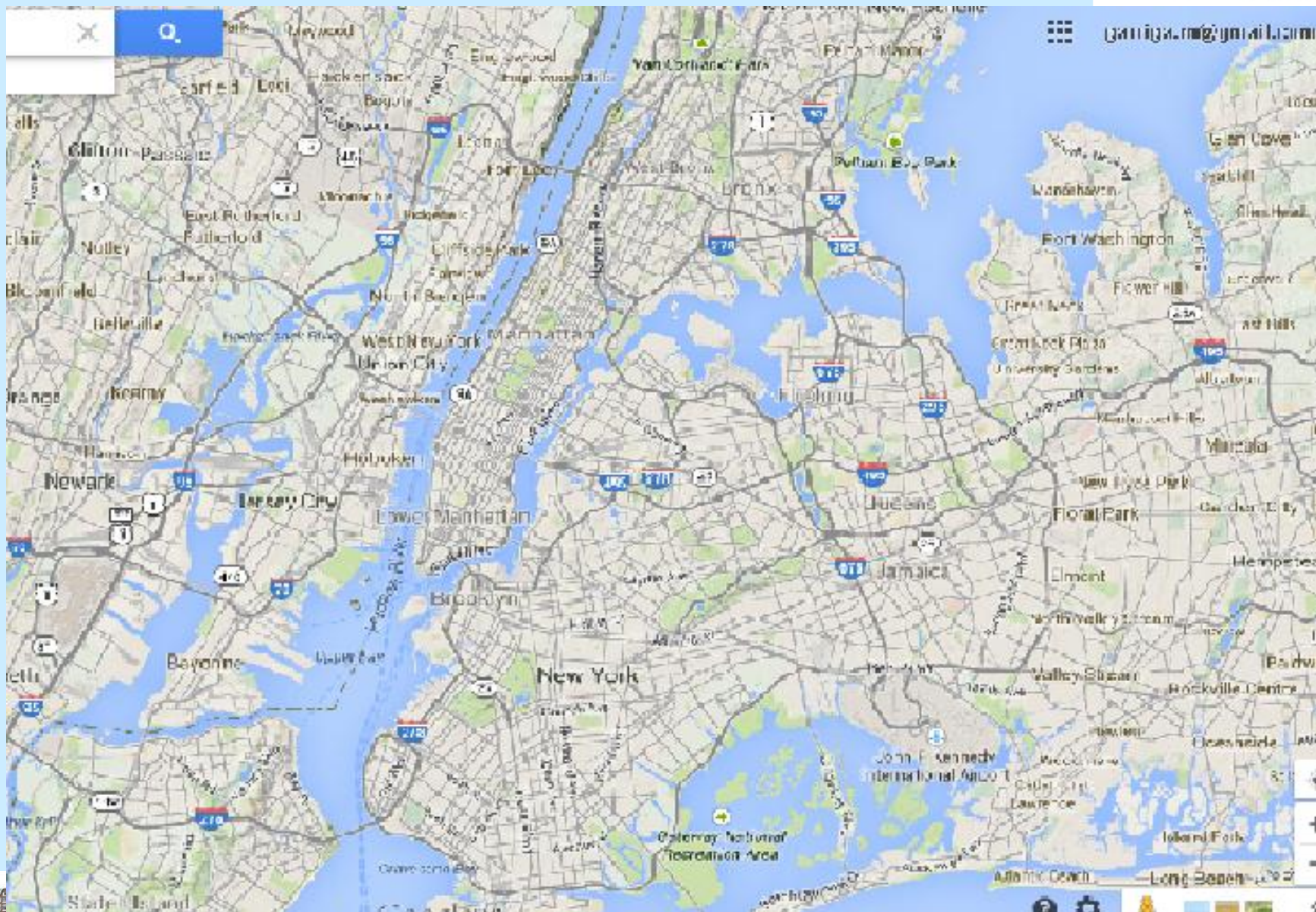
## *LAND SUPPLY*

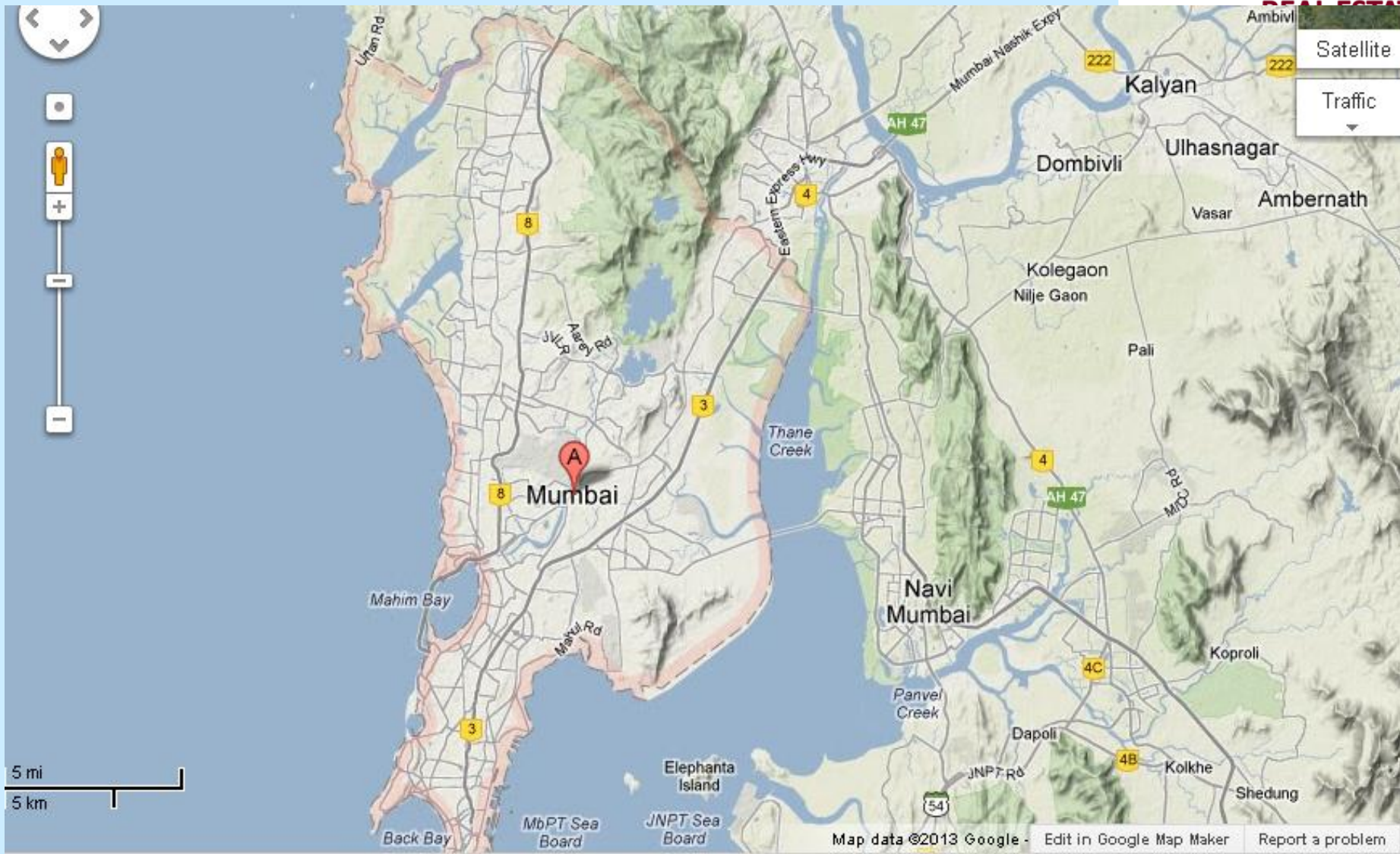
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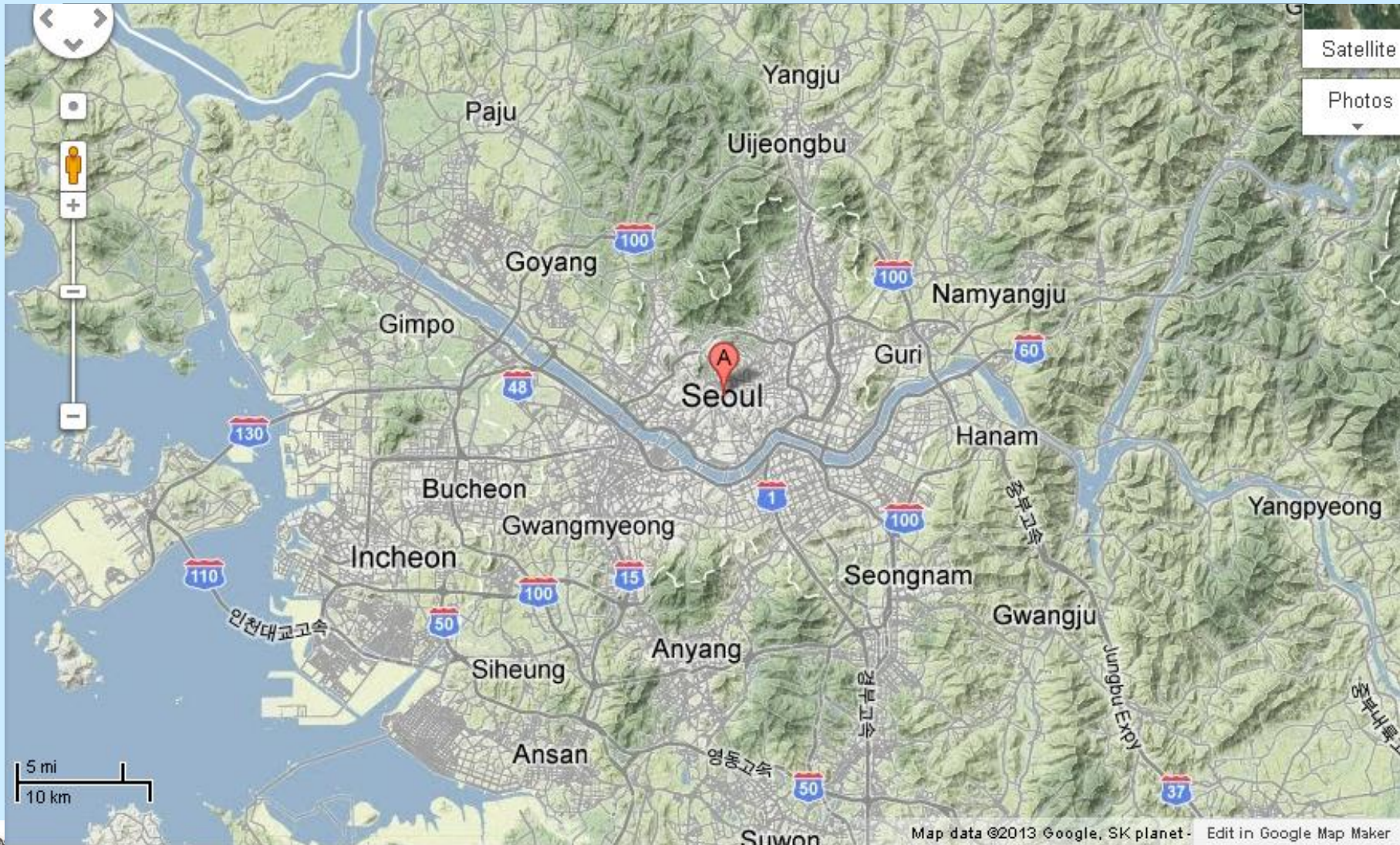
- There is a large amount of land...
- ... however limited amount of land in desirable locations
  - Access to jobs
  - Access to amenities
  - Public service: schools
- Relative scarcity of desirable land has an effect on the slope of housing supply
- The higher the demand for housing in a city the more “marginal” or “further away” plots have to be developed
- That pushes up implicit land values in good locations

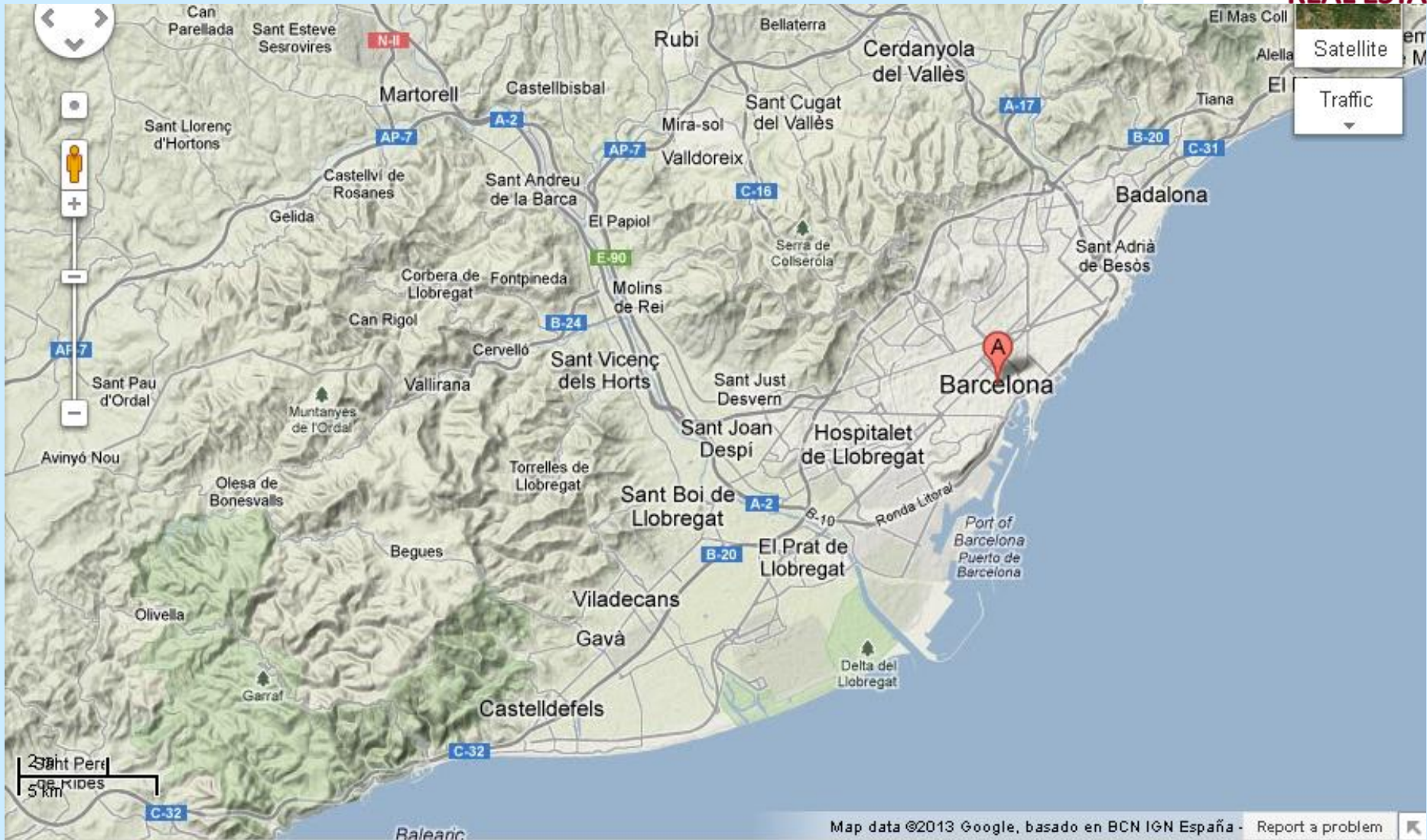


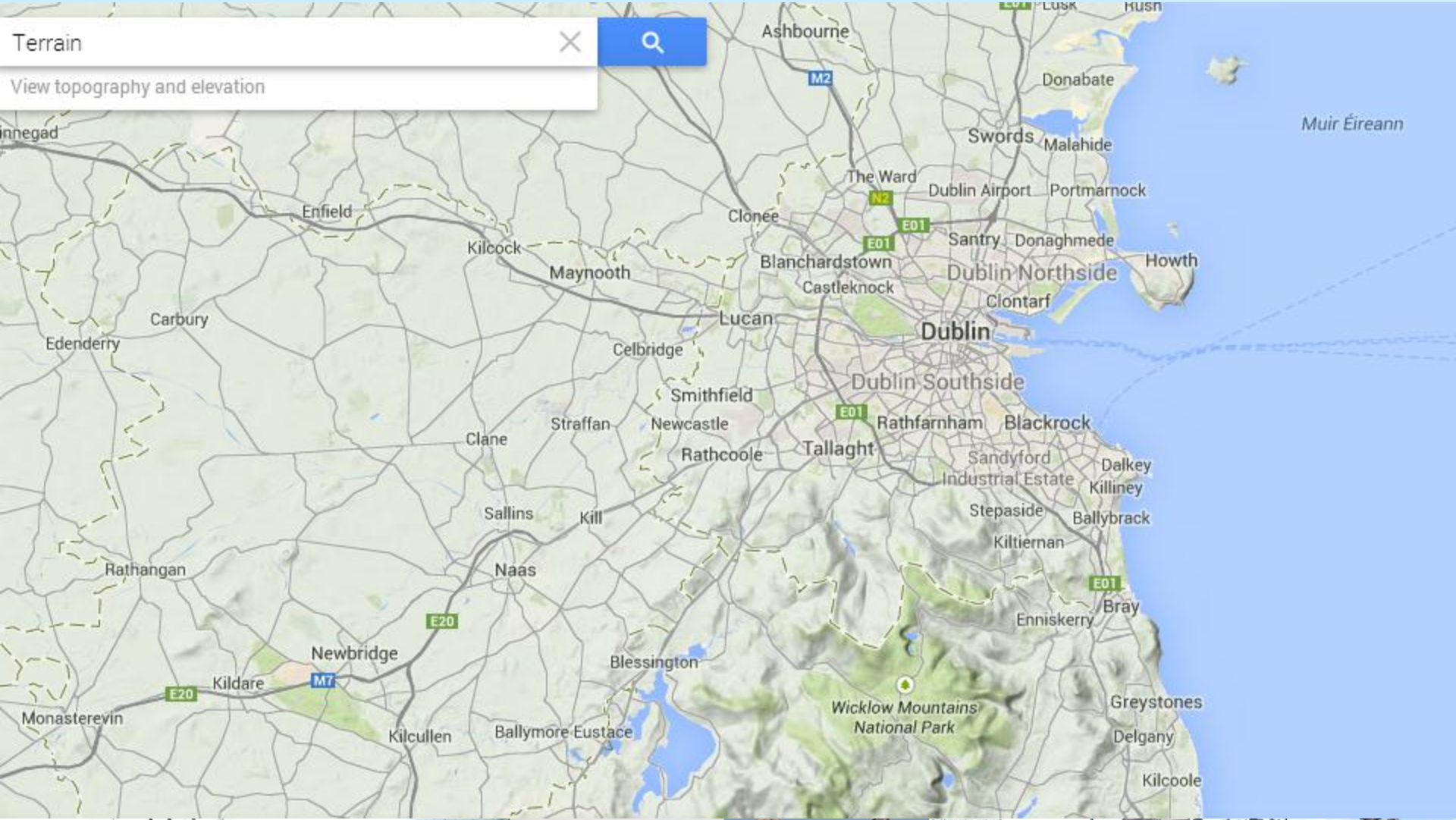














## Dublin (Ireland)

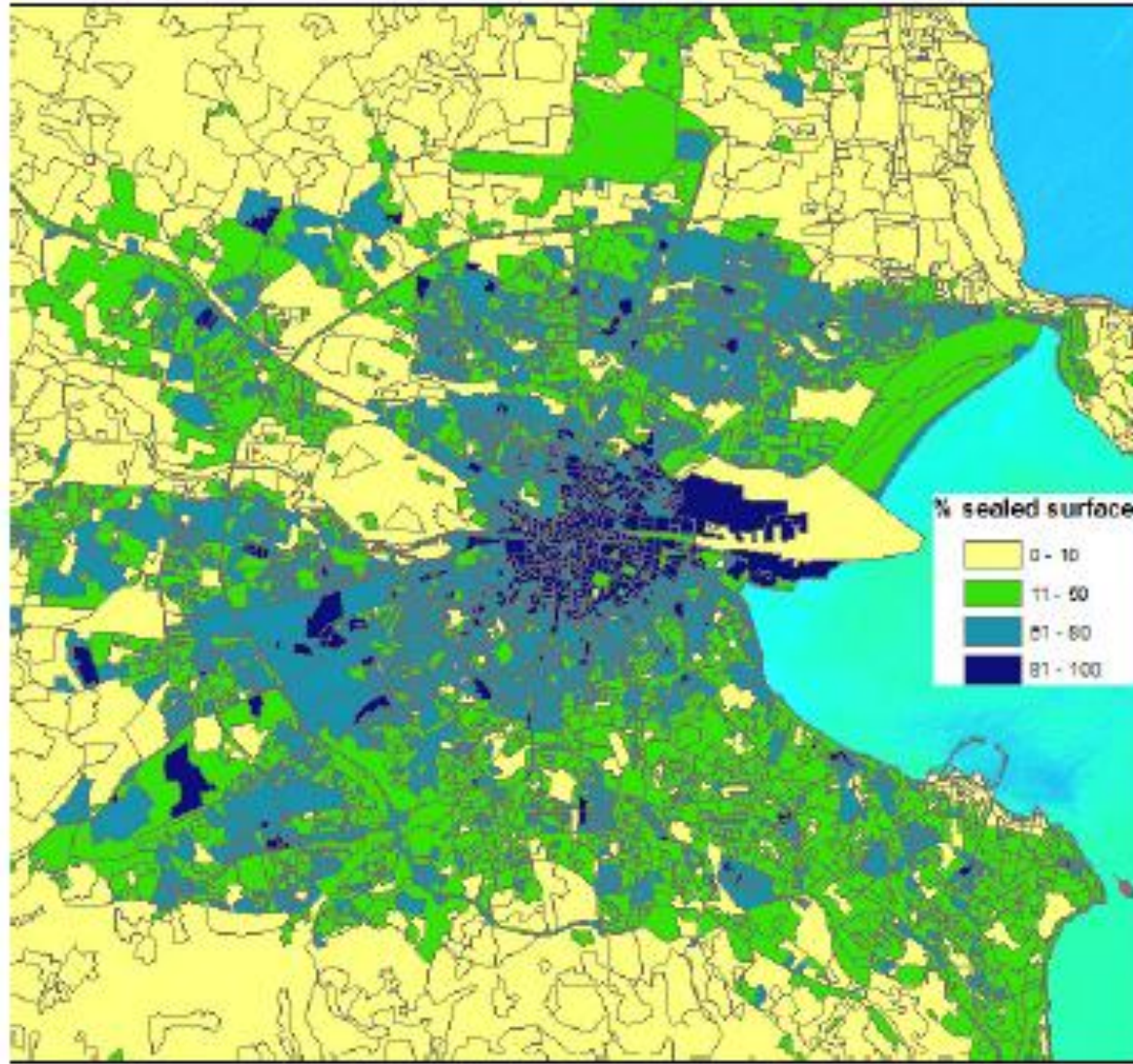


Figure 3. Urban density map based on average sealed surface cover within building blocks.

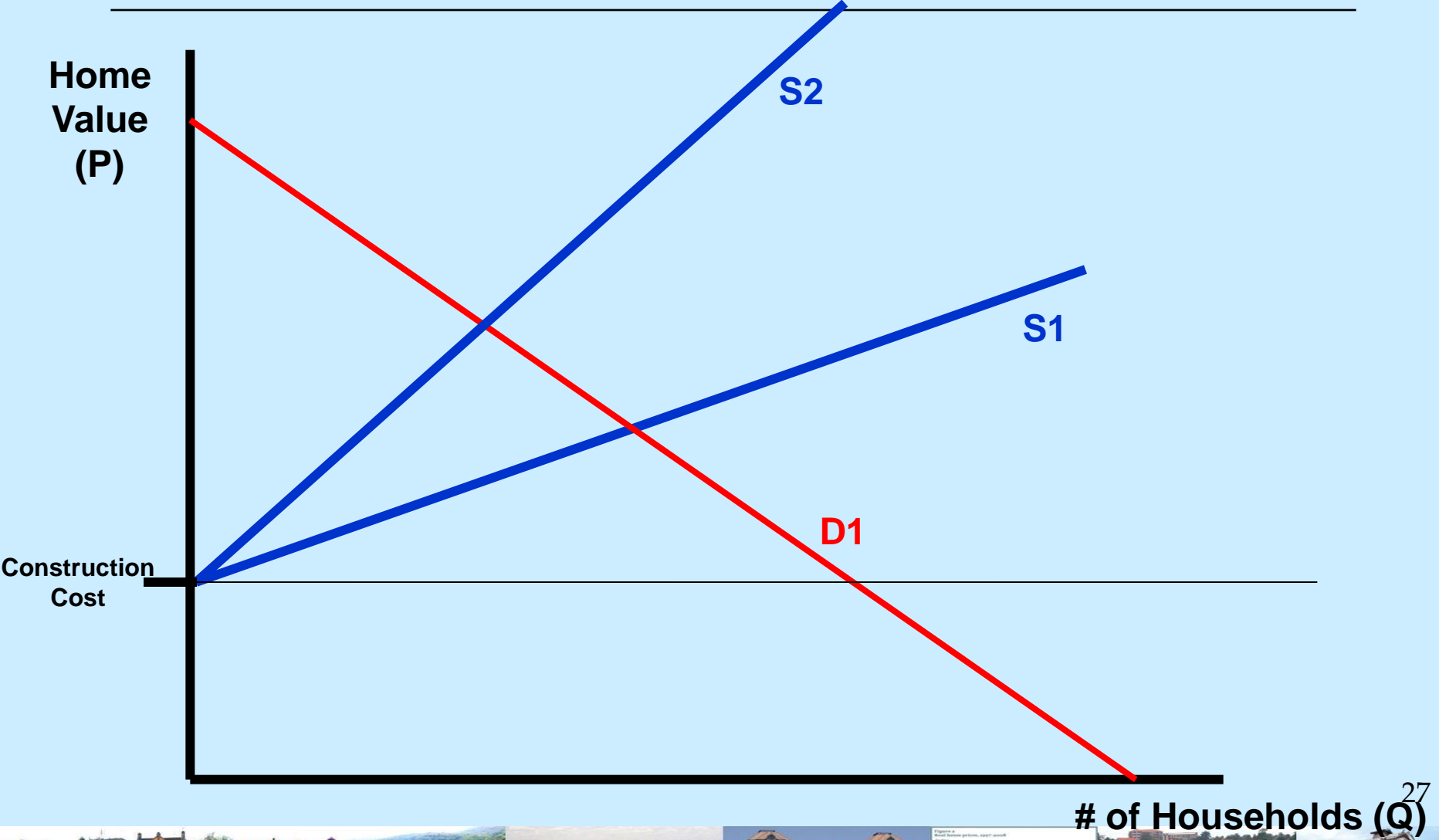


## Wharton Residential Land Regulatory Index

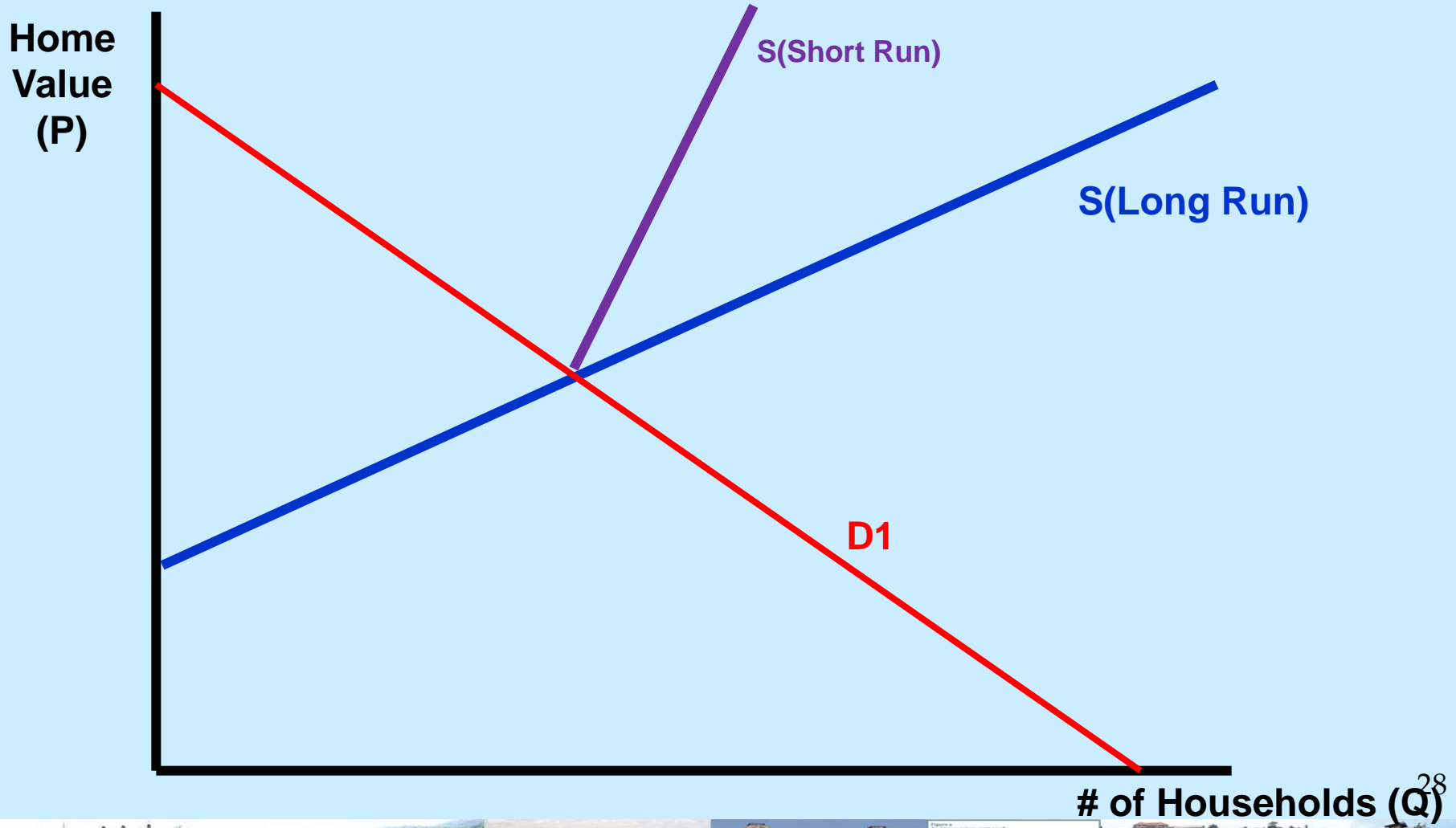
- We measured political opposition, procedural, and time delays to new development projects
- Include steps prior to construction: rezoning, variances, and approval of development characteristics according to plan and zoning board
- In general, clear patterns arise: pro-development and anti-development communities in a quantitative sense
- Not In My Backyard (NIMBY) dynamics
- Note that we do not pass judgment on quality of local planning activity
- Good planning is good!



# Land Policy Housing Supply

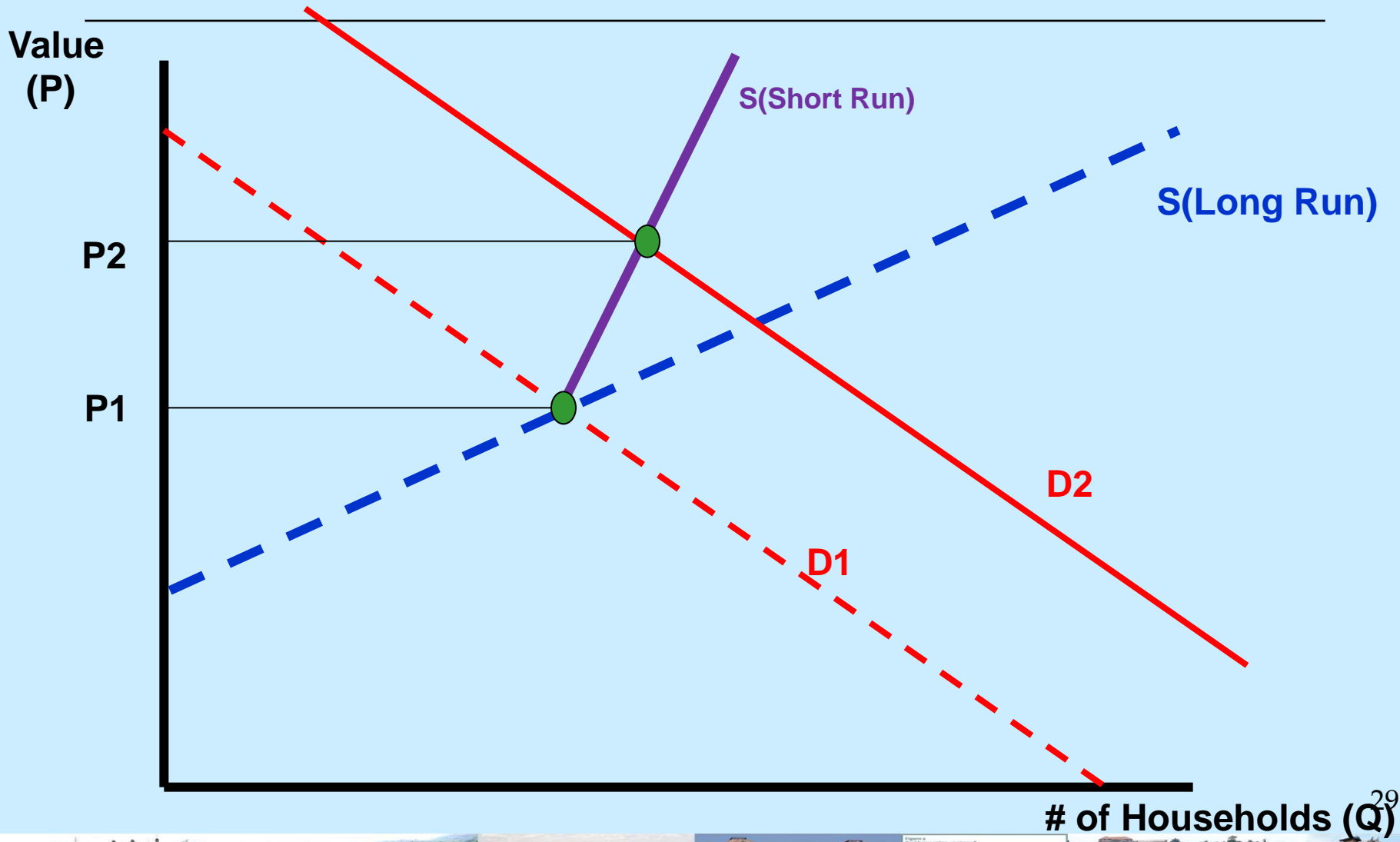


## *Even Worse: Slow and Inefficient Implementation*



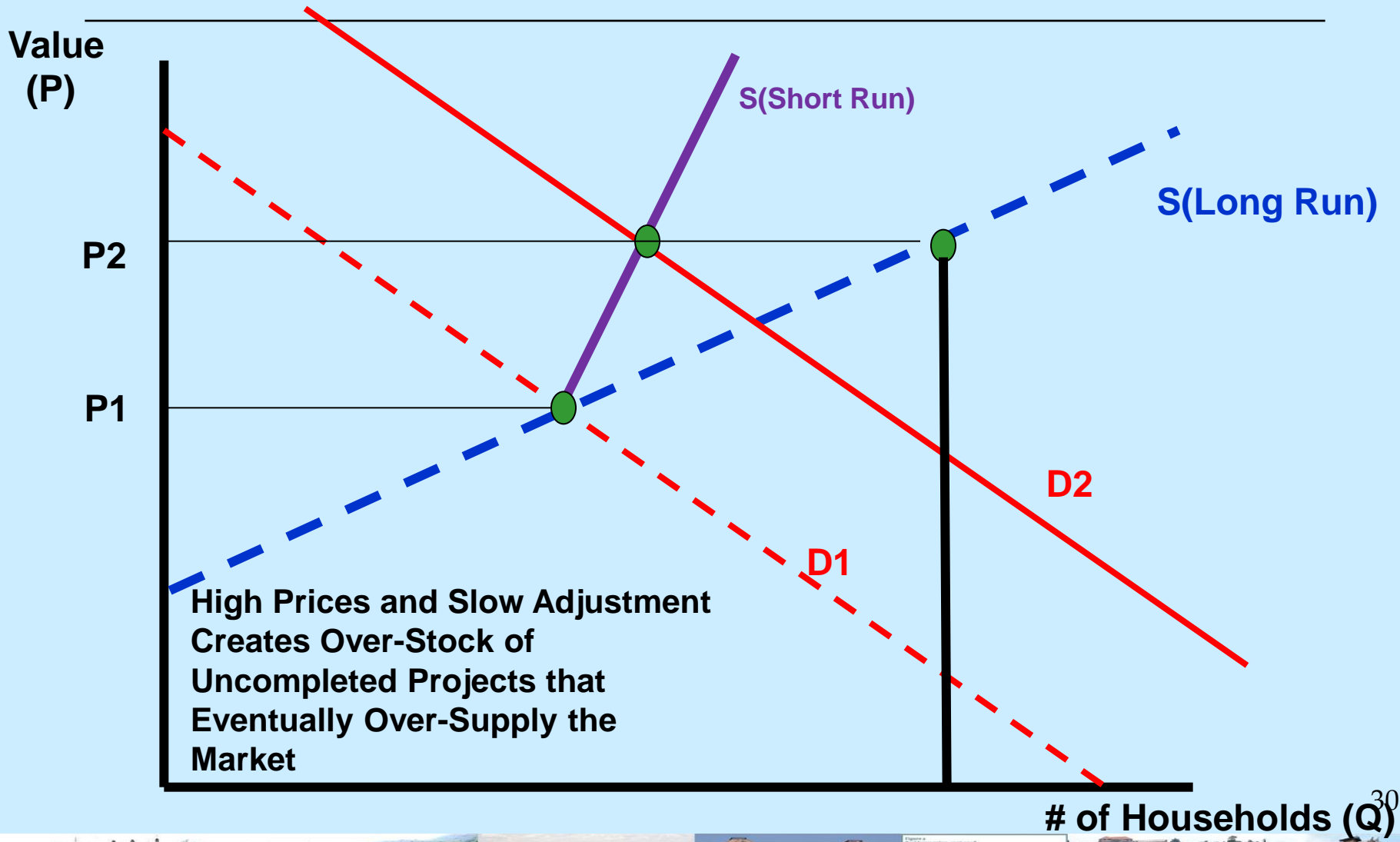
# Even Worse: Slow and Inefficient Implementation Creates Boom-Bust

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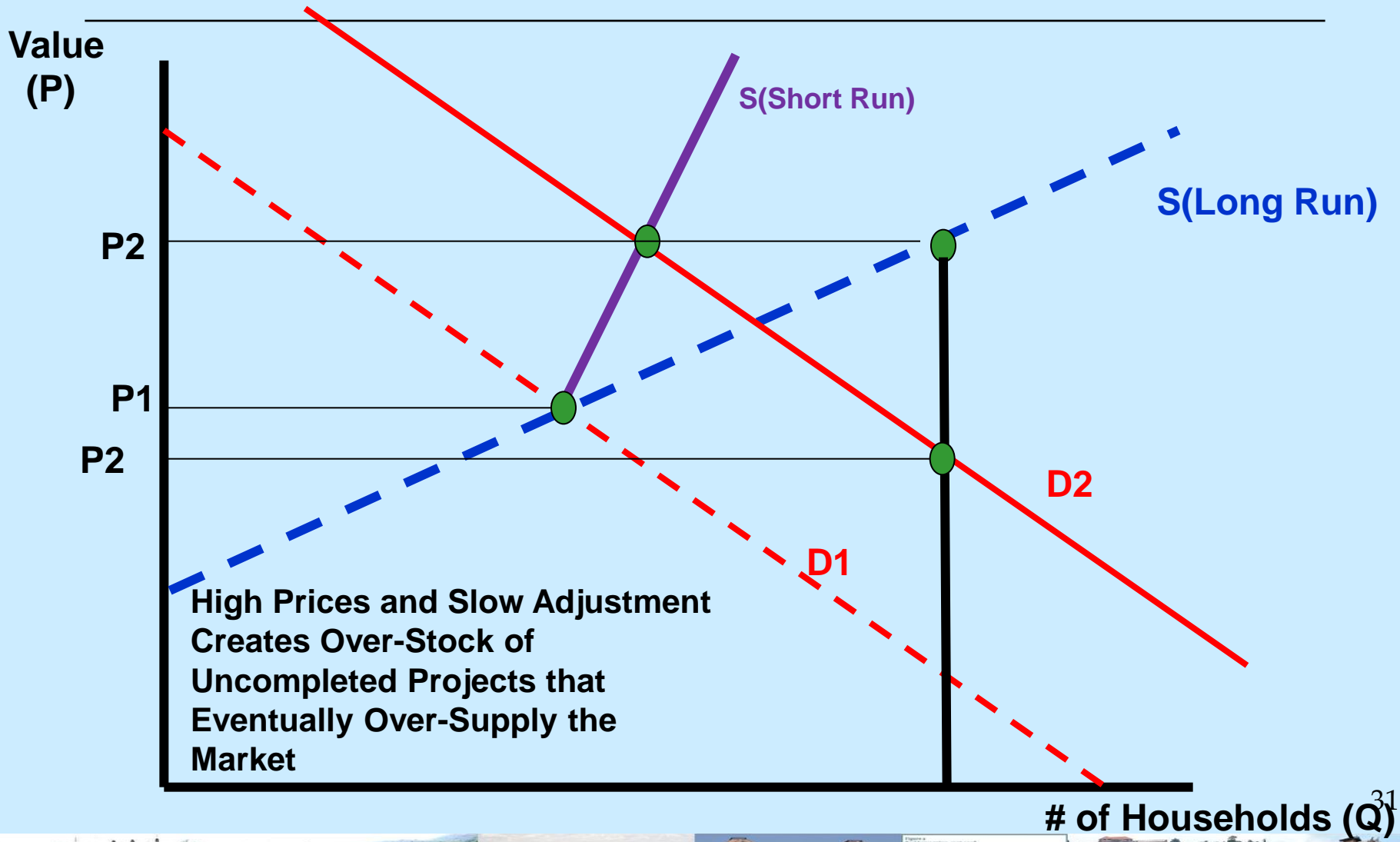
# Even Worse: Slow and Inefficient Implementation Creates Boom-Bust

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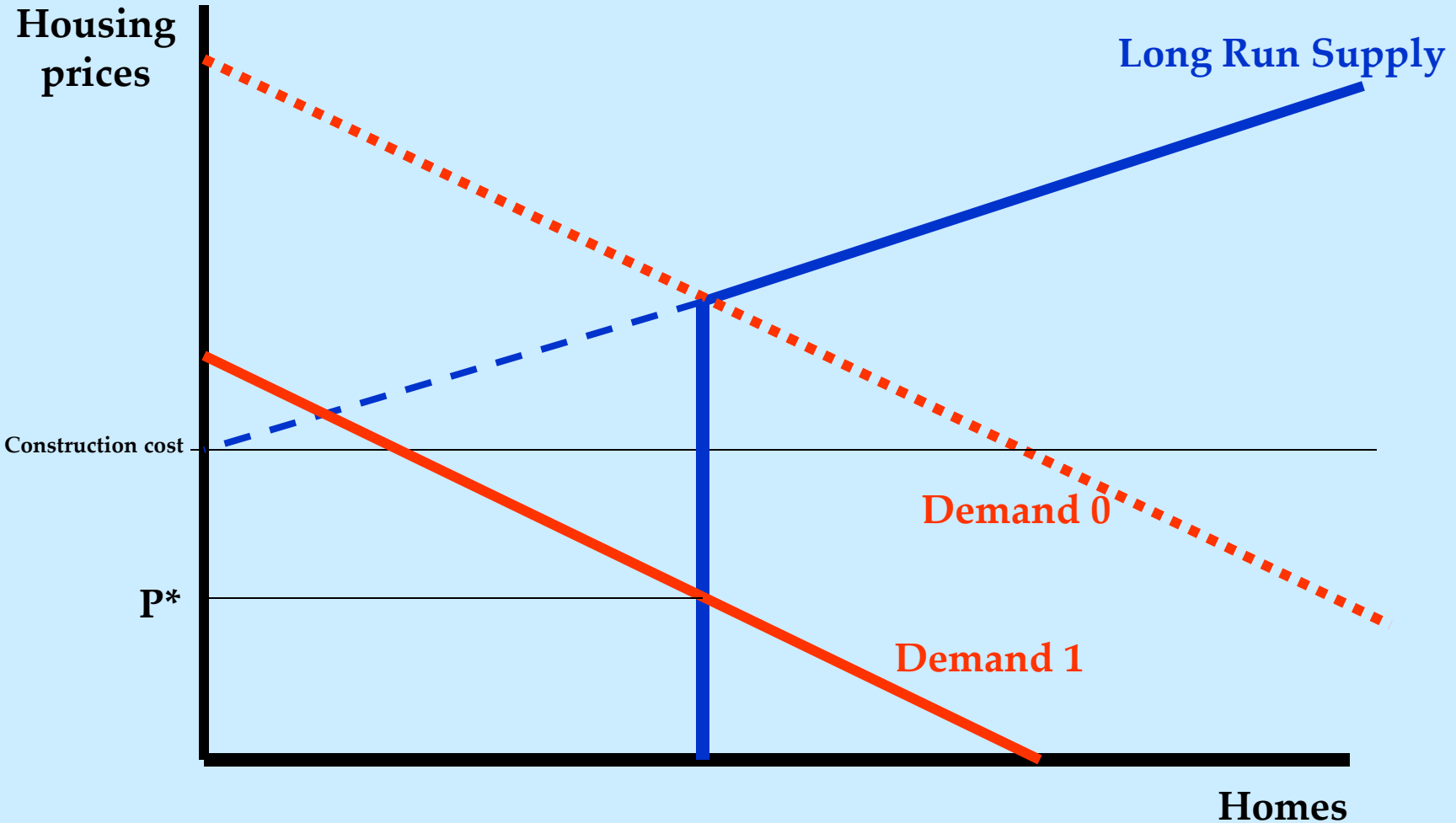


# Even Worse: Slow and Inefficient Implementation Creates Boom-Bust

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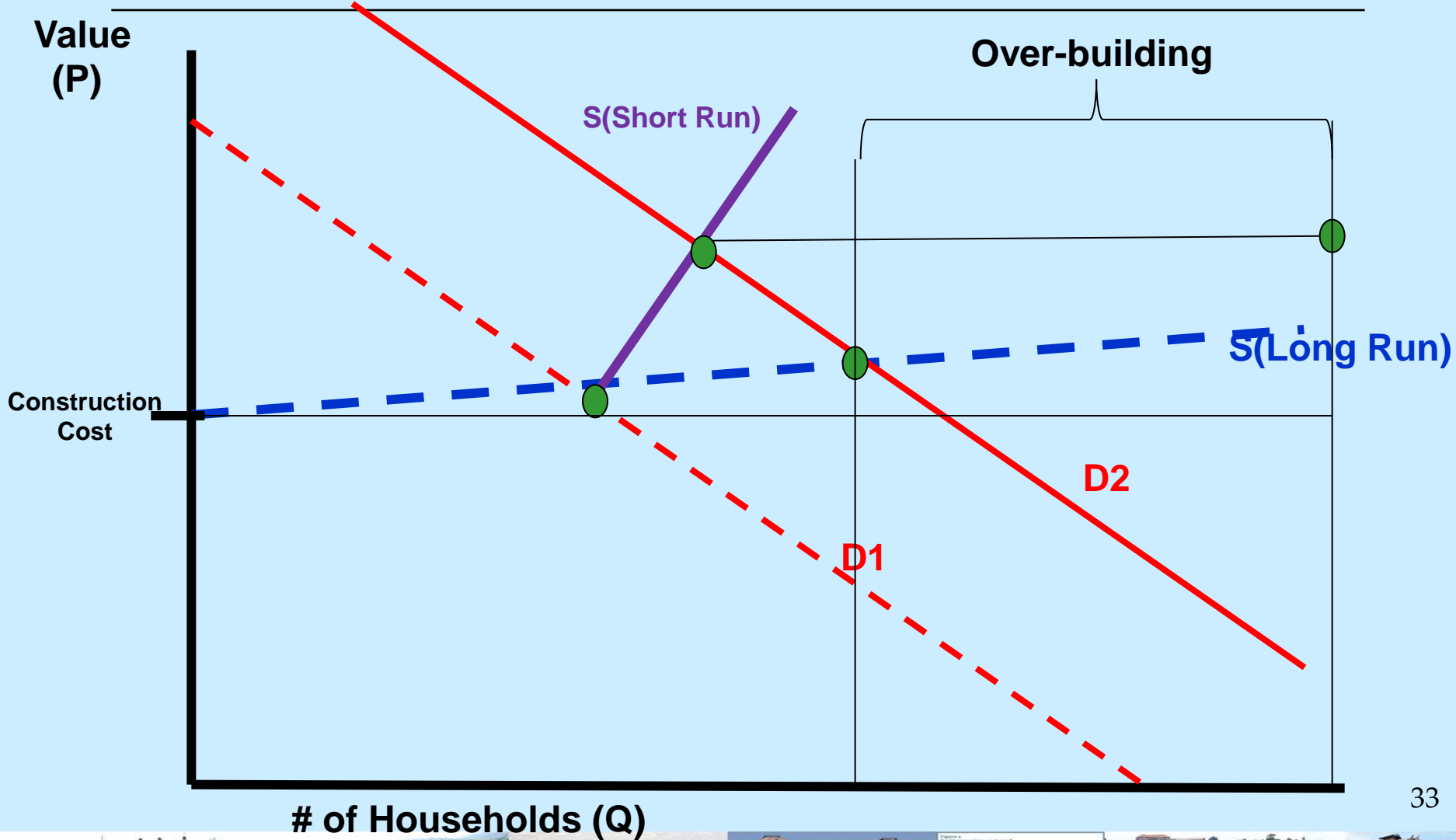
# Supply is Kinked Due to Durable Housing





# Overbuilding is Worse in Areas where Supply was Abundant and Land was Cheap

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- Focus on zoning and entitlement of land for future: cannot forecast or time the future!
- Plan: land banks and expansion for the next 25 years
- Plan: pro-development path
- Allow for higher densities in desirable locations
- Facilitate land assembly via “land trusts”
- Facilitate swifter changes to high-and-best use
- Stop speculation by having a readily-available portfolio of plots ready for development under clear specifications
- This can include public land-banking!
- Make entitlement process extremely transparent: database
- Speed up intensive use of land by using value capture instruments
  - Align incentives of local authorities /public and development
  - Make process more transparent
  - Make process more progressive



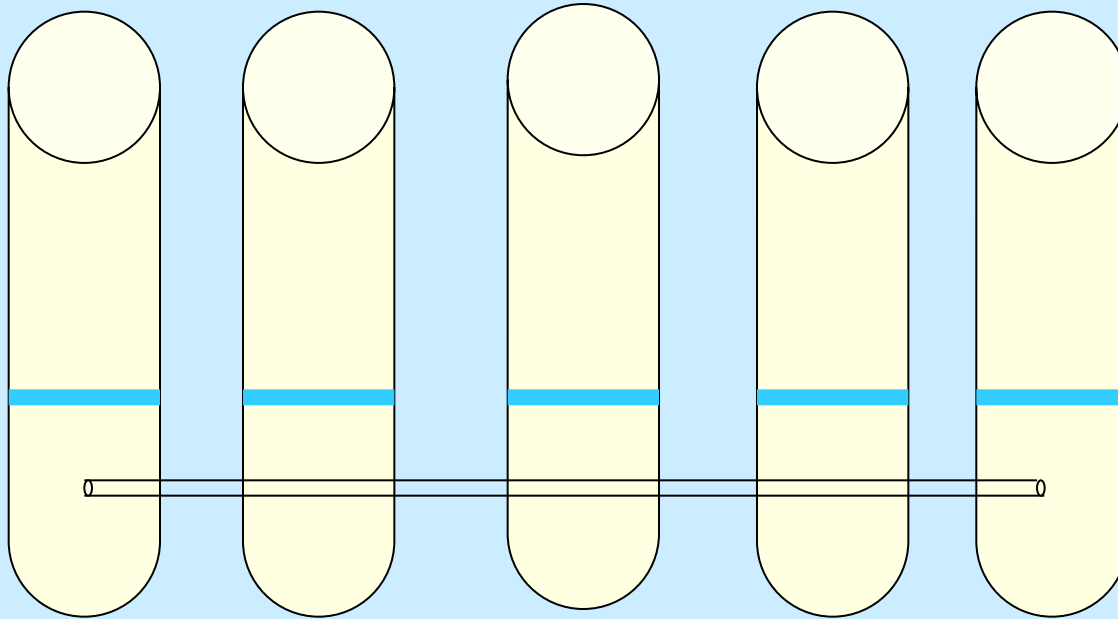
## *AFTERTHOUGHT*

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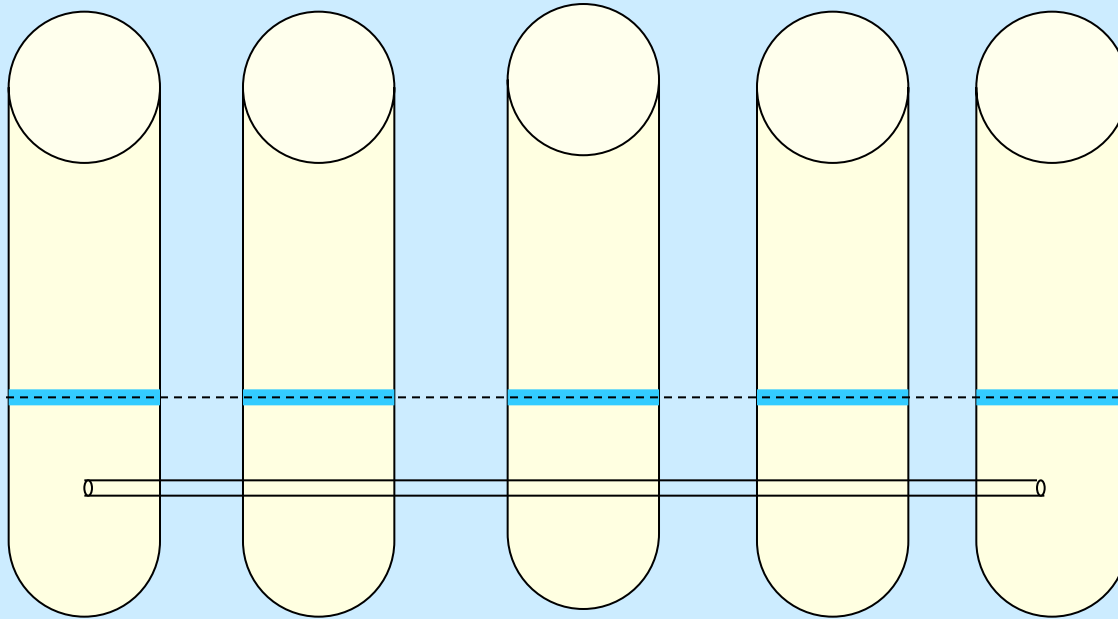
- **POLICIES GEARED TO INCREASING SUPPLY ARE A GOOD IDEAS REGARDLESS OF THE LOCATION AND MARKET SEGMENT THEY TARGET**
- **SOMETIMES THERE IS POLITICAL OPPOSITION TO PROJECTS THAT TARGET UPPER AND MIDDLE-UPPER SEGMENTS**
- **HOWEVER NEW DENSER DEVELOPMENTS IN MORE CENTRAL AREAS –TYPPICALLY QUITE EXPENSIVE- RELIEF PRESSURE ON OTHER SEGMENTS**



# Price Levels Across Neighborhoods in Dublin Metro

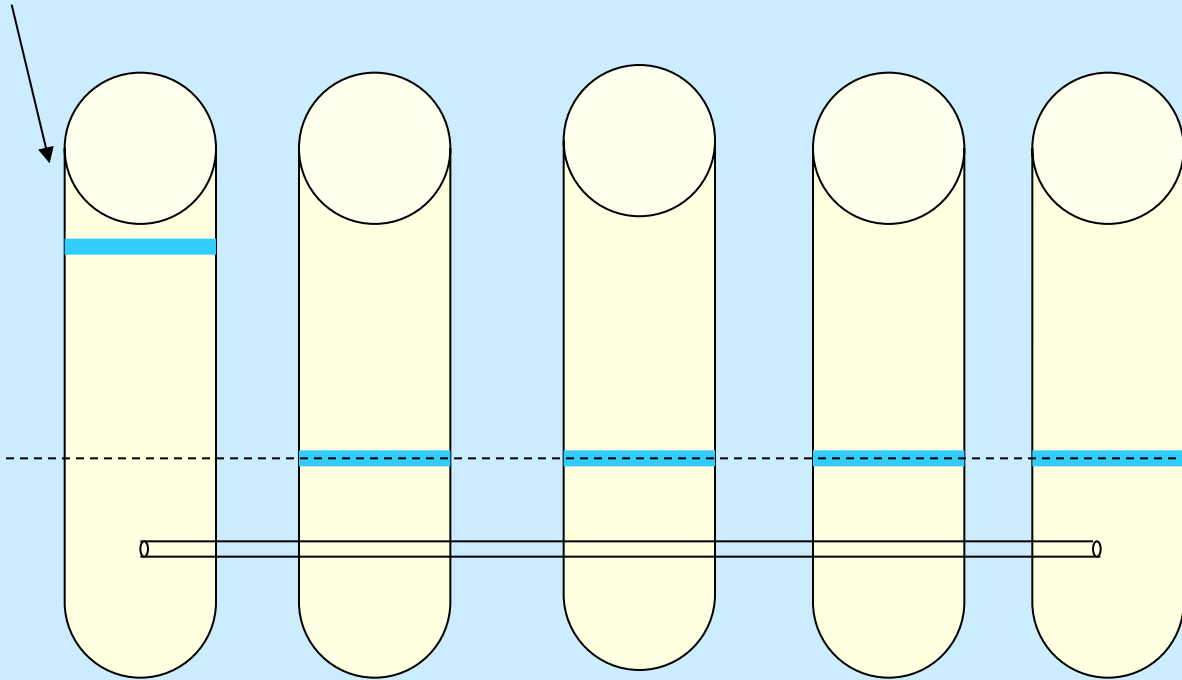


# *Price Levels Across Neighborhoods in Dublin Metro*



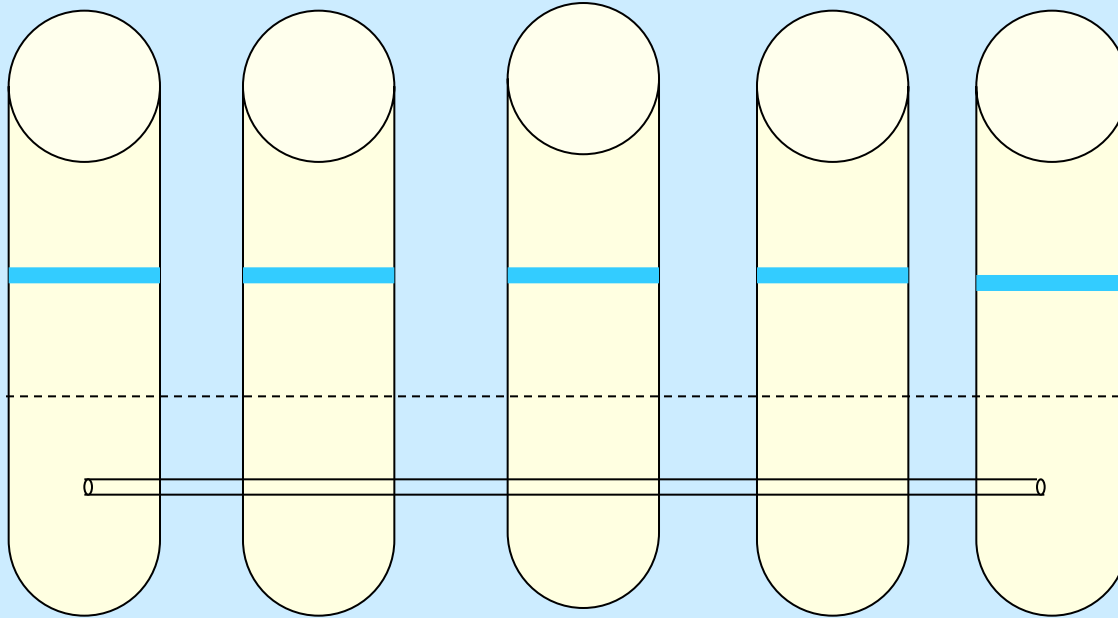
# Price Levels Across Neighborhoods

## Higher Demand for Centrally-Located Neighborhoods

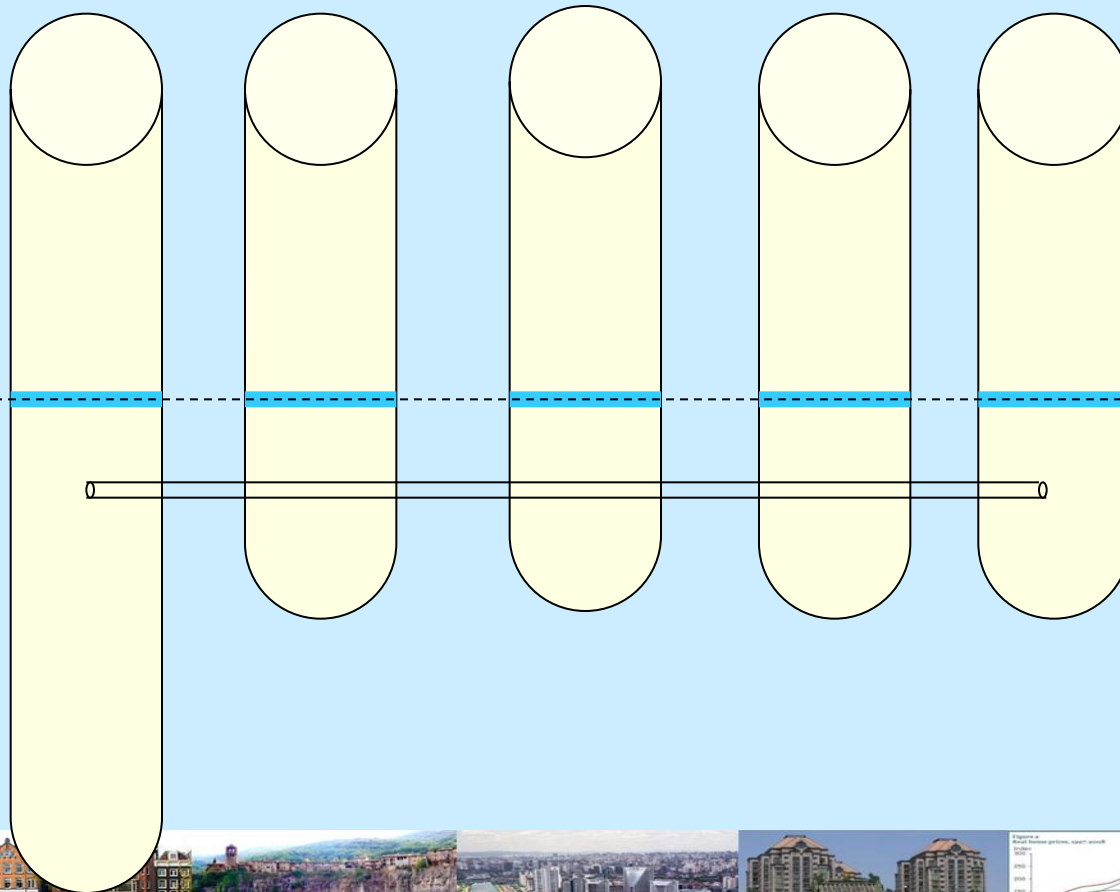




# *With no Extra Supply: Pressure will Communicate Throughout Urban System*



# *Supply that Targets “Popular” Areas Benefits All!*





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# THANK YOU!

