



Present and Future Real Estate Market in Chicago and Suburbs

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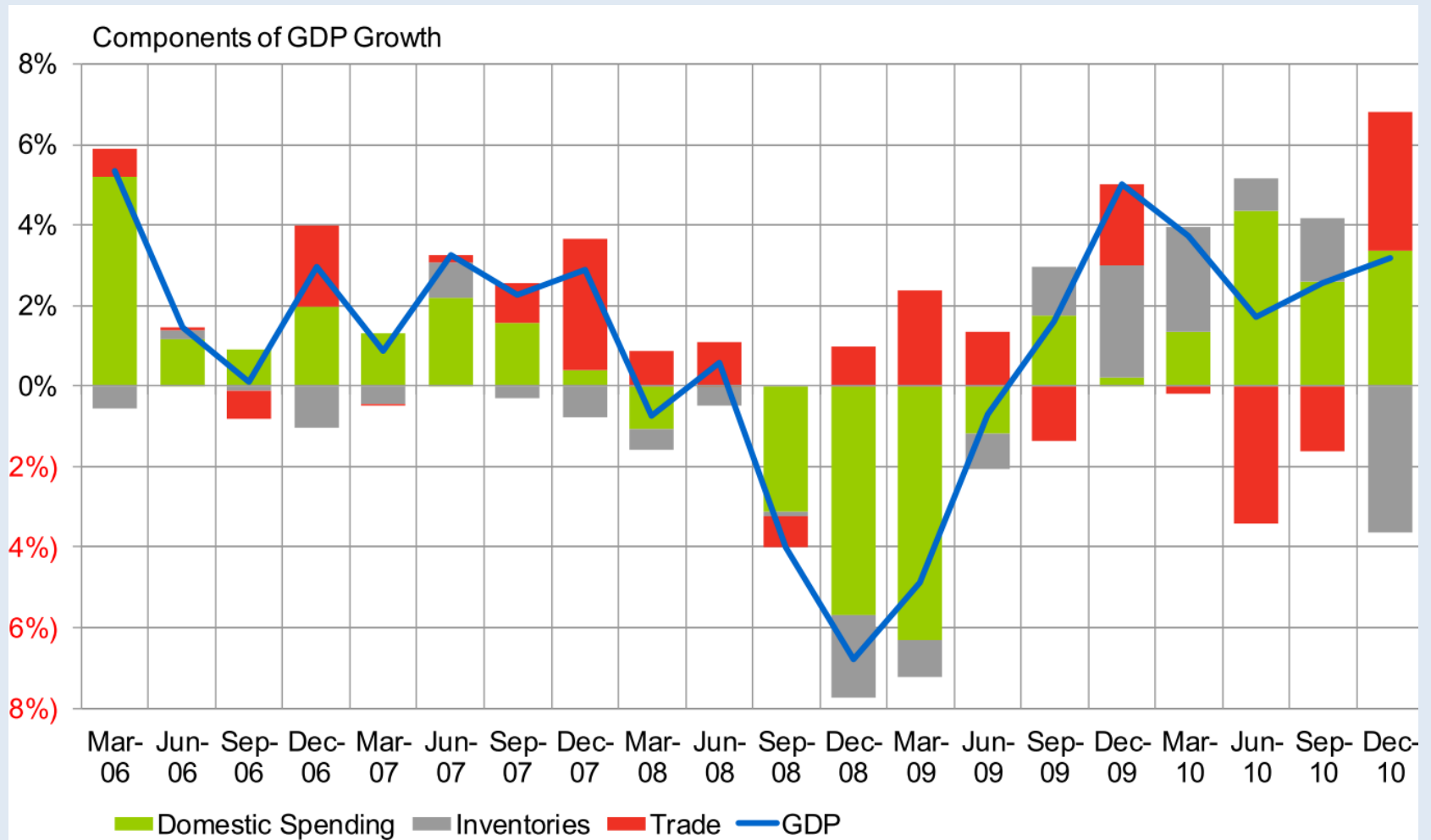
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The Institute for Housing Studies
DePaul University

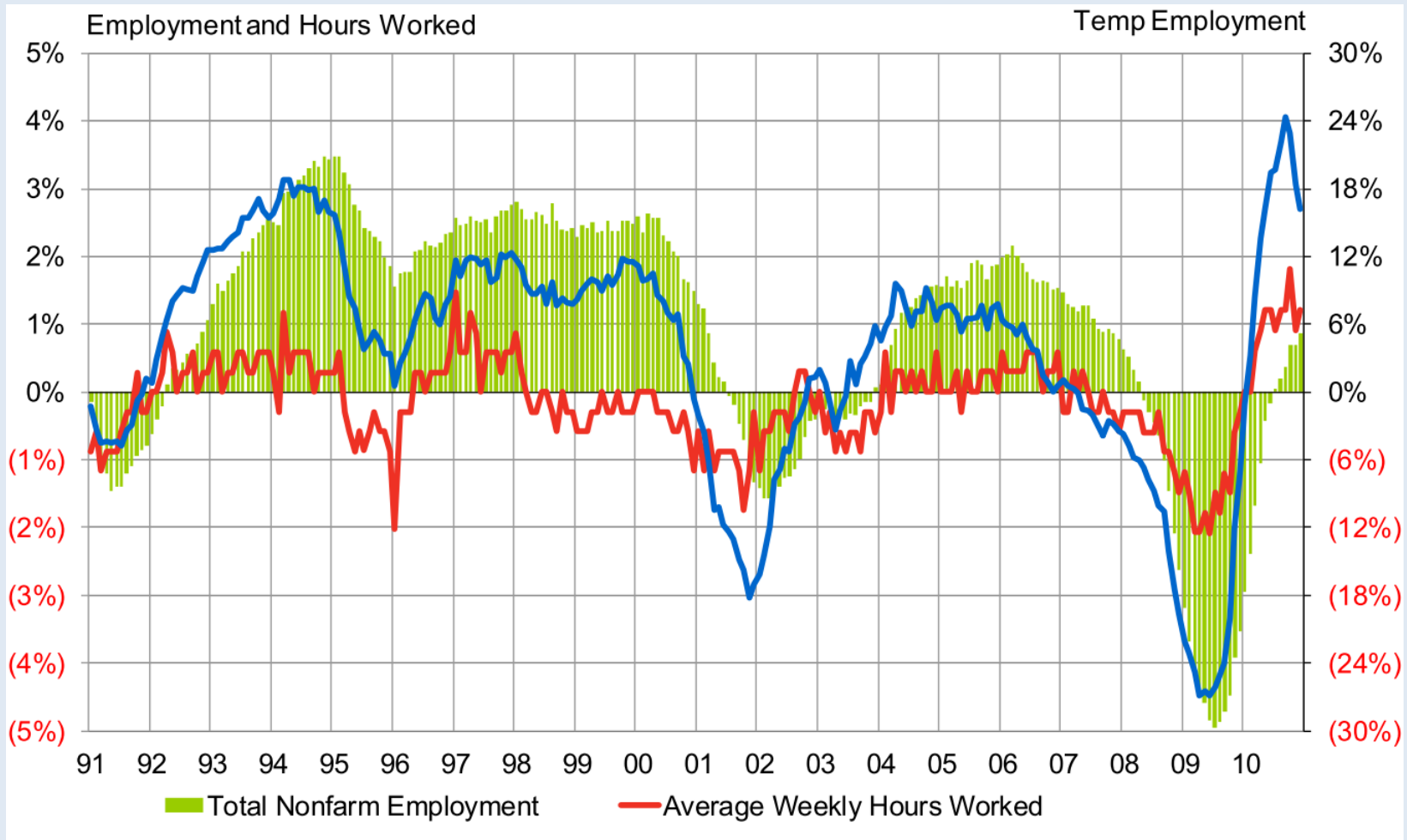
Funding for this research has been provided
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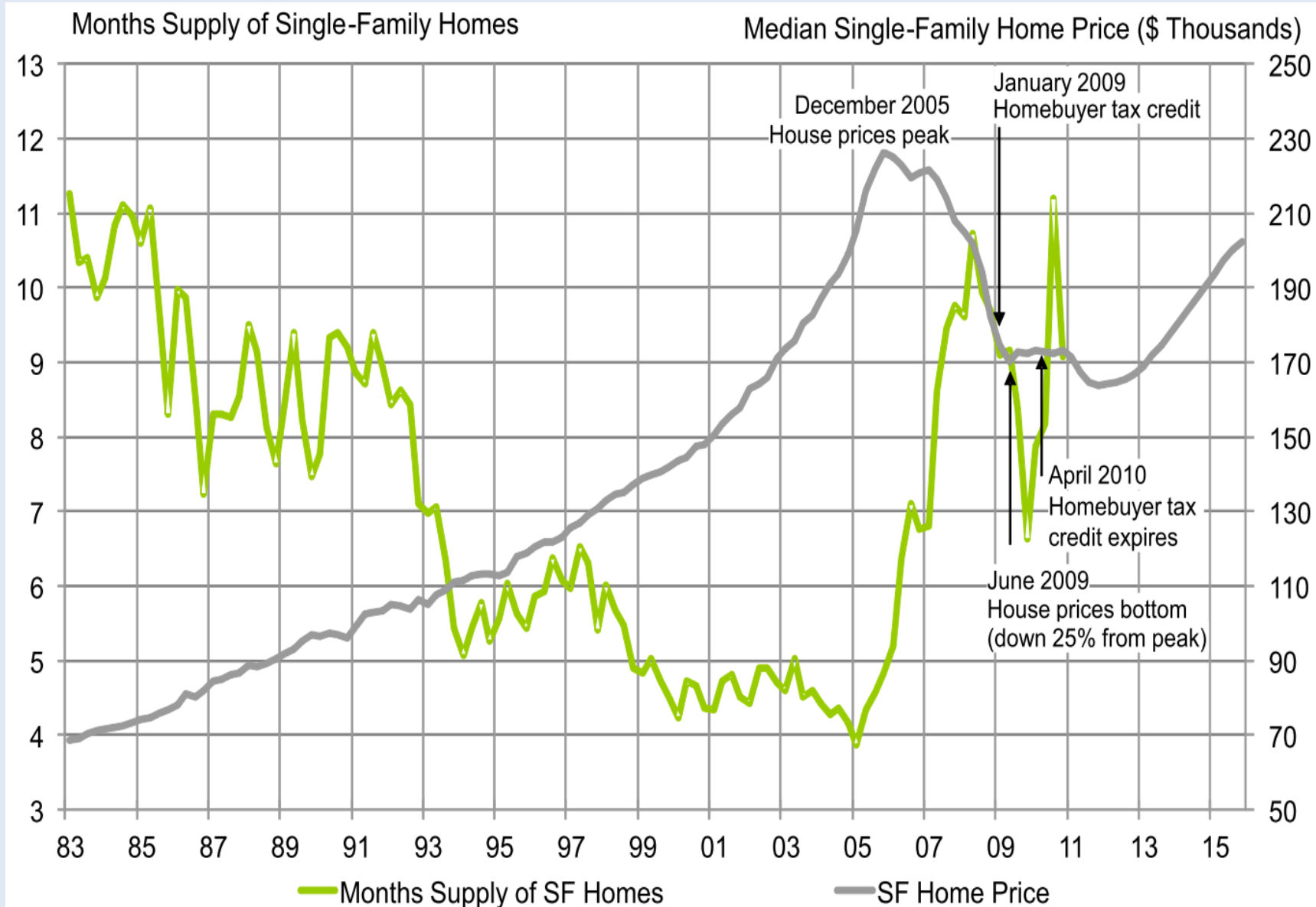
Current Economic Condition



Labor Market

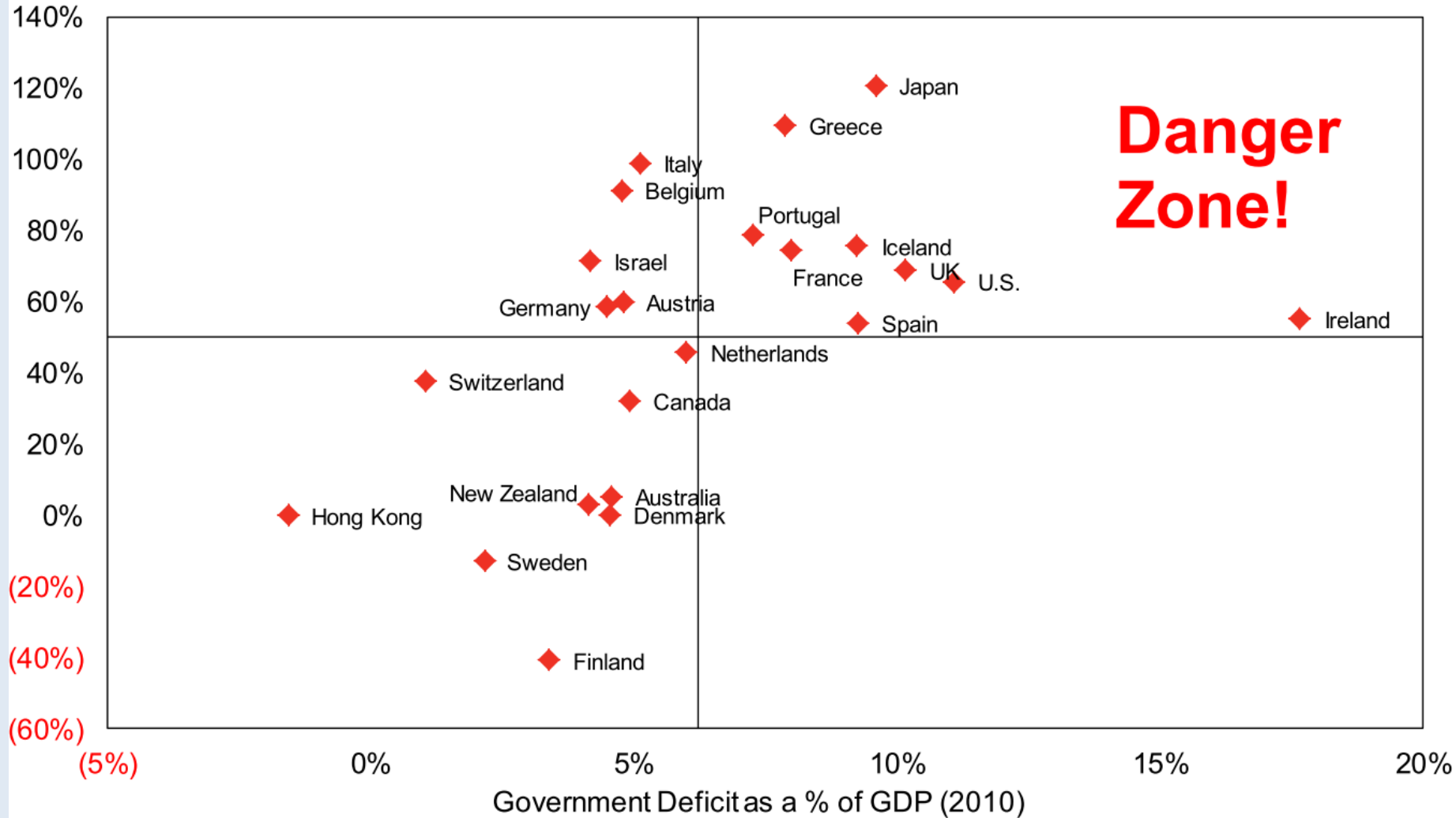


Source: BLS



Sources: NAR; Moody's Analytics

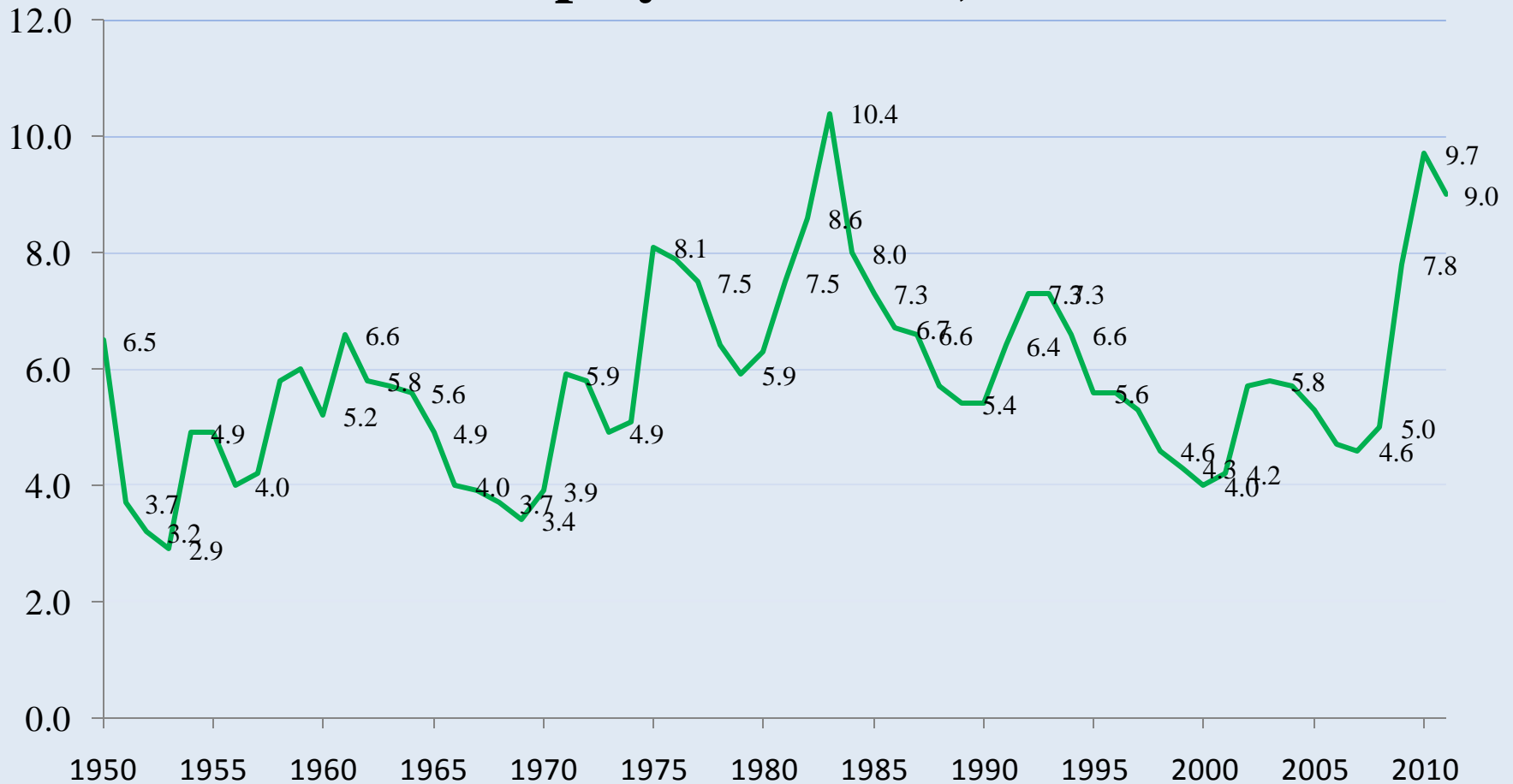
Government Debt as a % of GDP (2010)



Source: IMF



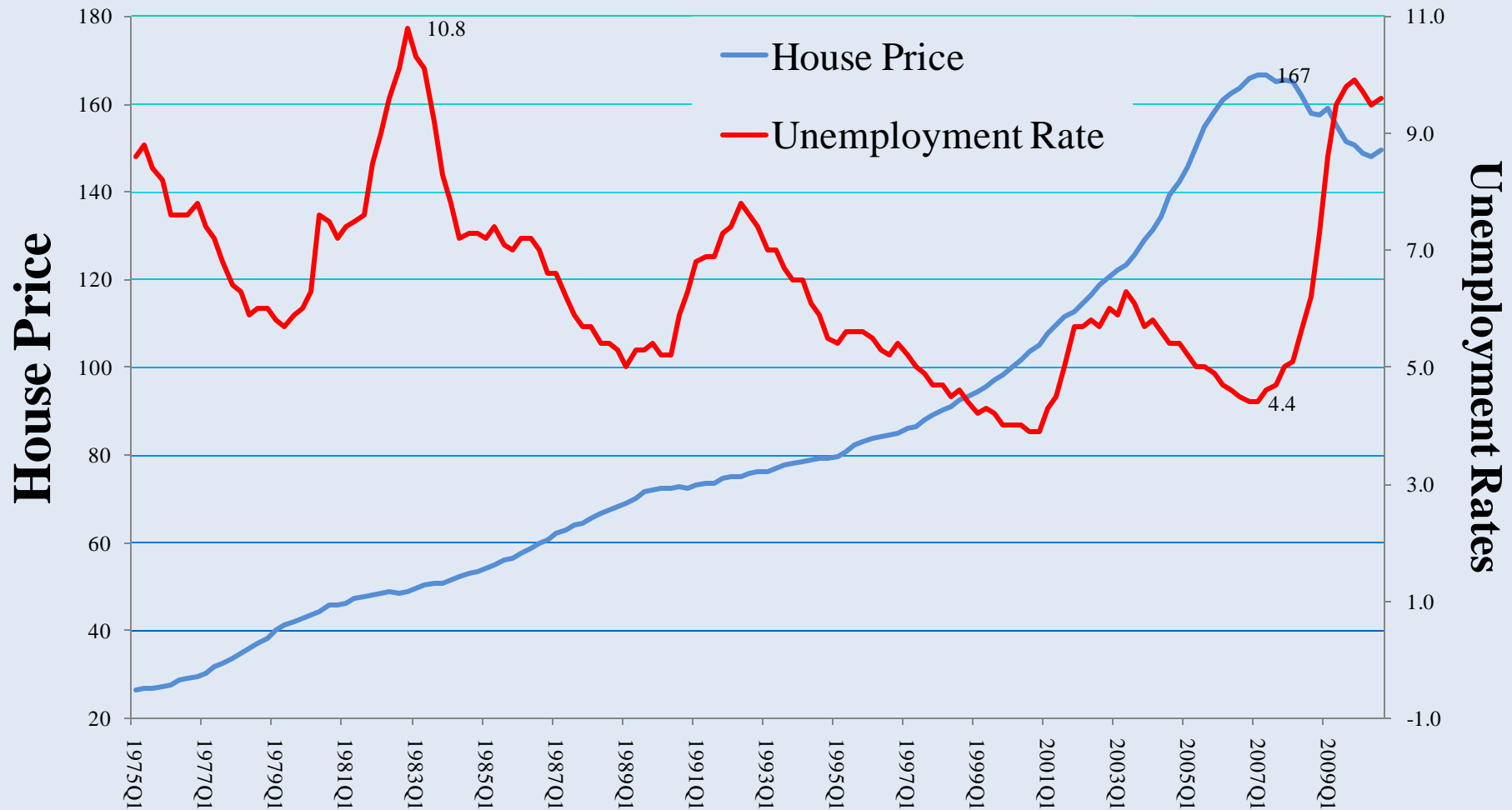
US Unemployment Rate, 1950-2010



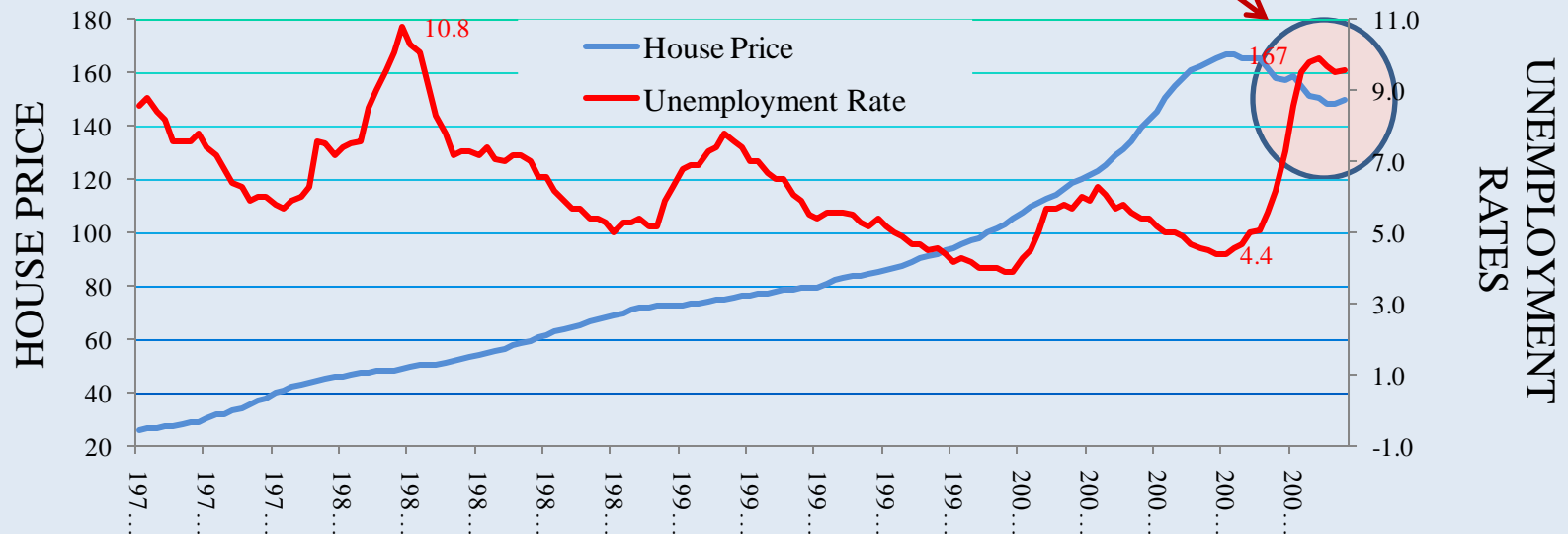
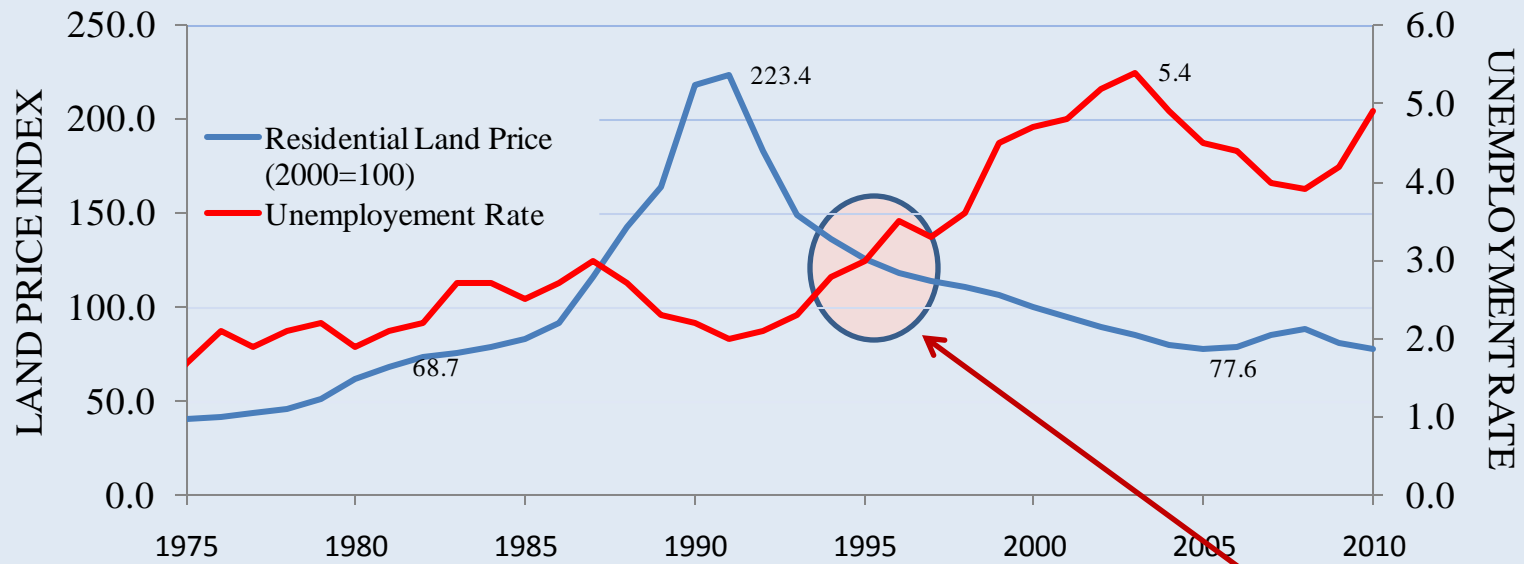
Source: BLS

Two Most Challenging Problems after Financial Crisis

US House Price vs. Unemployment Rate



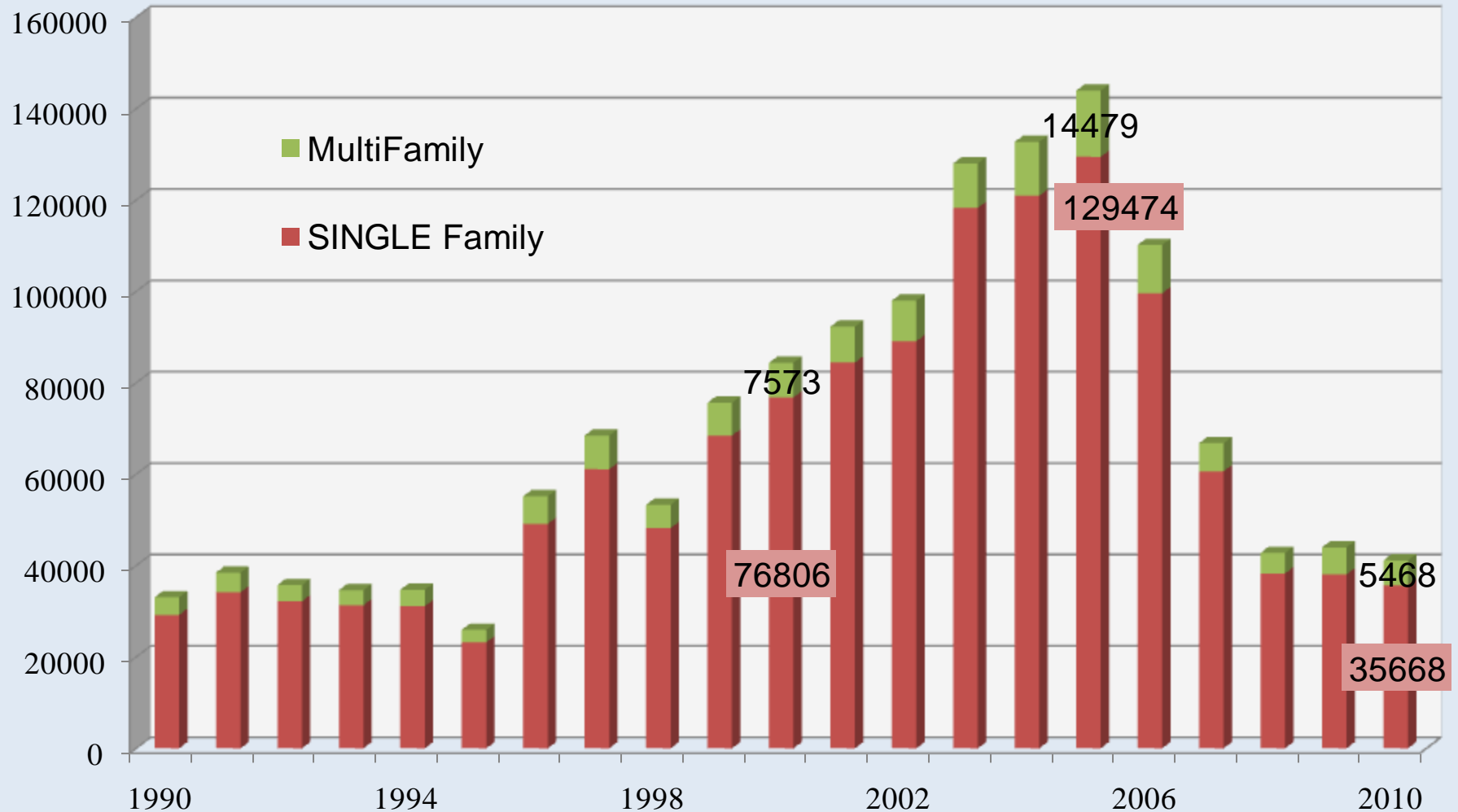
US vs. JAPAN



Current Housing Market in Cook County

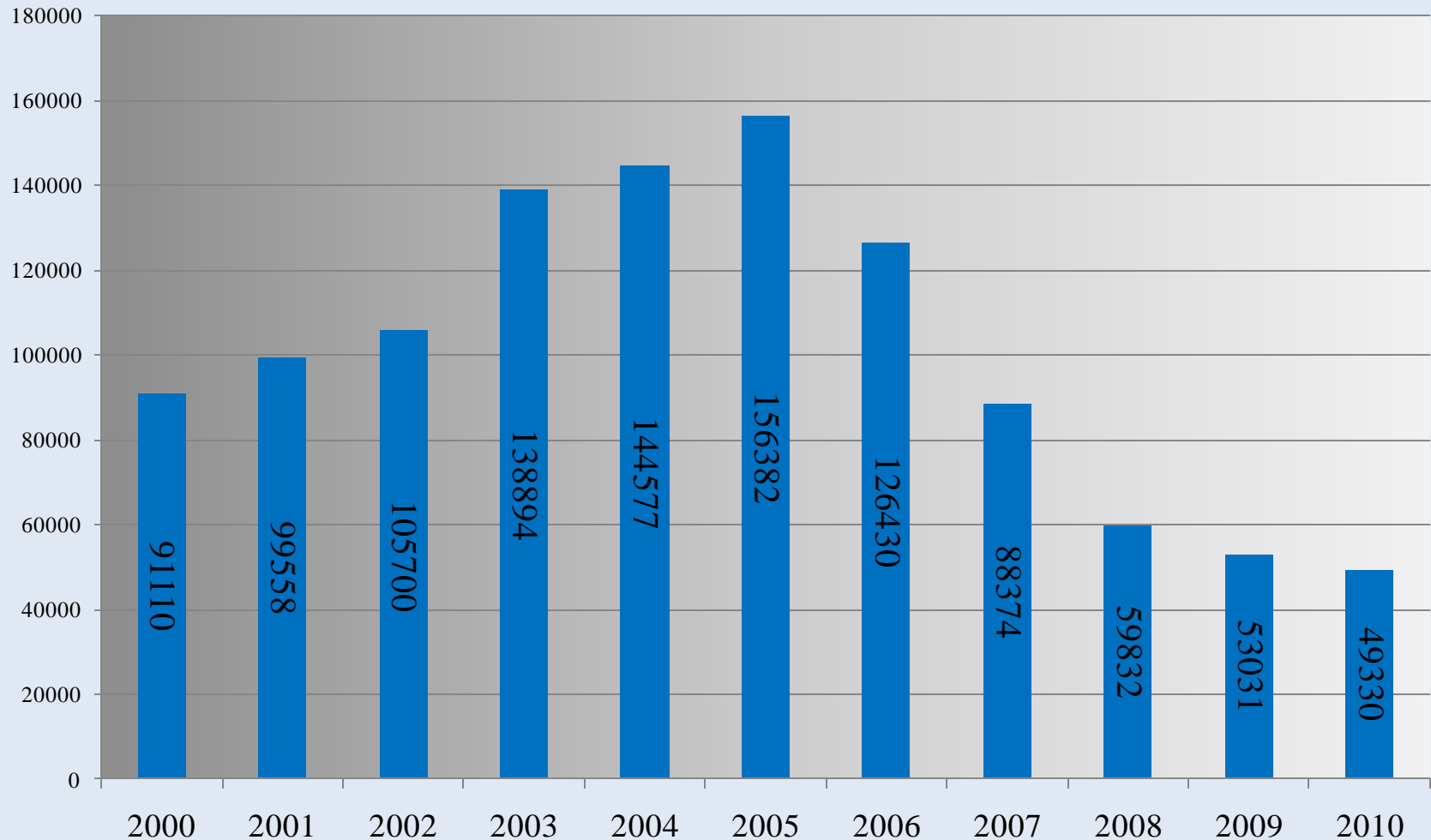
- Residential Property Transaction Volumes in Cook County, 1990-2010
- All Housing Transaction Volumes (Residential and Commercial)
- Median transaction house prices in 2010: value loss/gain approach for current closing properties

Residential Property Transaction Volumes in Cook County, 1990-2010



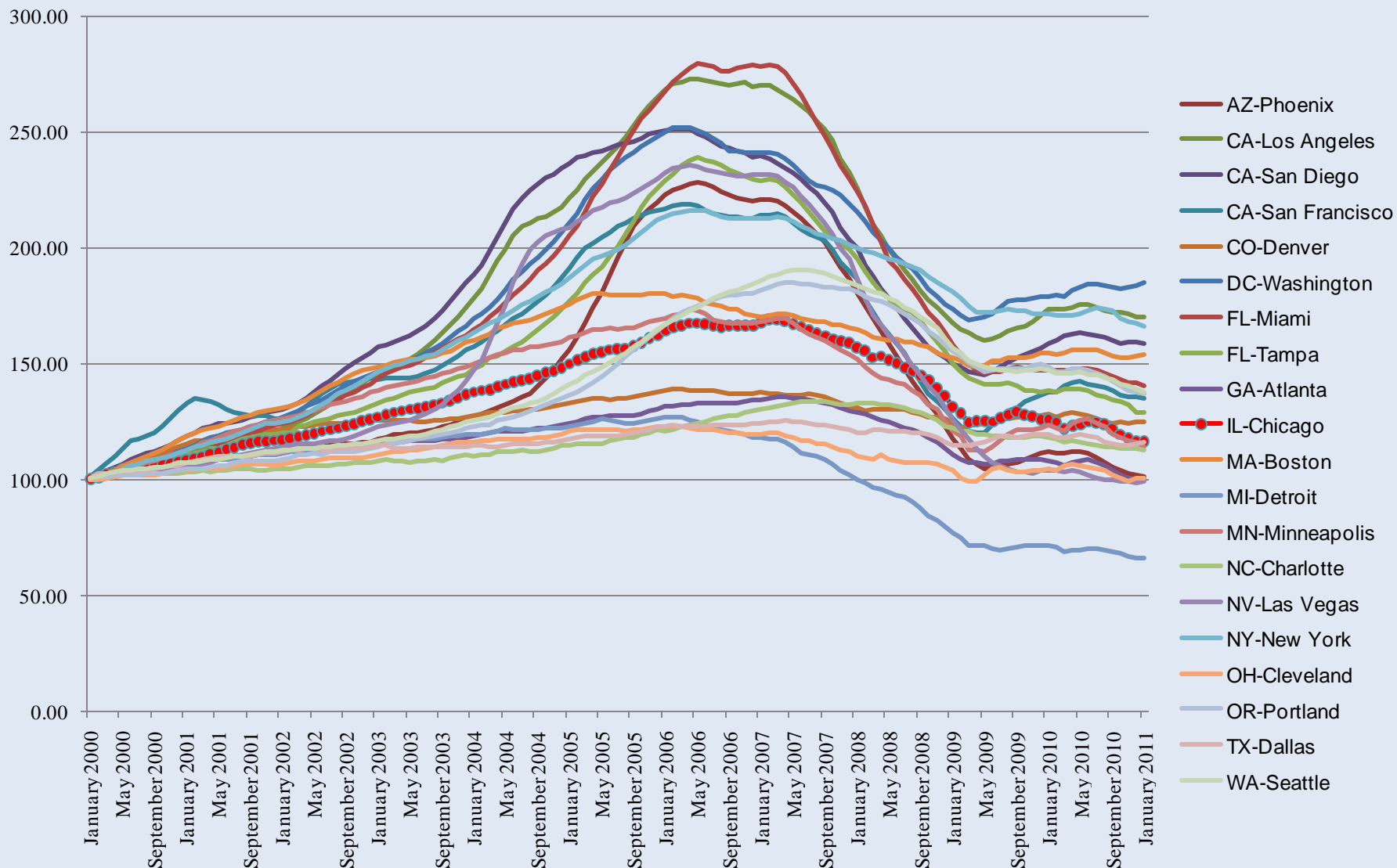
Source: Chicago Title and Company

All Housing Transaction Volumes (Residential and Commercial)



Source: Chicago Title and Company

Case-Shiller Home Price Indices for Major MSAs, 2000-2011



Meaning of the Case-Shiller Home Price Index for Chicago MSA (Index based on January of each year)

Year	Case-Shiller IL-Chicago	Price Changes if Sold in 2010
2000	100.57	25%
2001	108.93	16%
2002	117.51	7%
2003	127.24	-1%
2004	138.06	-9%
2005	150.10	-16%
2006	164.53	-23%
2007	168.29	-25%
2008	157.36	-20%
2009	131.77	-4%
2010	126.10	0%
2011	116.77	

Single Family House Price Changes based on the transactions in 2010
(All Properties sold in 2010 (Higher than \$25,000, not annualized))

Purchased in	COOK COUNTY	CHICAGO	SUBURBS
	ALL Properties	ALL Properties	ALL Properties
2000	-12%	-14%	-10%
2001	-19%	-19%	-18%
2002	-22%	-19%	-25%
2003	-31%	-32%	-30%
2004	-41%	-43%	-40%
2005	-48%	-50%	-46%
2006	-53%	-55%	-50%
2007	-52%	-57%	-48%
2008	-9%	-10%	-7%

Source: Cook County Circuit Court, Chicago Title and Company, and RIS

Single Family Residential Property Transactions in 2010
(All Properties sold in 2010 (Higher than \$25,000, not annualized))

Previously Purchased in	COOK COUNTY		CHICAGO		SUBURBS	
	ALL Properties	W/O Foreclosur es	ALL Properties	W/O Foreclosur es	ALL Properties	W/O Foreclosur es
2000	-12%	17%	-14%	16%	-10%	19%
2001	-19%	9%	-19%	9%	-18%	8%
2002	-22%	5%	-19%	7%	-25%	2%
2003	-31%	0%	-32%	4%	-30%	-5%
2004	-41%	-7%	-43%	-5%	-40%	-11%
2005	-48%	-12%	-50%	-9%	-46%	-19%
2006	-53%	-16%	-55%	-13%	-50%	-25%
2007	-52%	-13%	-57%	-10%	-48%	-20%
2008	-9%	-6%	-10%	-6%	-7%	-5%

Source: Cook County Circuit Court, Chicago Title and Company, and RIS

Single Family House Price Changes based on the transactions in 2010 (All Properties sold in 2010 (Higher than \$25,000, not annualized))

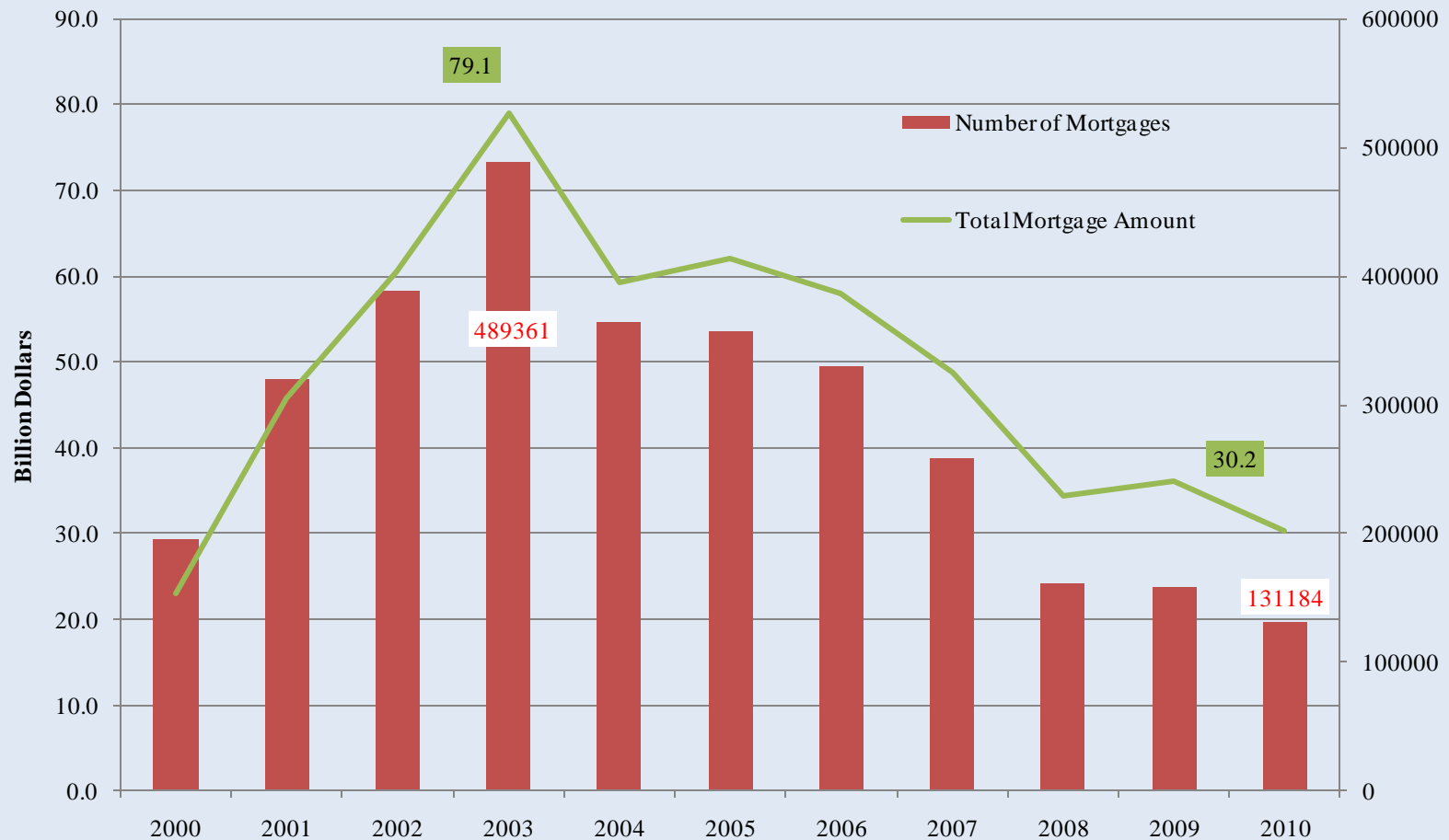
Purchased in	Chicago		Arlington Height		Des Plaines		Glenview		Northbrook	
2000	-14%	16%	-1%	1%	-11%	11%	40%	36%	-15%	37%
2001	-20%	9%	-2%	10%	-47%	-9%	1%	14%	-19%	8%
2002	-19%	6%	-4%	3%	-34%	-16%	-7%	3%	-18%	-13%
2003	-32%	4%	-17%	-5%	-38%	-25%	1%	-1%	-27%	-20%
2004	-43%	-5%	-37%	-12%	-49%	-28%	-20%	-7%	-43%	-26%
2005	-50%	-9%	-37%	-20%	-48%	-36%	-26%	-20%	-36%	-19%
2006	-55%	-13%	-42%	-10%	-49%	-30%	-37%	-20%	-46%	-26%
2007	-57%	-10%	-27%	-6%	-42%	-36%	-36%	-20%	-28%	-19%
2008	-10%	-6%	-14%	-16%	-39%	-31%	27%	-13%	-50%	1%
	Palatine		Schaumburg		Skokie		Wilmette		Mount Prospect	
2000	-4%	16%	12%	30%	-26%	9%	17%	24%	-6%	25%
2001	-33%	6%	-12%	12%	-30%	-12%	7%	9%	-6%	13%
2002	-33%	-5%	-1%	3%	-31%	10%	12%	12%	-16%	-5%
2003	-22%	-6%	-16%	-6%	-33%	-23%	29%	30%	-17%	-2%
2004	-40%	-15%	-32%	-11%	-32%	-15%	-8%	-8%	-41%	-8%
2005	-49%	-23%	-31%	-14%	-46%	-7%	-11%	-4%	-41%	-18%
2006	-50%	-29%	-32%	-21%	-50%	-45%	-16%	-12%	-48%	-39%
2007	-41%	-22%	-39%	-24%	-48%	-41%	-22%	-9%	-42%	-25%
2008	-14%	-9%	1%	1%	-20%	-7%	35%	35%	-30%	-11%

Green background shows the price changes without foreclosure properties

*Price changes in shade area are for price changes without foreclosure filed properties.

Mortgage Origination by Year

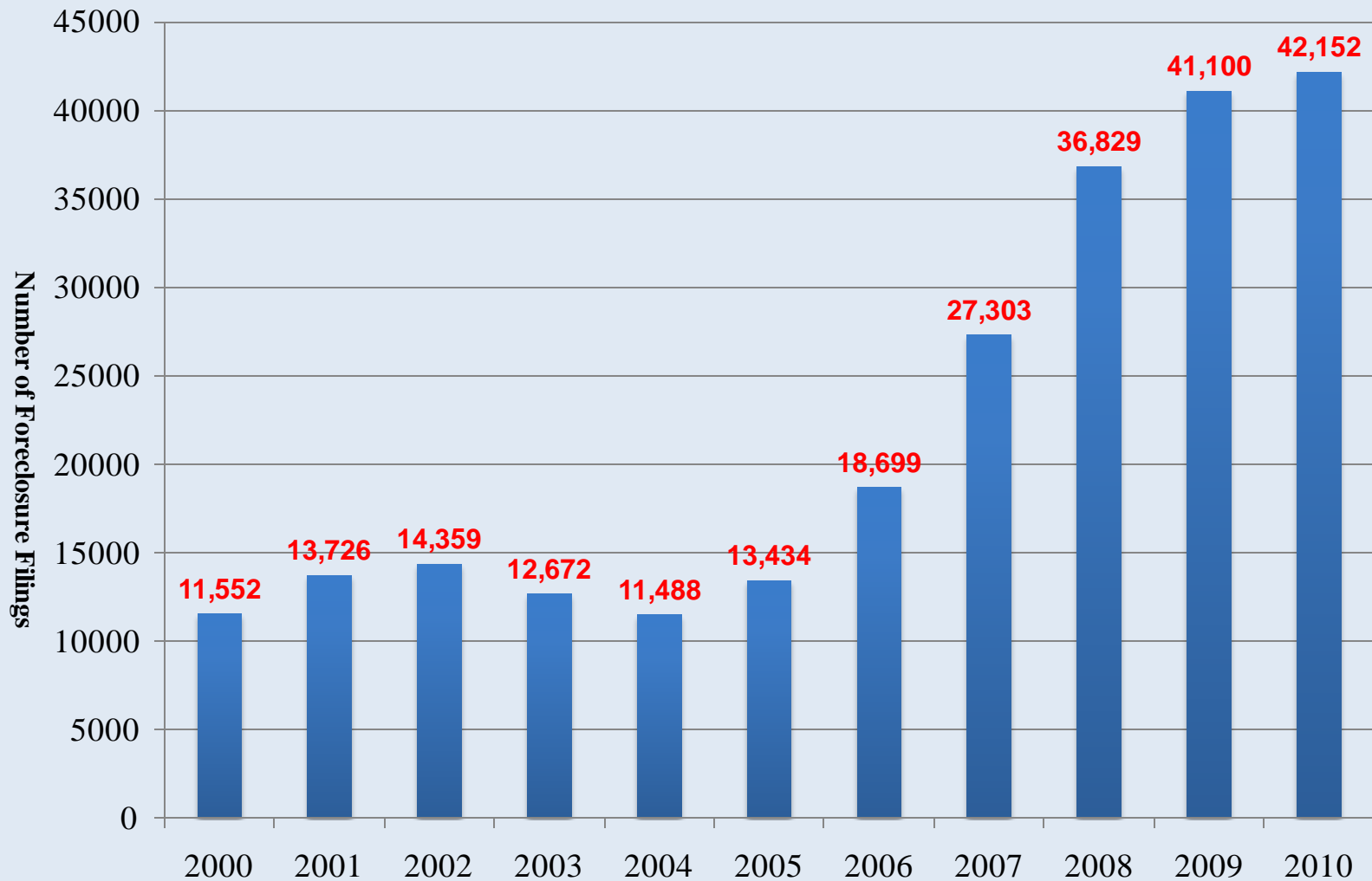
(Total Loans and Amounts in billions dollars)



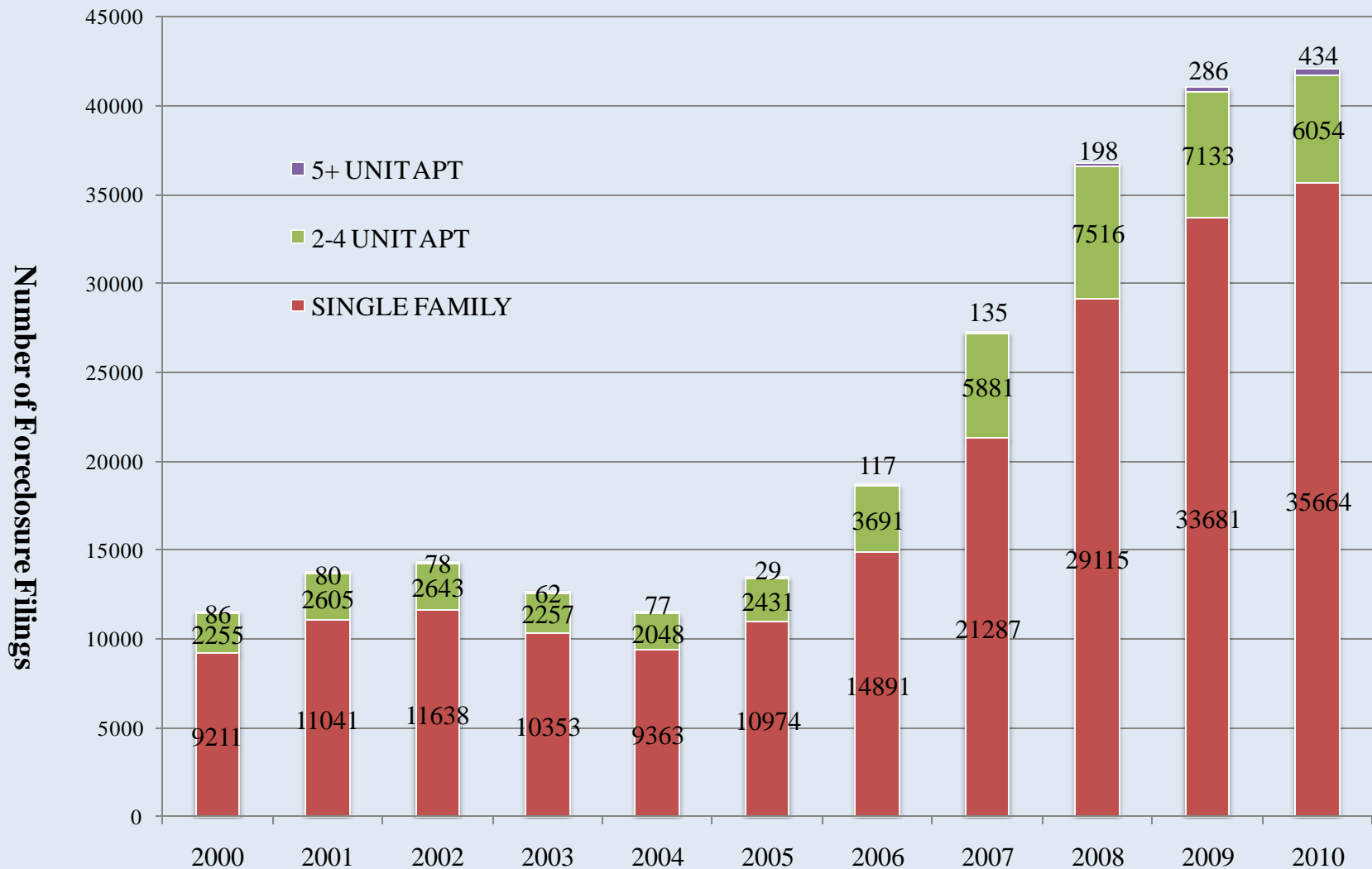
Foreclosures

- Foreclosure Trends by year
- Foreclosure Trends by Property Type
- Foreclosures in Condo Market
- Foreclosures for Korean American
- Loss of Values from Foreclosures

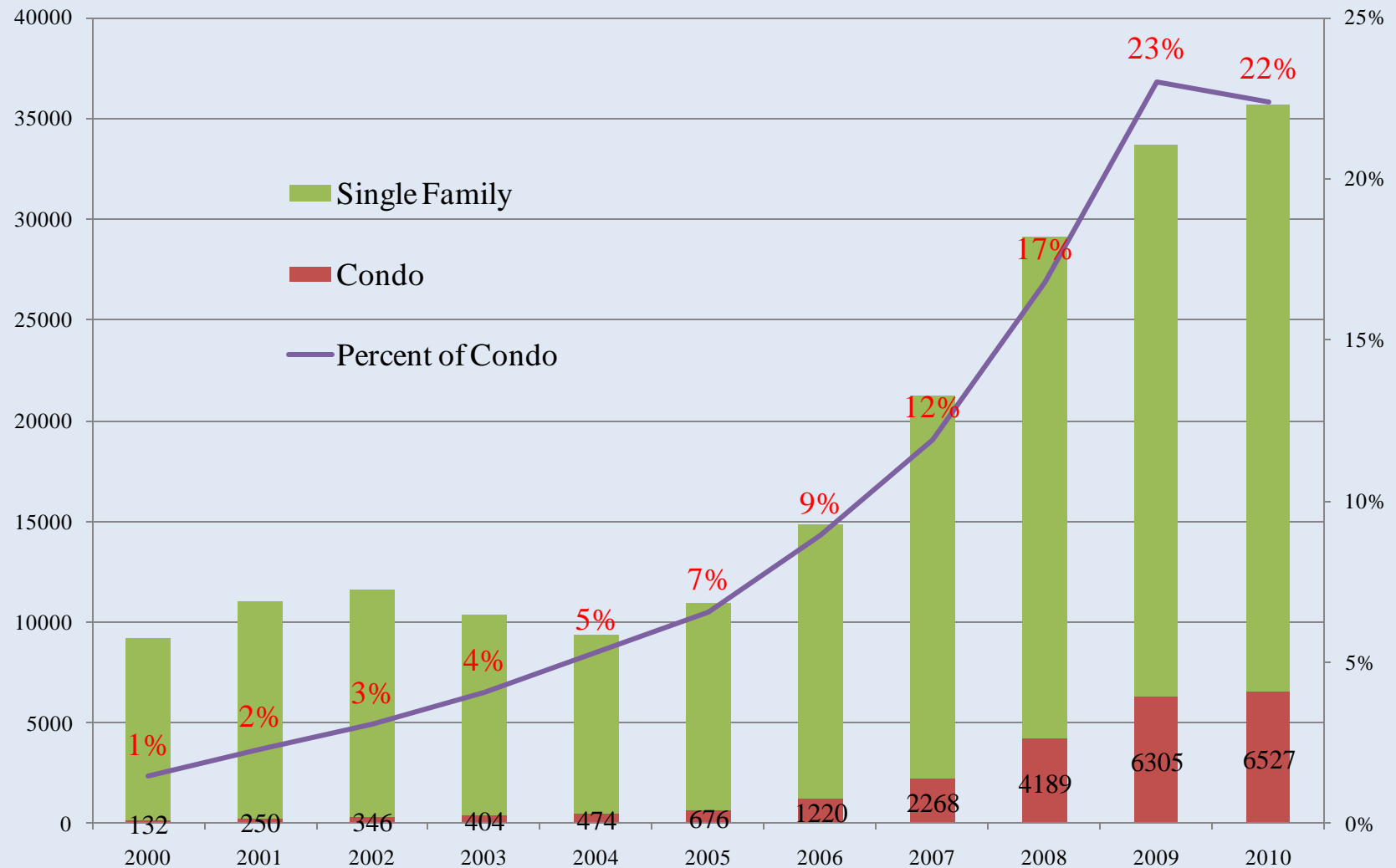
Foreclosure Filings in Cook County, 2000-2010



Annual Foreclosure Filings by Residential Type in Cook County, 2000-2010



Foreclosure Filings for Single Family Type in Cook County, 2000-2010



Estimated Foreclosure Filings for Korean-American in Cook County, (Kim sampling (26%))

YEAR of FILING	Properties	% of Properties (from county)	Mortgage Amount	% of Mortgage Amount (from county)
1997	42	0.44%	8,070,488	0.43%
1998	54	0.44%	8,807,185	0.38%
1999	35	0.30%	5,415,000	0.23%
2000	69	0.52%	8,461,294	0.30%
2001	46	0.31%	11,575,927	0.30%
2002	58	0.37%	12,757,780	0.31%
2003	62	0.44%	16,857,404	0.40%
2004	50	0.40%	8,750,269	0.24%
2005	62	0.42%	15,361,619	0.49%
2006	112	0.56%	80,376,141	1.12%
2007	188	0.64%	84,243,357	0.89%
2008	331	0.84%	97,765,577	0.72%
2009	431	0.98%	127,011,218	0.80%
2010	315	0.71%	76,215,509	0.54%

Source: Chicago Title and Company

Financial Loss for Korean-American in Cook County during the Financial Crisis (2006-2010)

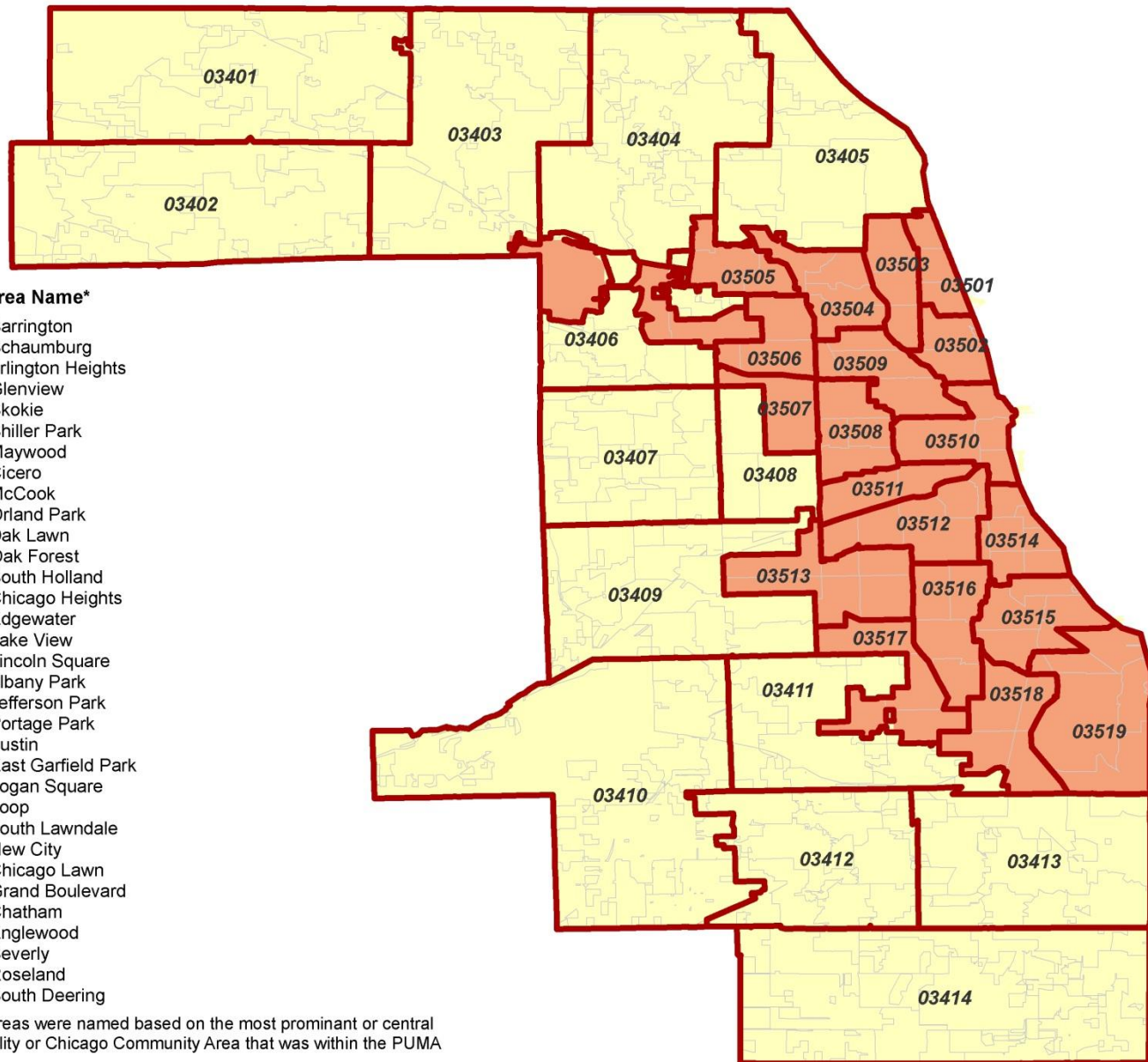
- Properties in Foreclosures : 1,377, which counts as .75% of total Foreclosure Properties in Cook County (1.25 times of the population ratio*)
- Property Values in Foreclosures : 466 Million US dollars, which count as .81% of total foreclosure property values in Cook County (1.33 times of the population ratio*)
- Projected Loss can be calculated based on the loan to value ratio (LTV) from the time of transactions

* Korean American population consider to be .6% of Cook County population

Projected Loss of Wealth from Foreclosures
for Korean American in Cook County
during the Financial Crisis (2006-2010)

LTV (Loan to Value)	Loss from down payment (in Million Dollars)
70%	200
80%	116
90%	52

PUMA Areas



PUMA Area Name*

- 03401 - Barrington
- 03402 - Schaumburg
- 03403 - Arlington Heights
- 03404 - Glenview
- 03405 - Skokie
- 03406 - Shiller Park
- 03407 - Maywood
- 03408 - Cicero
- 03409 - McCook
- 03410 - Orland Park
- 03411 - Oak Lawn
- 03412 - Oak Forest
- 03413 - South Holland
- 03414 - Chicago Heights
- 03501 - Edgewater
- 03502 - Lake View
- 03503 - Lincoln Square
- 03504 - Albany Park
- 03505 - Jefferson Park
- 03506 - Portage Park
- 03507 - Austin
- 03508 - East Garfield Park
- 03509 - Logan Square
- 03510 - Loop
- 03511 - South Lawndale
- 03512 - New City
- 03513 - Chicago Lawn
- 03514 - Grand Boulevard
- 03515 - Chatham
- 03516 - Englewood
- 03517 - Beverly
- 03518 - Roseland
- 03519 - South Deering

* PUMA Areas were named based on the most prominent or central Municipality or Chicago Community Area that was within the PUMA

Source: Institute for housing studies, DePaul University



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Median Home Sale Price in 2009

5pct

09

der \$150,000

50,000 - \$179,999

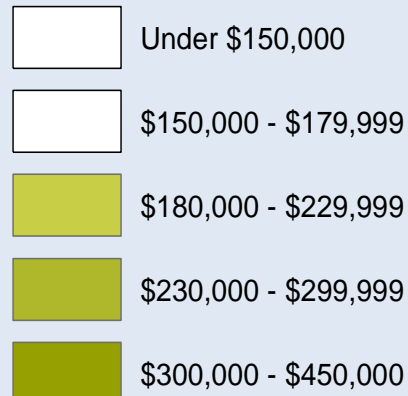
80,000 - \$229,999

30,000 - \$299,999

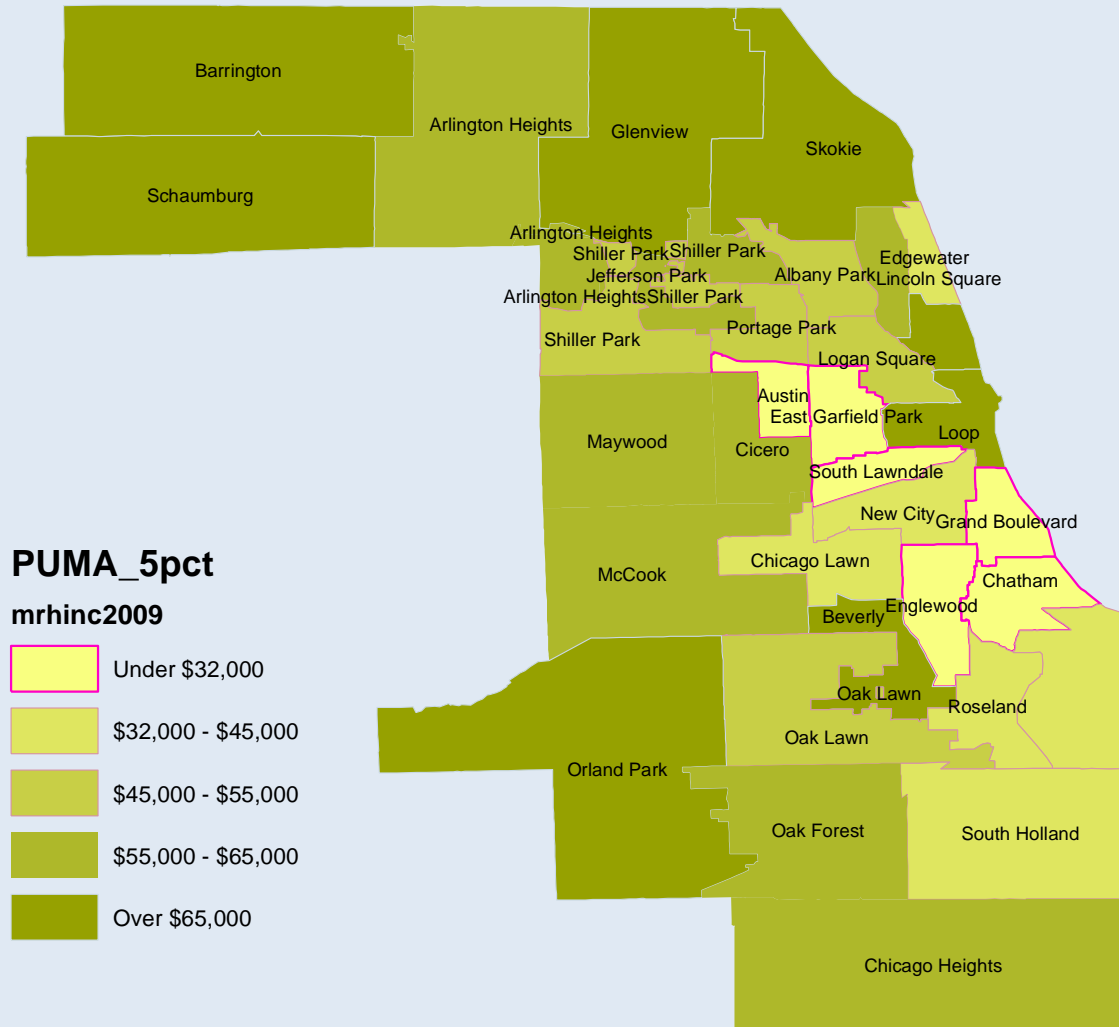
00,000 - \$450,000

Neighborhoods labeled on the map include: Barrington, Schaumburg, Arlington Heights, Glenview, Skokie, Shiller Park, Shiller Park, Shiller Park, Arlington Heights, Shiller Park, Jefferson Park, Albany Park, Edgewater, Lincoln Square, Portage Park, Logan Square, Austin, East Garfield Park, Loop, Maywood, Cicero, South Lawndale, New City, Grand Boulevard, McCook, Chicago Lawn, Englewood, Chatham, Beverly, Oak Lawn, Roseland, Orland Park, Oak Forest, South Holland, and Chicago Heights.

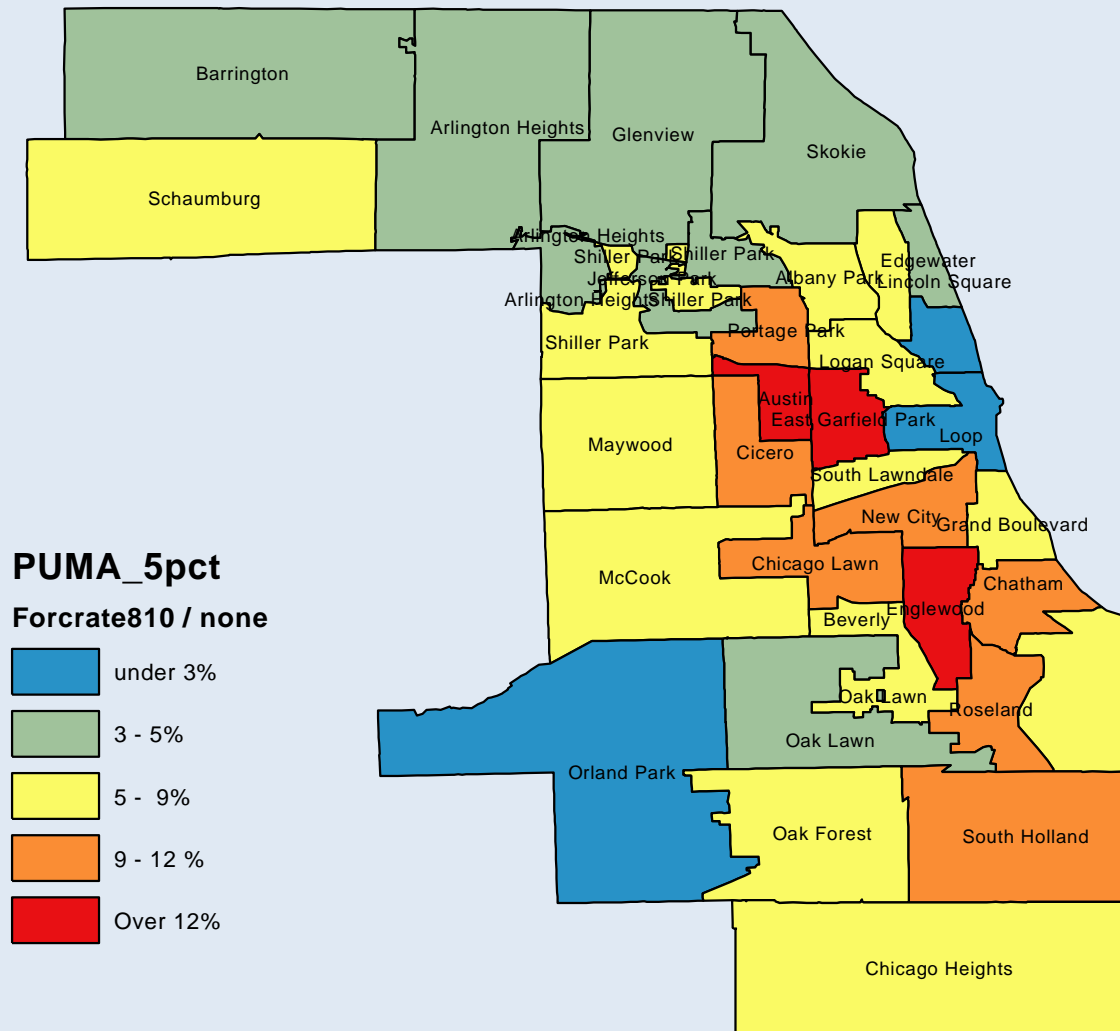
PUMA_5pct

mrprice2009

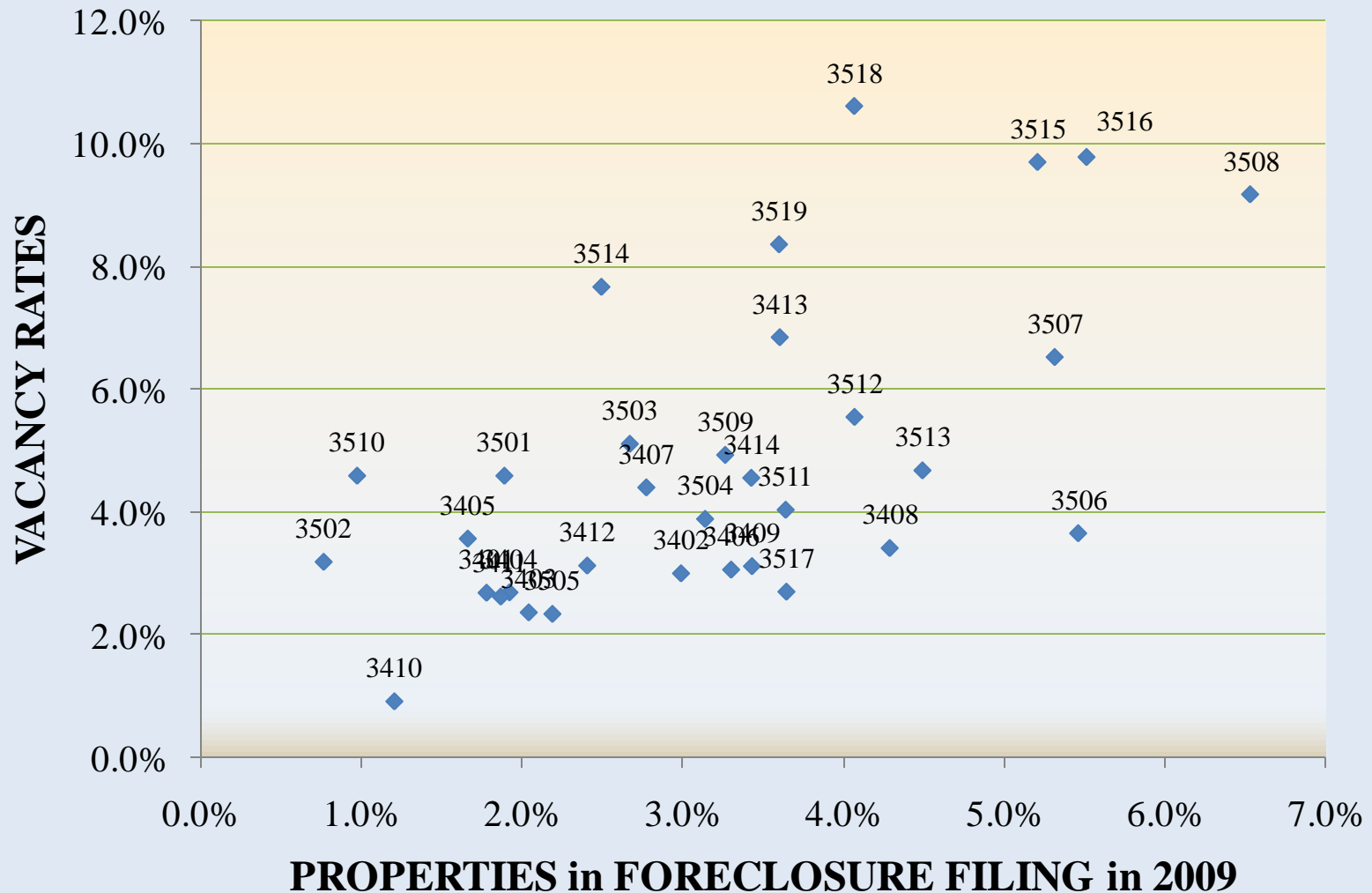
Median Household Income, 2009



Foreclosure Filing Rates 2008-2010



Vacancy Rates vs. Foreclosure Rates by PUMA area



Source: American Community Survey, USPS vacancy for HUD

Vacancy vs. Mean Household Income



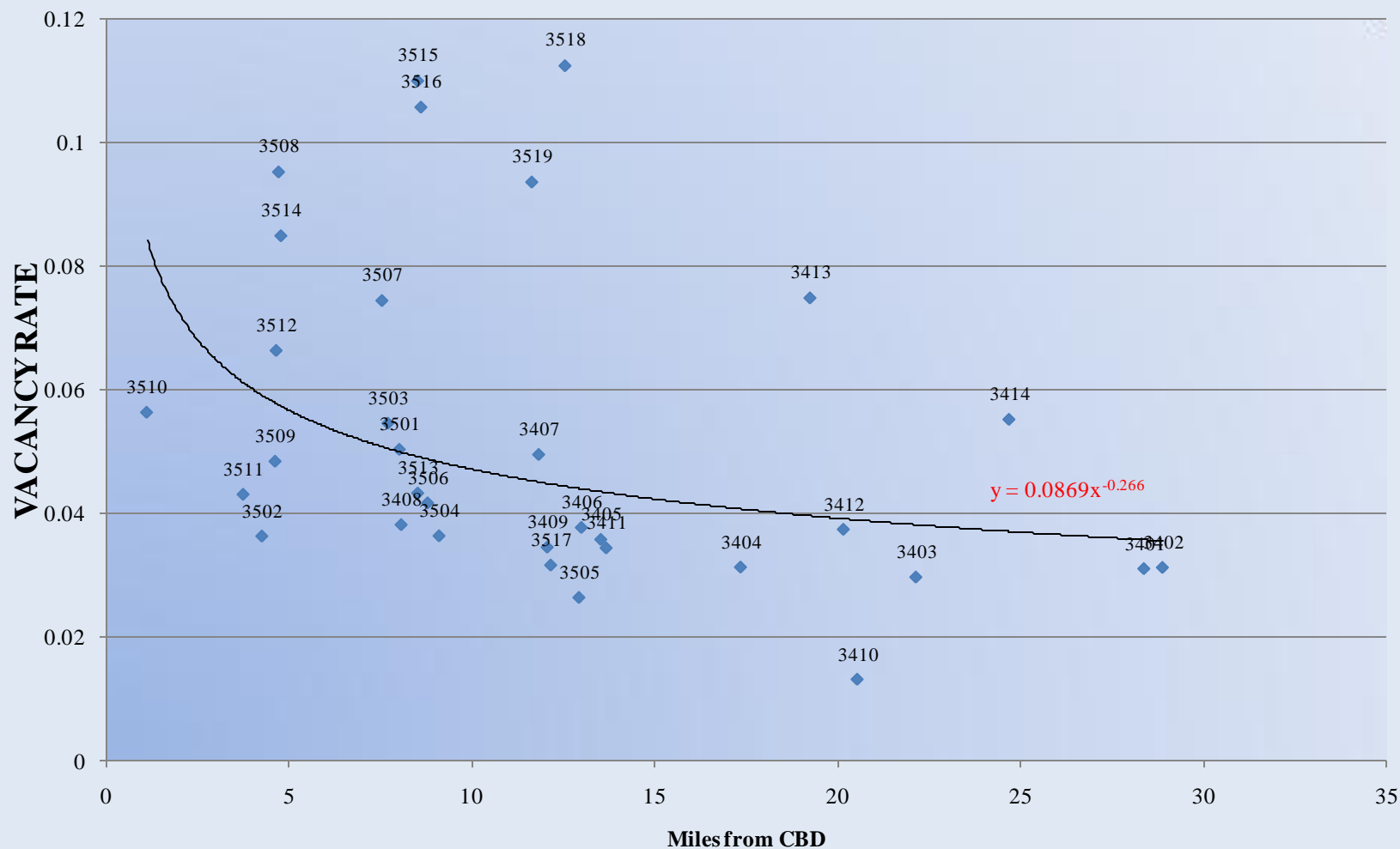
Source: ACS 2000-2009



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Vacancy vs. Distance from CBD in 2010



Source: ACS 2000-2009

Owner and Rental Property Vacancy Rates in ACS, 2000-2009

		2000	2005	2006	2007	2008	2009
OWNER	COOK	1.7%	2.1%	2.9%	3.1%	3.5%	3.4%
	CHICAGO	2.3%	3.1%	3.8%	4.0%	4.6%	4.1%
	SUBURBS	1.3%	1.4%	2.3%	2.4%	2.7%	2.8%
RENTER	COOK	6.0%	9.7%	9.3%	8.5%	7.3%	8.6%
	CHICAGO	6.6%	9.7%	9.6%	8.5%	7.4%	8.4%
	SUBURBS	4.4%	9.6%	8.5%	8.6%	6.9%	9.2%

Source: ACS 2000-2009

Declining House Price for Consumer

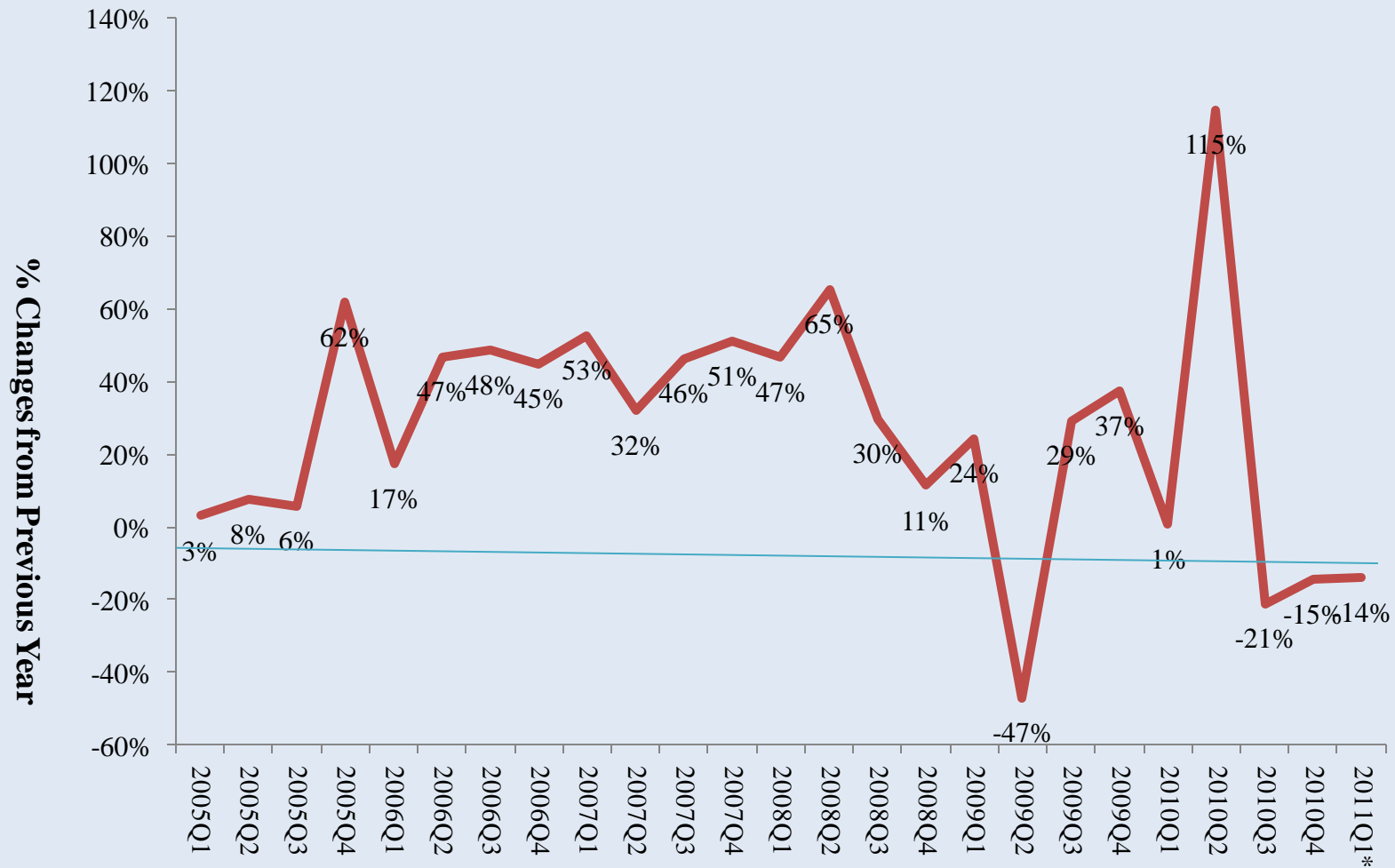
The loss in home values effect American consumers in several ways.

- First, declining **house prices** make consumers feel less wealthy. This negative wealth effect is a drag on consumer sentiment and spending.
- Second, declining **house prices** prevent households from using home equity withdrawal as a means of funding their spending.
- Third, declining **house prices** mean that many households that wish to sell cannot, and some households that must sell their homes into a weak market will sell at a loss.
- Finally, declining **house prices** may be discouraging households from undertaking home improvement projects, again weighing on consumer spending.

Any Good News?

- Unemployment Rates Falls and Jobless Claims Falls
- Economic Growth Increases
- Expectations of lower Inflation Rates and moderate Interest Rates
- Except Foreclosure Properties, the Price Decline is getting milder -> Prices are getting more attractive
- Foreclosure Fillings Declining
- Lower Property Price and Higher Demand for Rent Units -> Multifamily Home demand increase
- Mortgage Market indicates mildly upward trends.

Changes of Foreclosures Filings from the Previous Year Cook County, 2000-2010

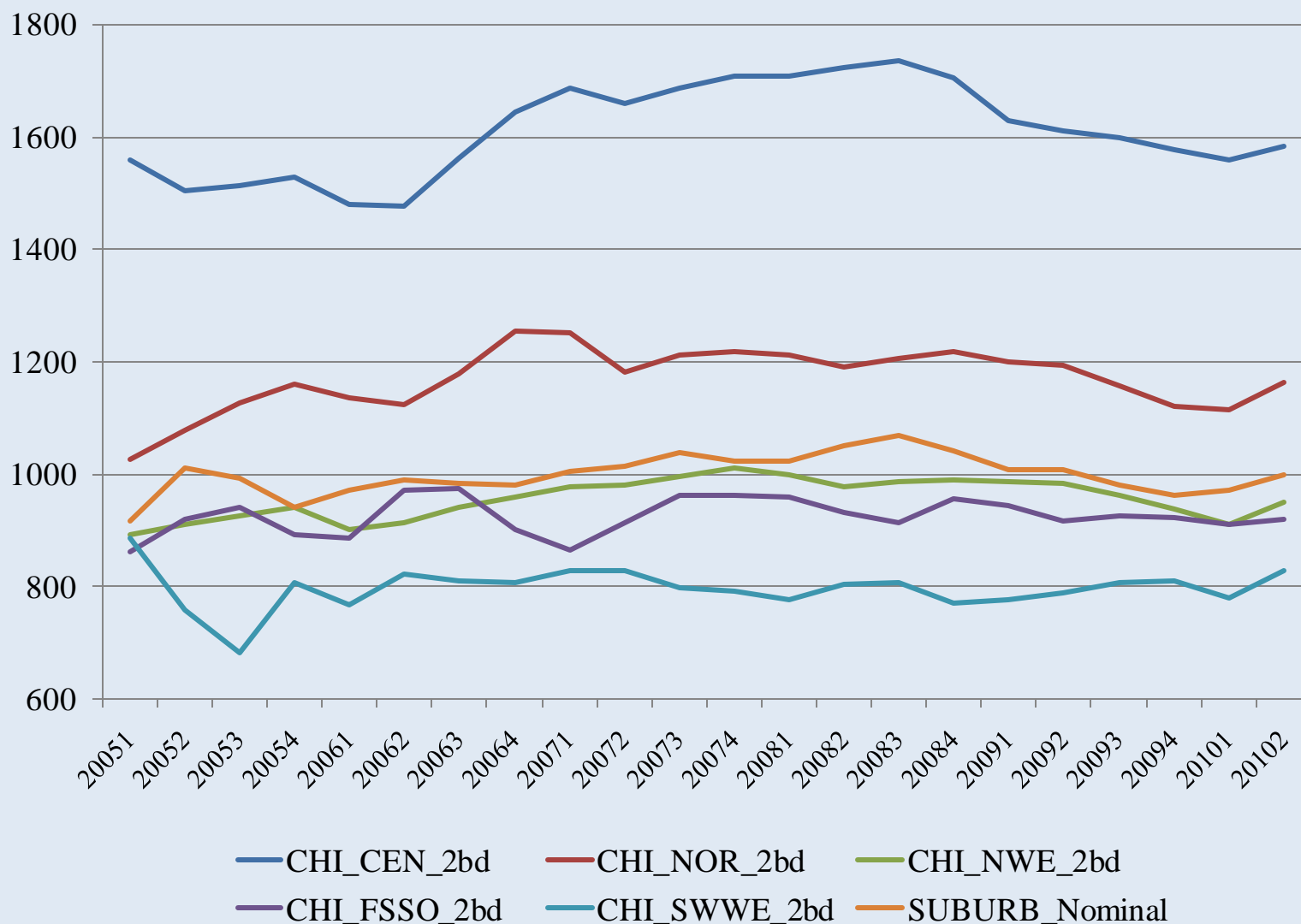


* : Projection from January and February of 2011.

Source: Cook County Circuit Court, Chicago Title and Company, and RIS

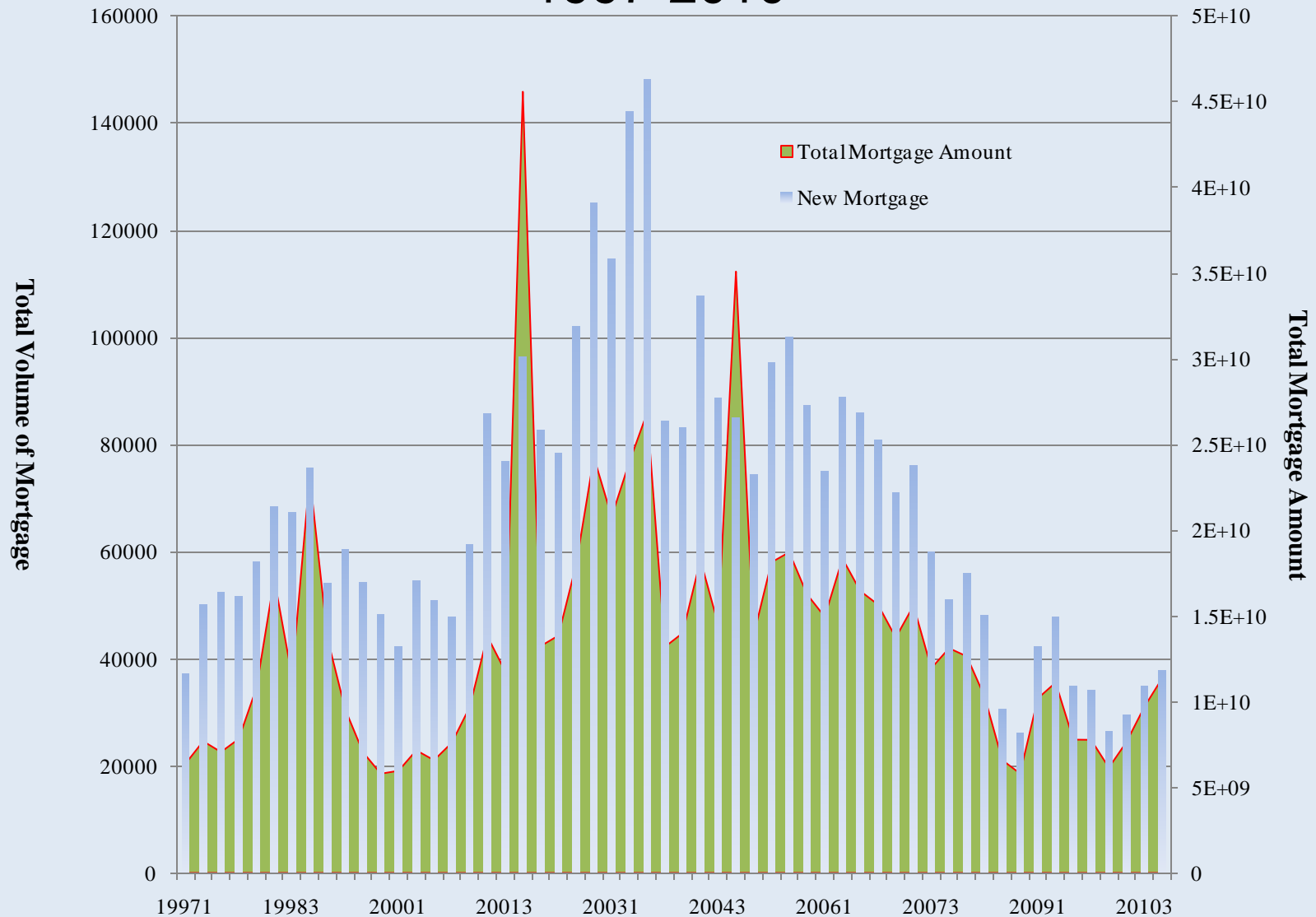


APARTMENT RENT (\$ for a two bedroom apartment) in COOK COUNTY, 2005-2010



Source: The Institute for Housing Studies, DePaul University

Single Family Mortgage Origination for Cook County, 1997-2010



Single Family Mortgage Origination, 2005-2010

YEAR Q	Mortgage	Mortgage Amount (Billion \$)
20053	100122	18.72
20054	87293	16.27
20061	75044	14.95
20062	88806	18.35
20063	86011	16.46
20064	80838	15.66
20071	70982	13.74
20072	76096	15.61
20073	59970	11.94
20074	51100	13.12
20081	56032	12.64
20082	48190	10.29
20083	30516	6.58
20084	26127	5.80
20091	42286	10.19
20092	47742	11.11
20093	34824	7.78
20094	34083	7.77
20101	26424	6.15
20102	29568	7.66
20103	34967	9.70
20104	37771	11.36

Source: ACS 2000-2009

Affordability measurement

Housing Affordability Index (HAI)

At a given mortgage rate, HAI calculates the qualifying income assuming 25% of income will be spent on housing service. The proportion of actual income with qualifying income will tell the affordability of housing service in the area.

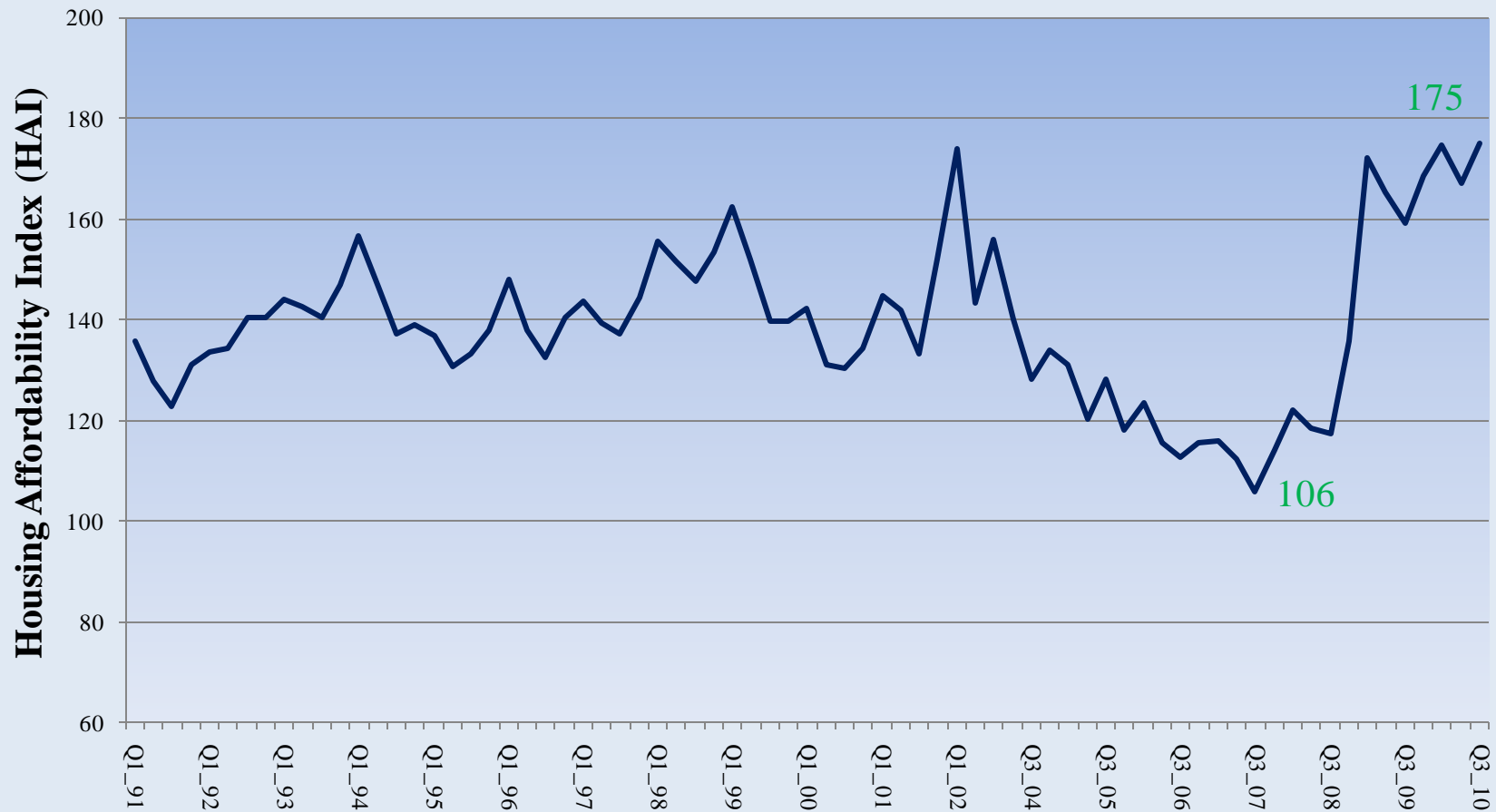
NATIONAL ASSOCIATION OF REALTORS® Quarterly Housing Affordability Index

Year	Quarter	Median Price Existing Single-Family Home	Mortgage Rate	Monthly P & I Payment	Payment as a % of Income	Median Family Income	Qualifying Income	Composite Affordability Index
2007		217,900	6.52	1,104	21.7	61,173	52,992	115.4
2008		196,600	6.15	958	18.1	63,366	45,984	137.8
2009 r		172,100	5.14	751	14.8	61,082	36,048	169.4
2009	III	178,200	5.30	792	15.6	61,027	38,016	160.5
2009	IV	170,300	5.06	736	14.4	61,403	35,328	173.8
2010	I r	165,700	5.09	719	14.2	60,839	34,512	176.3
2010	II r	176,800	5.07	765	14.9	61,448	36,720	167.3
2010	III p	177,900	4.78	745	14.5	61,652	35,760	172.4

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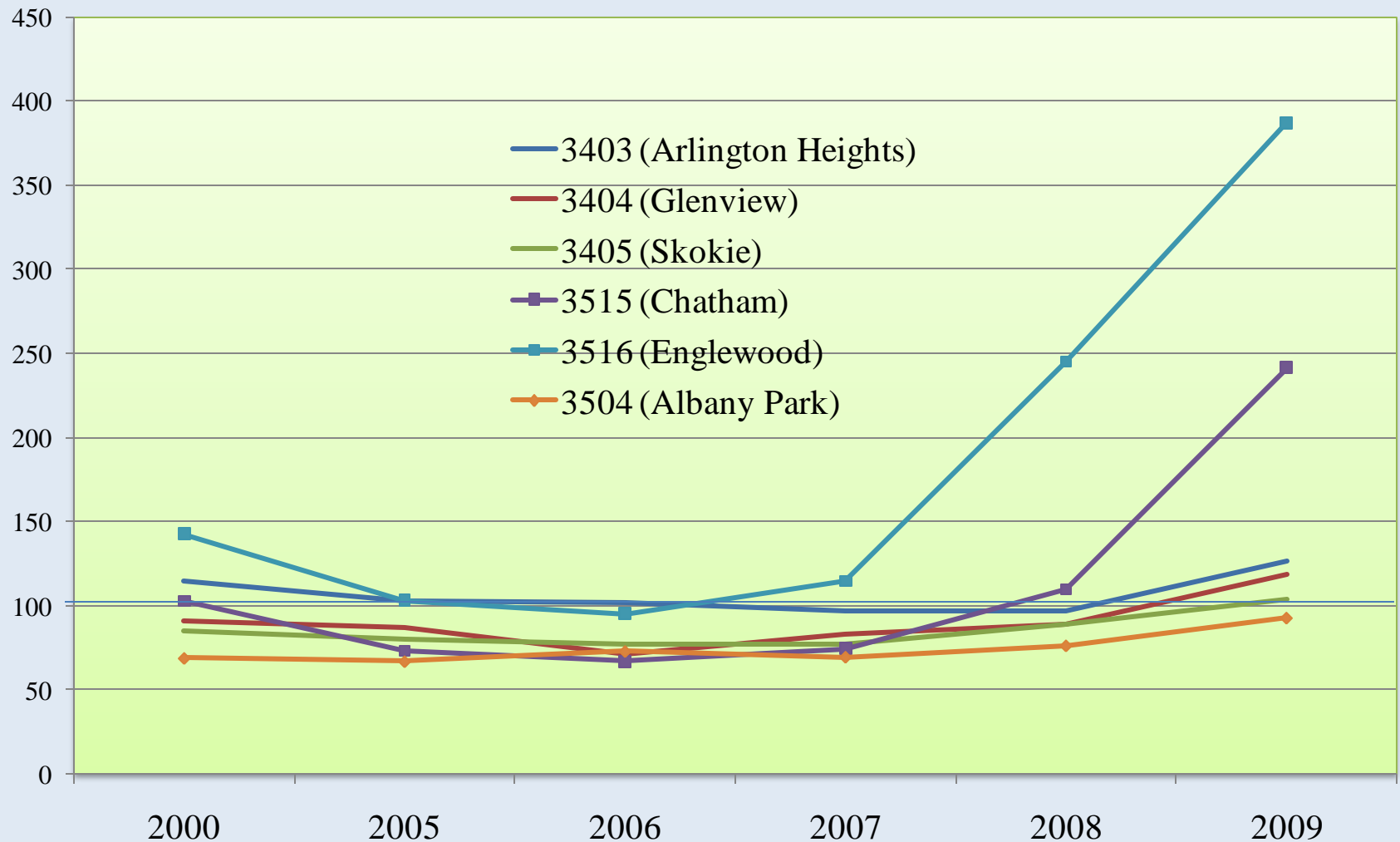


Housing Affordability Index (HAI) for Chicago MSA 1991-2010



Source: National Association of Realtor

Housing Affordability Index (HAI) for selected PUMA Areas, 2000-2009 ACS



Source: Chicago Title and Company

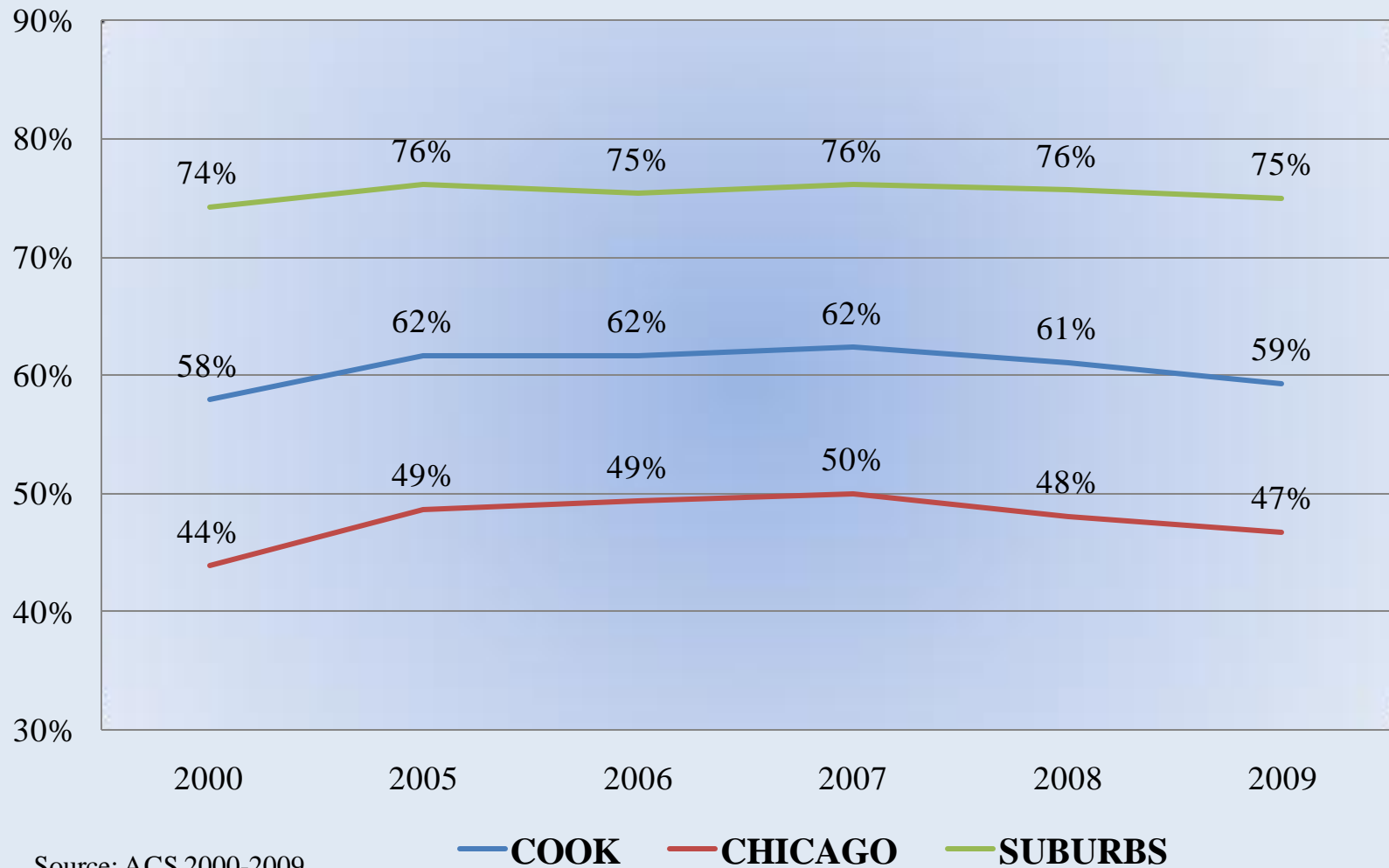
Matters on the Demand for Housing

- Household income and Unemployment Rate
- Household formation (by Population growth or by less number of persons in family)
- Tenure Rates (Owner occupied/Total Housing Units)
- Excessive supply of house (Higher Vacancy Rate) -> Gentrification or Demolition
- Rent Price as a competition with house price
- Mortgage Markets and Interest Rates

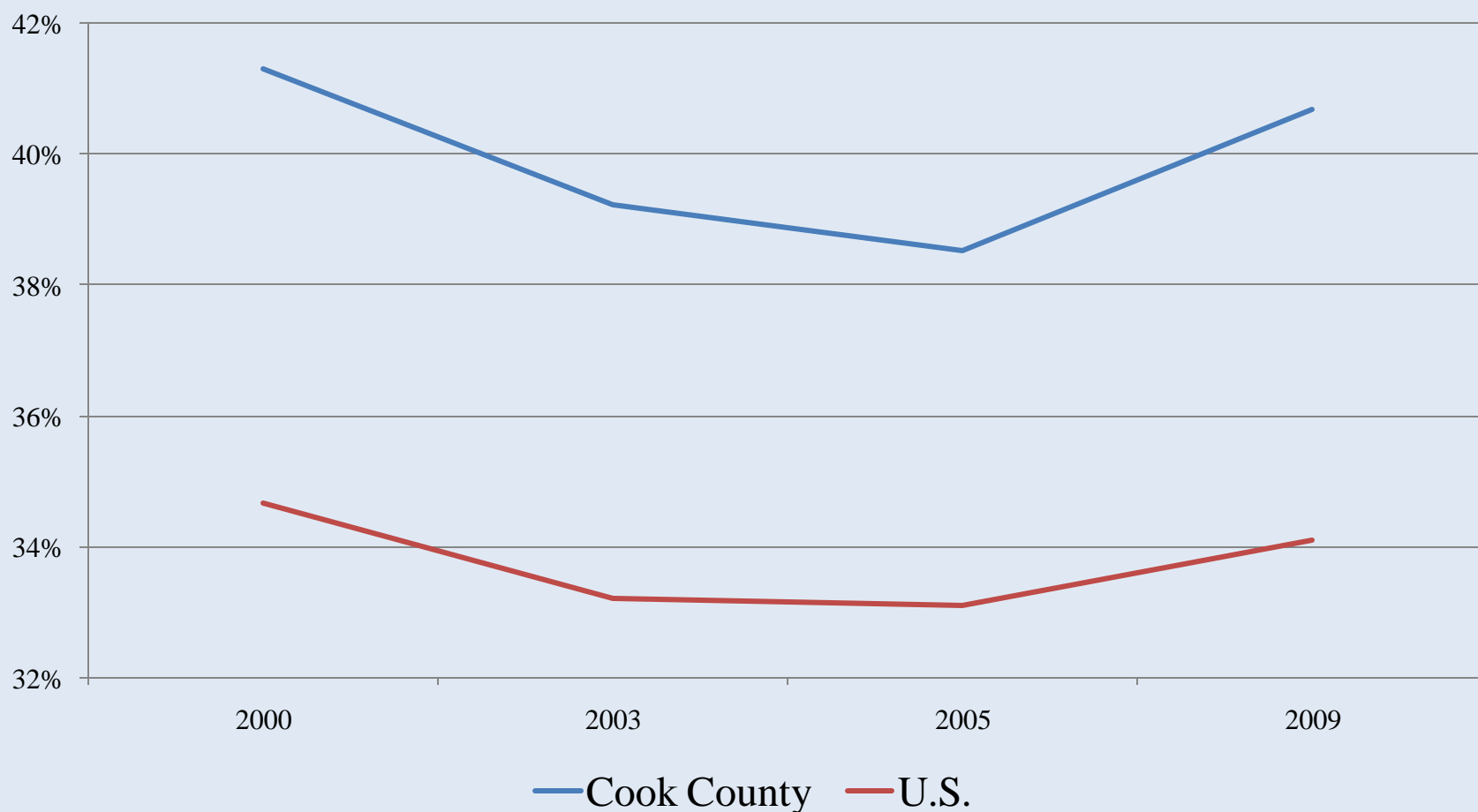
Housing Demand Simulation Setting

- Home Price determine equation based on household income
- Tenure Choice Model based on Household income and House Price/Rent ratio
- Three different scenarios : Pessimistic (less than 1% household income growth), Optimistic (4-5% annual increases in household income), and Most-likely (3% annual increases in household income)

Tenure Rates in American Community Survey (ACS), 2000-2009



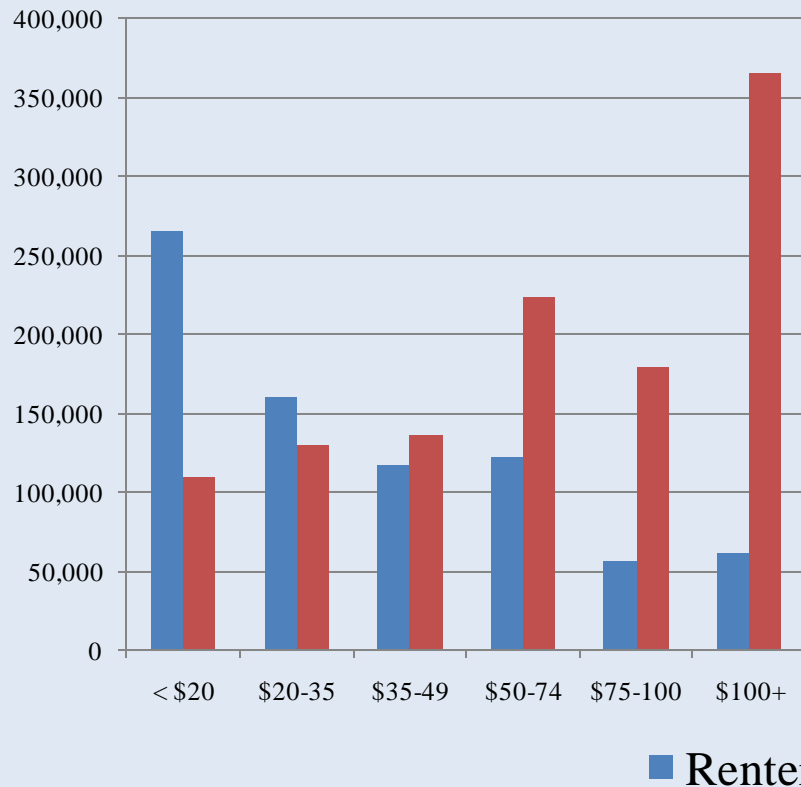
Percent of Households Renting, Cook County vs. U.S. 2000-2009



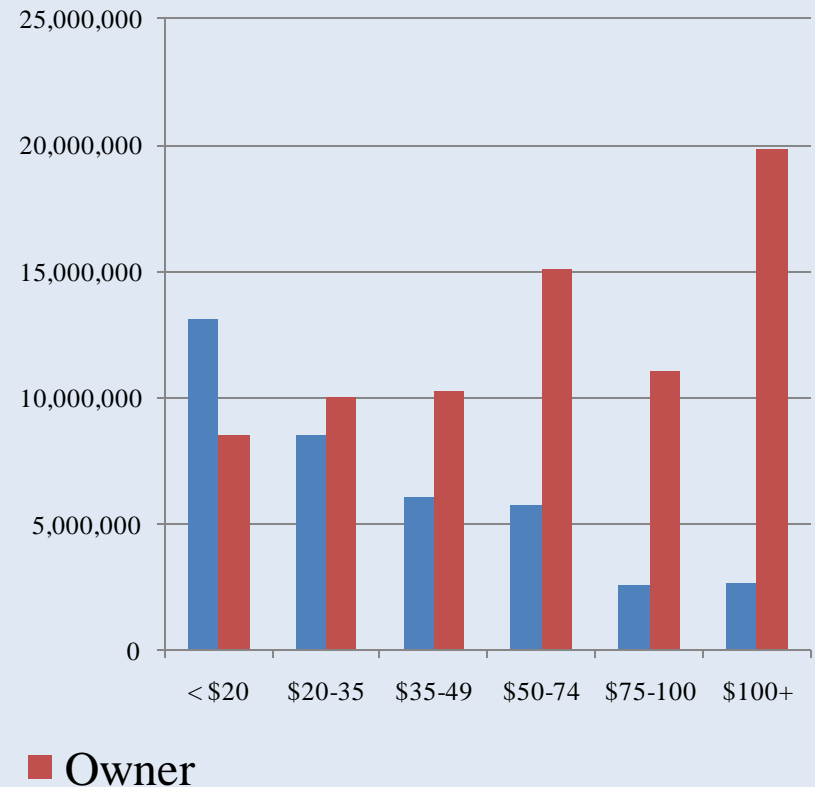
Source: U.S. Census Bureau, American Community

Household Income by Tenure, 2009

Cook County



U.S.



Source: U.S. Census Bureau, American Community

Let's do forecast

ECONOMIC FACTOR	PESSIMISTIC VIEW		OPTIMISTIC VIEW		CURRENT OBSERVATION from DATA (Most Likely)	
	DIRECTION OF CHANGES	DEMAND FOR HOUSE	DIRECTION OF CHANGES	DEMAND FOR HOUSE	CHANGES	DEMAND FOR HOUSE
GDP GROWTH	↓	↓	↑	↑	↑	↑
UNEMPLOYMENT RATE	↑	↓	↓	↑	↓	↑
TENURE RATE	↓	↓	↑	↑	↓	↓
VACANCY RATE	↑	↓	↓	↑	→	→
FORECLOSURES	↑	↑	↓	→	↑	↑
MORTGAGE MARKET	↓	↓	↑	↑	↑	↑
INTEREST RATE	→	↓	↓	↑	→	↑

Simultaneous Equation Model for a Partial Adjustment Housing Demand Model (Full Information Maximum Likelihood (FIML) Estimation)

$$\text{Tenure}_{it} = a_0 + a_1 \ln(\text{Income}_{it}) + a_2 \ln(\text{Price/Rent})_{it} + \mu_{1it}$$

$$\ln(\text{Price}_{it}) = b_0 + b_1 \ln(\text{Income}_{it}) + b_2 \ln(\text{Price}_{it-1}) + b_3 \left(\frac{\ln(\text{Income}_{it}) - \ln(\text{Income}_{it-1})}{\ln(\text{Price}_{it-1})} \right) + \mu_{2it}$$

$$\ln(\text{Rent}_{it}) = c_0 + c_1 \ln(\text{Income}_{it}) + c_2 \ln(\text{Price}_{it-1}) + c_3 \left(\frac{\ln(\text{Income}_{it}) - \ln(\text{Income}_{it-1})}{\ln(\text{Rent}_{it-1})} \right) + \mu_{3it}$$

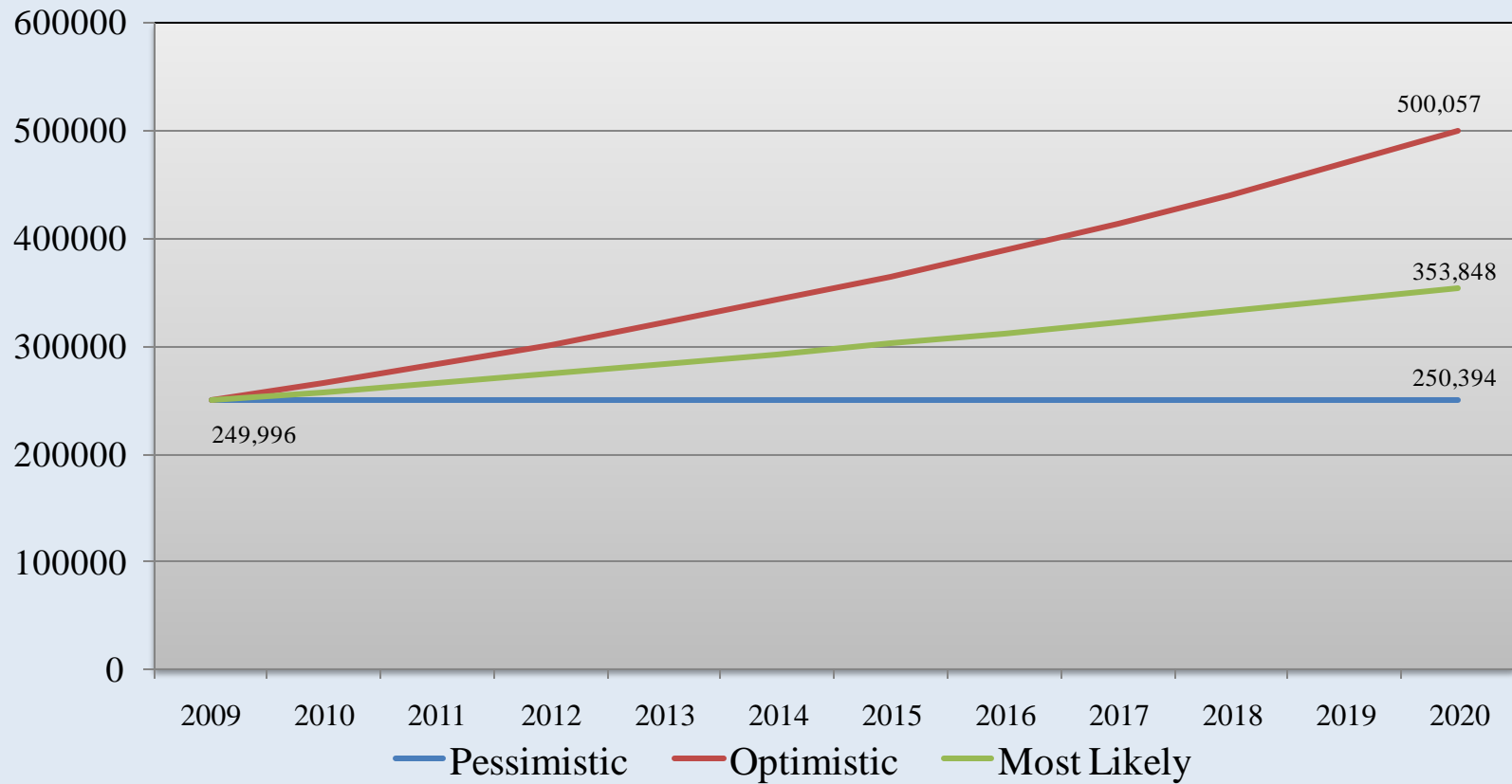
$$\text{Rent}_{it} = d_0 + d_1 \text{Vacrate}_{it} + \mu_{4it}$$

$$\Delta \text{Owner}_{it} = e_0 + e_1 \text{Vacrate}_{it-1} + e_2 \ln(\text{Rent}_{it-1}) + e_3 \ln(\text{Owner}_{it-1}) + \mu_{5it}$$

$$\Delta \text{Renter}_{it} = f_0 + f_1 \text{Vacrate}_{it-1} + f_2 \ln(\text{Rent}_{it-1}) + f_3 \ln(\text{Renter}_{it-1}) + \mu_{6it}$$

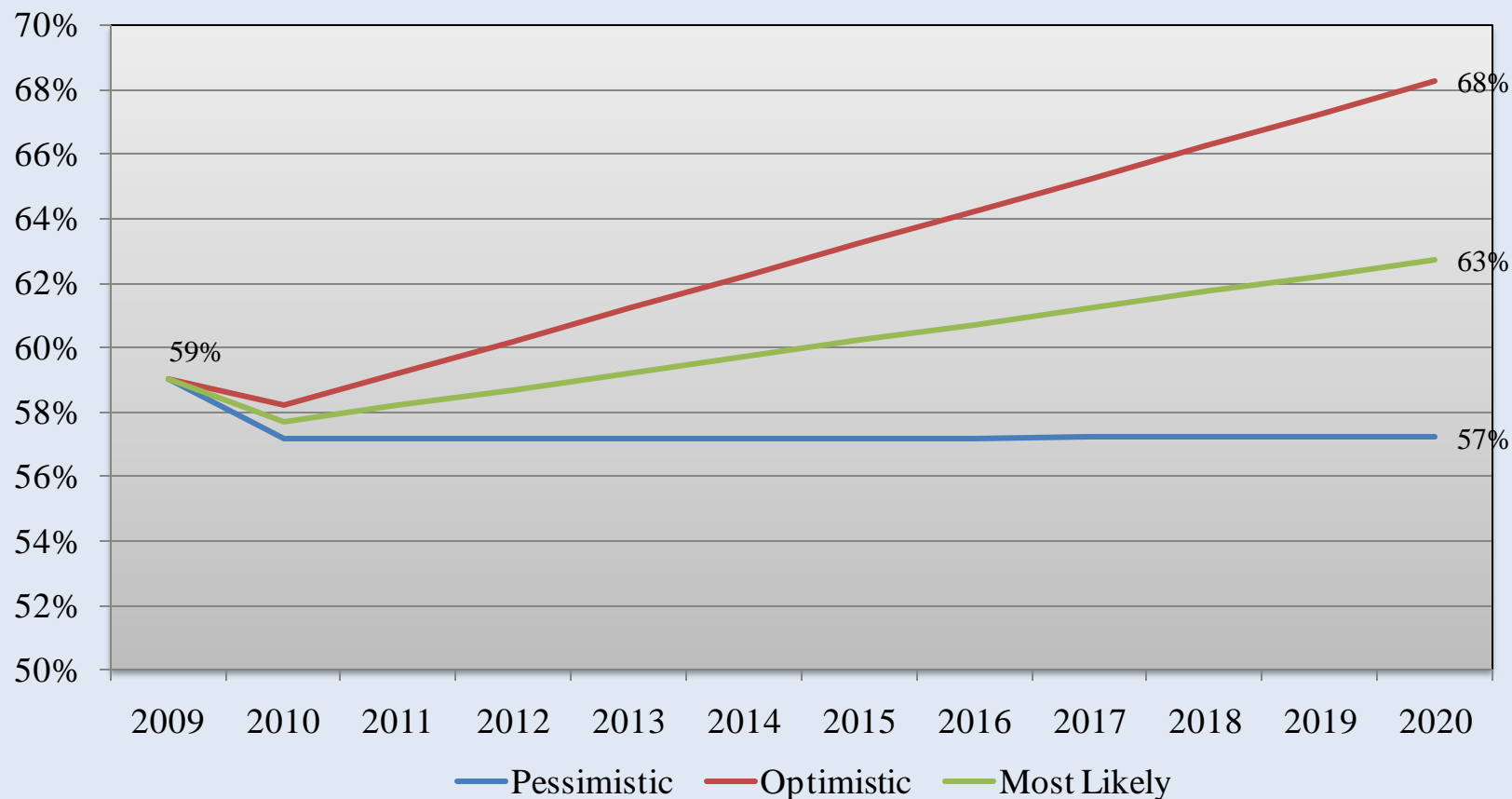
Nonlinear FIML Parameter Estimates							
Parameter	Estimate	Approx Std Err	t Value	Parameter	Estimate	Approx Std Err	t Value
a0	-2	0.39	-5.1	d0	31.58	11.77	2.68
a1	0.27	0.02	17.07	d1	3.91	1.47	2.67
a2	-0.18	0.18	-1.01	d2	0	0	0
b0	3.56	0.26	13.86	e0	-72.95	537	-0.14
b1	0.19	0.02	7.92	e1	7.24	26.06	0.28
b2	0.55	0.01	65.19	e2	1	0.52	1.93
b3	1.51	0.35	4.29	e3	-0.14	0.01	-15.92
c0	2.01	0.12	16.06	f0	1304.65	466.1	2.8
c1	0.13	0.01	12.07	f1	23.39	22.46	1.04
c2	0.5	0.02	31.32	f2	-0.76	0.5	-1.54
c3	0.27	0.09	3.04	f3	-0.2	0.01	-21.89

House Price Simulation by FIML



PROJECTED HOUSE PRICE CHANGE FROM 2009 to 2020		
Pessimistic	Optimistic	Most Likely
0.2%	100.0%	41.5%

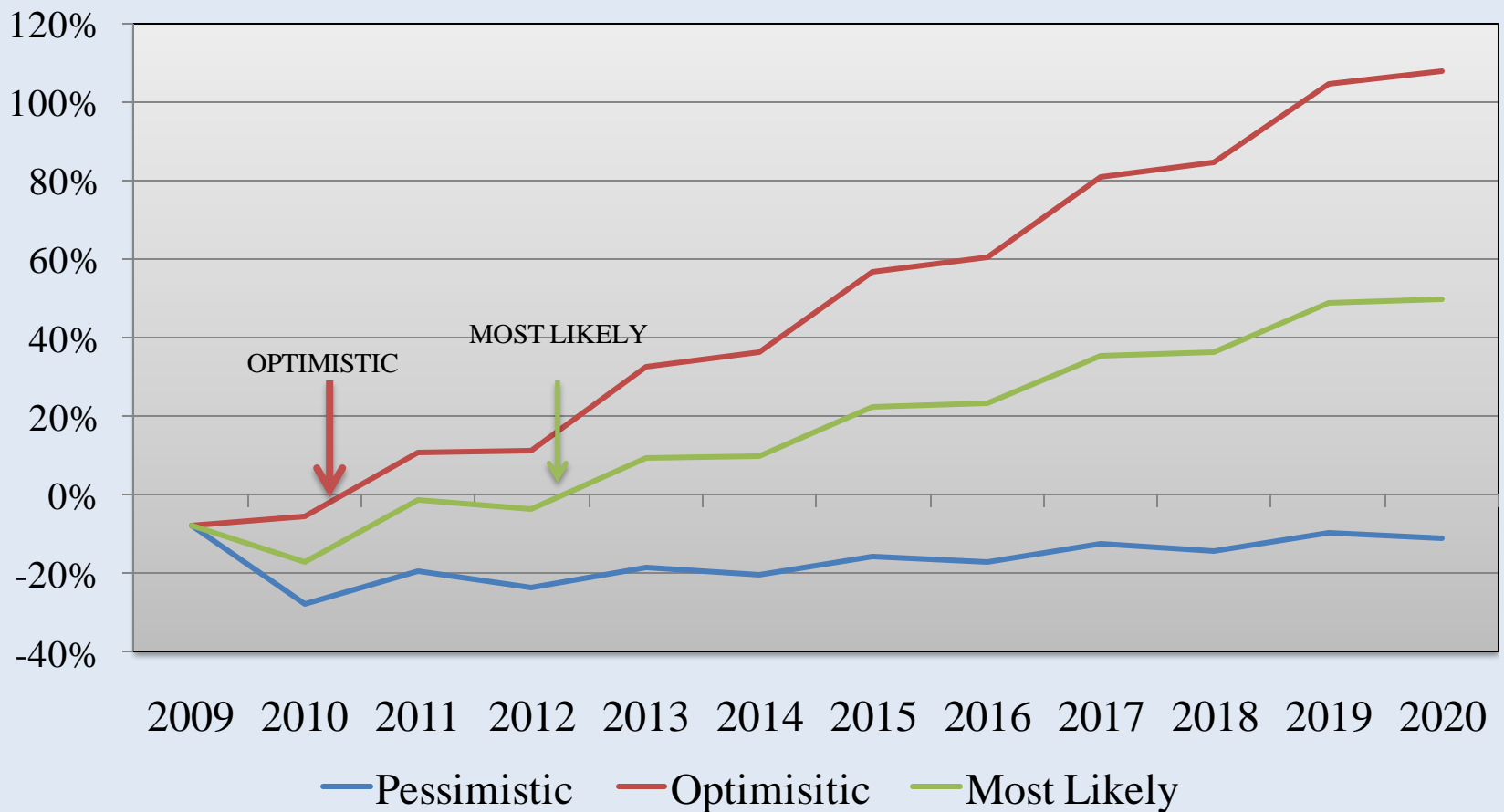
Tenure Rate Simulation by FIML



PROJECTED TENURE RATE in 2020		
Pessimistic	Optimistic	Most Likely
57%	68%	63%

NET PRESENT VALUE (NPV) PROJECTIONS

(Equivalent rent as cash flow in 5 years, based on 30 year mortgage and 10 year treasury yield with 4% of expenses for maintenance and tax)



Note: NPV calculation

- Using the risk-adjusted rate of return valuation formula, I measure as follows. The return on housing, R , is the ten-year Treasury yield plus the risk premium measured above. Two alternative measures of r are used. These were (1) the 30-day Treasury bill rates and (2) the ten-year Treasury yields.
- Jonathan B. Berk (1999), “A Simple Approach for Deciding When to Invest”, The American Economic Review, Vol. 89, No. 5 (Dec., 1999), pp. 1319-1326

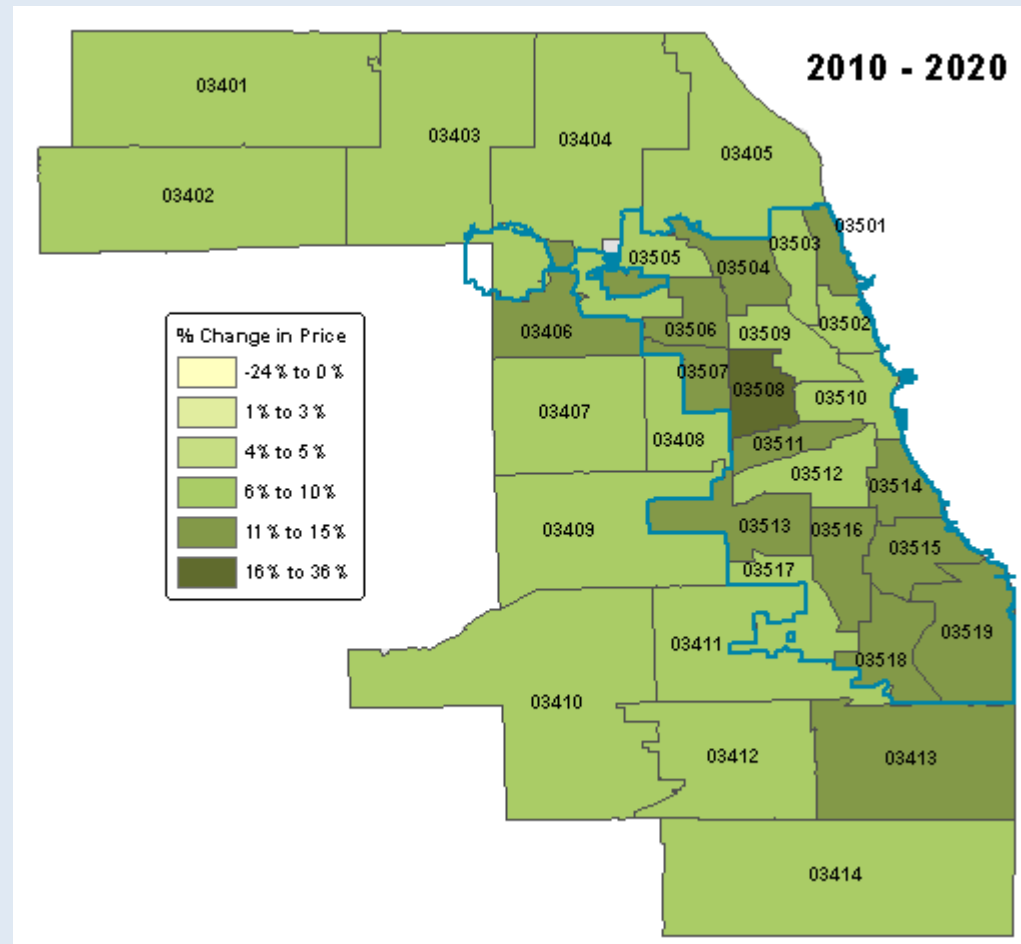
Limitations of FIML Models

- Assuming that the household income increases at the same rate for the simulation periods without cyclical consideration.
- Constant population growth at 0.25%
- Implicitly assumes the unemployment rates will fall as households income increases
- The model does not allow different Income changes for owners and renters, high income group and low income group, and distance.
- A model to consider the heterogeneity of individual, community, and economic conditions

Median Household (Real) Income in Cook County, by PUMA, 2005-2020

PUMA Area Name*

03401 - Barrington
 03402 - Schaumburg
 03403 - Arlington Heights
 03404 - Glenview
 03405 - Skokie
 03406 - Shiller Park
 03407 - Maywood
 03408 - Cicero
 03409 - McCook
 03410 - Orland Park
 03411 - Oak Lawn
 03412 - Oak Forest
 03413 - South Holland
 03414 - Chicago Heights
 03501 - Edgewater
 03502 - Lake View
 03503 - Lincoln Square
 03504 - Albany Park
 03505 - Jefferson Park
 03506 - Portage Park
 03507 - Austin
 03508 - East Garfield Park
 03509 - Logan Square
 03510 - Loop
 03511 - South Lawndale
 03512 - New City
 03513 - Chicago Lawn
 03514 - Grand Boulevard
 03515 - Chatham
 03516 - Englewood
 03517 - Beverly
 03518 - Roseland
 03519 - South Deering



* PUMA Areas were named based on the most prominent or central Municipality or Chicago Community Area that was within the PUMA

Source: ACS 2009, Institute for Housing Studies, March 2011.



Q&A

Thank you for Listening

감사합니다