

Understanding Housing Affordability in New England: Defining the Problem, Underlying Cause and Potential Solutions

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Motivation

- The Boston Globe, 06/05/05, “The Number Crunchers Agree: Mass. No Bargain for Employers”
- “Like many recruiters, Hurd said the biggest problem in Boston is **not pay but housing**. In other words, companies can’t pay employees enough to compensate for the area’s **ultra-high housing prices**.”
- “The Massachusetts Medical Society’s most recent economic survey identified **housing costs** as a major deterrent to bringing new doctors to Boston and keeping old ones from leaving.”

Motivation

- UMass public opinion poll (Dec. 2004) found nearly 50% of Mass. residents are considering leaving the state or have an immediate family member who is thinking of doing so due to the **high cost of housing**

Why do we care?

- Competitiveness
- Quality of life
- High housing prices and low affordability is a pressing concern for New England

Outline

- Overview of housing prices
- Measures of affordability
- Potential causes for appreciation
 - Demand
 - Supply
- Housing policy

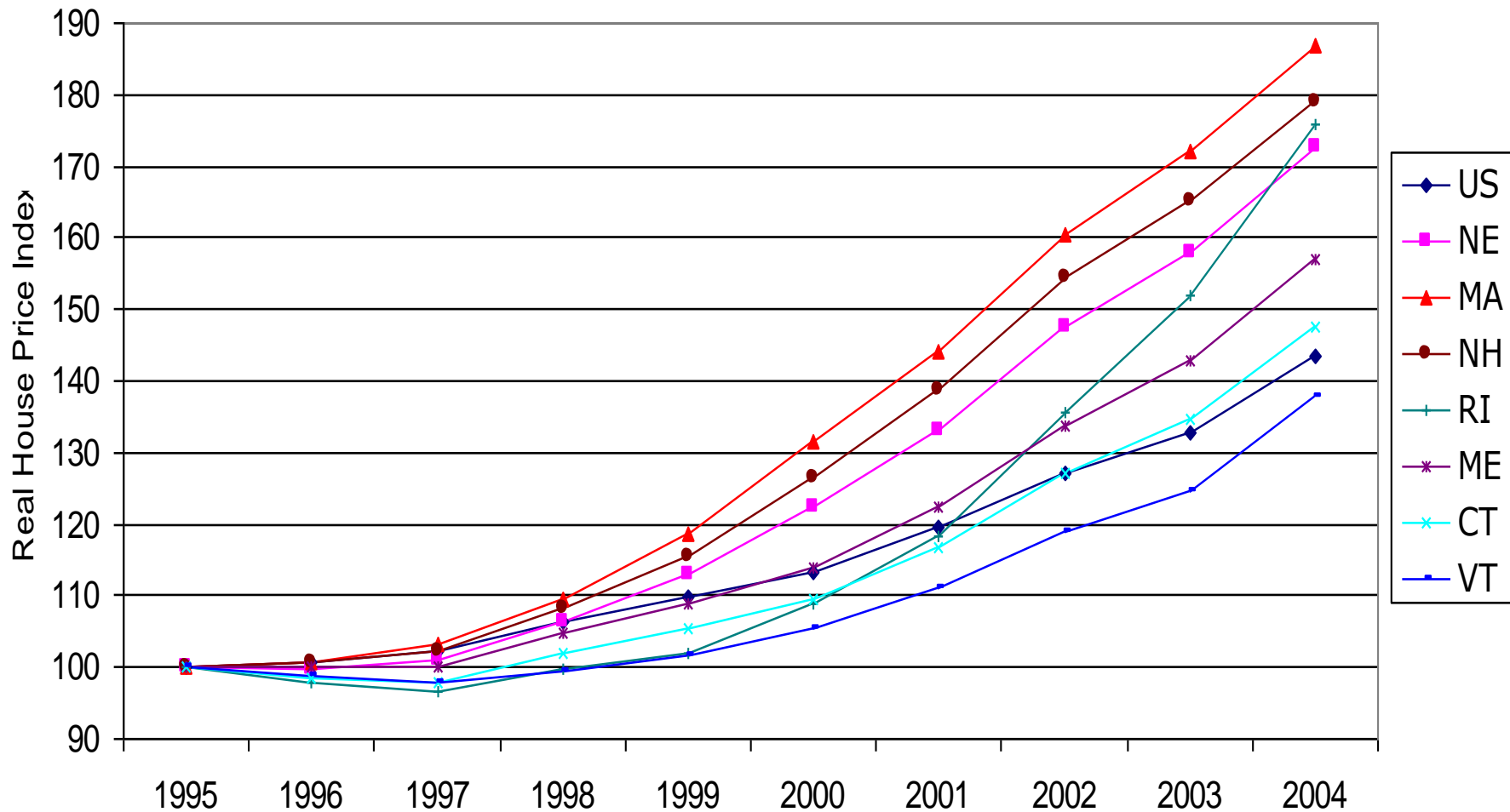
Our Contribution

- Regional view
- Comprehensive, up-to-date study
- Dispel misconceptions

Houses are more expensive in New England in 2004

	Median Price	% NE Population
United States	184.1	
New England MSAs		
Bridgeport-Stamford-Norwalk	441.3	6.3
Boston-Cambridge-Quincy	389.7	31.1
Providence-New Bedford-Fall River	276.9	11.4
Worcester	275.9	5.5
Hartford-W. Hartford-E. Hartford	231.6	8.3
Portland-S. Portland-Biddeford	224.8	3.6
Springfield	180.3	4.8
Competitors		
San Francisco-Oakland-Fremont	641.7	
Raleigh-Cary	169.9	
Austin-Rock Round	154.7	
Durham	149.0	

Disparities between NE and other regions in house prices have become greater in recent years



House prices in greater Boston grew even faster

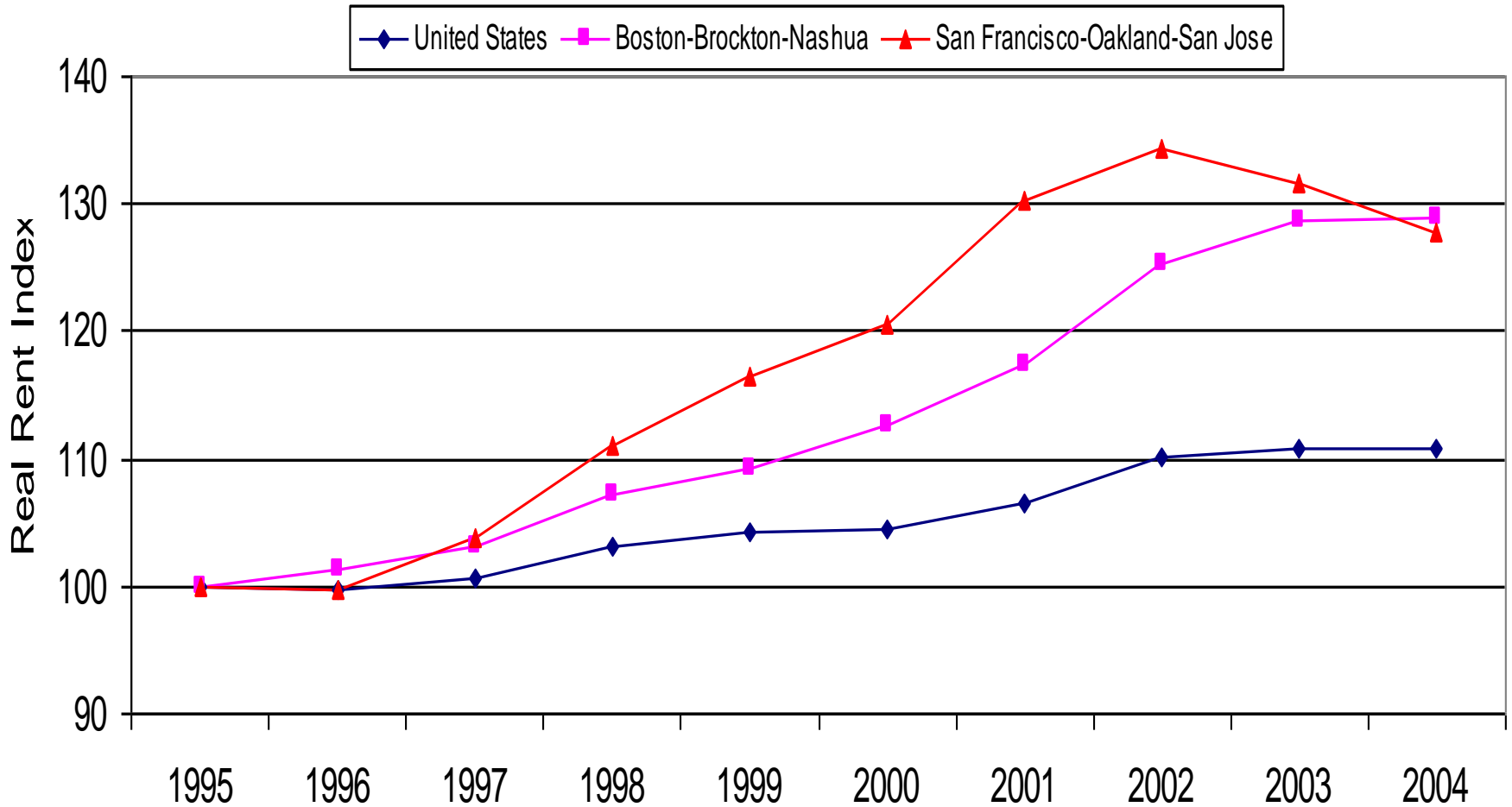
New England Metros	% (95-04)
Boston-Quincy	98.8
Cambridge-Newton-Framingham	82.6
Manchester-Nashua	80.1
Providence-New Bedford-Fall River-Warwick	79.2
Worcester	78.3
Portland-S. Portland-Biddeford	66.5
Bridgeport-Stamford-Norwalk	62.2
Springfield	42.3
Burlington-S. Burlington	39.7
Hartford-W. Hartford-E. Hartford	36.7
Competitors	
San Jose-Sunnyvale-Santa Clara	93.3
Austin-Round Rock	26.0
Durham	20.8
Raleigh-Cary	13.2

Rental housing is also more expensive in NE

Median Gross Rent in 2004

United States	694
New England Region	800
Massachusetts	852
Connecticut	811
New Hampshire	810
Rhode Island	740
Vermont	674
Maine	582
New England Metropolitan Areas	
Springfield	647
Providence-Fall River-Warwick	718
Worcester	740
Hartford	756
Boston	1,020
Competitors	
Raleigh-Durham-Chapel Hill	686
Austin-San Marcos	757
San Jose	1,181

Disparities between Boston and U.S. in rents also increased



Housing Affordability in New England

- Has housing become less affordable in New England relative to the rest of the country?
- To what degree are high housing costs offset by high incomes in the region?
- Is housing becoming unaffordable for an increasing proportion of households in New England, including those that contain skilled workers?

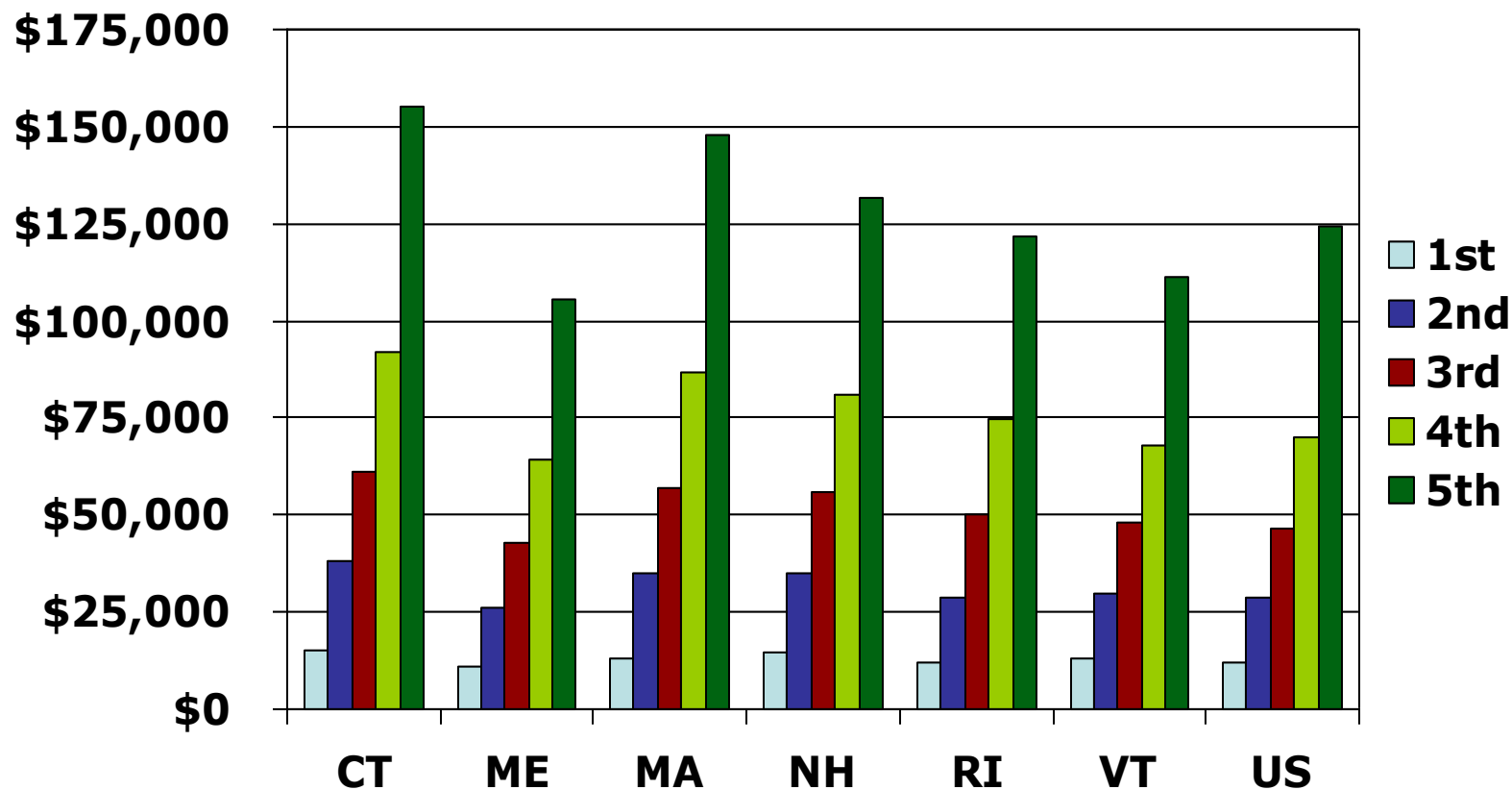
Three Basic Measures of Affordability

- Housing “burden” ratio – housing expenditures as a percentage of income
- Housing “affordability” ratio - ratio of household income to the income needed to afford the apartment or house in each quintile
- Housing “supply” ratio - ratio of the number of affordable units available to the number of households

Methodological Issues

- Use household rather than per capita income
- Restrict to households where head is age 25 years or older and not enrolled in school
- Compare income to housing expenditures, (including mortgage, real estate taxes, and homeowners insurance) rather than prices.
- Do not control for changes in the quality of housing over time
- Do not control for local amenities

Distribution of Annual Household Income, 2004 By Quintile



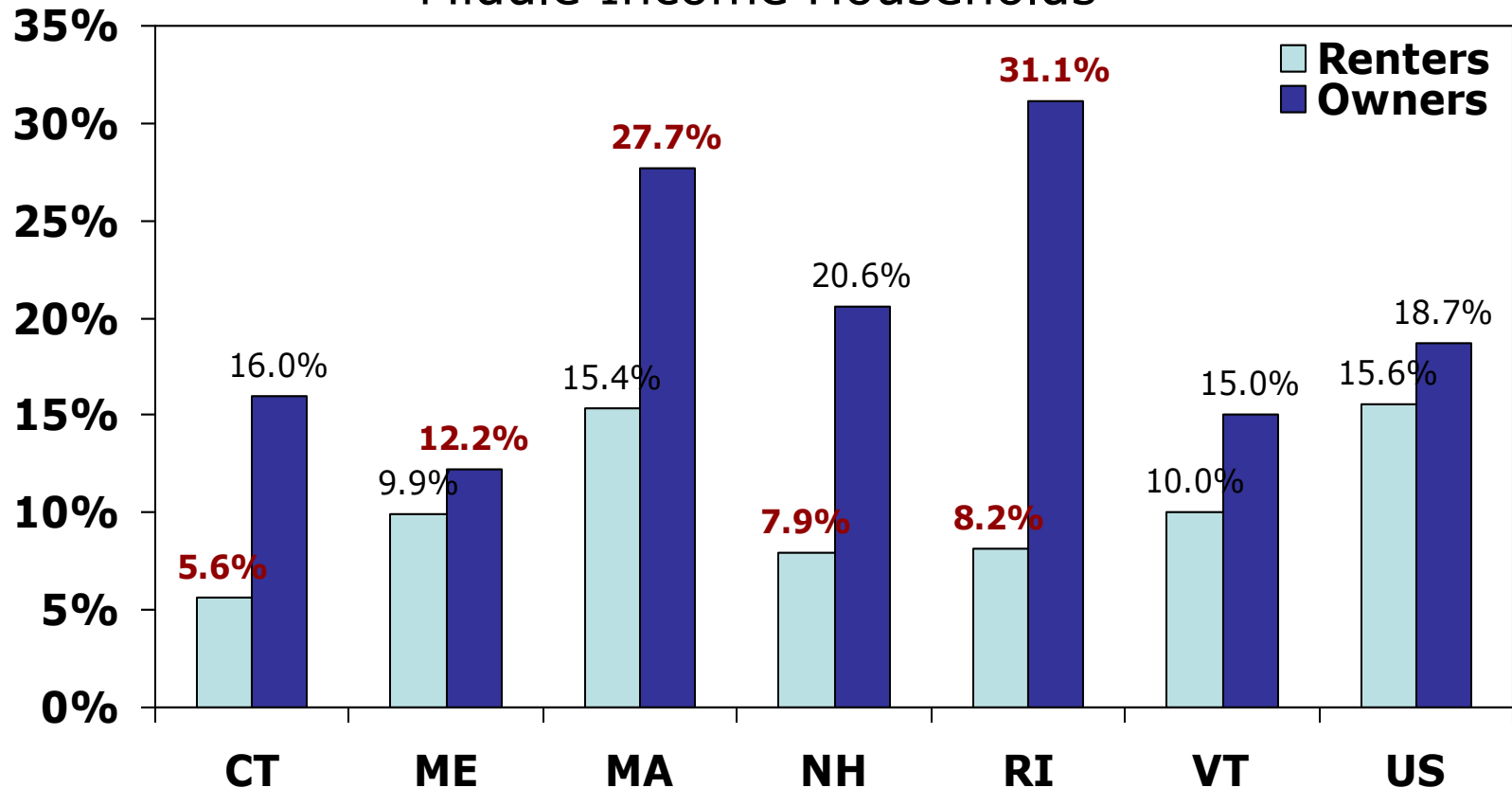
Source: American Community Survey, 2004.

Housing Burden Ratio

- An oft-quoted rule of thumb is that households should not spend more than 30 percent of their income on housing
 - “Moderately cost burdened” households spend more than 30 percent of income on housing
 - “Severely cost burdened” households spend more than 50 percent of income on housing

Greater Share of Middle-Income Homeowners Burdened

Percentage with Moderate Cost Burdens, 2004
Middle Income Households

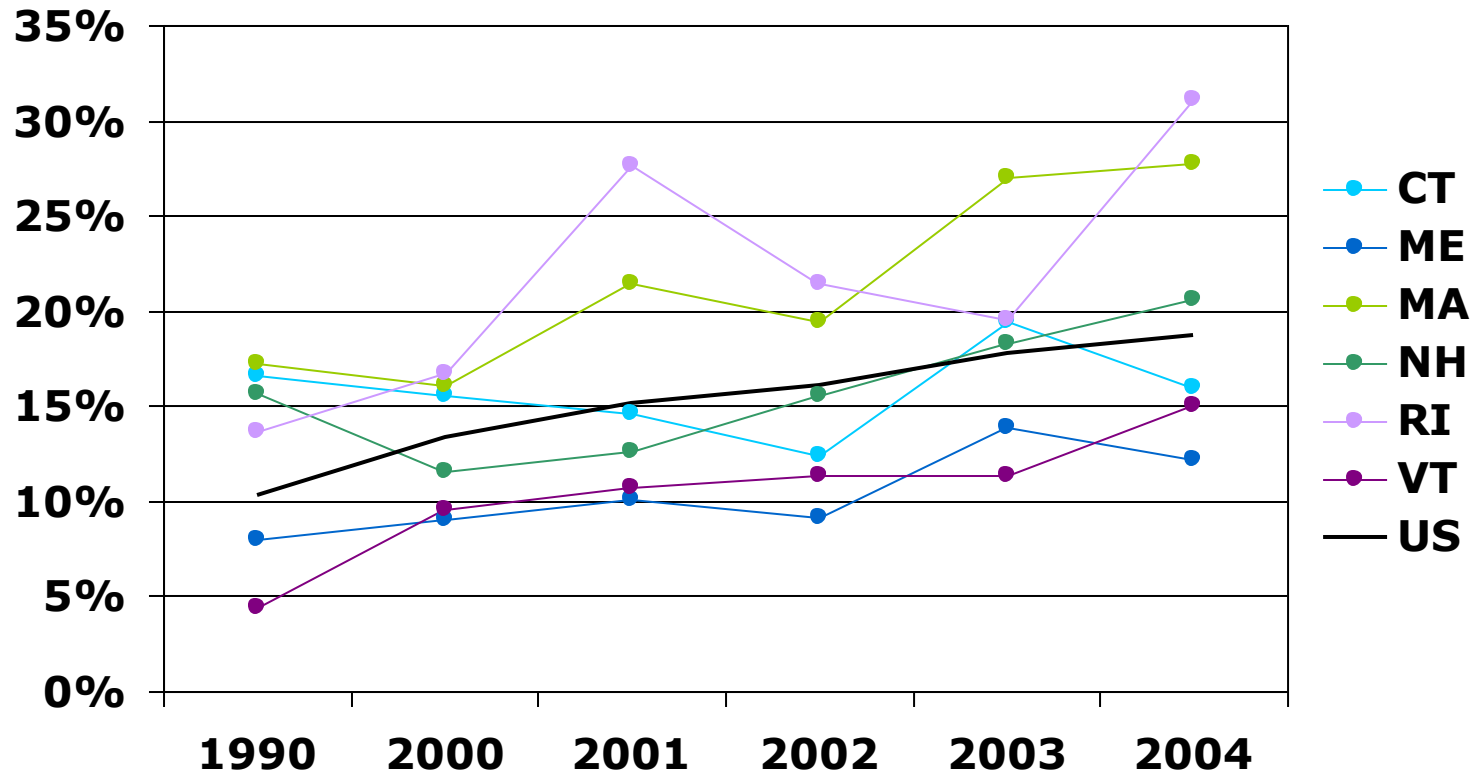


Source: American Community Survey, 2004.

Note: Red indicates values are significantly different from the U.S. at the 5% level.

Cost Burden for Homeowners Increasing Over Time

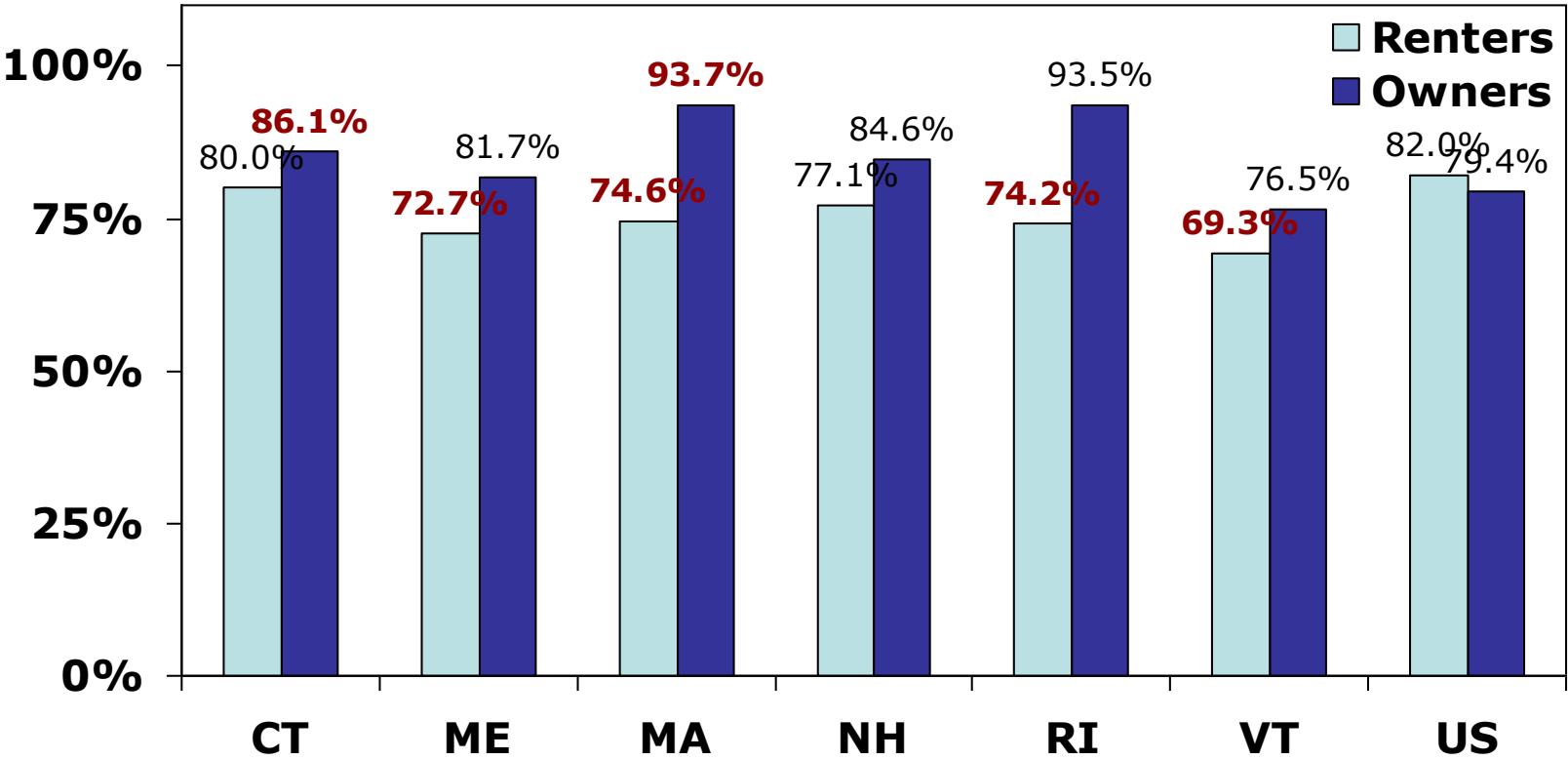
Percentage with Moderate Cost Burdens Middle Income Owner Households



Source: American Community Survey, 2004.

Greater Share of Low-Income Households Are Burdened

Percentage with Moderate Cost Burdens, 2004 Very Low Income Households

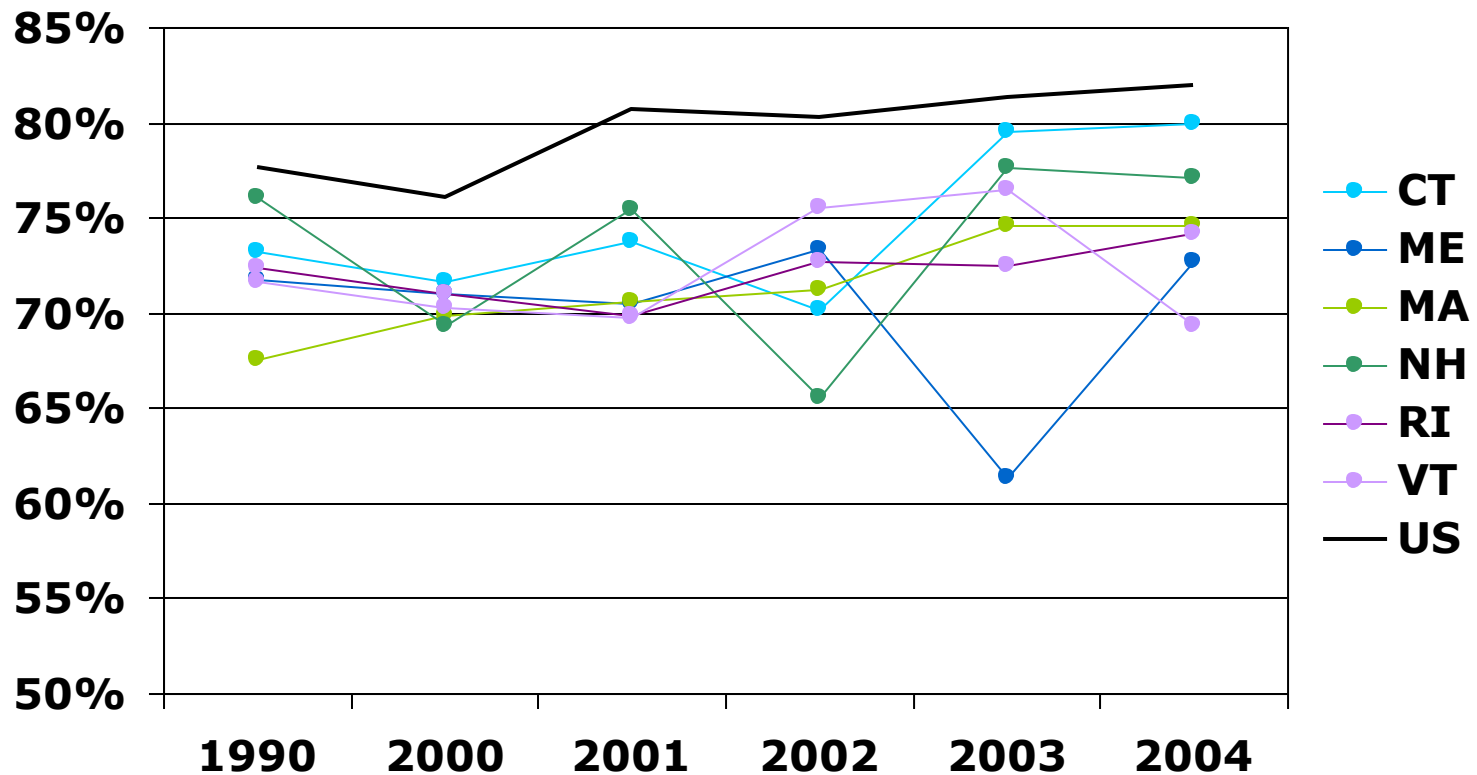


Source: American Community Survey, 2004.

Note: Red indicates values are significantly different from the U.S. at the 5% level.

Cost Burden for Renters Increasing in Some States

Percentage with Moderate Cost Burdens Very Low Income Renter Households



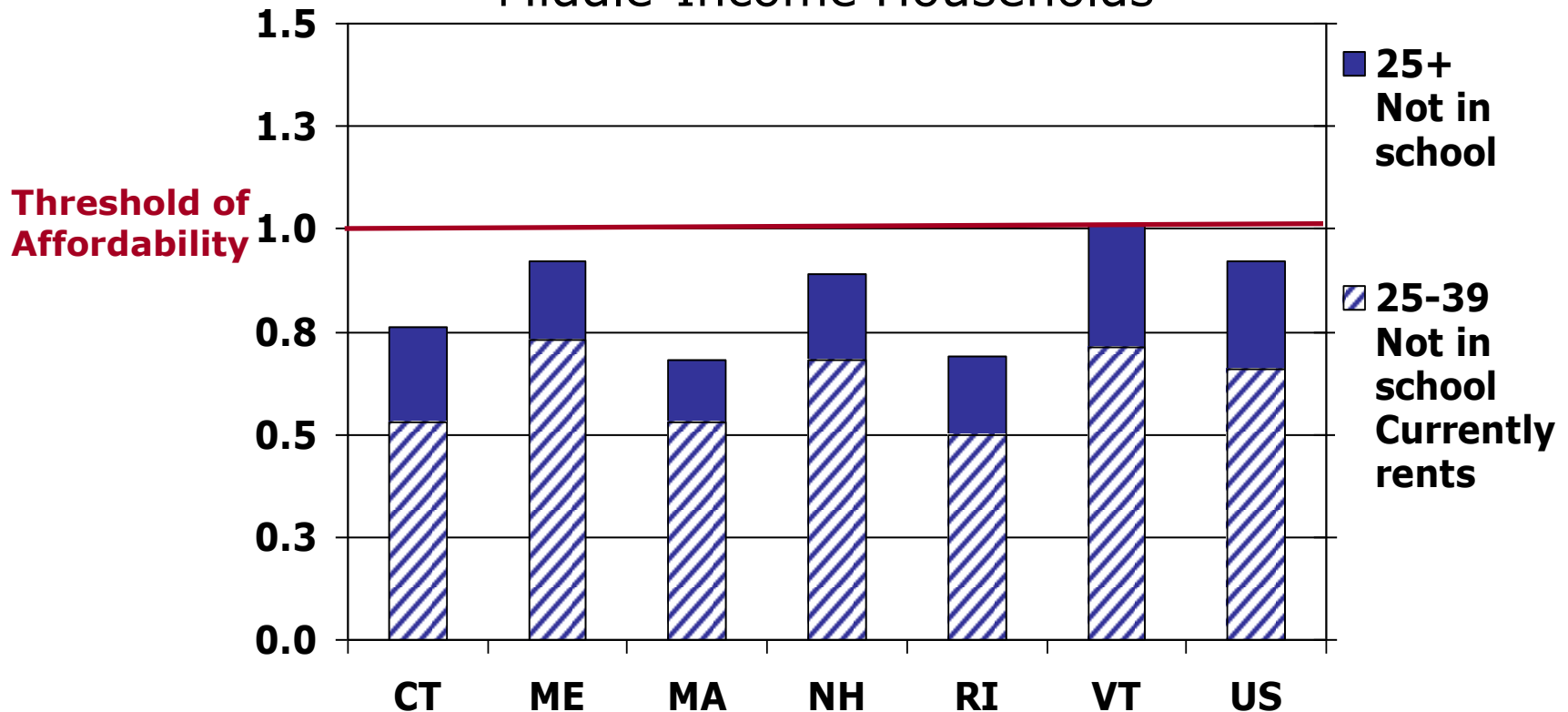
Source: American Community Survey, 2004.

Housing Affordability Ratio

- Compare household income in each quintile of the income distribution to the same quintile in the gross rent or house price distribution
- For example, we compare the annual incomes of middle-income households to:
 - Annual income needed to afford median gross rent
= monthly gross rent * 12 / 0.30
 - Annual income needed to afford median priced house
= monthly PITI payment * 12 / 0.28
- Calculate for all households combined as well as potential “first-time homebuyers”

Affordability Gap for Homeowners Wider in Some States

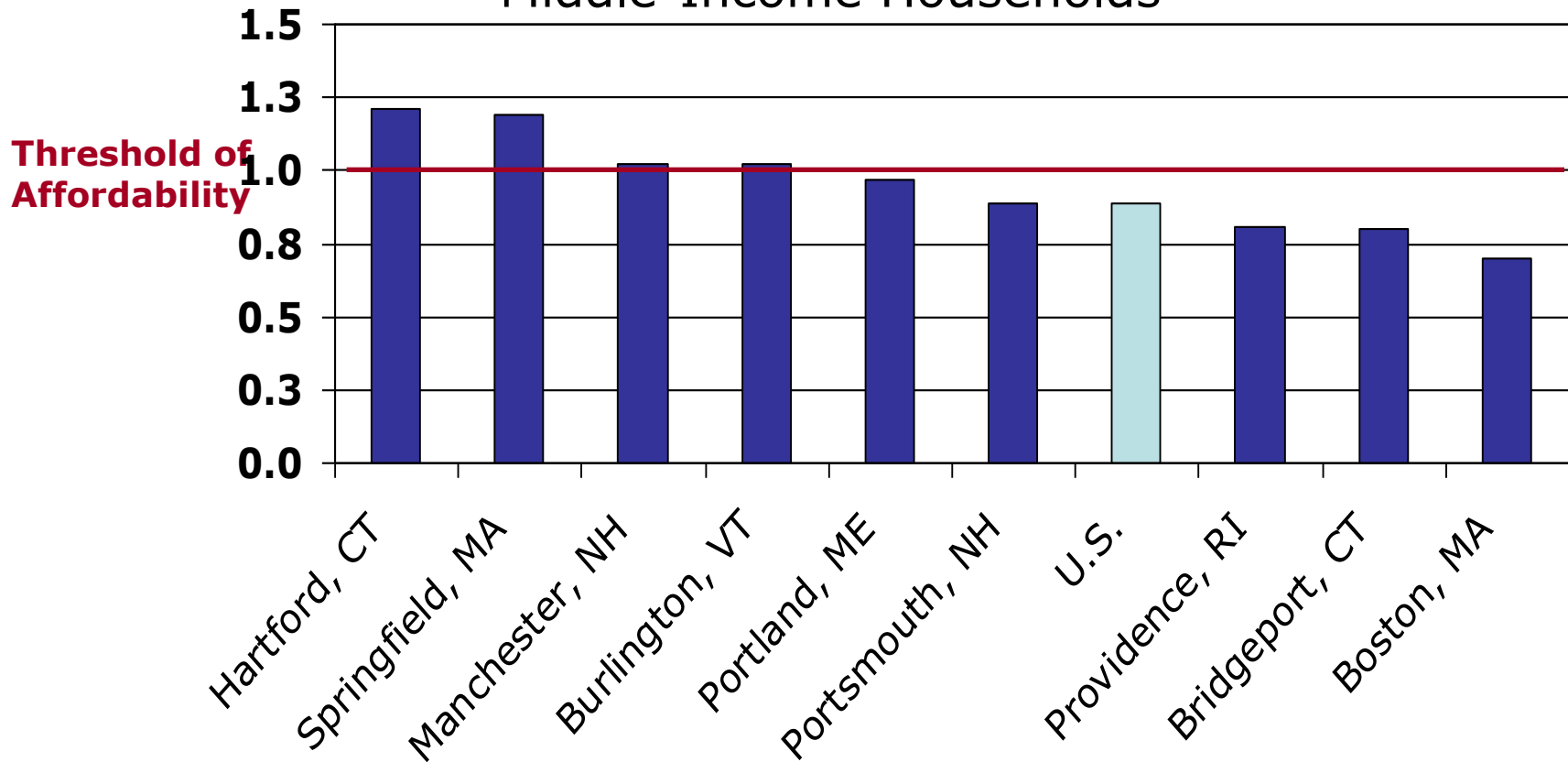
Ratio of Annual Household Income to
Income Needed to Afford the Median Priced House, 2004
Middle-Income Households



Sources: Incomes - Current Population Survey
House Prices - Federal Home Finance Board

And in Some Metro Areas...

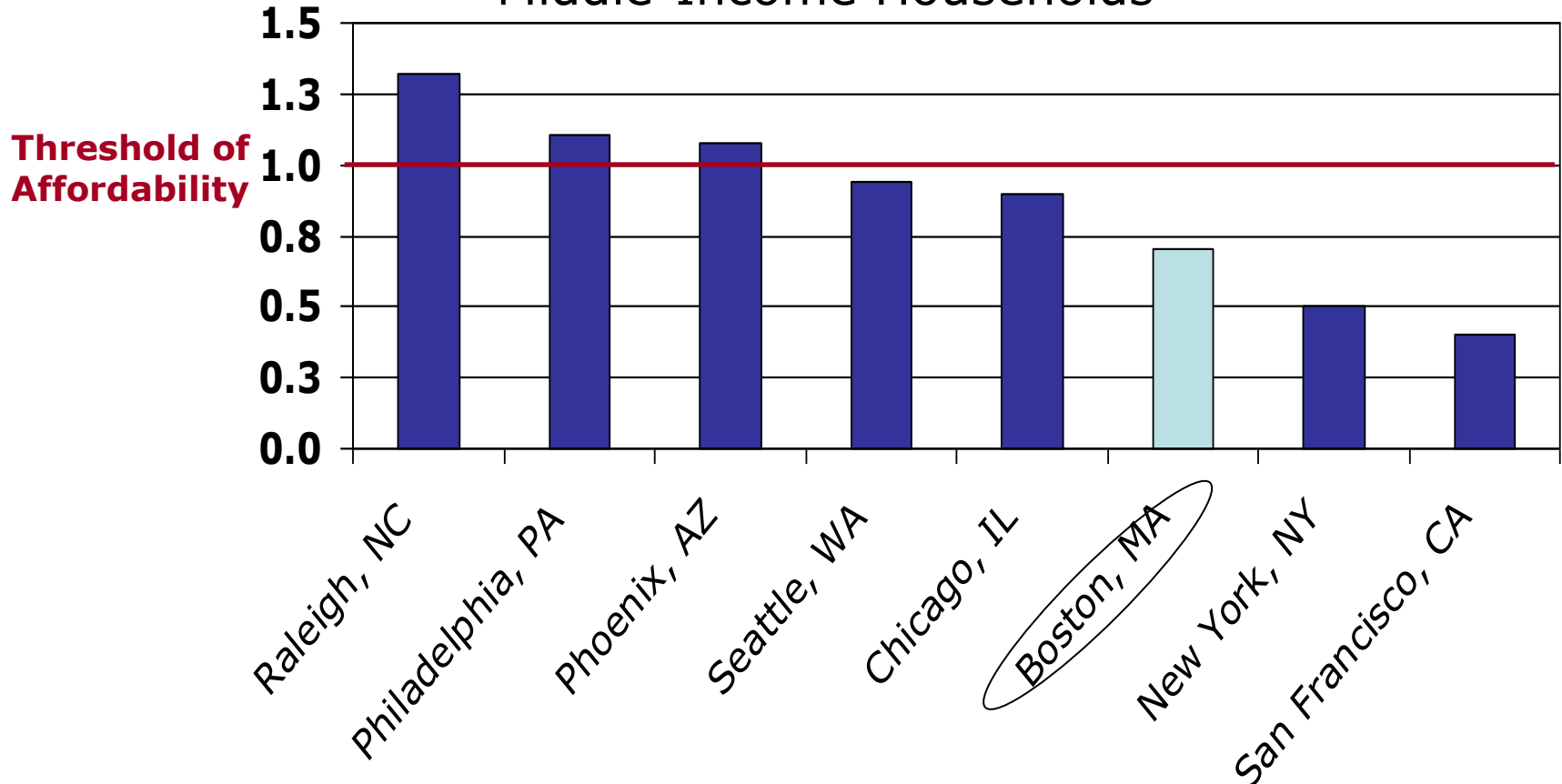
Ratio of Annual Household Income to
Income Needed to Afford the Median Priced House, 2004
Middle-Income Households



Sources: Incomes - Census and American Community Survey
House Prices - Federal Home Finance Board

And in Comparison to Competitor Metro Areas...

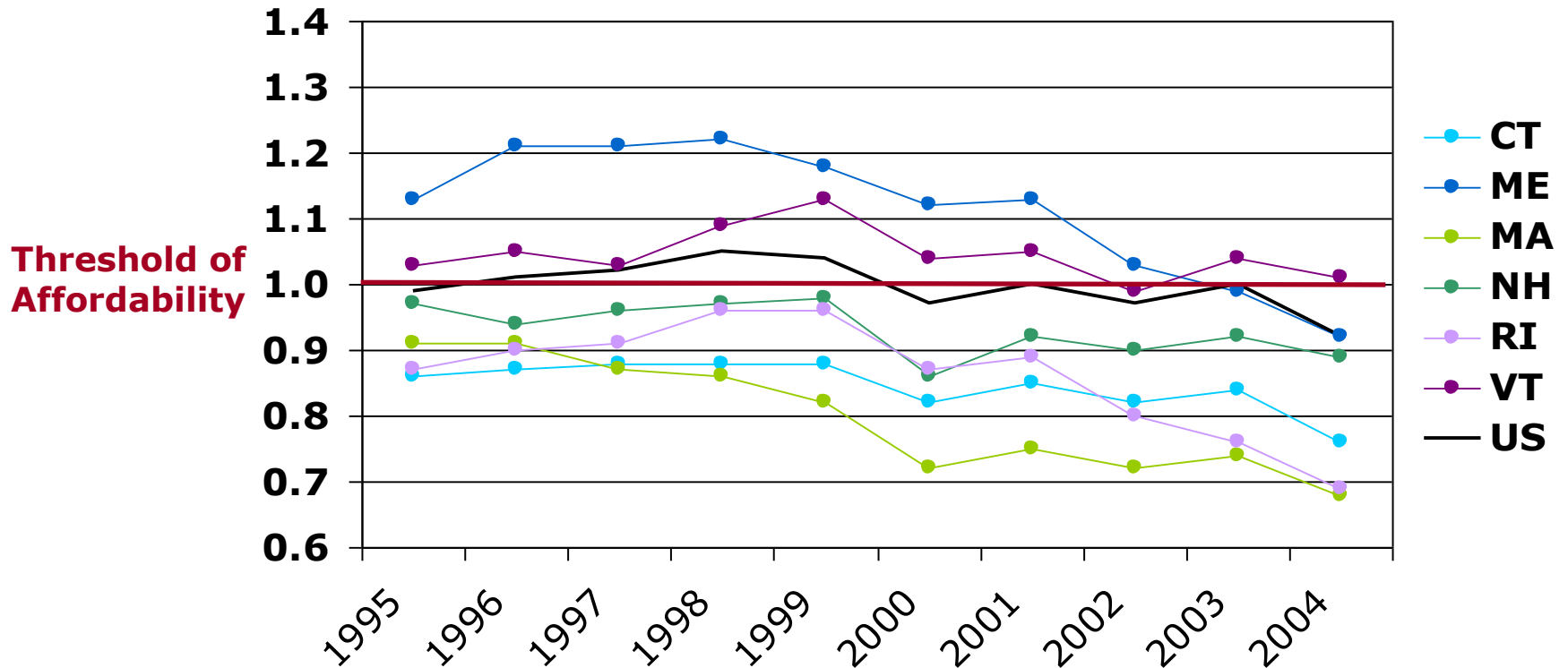
Ratio of Annual Household Income to
Income Needed to Afford the Median Priced House, 2004
Middle-Income Households



Sources: Incomes - Census and American Community Survey
House Prices - Federal Home Finance Board

Affordability Declining in Homeowner Market Since 1999

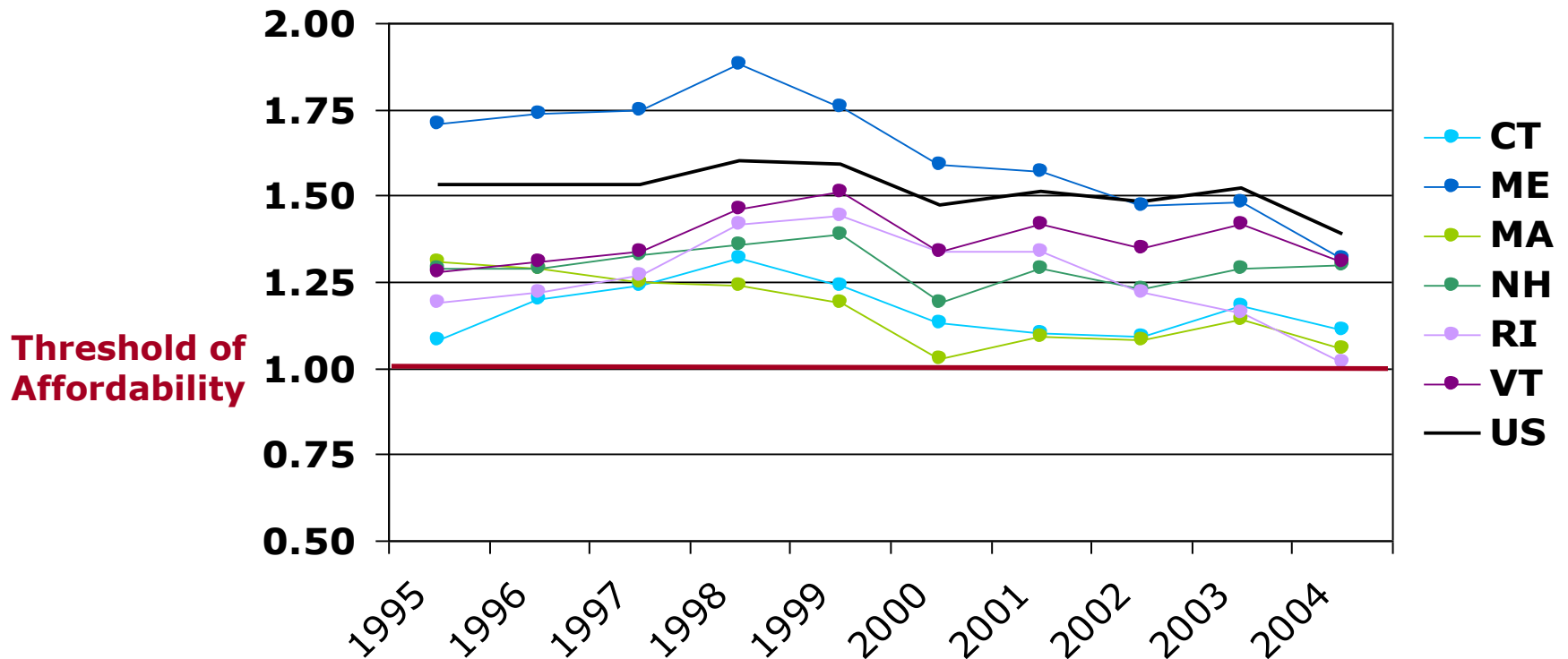
Ratio of Annual Household Income to
Income Needed to Purchase the Median Priced House
Middle Income Households



Sources: Incomes - Current Population Survey
House Prices - Federal Home Finance Board and OFHEO index.

Even for Households Headed by College Graduates...

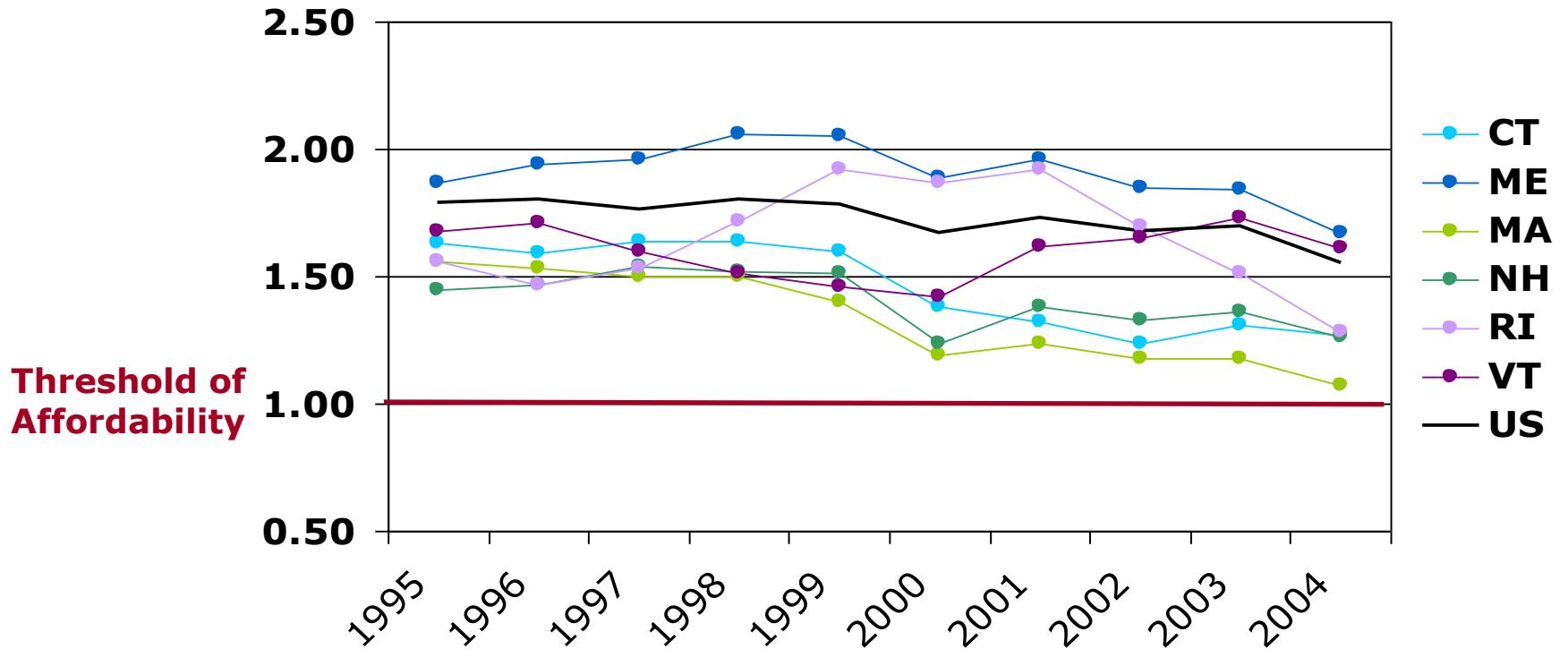
Ratio of Annual Household Income to
Income Needed to Purchase the Median Priced House
Household Head has a College Degree



Sources: Incomes - Current Population Survey
House Prices - Federal Home Finance Board and OFHEO index.

And Those With Members in a Service Occupation...

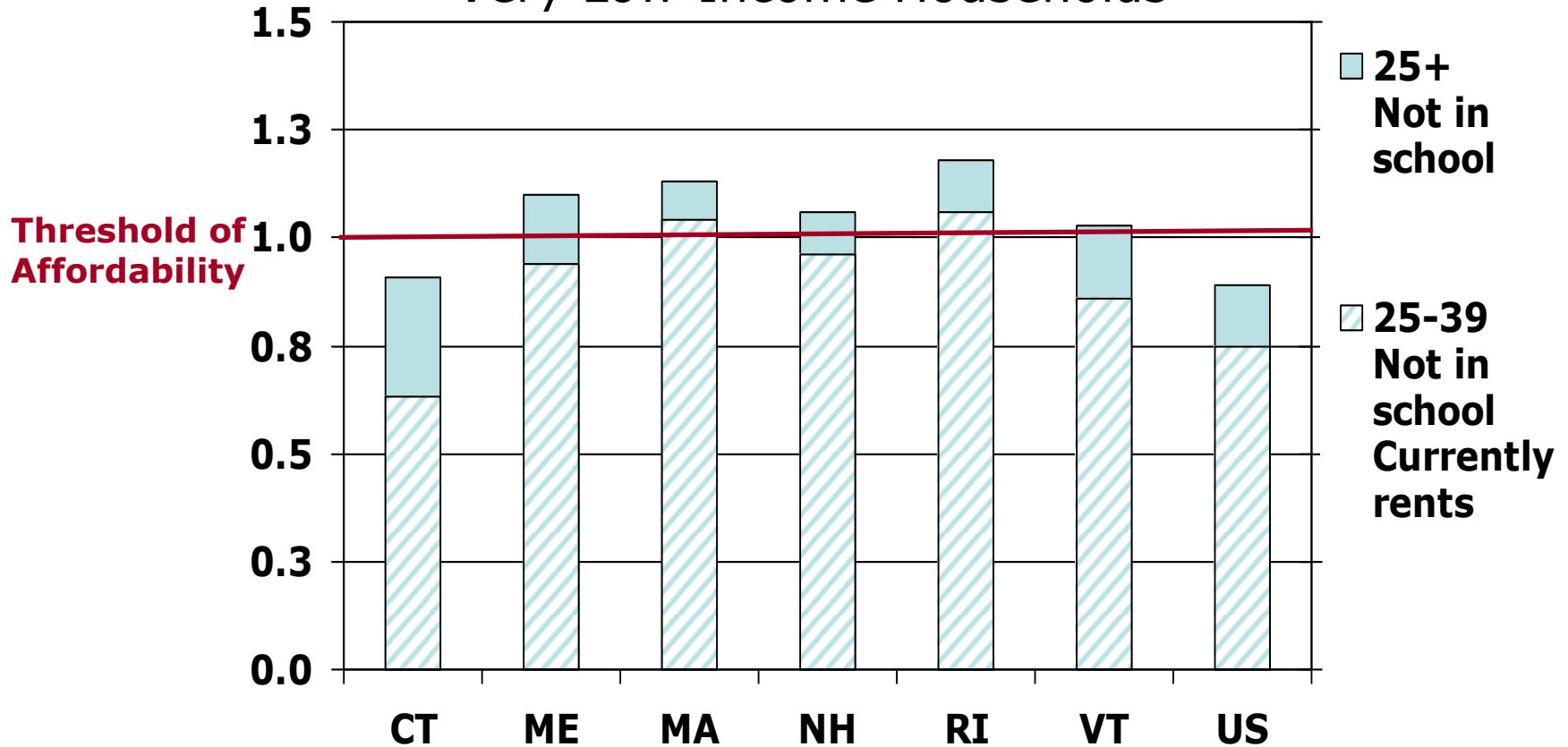
Ratio of Annual Household Income to
Income Needed to Purchase the Median Priced House
At Least One Member in a Service Occupation



Sources: Incomes - Current Population Survey
House Prices - Federal Home Finance Board and OFHEO index.

Affordability Gap Narrower for Renters in Most States

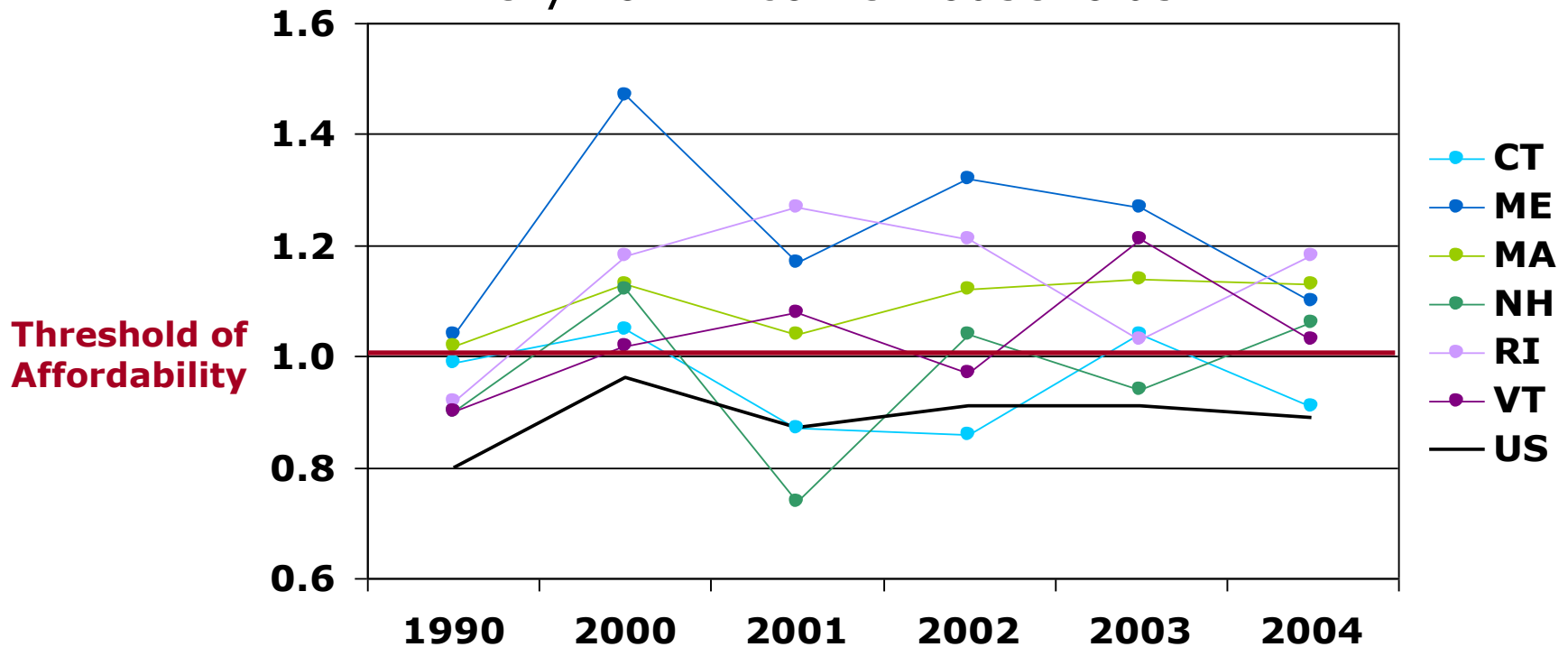
Ratio of Annual Household Income to
Income Needed to Afford 10th Percentile Apartment, 2004
Very Low-Income Households



Sources: Incomes - Current Population Survey
Gross Rents - American Community Survey

Trend in Affordability for Renters Mixed Since 2000

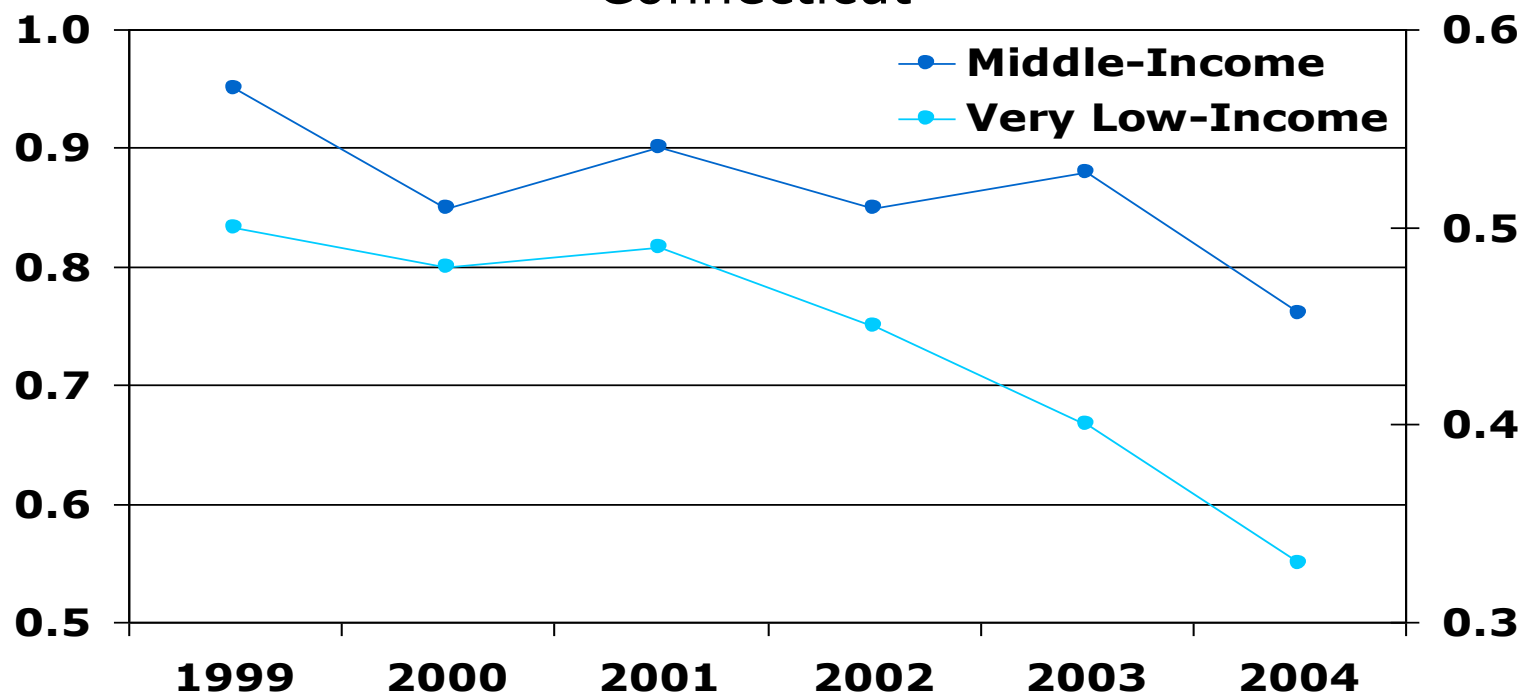
Ratio of Annual Household Income to
Income Needed to Afford 10th Percentile Apartment
Very Low-Income Households



Sources: Incomes – Census and Current Population Survey
Gross Rents – Census and American Community Survey

Affordability Declining More Sharply for Low-Income Homeowners than Other Groups

Ratio of Annual Household Income to
Income Needed to Purchase a House at Select Quintiles
Connecticut



Source: Incomes – Current Population Survey

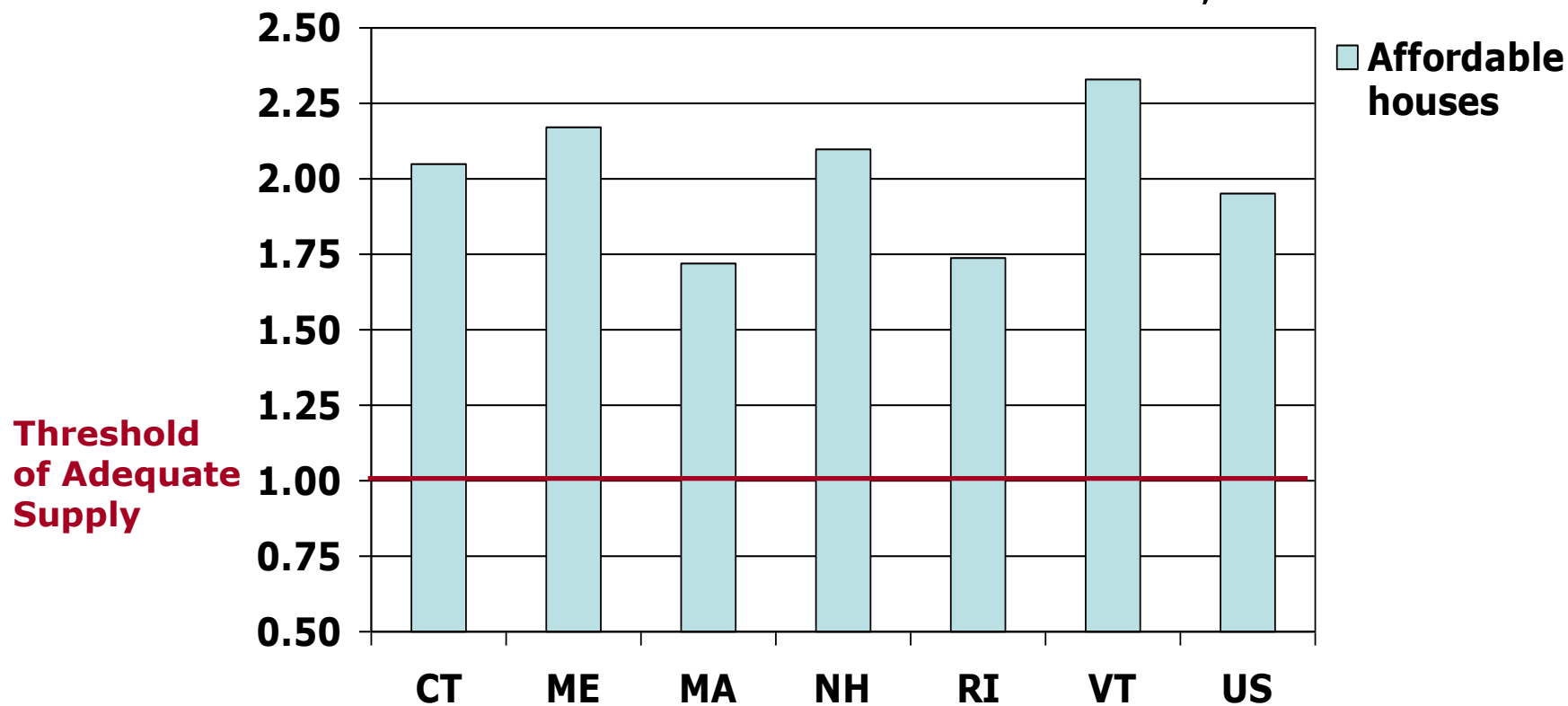
House Prices – Center for Real Estate and Urban Economics Studies at
the University of Connecticut.

Housing Supply Ratio

- Ratio of number of affordable units to number of households in a given income quintile
- Ratio of number of affordable units available to number of households in a given income quintile
 - Exclude units occupied by higher income households

Although there Appears to be a Sufficient Supply of Affordable Houses...

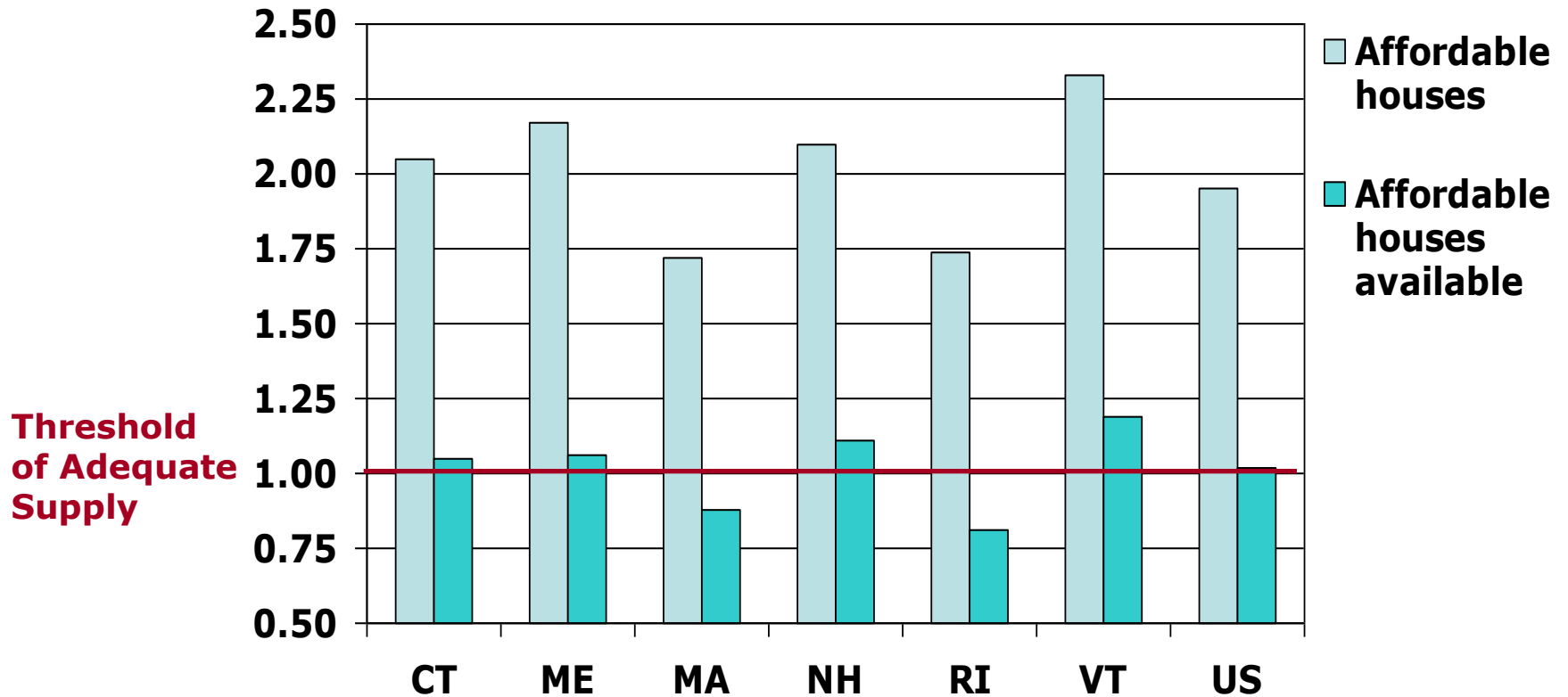
Ratio of Number of Affordable Units to Number of Middle-Income Households, 2004



Source: American Community Survey, 2004.

Less than Half of the Affordable Stock is Available...

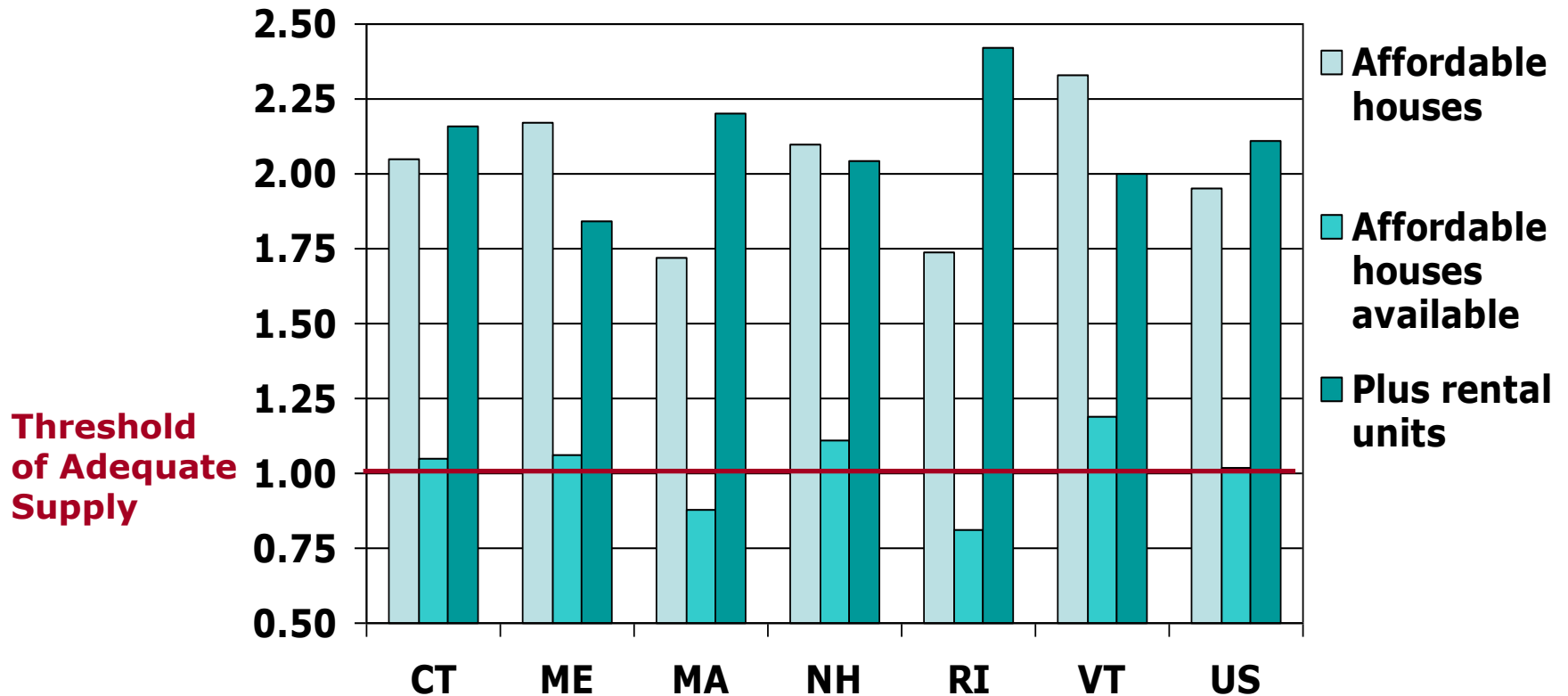
Ratio of Number of Affordable Houses to Number of Middle-Income Owner Households, 2004



Source: American Community Survey, 2004.

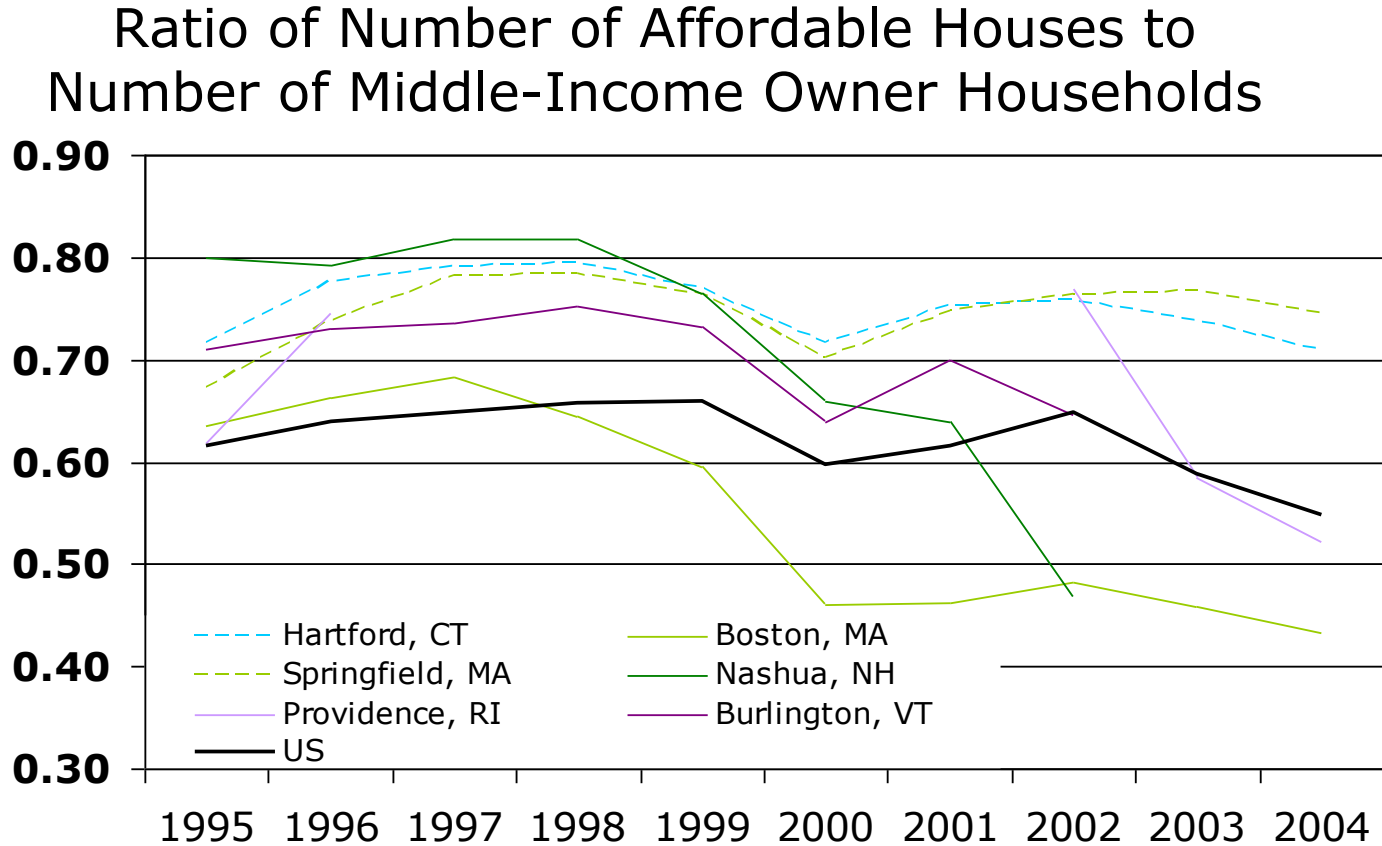
Although Rental Units Can Fill the Gap...

Ratio of Number of Affordable Houses to
Number of Middle-Income Owner Households, 2004



Source: American Community Survey, 2004.

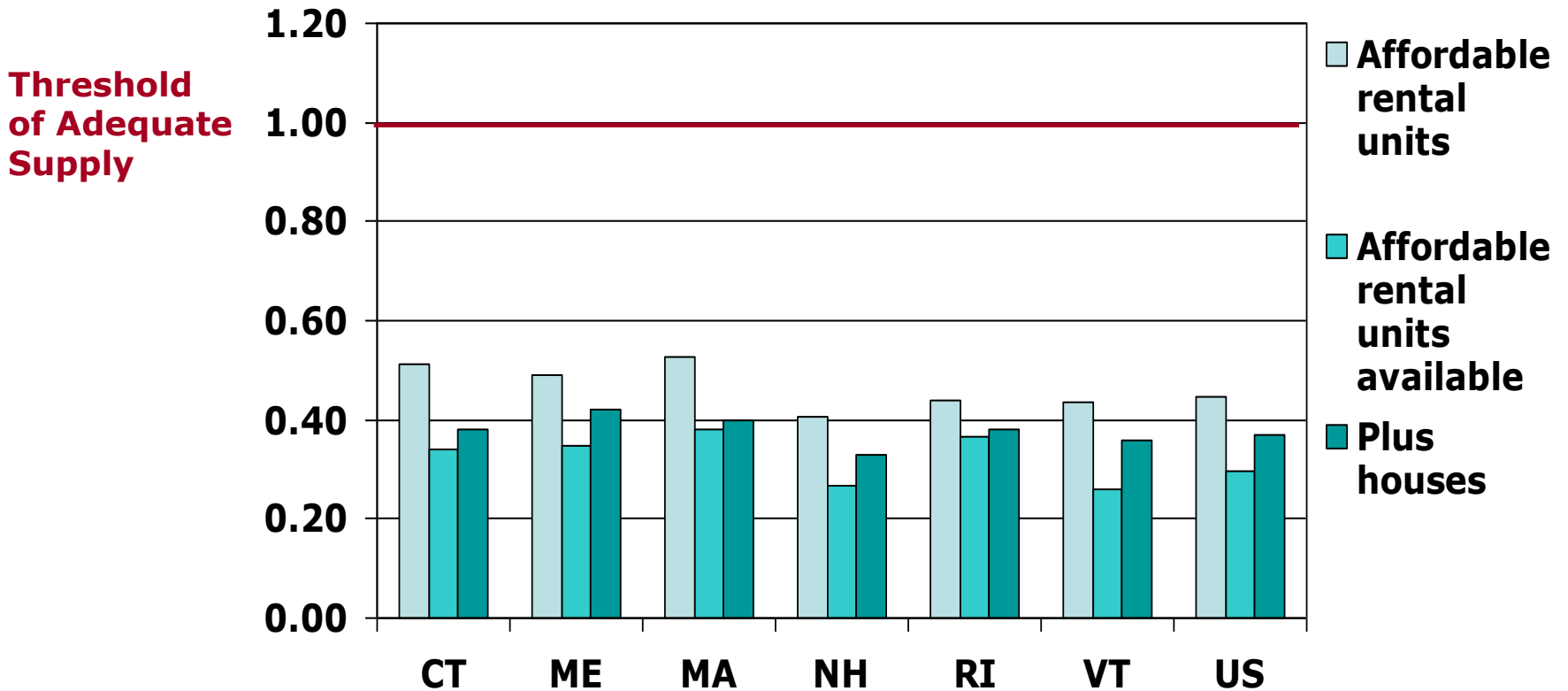
The Supply of Affordable Houses is Shrinking Over Time



Source: National Association of Homebuilders.

Supply of Affordable Units Not Sufficient for Low-Income Households

Ratio of Number of Affordable Units to Number of Very Low-Income Households, 2004



Source: American Community Survey, 2004.

Bottom Line on Affordability

- Has housing become less affordable in New England relative to the rest of the country?
- To what degree are high housing costs offset by high incomes in the region?
- Is housing becoming unaffordable for an increasing proportion of households in New England, including those that contain skilled workers?

Potential Causes for Housing Price Increase

- Two questions:
 - (1) Why have NE house prices increased?
 - (2) Why was NE appreciation faster?
- Demand and supply framework

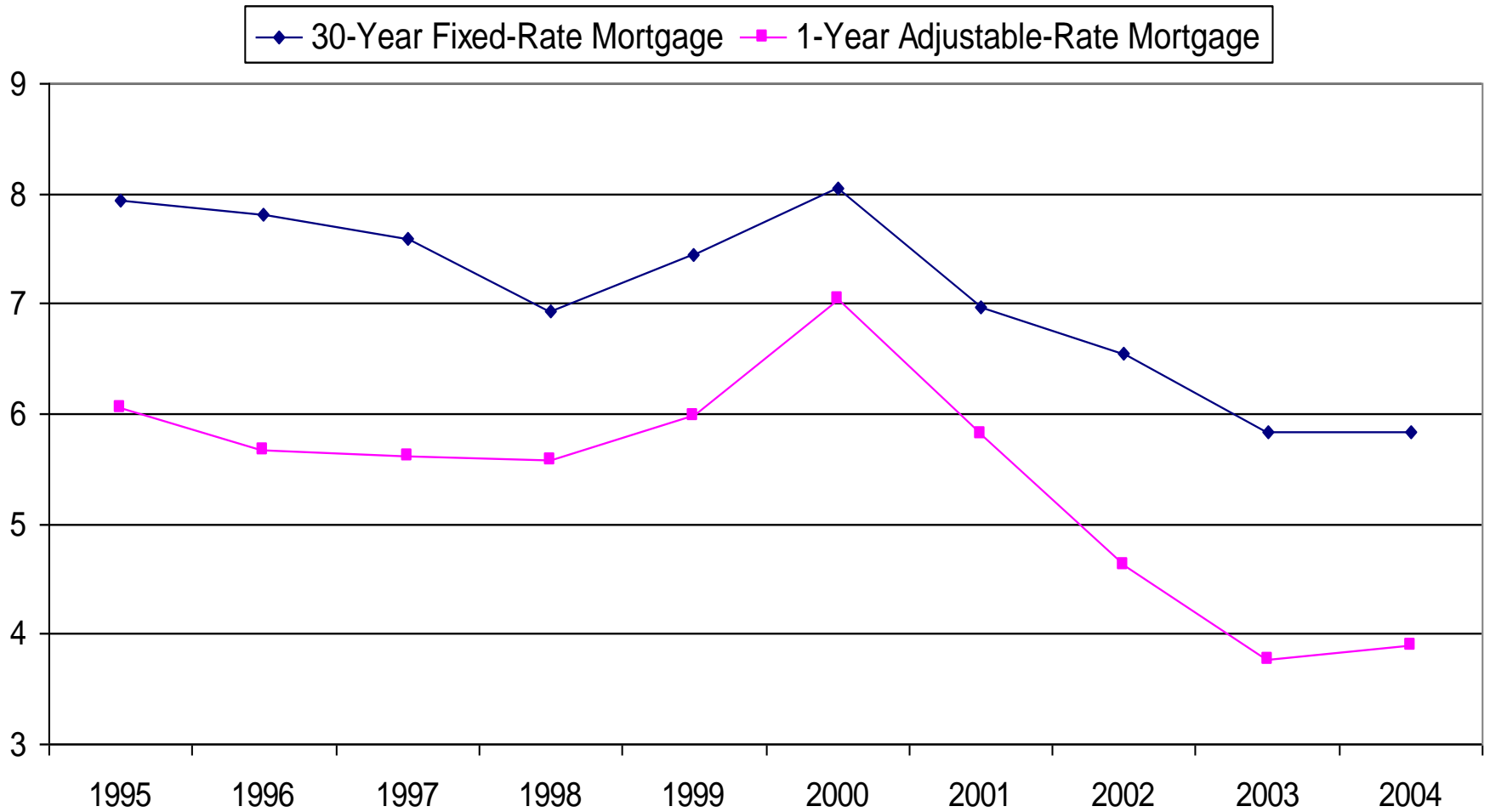
Potential Demand-Side Causes

- Mortgage credit condition
- Expectation and investment motive (speculative buying)
- Income growth
- Demographic changes

Mortgage Interest Rate

- User cost of owner-occupied housing:
Quigley and Raphael (2004)
Himmelberg, Mayer, and Sinai (2005)
- Formula:
 - ◇ Cost of Ownership = interest + property taxes
- tax deduction of interest and property tax
+ maintenance costs - capital gains + risk premium
 - ◇ The real interest rate is a key determinant

Mortgage Interest Rates Were Historically Low



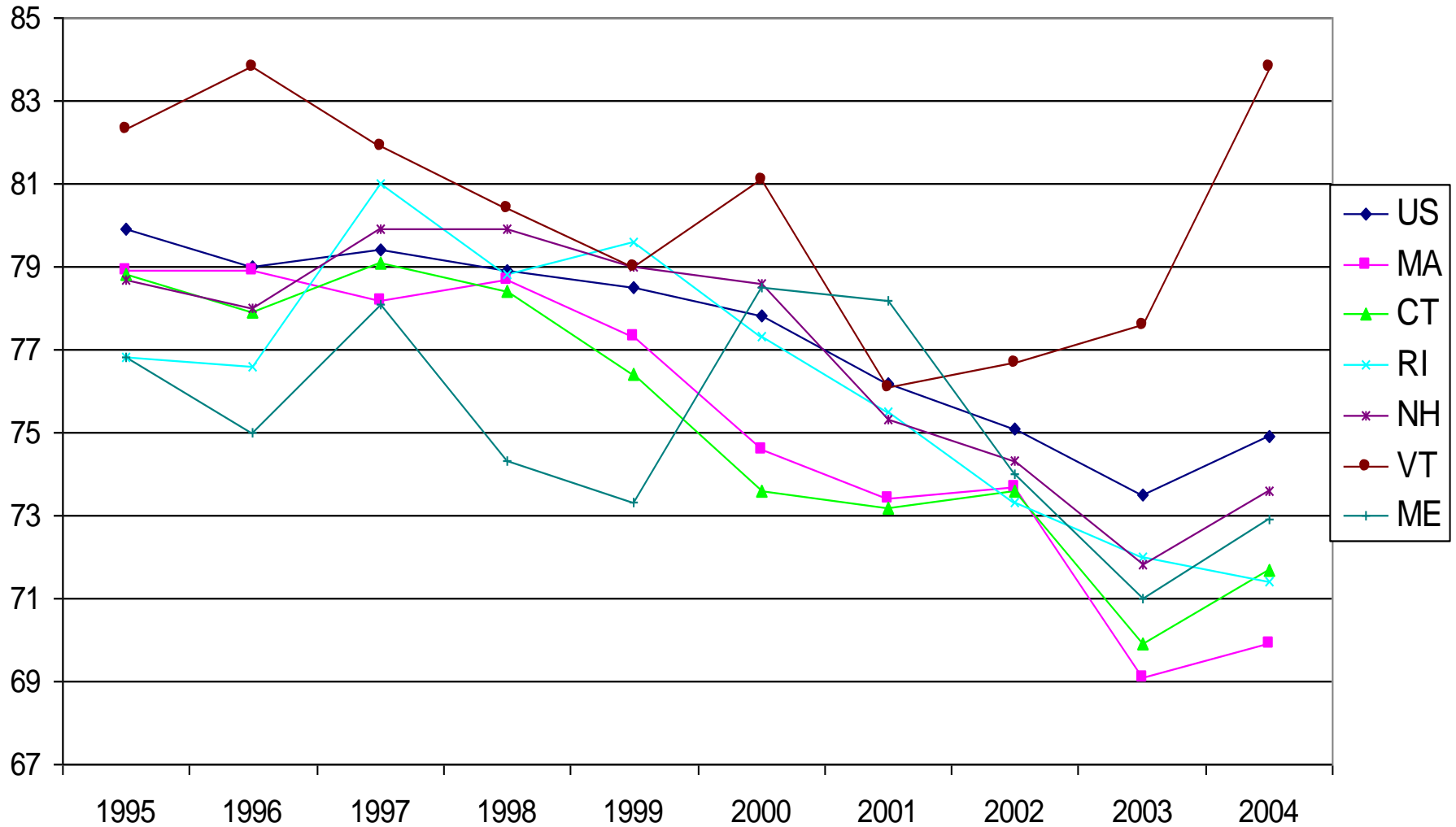
Borrowing Constraints

- Borrowing constraints based on
 - Wealth
 - Income
 - Credit quality
- Were borrowing constraints reduced?

Wealth Constraint

- Down payment: standard 20%
- Barakova, Bostic, Calem, and Wachter (2003),
Di and Liu (2005)
- $\text{Down payment} = 1 - \text{LTV}$
- If wealth constraint was reduced, LTV should have gone up

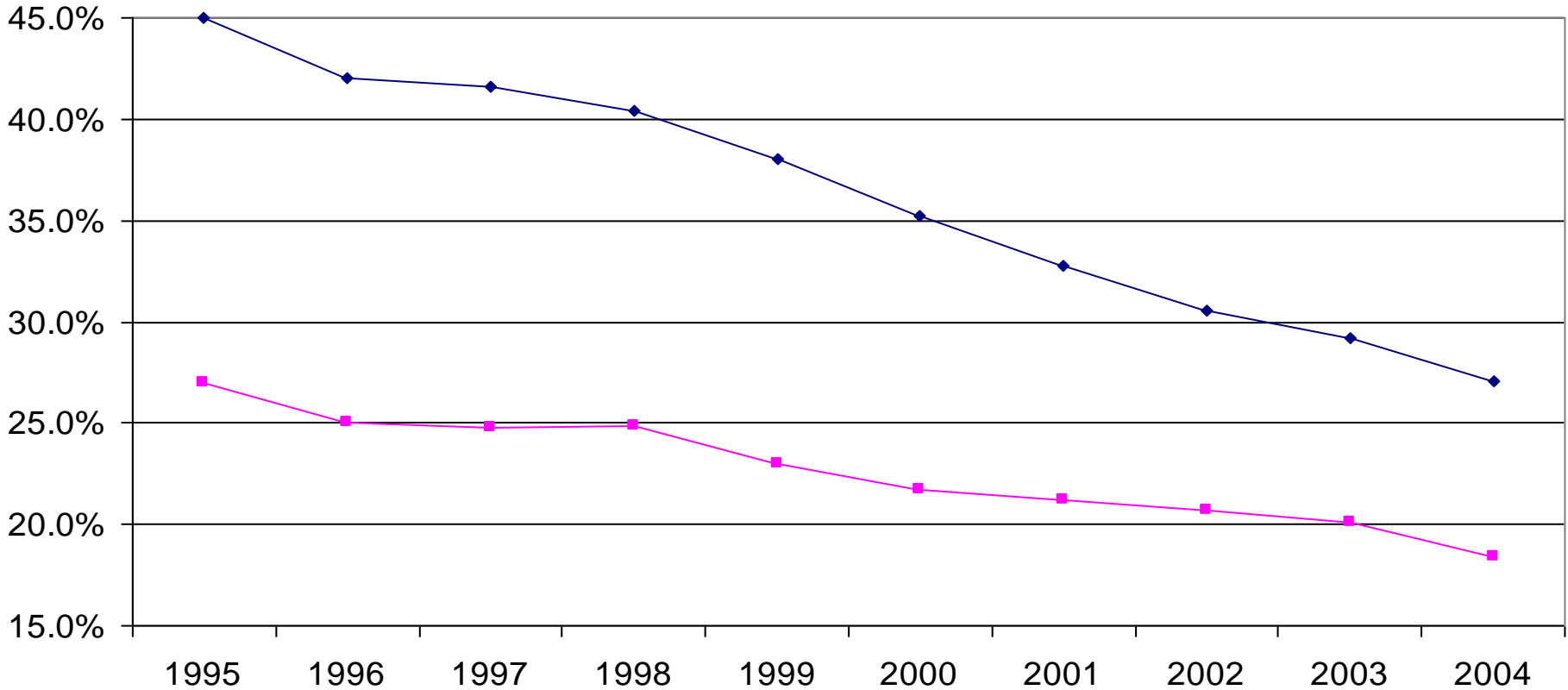
LTV went down from 1997 to 2003



Source: Federal Housing Finance Board

Nationwide share of high-LTV loans also decreased

◆ LTV>80% ■ LTV>90%



Source: Federal Housing Finance Board

No Positive Correlation between Share of High-LTV Loans and Appreciation in 2004

	% (LTV > 80%)	% (LTV > 90%)
United States	27	18
New England States		
Connecticut	18	10
Massachusetts	18	11
Rhode Island	19	12
New Hampshire	24	14
Maine	26	18
Vermont	55	38
New England Metros		
Boston-Worcester-Manchester	18	11
Hartford-W. Hartford-Willimantic	20	11
Providence-New Bedford-Fall River	22	13

Why did LTV go down?

- Existing homeowners: realize capital gains, put a larger down payment for a new loan
- Some lenders might have tightened underwriting standards during this period

Changes in Underwriting Standards in High-LTV Loan (% of Banks)

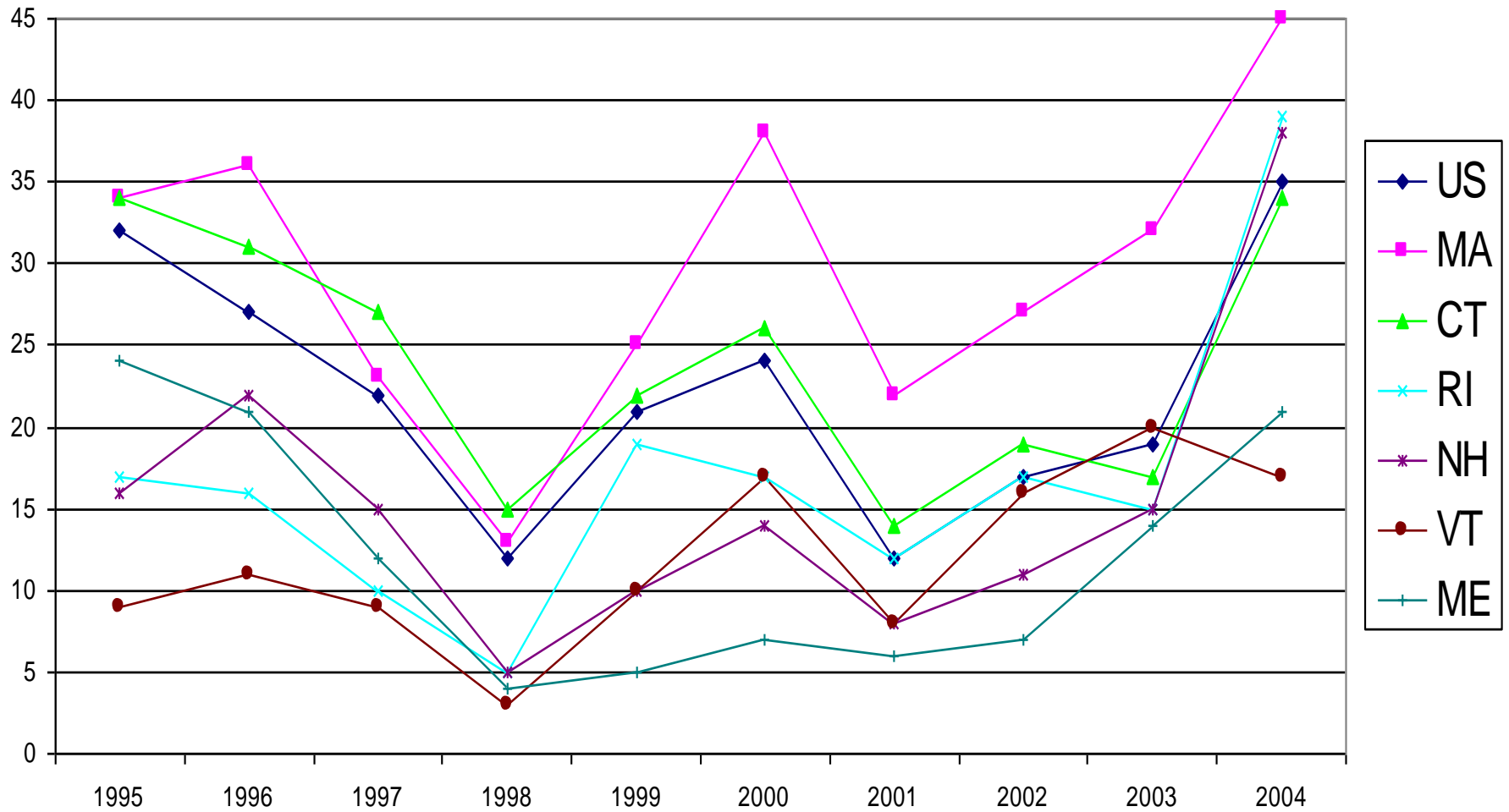
Year	Tightened	Unchanged	Eased	Tightened minus Eased
1999	19	61	20	-1
2000	24	55	21	3
2001	35	54	11	24
2002	44	56	0	44
2003	25	68	7	18
2004	11	71	18	-7
2005	20	56	24	-4

Source: OCC, Survey of Credit Underwriting Practices

Income Constraint

- Debt to income ratio requirement
- Di and Liu (2005)
- Lower interest rate
- Development of ARMs: Brueckner and Follain (1989)

Share of ARMs trending upward since 1998



Sources: Federal Housing Finance Board

Non-Traditional Loans have Surged in Recent Years

Level	% of Banks	1-Year Change	% of Banks
<5%	38.3	Substantially higher	12.2
5%-15%	31.9	Moderately higher	42.9
16%-25%	14.9	About the same	44.9
26%-50%	12.8	Moderately lower	0
>50%	2.1	Substantially lower	0

Source: Senior Loan Officer Opinion Survey on Bank Lending Practices, Federal Reserve Board, July 2005

Credit-Quality Constraint

- Borrowers with limited or impaired credit history
- Barakova et al. (2003)
- Subprime loans

No Positive Correlation between Share of Subprime Loans and Appreciation in 2003

	% Subprime Loans
United States	9.9
Vermont	4.5
Massachusetts	8.0
New Hampshire	9.6
Connecticut	10.2
Maine	10.6
Rhode Island	14.0

Source: Mortgage Bankers Association

Boston Homebuyers have high expectation on house prices, but so do homebuyers in Milwaukee

	Boston	Milwaukee
“Do you think that housing prices in the ___ area will increase or decrease over the next several years?”		
“Increase”	83.1	95.2
“Decrease”	16.9	4.8
“On average over the next 10 years, how much do you expect the value of your property to change each year?”		
Mean	14.6	11.7
(Standard Error)	(1.8)	(1.3)

Source: Case and Shiller (2003)

Many homebuyers are influenced by market excitement in both Boston and Milwaukee

	Boston	Milwaukee
“Housing prices are booming. Unless I buy now, I won’t be able to afford a home later.”		
“Agree”	37.1	36.4
“Disagree”	62.9	63.6
“There has been a good deal of excitement surrounding recent housing price changes. I sometimes think that I may have been influenced by it.”		
“Yes”	29.6	34.8
“No”	70.4	65.2

Source: Case and Shiller (2003)

Investment Motives and Speculative Buying

- Housing has dual function: consumption and investment
- The Boston Globe, 08/21/05, featured a “flipper” story: “From ‘Sold’ to ‘for Sale’ in 31 Days”
- Is speculative buying a significant factor?

Boston homebuyers have strong investment motives, but that is not unique.

	Boston	Milwaukee
“In deciding to buy your property, did you think of the purchase as an investment?”		
“It was a major consideration.”	33.9	50.3
“In part.”	56.2	42.2
“Not at all.”	9.9	7.5
“Why did you buy the home that you did?”		
“Strictly for investment purposes.”	8.2	13.8

Source: Case and Shiller (2003)

Share of Home Purchase Loans Not for Owner-Occupancy (One-to-Four Family)

	1995	2004	Difference
United States	6.2	13.7	7.5
New England	5.0	11.0	6.0
Massachusetts	5.2	9.8	4.6
Connecticut	3.4	8.2	4.8
Rhode Island	5.9	12.4	6.5
New Hampshire	5.0	12.2	7.2
Maine	9.1	18.4	9.3
Vermont	5.0	22.8	17.8
Boston	3.9	7.2	

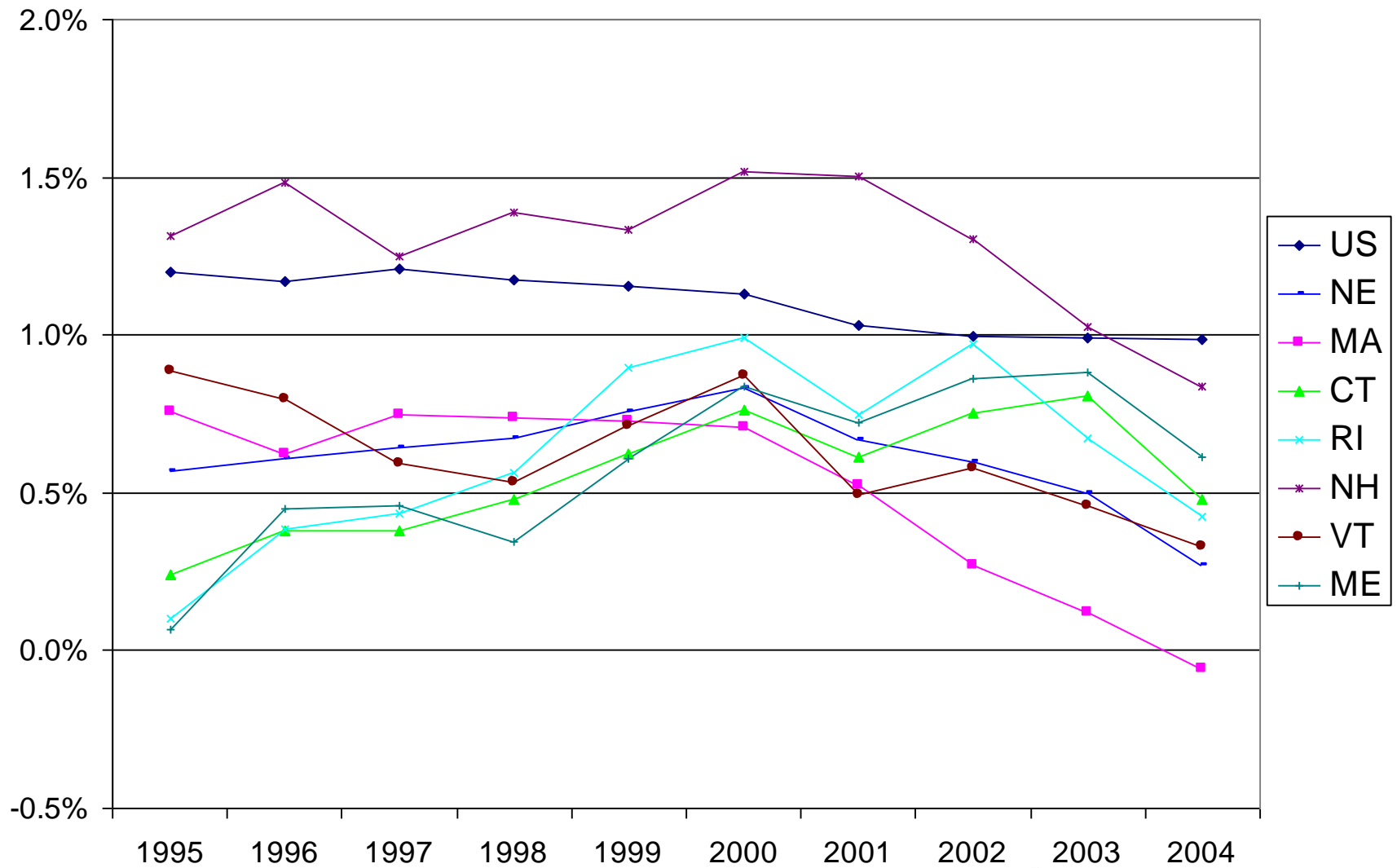
Source: HMDA

NE experienced larger income growth than US between 1995 and 2004

	Increase in Real Per Capita Personal Income
United States	21.2
New England Region	27.3
Rhode Island	23.4
Connecticut	24.2
New Hampshire	27.1
Maine	28.9
Massachusetts	29.3
Vermont	32.5

- Nationwide income sorting into “superstar cities” in the long run: Gyourko, Mayer, and Sinai (2004)
- Income inequality increased more in NE: Lynch (2003)

NE experienced population growth, but at a slower rate than US



Source: U.S. Census Bureau

NE saw a larger increase in share of middle-aged population (aged 30-60)

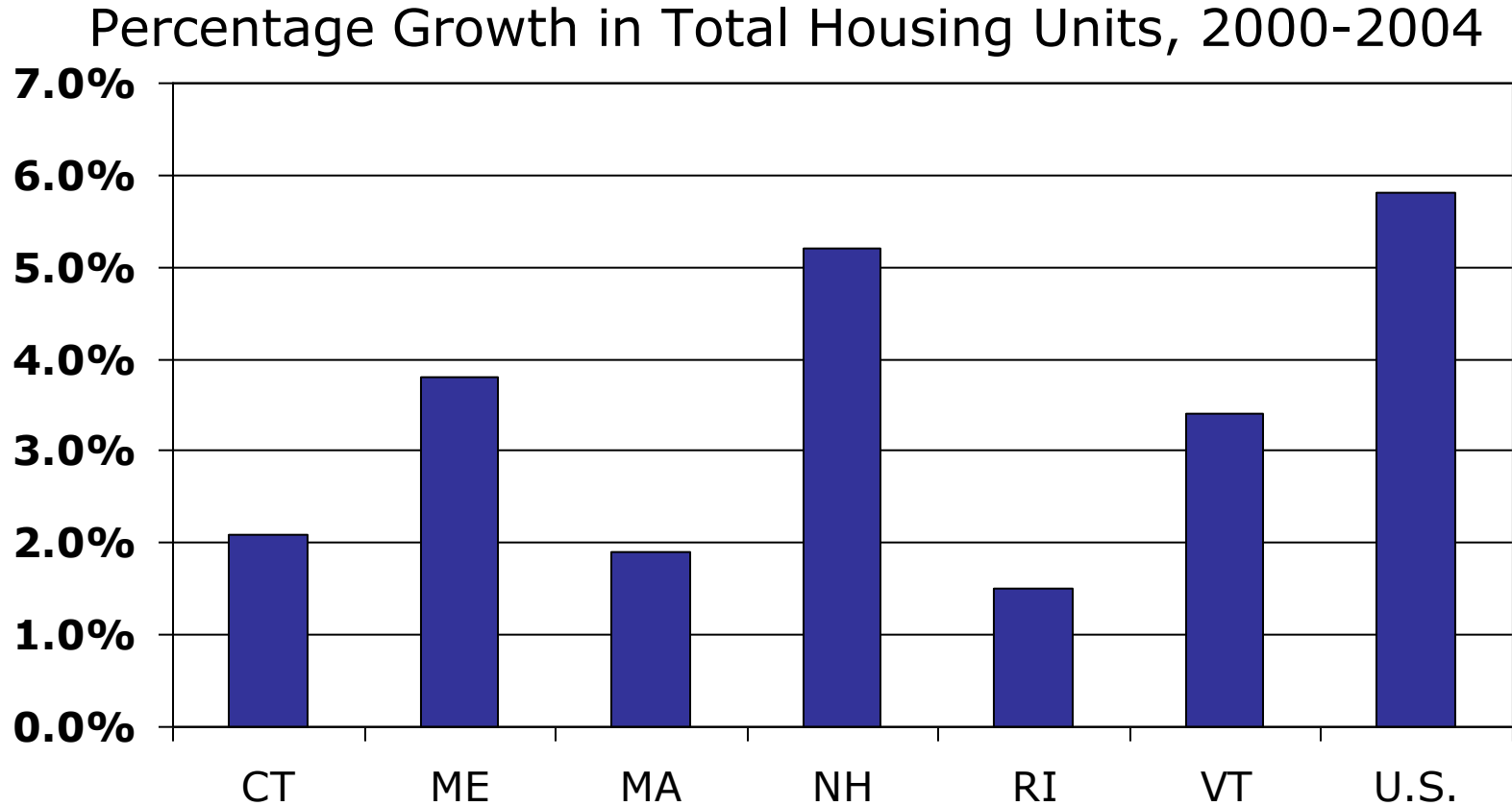
	1995	2004	Difference
United States	41.1	42.9	1.8
New England	42.4	45.4	3.0
Maine	43.9	44.2	0.3
Vermont	44.8	45.8	1.0
Connecticut	41.9	44.0	2.1
Rhode Island	40.8	44.2	3.4
New Hampshire	43.9	47.4	3.5
Massachusetts	42.1	46.2	4.1

Source: Current Population Survey

Potential Underlying Causes on the Supply Side

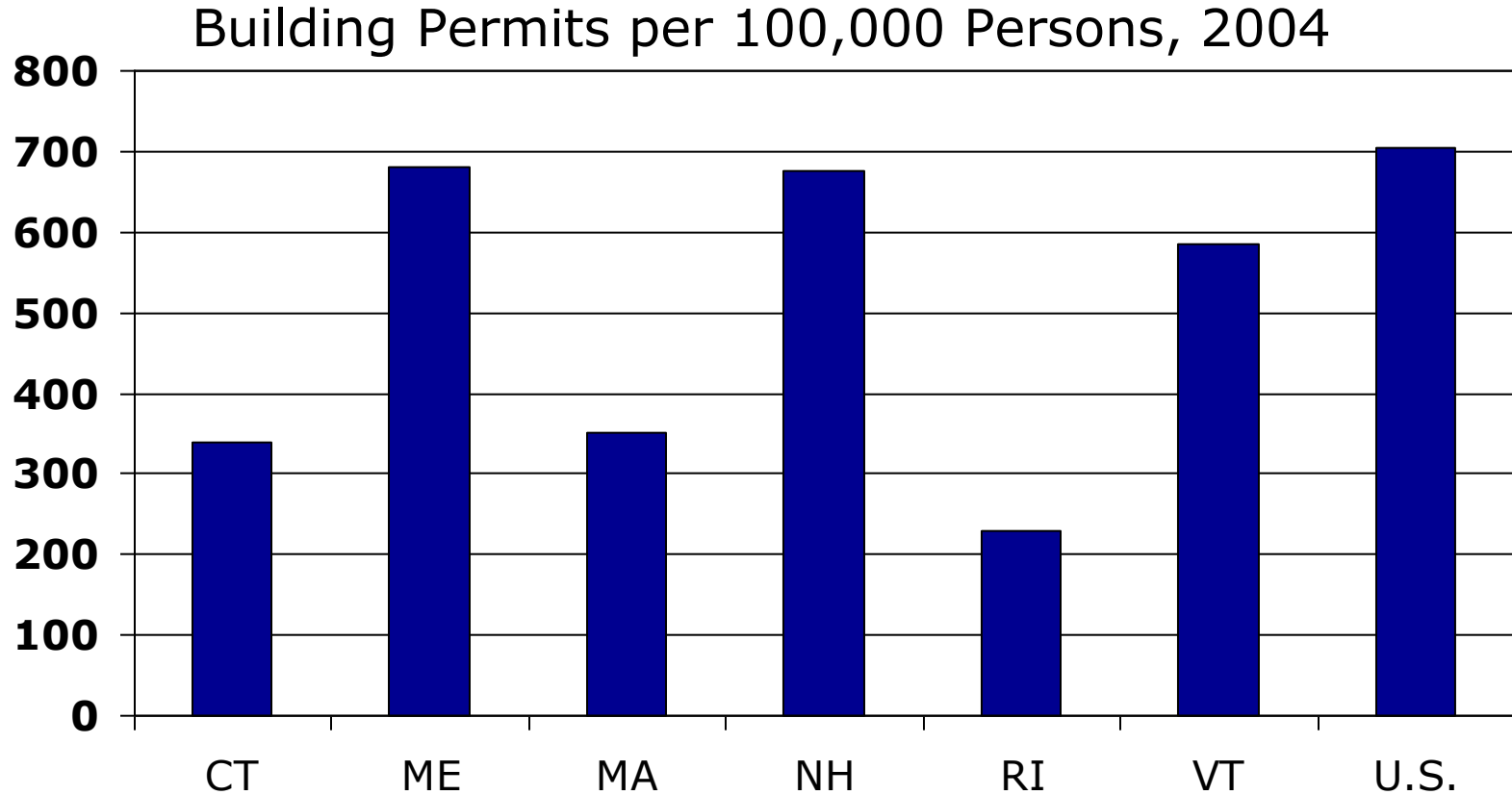
- In a free market, rising prices will prompt producers to supply more housing
- But areas in New England where prices have risen more rapidly (MA, RI), have produced less -rather than more - new housing

Growth in New Housing Completed Slower in NE



Source: U.S. Bureau of the Census.

Growth in Permits for New Construction Slower in NE



Source: U.S. Bureau of the Census.

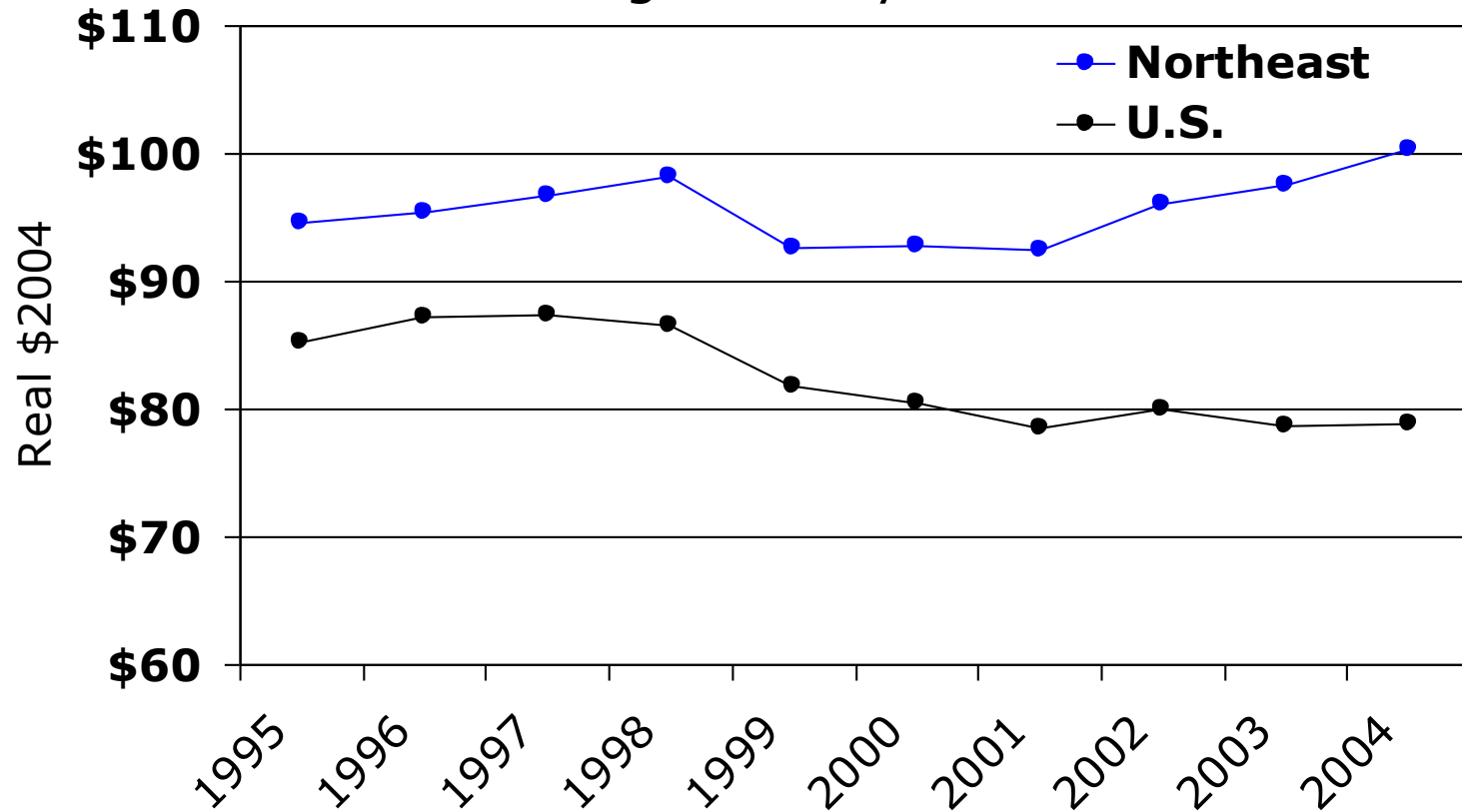
Three Basic Components of Housing Supply

- Physical structure
- Land
- Government approval to build on the land

House Prices = Construction Costs + Land Prices + Cost of Regulatory Barriers

Construction Costs Grew by Only 5% Over the Decade

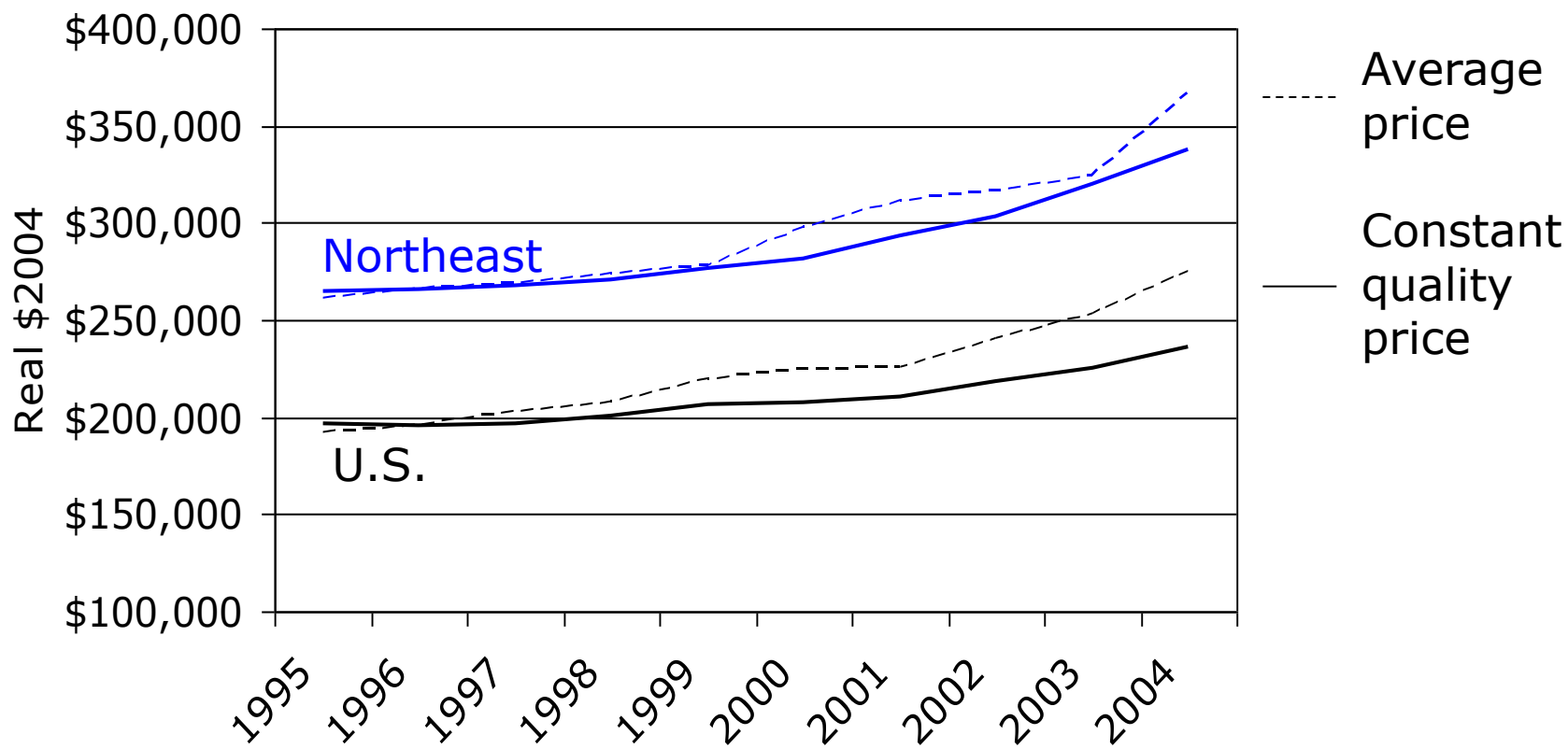
Real Median Construction Cost per Square Foot in New Single-Family Houses



Source: National Association of Home Builders.

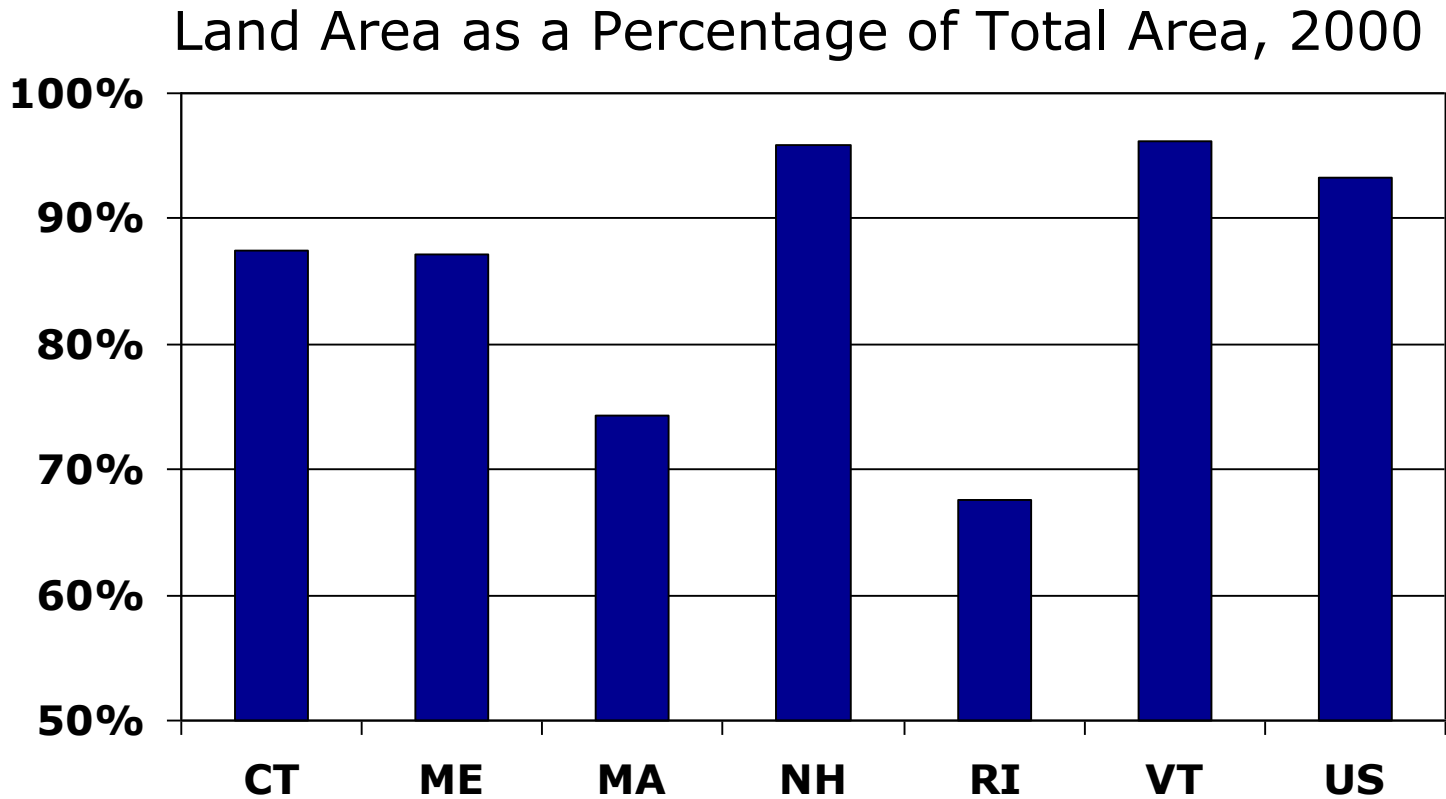
Changes in Quality Account for Only 30% of Growth in House Prices

Real Average Sales Price of Single Family Houses Sold Versus "Constant Quality" House Sold



Source: U.S. Bureau of the Census.

Supply of Available Land is Lower in Some NE States



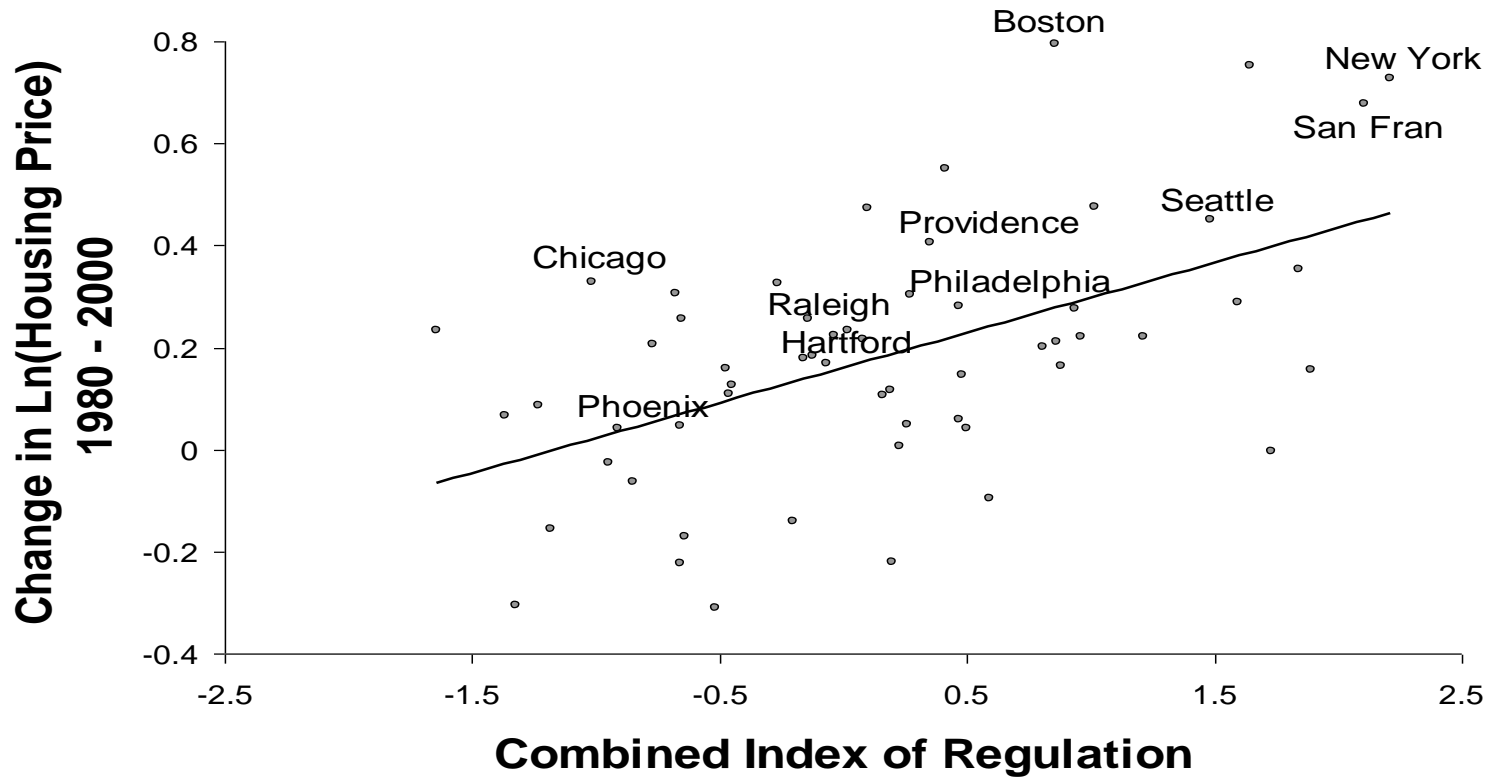
Source: U.S. Bureau of the Census.

Regulatory Barriers

- Greater government regulation can lead to higher housing prices by constraining supply
 - Increasing the costs of construction
 - Restricting the number of units built
- Two categories of regulation
 - Building codes
 - Land-use regulations

Stricter Regulations are Correlated with Higher Prices...

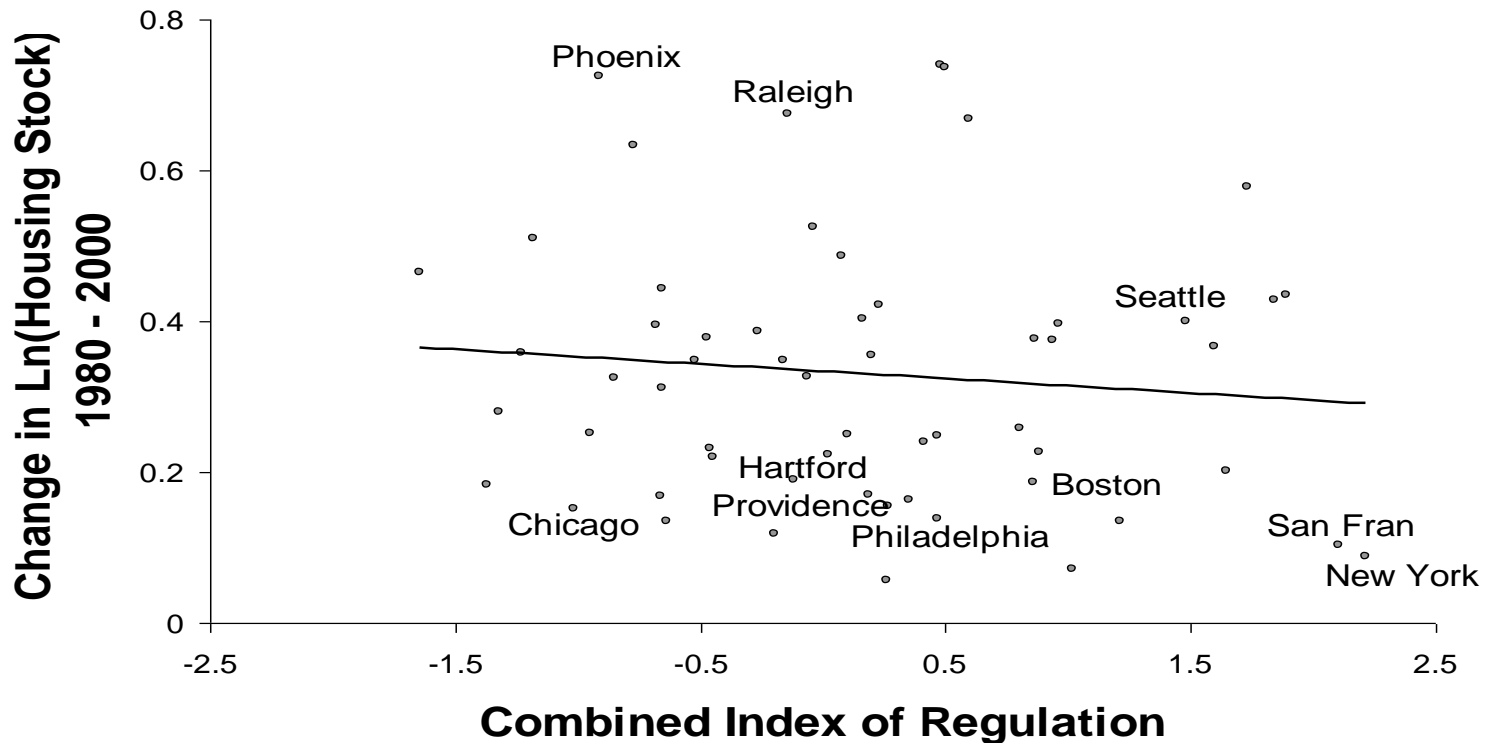
Correlation Between Change in House Prices and Combined Index of Housing Regulation, 1980-2000



Source: Saks (2004).

And Lower Supply...

Correlation Between Change in Housing Stock and Combined Index of Housing Regulation, 1980-2000



Source: Saks (2004).

Land-Use Regulations

- Land-use regulations include
 - characteristics zoning: minimum lot size, set-back requirements
 - Land-use zoning: exclusionary zoning, permit limits
- Greater stringency of land-use regulations has been shown to increase house prices by 17 to 50 percent
- Generally there is a larger impact for characteristics zoning than land-use zoning

Costs versus Benefits of Regulations

- Regulations can correct for negative externalities associated with rapid growth
- Whether regulations are costly or beneficial depends on how they affect prices
 - If house prices rise because regulations reduce supply, then there is a net loss of social welfare
 - If house prices rise because regulations increase demand, then the net social benefits may be positive

Costs versus Benefits of Regulations

- Increase in house prices associated with greater regulation likely to stem from a combination of supply and demand factors:
 - Spillover effects: land-use regulations in areas adjacent to an MSA increase prices within that MSA (Pollakowski and Wachter 1990, Cho and Linneman 1993)
 - New construction: more restrictive regulations reduce both the current level and future growth of new construction within an MSA (Mayer and Somerville 2000, Saks 2004)
 - Filtering: greater regulation increases the probability that an affordable unit will filter up and out of the affordable stock (Somerville and Mayer 2003)

Ongoing Policy Initiatives

- Financing: Market incentives
 - Decreased role of the federal government and a shift in policy to market incentives suggests the private sector will be called upon to play a larger role
- Development: “Smart” growth
 - The need to align housing production and other community development goals points to greater use of mixed-use zoning districts and location of housing near transit and employment centers
- Zoning reform: Mitigate local costs using public funding
 - Restrictive zoning laws have been identified as an area for concern prompting initiatives to mitigate the cost of new development to communities