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Recipe for Growth

Analysis of 242 metro areas shows most common ingredients for job creation and why housing is key to Massachusetts' economic future

PREPARED FOR THE

Massachusetts Housing Partnership

BY

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More information:

This report is also available
online at www.mhp.net.



Acknowledgements

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Boston Herald. Recent policy studies include a study of the long-term economic outlook for Massachusetts, based on interviews with CEOs of 40 high tech companies in the Boston area and an analysis of public sector design practices in Massachusetts. In 2005, he authored a study for the Massachusetts Housing Partnership on the relationship between open space, housing construction and home prices to determine the potential payoff from smart growth zoning principles.

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The Massachusetts Housing Partnership

MHP is a quasi-public agency that provides long-term loans for affordable rental housing using private bank funds and at no cost to the taxpayer. This is possible due to a 1990 state law that requires companies that purchase Massachusetts banks to set aside a portion of the acquired assets to MHP. Since 1990, MHP's loan pool has grown to over \$1 billion and it has provided

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Measuring the major factors of job growth in Boston, across the country



EVEN IN THE MIDST OF A SOFT HOUSING market it is vitally important to understand how housing construction contributes to the long-term growth of the Massachusetts economy. A new approach to private housing development in the Commonwealth could increase our economic competitiveness and reduce our vulnerability to future recessions.

Hence, it's important to ask why did greater Boston and Massachusetts trail other parts of the United States in economic growth from 2000 to 2006? And what is the

housing-job growth connection—specifically how do high prices and Massachusetts' restrictive, large-lot zoning discourage economic growth?

To get the broadest understanding, this analysis looked at 242 metropolitan statistical areas (MSAs), including every major metro area in the country. All told, these 242 metro areas account for 227 million people—over two-thirds of the U.S. population.

To help understand how Boston stands in relation to other larger cities, this report also looks

separately at the 56 largest cities—those with at least 400,000 jobs in 2006. Amongst the smallest of these metro areas are Omaha (Nebraska), Dayton (Ohio), and Albany-Schenectady-Troy (New York).

Because the various factors that impact economic growth are inter-related (climate affects migration patterns; housing prices influence migration

choices), it's not possible to understand the impact of any given factor without looking at all the major factors.

This analysis encompasses a wide range of variables, including employment by

industry and by occupation, population by age and educational attainment, in- and out-migration, wage rates, housing prices, housing construction, tax rates, climate, business size, higher education capacity, and extent of self-employment.

Economic growth is measured by the increase in metro-area employment from 2000 to 2006. Specifically, this report looks for common patterns amongst rapidly—and not-so-rapidly—growing cities. This report is also available in expanded form online at www.mhp.net.

MEASURING THE
CONNECTION BETWEEN HOUSING
AND ECONOMIC GROWTH.



4 things you need to know to read this report

1. How the report defines metropolitan areas

This report compares metropolitan areas, not central cities alone. “Boston” means the Boston metro area, stretching from Worcester to Plymouth and from Brockton to southern New Hampshire. In the charts shown here, “Boston” is limited to eastern Massachusetts.

Outside New England, the census always defines metro areas along county lines. Because this report is based on county data, the New England metro areas as defined here are slightly different from the official census definitions, but follow the official definitions as closely as possible.

Greater Boston includes Essex, Middlesex, Norfolk, Plymouth, Suffolk, and

Because metro areas are defined to include whole counties, they often include extensive rural areas. For example, greater Los Angeles includes most of the Mojave Desert and extends to the Nevada border.

2. How to understand bubble charts

The findings in this report are summarized here in a series of bubble charts—charts which illustrate simultaneously the impact on employment growth of two separate factors, and which give more visual emphasis to the larger metro areas. Chart 2, which appears in reduced form on the left and in full size on Page 4, shows us the relationship between manufacturing, housing construction, and employment growth for all 242 cities. Here’s how to understand what the chart says.

- a. Each metro area is shown as a circle; the bigger the population of the city, the bigger the circle.
- b. Each city’s vertical position represents its annual employment growth.
- c. Each city’s horizontal position represents the percent of its 2000 workforce in manufacturing.
- d. Each city’s color indicates the extent to which it increased its housing stock from 1990 to 2000 (green, blue, orange, and purple indicate, respectively, very large, large, modest, and small increases).

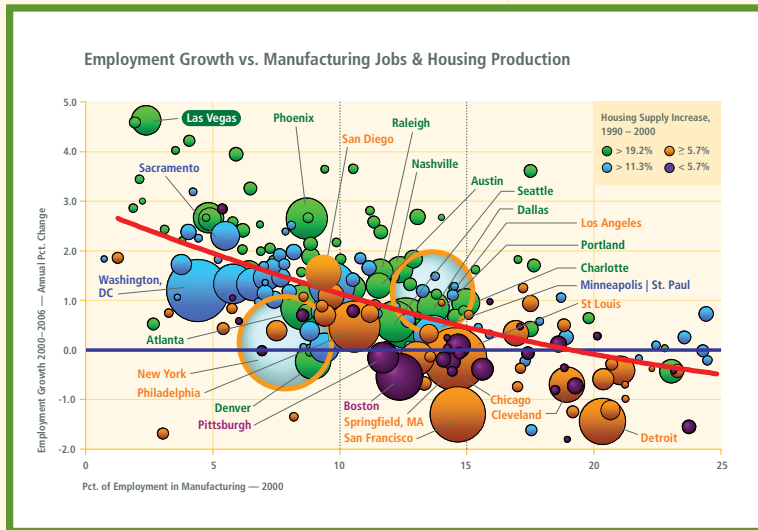


Chart 2 Worcester Counties in Massachusetts and Hillsborough, Merrimack, Rockingham, and Strafford Counties in New Hampshire. Bristol County, Massachusetts (New Bedford, Fall River) is included in the Providence metro area.

For example, Las Vegas is colored green, in the upper left corner—high growth (4.6 percent per year), low manufacturing (2.4 percent of total employment), and high housing construction. Detroit is orange, in the lower right—low job growth, high manufacturing, modest home construction.

The cities' circles on the chart fall in a rough band from upper left to lower right. The statistical trend is represented by the heavy red line. The slope of this trend line—from upper left to lower right—means that a larger manufacturing sector generally means lower employment growth.

Manufacturing is not the only factor that influences growth; that's why some cities are above the trend and others below. The circles are colored to reflect housing construction. Cities in the top third in housing construction are shown in green; the middle third in blue and the bottom third in orange

from 2000 to 2006 with the 65 cities where employment fell. The chart allows us to compare the impact of several different migration measures on economic growth.

Starting at the far left, we're looking at foreign-born as a percent of working-age population. The vertical scale for all the variables relates individual cities to the national average for all cities (shown by the blue horizontal line). Each vertical line represents the range in which 90 percent of all cities fall (the 5th percentile to the 95th), and the box represents the range in which half of the cities fall. In this first box, then half of the high-growth cities have a foreign-born percent between 80 percent (the 25th percentile) and 163 percent (the 75th) of the average for all cities. As the chart makes clear, most high-growth cities have a substantially higher foreign-born population than most low-growth cities.

4. More information online

The online version includes more data on all 242 metropolitan areas included in this analysis.

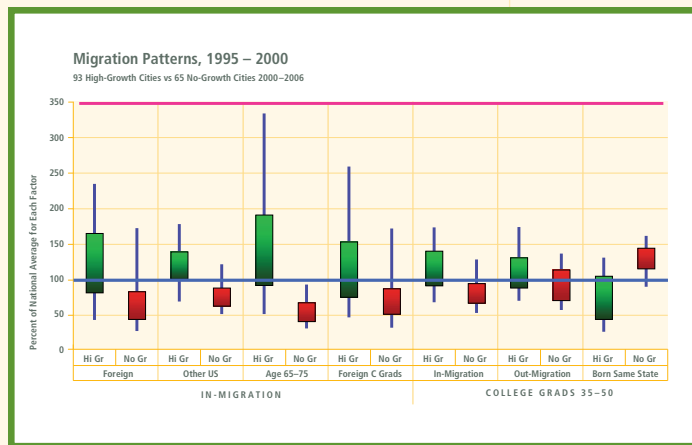


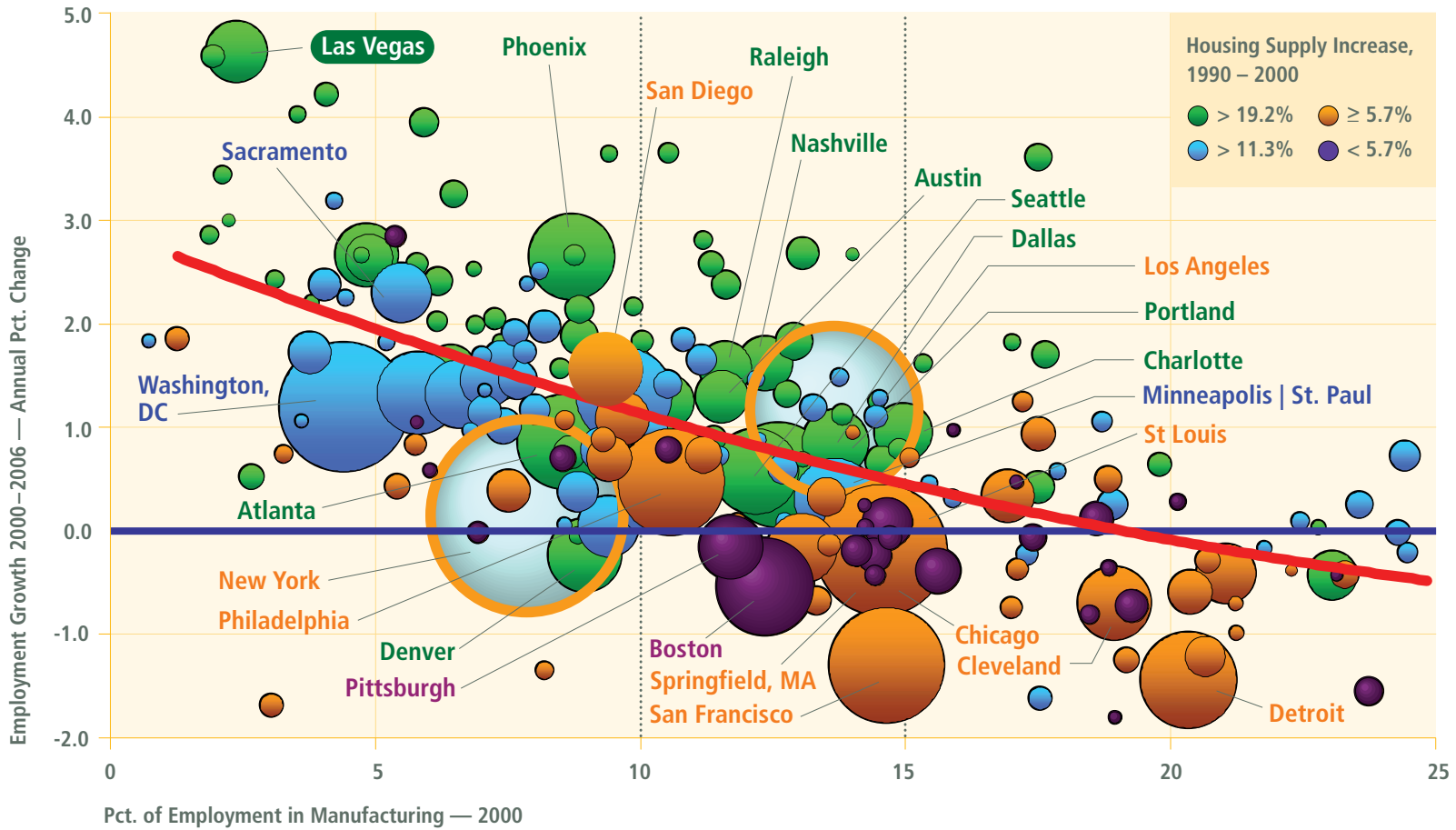
Chart 7 (low) or purple (very low). Boston, with very low housing construction, had less employment growth than we'd expect from its manufacturing alone.

Keep this explanation in mind and refer to it as you read this report.

3. How to read Whisker Chart

Whisker Charts compare two groups of cities, giving us a richer picture than a simple comparison of averages. One such chart appears in this summary (on Page 14). In the Whisker chart shown in condensed form at left, we're comparing the 93 cities that had high employment growth

Employment Growth vs. Manufacturing Jobs & Housing Production



Large manufacturing means slower growth

Metro Boston's manufacturing falls in middle, but has low employment growth

REGRESSION ANALYSIS IS A STATISTICAL tool that sorts the relative importance of several explanatory factors. Using this method, the report found that the three major determinants of economic growth were:

1. The composition of each city's economy.
2. Its ability to expand its housing stock.
3. Its attraction as a destination for inter-city migration.

variation across cities. As we'll see, more housing built today means more jobs tomorrow. Wage rates "explain" an additional 1.2 percent of variation.

The influence of job composition, housing production and growth is illustrated in **Chart 2**. Metro Boston has a moderate manufacturing sector but very low employment growth. Other cities with similarly-sized manufacturing sectors—Seattle, Portland, Raleigh and Nashville—had higher growth and higher levels of housing construction, as indicated by their green color coding. Other cities

THE BOTTOM LINE:
MORE HOUSING BUILT TODAY MEANS MORE JOBS TOMORROW.

The explanatory power of these factors is presented in **Chart 1**. Taken alone, the composition of the regional economy—specifically, the percent of a region's manufacturing workers—"explains" 36 percent of the variation across cities.

Construction of additional housing and attracting new residents from other states both make an

independent contribution to explaining growth differences. Adding these variables increases overall explanatory power to 67 percent of total

with similar manufacturing sectors to Boston—St. Louis, Pittsburgh and San Francisco—had low growth and built fewer housing units.

Like greater Boston, the Springfield-Chicopee-Holyoke metro area has a moderate-sized manufacturing sector, had below-trend economic growth, and built very little housing.

¹ To focus on the policy debate about growth policies in Massachusetts, the values shown for Boston—in this and all following charts—are for eastern Massachusetts only and exclude the New Hampshire portion of the greater Boston metro area.

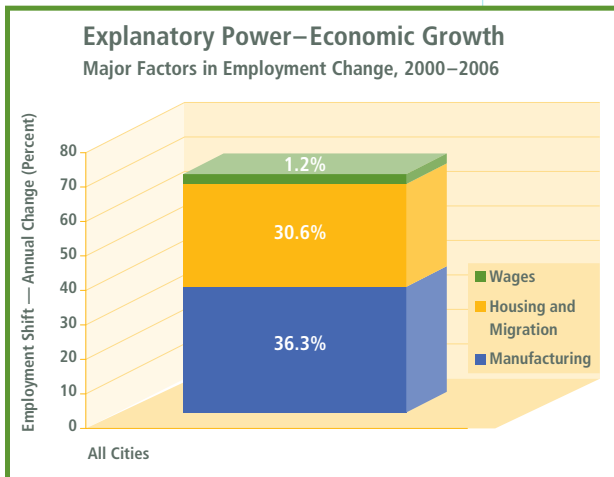
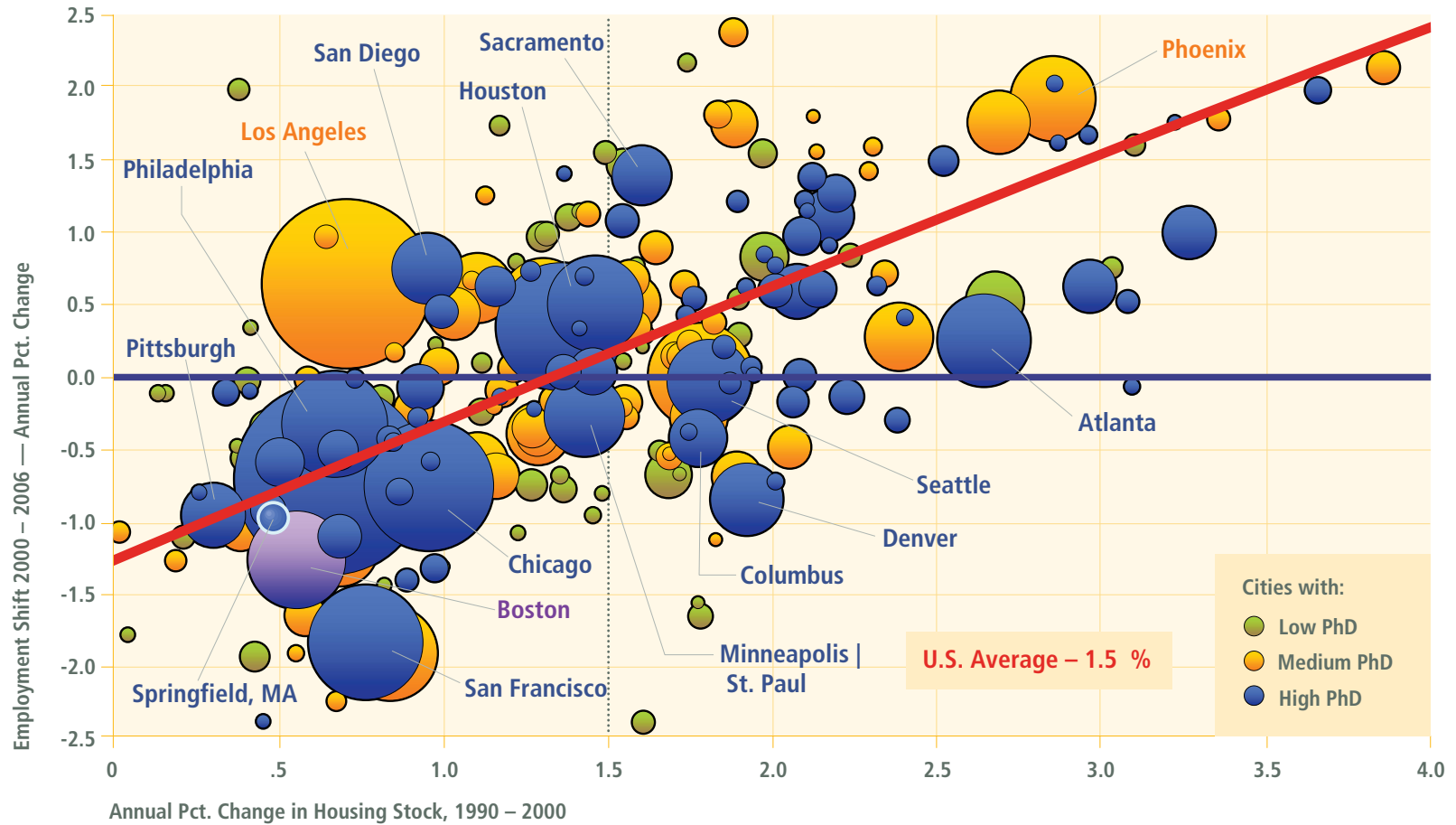


Chart 1

Employment Shift vs. Housing Production



Regions that build more housing achieve stronger job growth

Boston produces less housing, falls short on growth

Understanding Chart 3: Employment shift

To focus on gains and losses in market share, Chart 3 shows employment shift, not actual growth in employment. Employment shift is the change in employment that results from a city gaining or losing market share. That is, if banking employment nationally grows at 2 percent but banking employment in a particular city grows at 4 percent, that city is gaining share; half of the job gains in banking are employment shift. By ignoring “normal” growth (that is, growth at the average rate across all cities), we can concentrate on the impact of factors like housing construction, as shown here.

The color coding in Chart 3 is based on the proportion of PhDs in the work force, allowing us to look at cities (shown in blue) which, like Boston, have a large concentration of very well-educated workers.

The Springfield metro area is almost identical to greater Boston in its low housing construction and loss of employment share. With the cluster of colleges near Amherst it is, like Boston, in the top third of metro areas in terms of PhDs in its workforce.

THE COLOR CODING IN CHART 2 (Page 4) showed us that cities that built more housing from 1990 to 2000 (shown in green and blue) were generally above the employment growth trend line—that is they had more employment growth from 2000 to 2006 than we’d expect from the size of their manufacturing sectors.

Based on its manufacturing sector alone, we’d expect Boston to have grown employment by 0.8 percent a year; instead, it lost jobs at a rate of 0.5 percent. Raleigh, Austin, Nashville, Charlotte and Portland (OR) have manufacturing sectors similar to Boston’s (they’re in the same vertical band on Chart 2), but they built more housing than Boston, and enjoyed higher job growth. Pittsburgh, San Francisco, and St. Louis built little housing and had below-trend growth.

The differences here are substantial; had employment in greater Boston grown at Seattle’s rate, we’d have had an additional 171,000 jobs in 2006; at Austin’s rate, 287,000 jobs. Virtually all of the cities that are well above the trend line in

Chart 2 (page 4) are coded green, suggesting that strong housing construction is a pre-condition for strong economic growth.

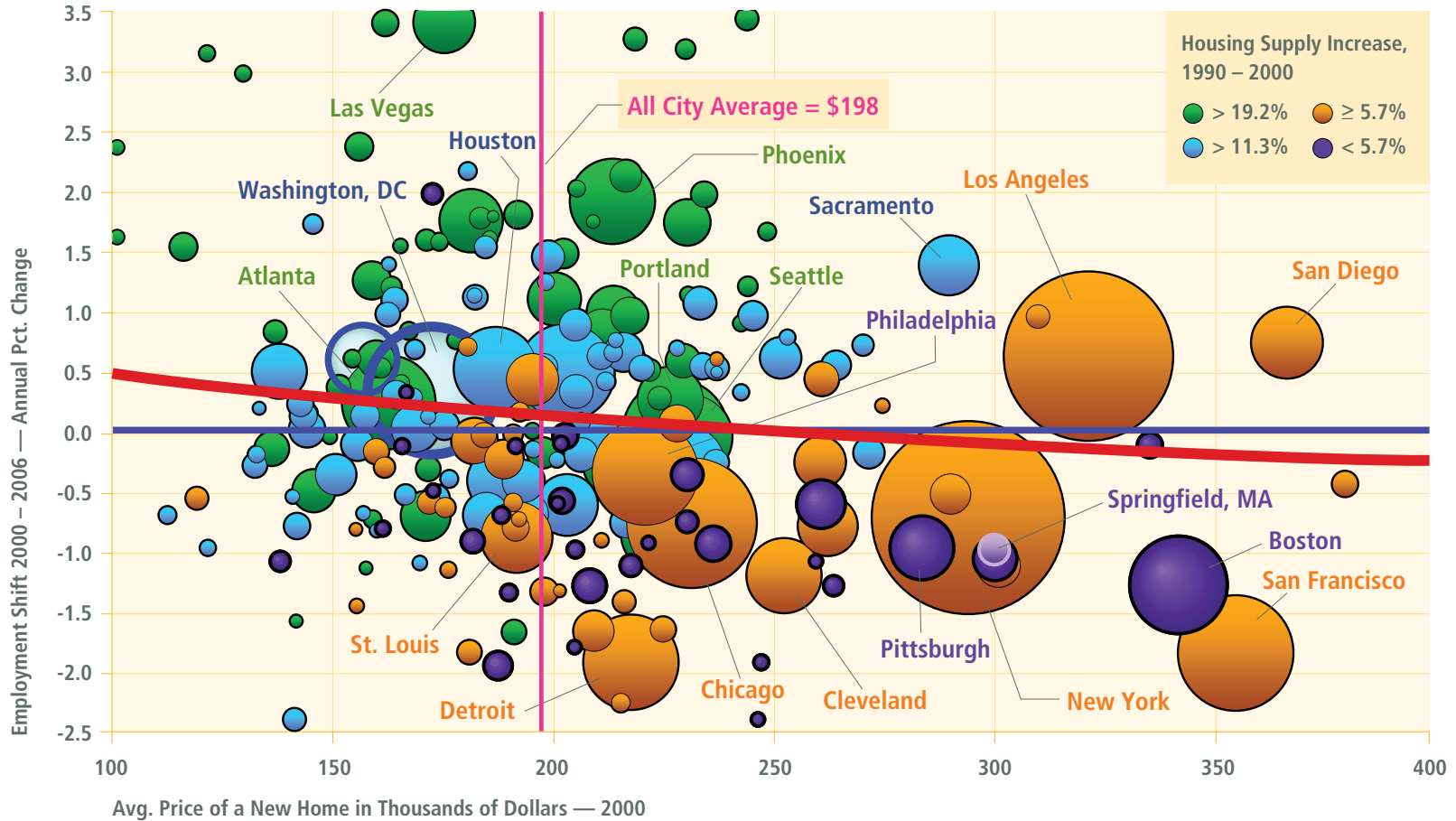
Chart 3 on the opposite page shows the relationship between housing construction and cities’ gains and losses in employment market share. The red trend line indicates that the more housing that was added from 1990 to 2000, the greater employment growth from 2000 to 2006.

The color coding allows us to concentrate on cities like Boston, which have a high concentration of PhDs. Atlanta, Minneapolis, Sacramento and Columbus—all state capitals and university towns—built more housing and had greater job growth than Boston.

It’s possible that cities build housing to accommodate workers attracted by new jobs. But the timing here (housing construction before 2000; job gains after) suggests that causation runs from housing construction to job gains.

STATE CAPITAL AND UNIVERSITY TOWNS LIKE MINNEAPOLIS GREW MORE THAN BOSTON.

Employment Shift vs. New Home Prices & Housing Production



Housing supply has more impact on job growth than housing cost

Boston's growth is held back because so few homes are built

IT'S TEMPTING TO THINK THAT METRO Boston's high home prices are a deterrent to growth. The reality is more complex, as illustrated in [Chart 4](#).

If high housing prices were a key factor in slowing growth, we'd see the circles lining up from upper left (low prices, high growth) to lower right (high prices, low growth).

Instead, the circles form almost no pattern. Sacramento has high home prices but is gaining employment share; St. Louis has low prices but lost employment share. The multiple-variable regression analysis showed no statistically significant relationship between home prices and employment growth.

At any given price level, the fastest growing cities were the ones that built more housing. Los Angeles and San Diego have home prices as high as Boston's, but both gained employment market share and built more housing than Boston. Similarly, Sacramento's home prices are the same as New York's and Pittsburgh's, but it built more housing and saw its employment market share

grow. Home prices in Seattle are 17 percent above the average for all cities but Seattle had overall employment growth of 0.6 percent per year—well above Boston.

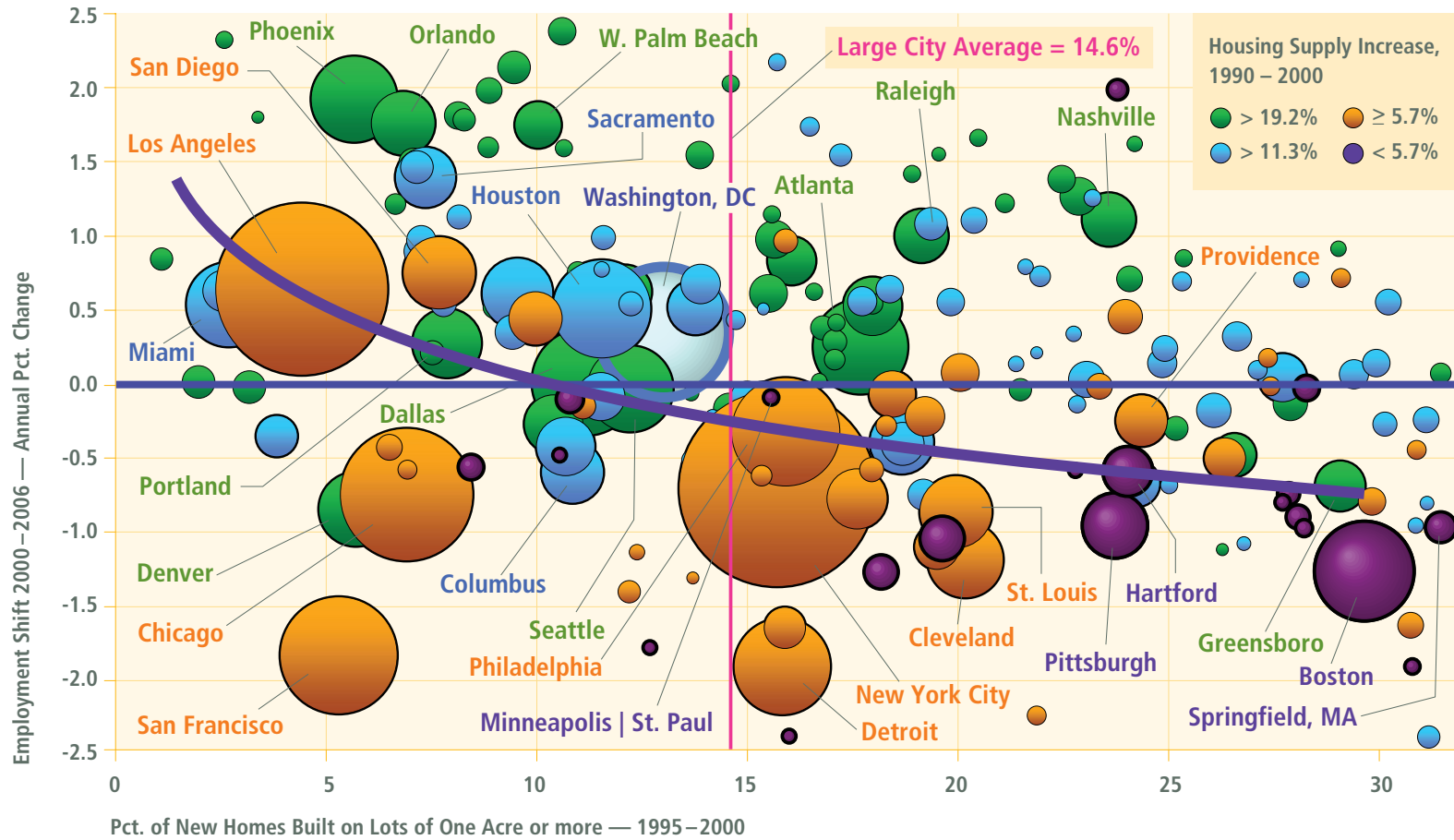
One way to understand this is that if home prices are high because of supply restrictions (as in Boston), there will be slow employment growth.

However, in cities that have strong employment growth and also have strong housing construction, home prices are the result of high employment growth, not the cause of low employment growth.

The pattern of high housing prices, low housing construction, and low employment growth applies statewide in Massachusetts. The price of new homes in greater Springfield is surprisingly high for a smaller metro area and the number of new homes built quite limited. The price of existing homes in the area—many in rundown areas of Springfield and Holyoke—is much lower, but this does not make the area more appealing to young college graduates.

STATISTICALLY, HIGH HOME PRICES IS NOT A DETERRENT TO ECONOMIC GROWTH.

Employment Shift vs. Lot Size



Job growth is much weaker in places with large-lot zoning

More new houses are built on large lots in eastern Mass. than anywhere else in the U.S.

CHART 5 SHOWS THAT METRO BOSTON has the greatest incidence of large lot construction of any major city, with almost 30 percent of its new homes on at least one-acre lots. Atlanta, which is the same size as greater Boston, built only 18 percent of its new homes on one acre or more.

One surprising finding is that western and southern cities are far less likely to build homes on large lots—despite their “wide open spaces”! Fast-growing cities like San Diego, Sacramento, Phoenix, and Los Angeles built fewer than 10 percent of their new homes on an acre or more of land. This is also true in Miami, Orlando, Houston, and West Palm Beach. All these cities do attract large numbers of retirees, who may be looking for smaller homes.

The trend line in the chart (which is based only on larger cities) has a steep slope, meaning the greater the proportion of homes on large lots, the lower employment growth. Boston and Springfield-Chicopee-Holyoke are both at the lower right,

meaning they had large lots and low employment growth.

Large-lot zoning is used to restrict housing supply; all of the cities with very low housing construction—shown in purple—also have a high percentage of homes built on large lots. Most of the cities with the highest housing construction—

shown in green—built fewer homes on large lots.

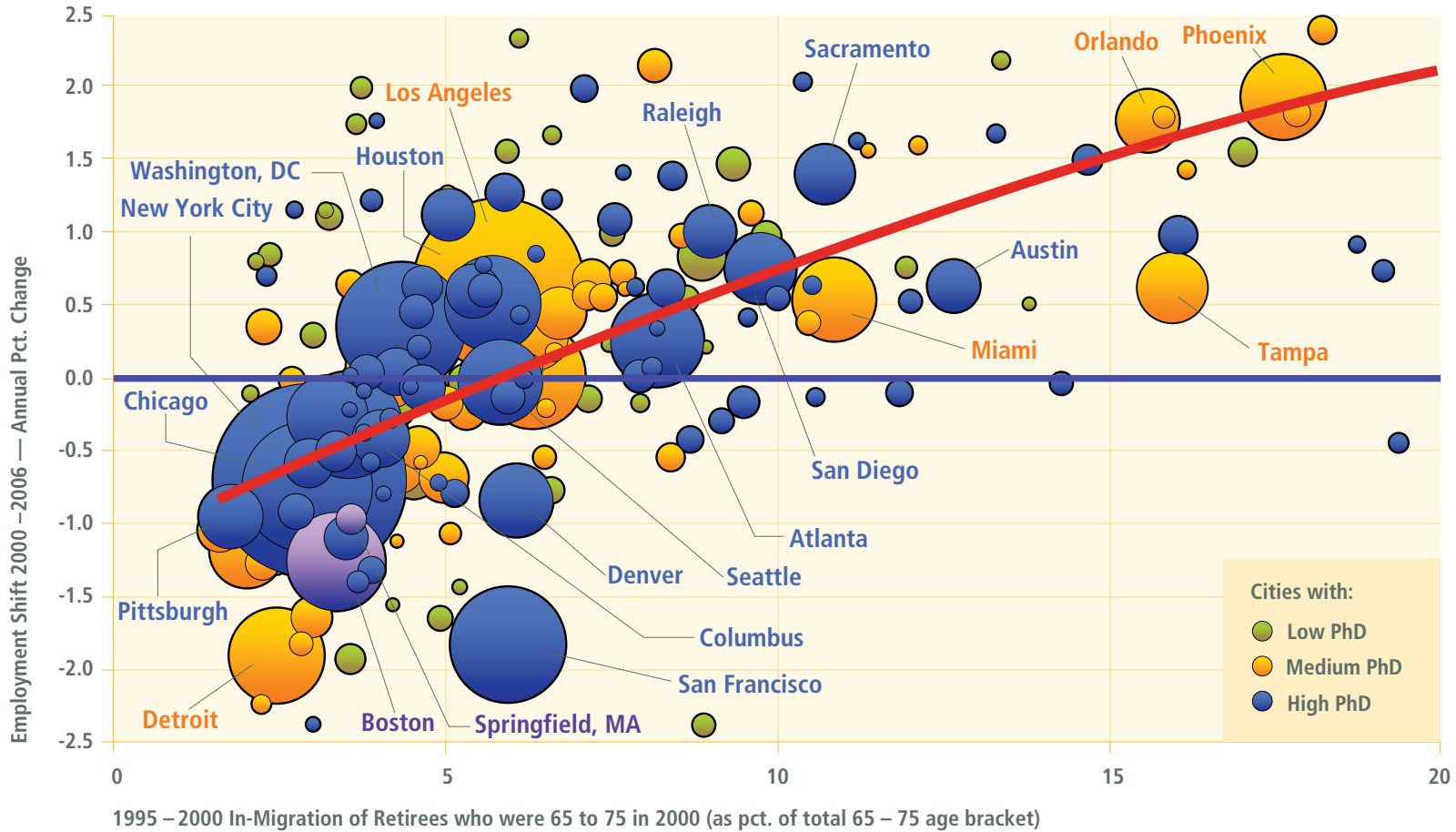
This chart shows that denser housing construction appears to be a necessary condition for growth, as there are no metro areas in the

upper right corner (large lots and employment gain). Data on multifamily housing (not shown in this summary) tells a similar story. Large cities that enjoyed vigorous job growth after 2000 built more multi-family units in the years prior to 2000.

CCITIES LIKE PHOENIX WERE LESS APT TO BUILD HOMES ON LARGE LOTS.

Lot-Size Trendline: Because the proportion of homes built on large lots depends in part on city size (there's more land available in smaller cities), the trend line in Chart 5, shown in dark blue, is based only on the 56 largest cities (those with employment of 400,000 or more).

Employment Shift vs. In-Migration of Retirees



Domestic in-migration proves to be strong predictor of job growth

Massachusetts does not attract people from rest of U.S.

THE THIRD MAJOR PREDICTOR OF employment growth is whether the region is a place where people want to live, as measured by how many people move there. The correlation between growth and in-migration was evident in all age groups, but was strongest for people just reaching retirement age, as shown in **Chart 6**. The chart compares employment change after 2000 with migration from 1995–2000. The data is for migration of people aged 65 to 75 in 2000.

People of this age were not moving to find work. Free from work, they had the luxury of moving to a place where they really wanted to live—and, it would appear, also the most attractive places to grow or move a business. This migration helps the economy in a direct way; retirees bring with them the purchasing power derived from a lifetime of savings and this drives the economy.

The most attractive cities to retirees—those at the far right of the chart—are retirement destinations like Phoenix, Orlando, and Tampa. But Atlanta, Raleigh, Sacramento, and Austin—like

Boston, state capitals with major universities—have attracted 2 1/2, to 3 times as many retirees (in relation to their overall size) than Boston.

The correlation between migration and later employment growth is clearly a very tight one; the cities are bunched fairly close to the trend line. The Boston and Springfield metro areas are

at the lower left; they do poorly in attracting retirees and had large reductions in employment share. To help us focus on cities similar to Boston, high PhD cities with economies like Boston are

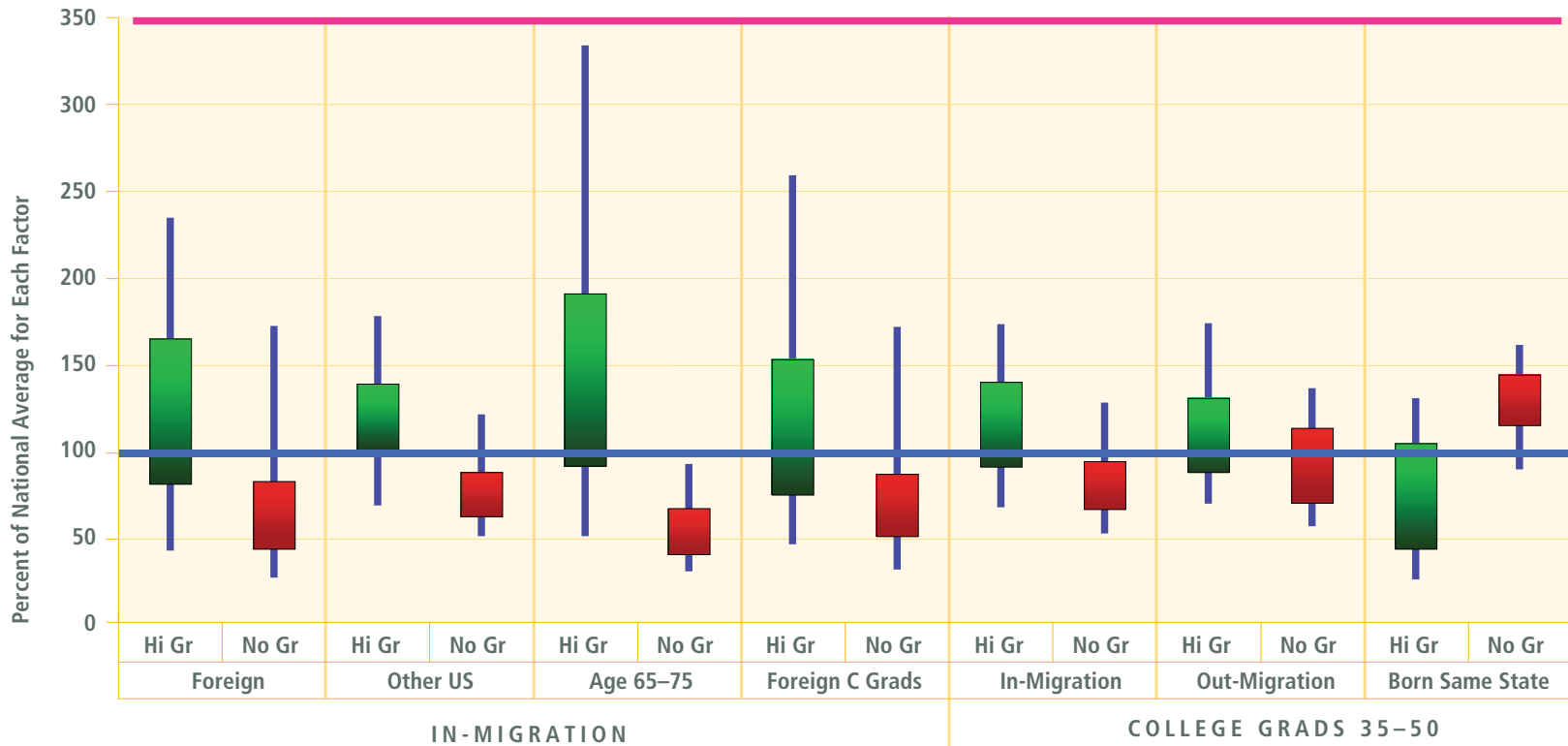
shown in blue (Boston and Springfield are shown in purple instead of blue, to make them easier to find).

Metro Boston's employment shift is well below the trend line, with its loss of market share even greater than what we'd expect from migration alone. We know from previous charts that this is because it built less housing than comparable cities in the Midwest and Northwest.

RETIREES DRIVE
ECONOMIC GROWTH WITH THEIR
PURCHASING POWER.

Migration Patterns, 1995 – 2000

93 High-Growth Cities vs 65 No-Growth Cities 2000–2006



High in-migration is critical to employment growth

Boston lags in attracting new residents, not in losing the ones they have

HIGH GROWTH CITIES DO WELL attracting new residents in all demographic groups, as shown in **Chart 7**. This whisker chart (see Page 3 for how to read it) allows us to compare high-growth and no-growth cities along a number of migration dimensions.

By all migration measures—foreign-born adults, adults moving from other states, college graduates born abroad, young college graduates—the high-growth cities attract more new migrants.

In the case of college graduates ages 35 to 50, the chart shows in-migration separately from out-migration. The result is not what we might expect. High-growth cities actually have more college graduates moving out than low-growth cities, although there is some overlap. They have even more college graduates moving in. On balance, the high-growth cities are strong net gainers of young college graduates.

Population patterns are generally less stable in high-growth cities—many more people come; more people leave as well. The reverse is true in low

growth Boston and Springfield, both of which have out-migration and in-migration rates for young college graduates well below the national average.

Young college graduates move in large numbers to the largest cities. Boston net migration gain for this group is greater than the average for small and medium-sized cities, but falls well

behind the average for large cities. In any case, Boston's problem is not that people leave in disproportionate numbers, but that we are unable to attract our share of new residents—hardly

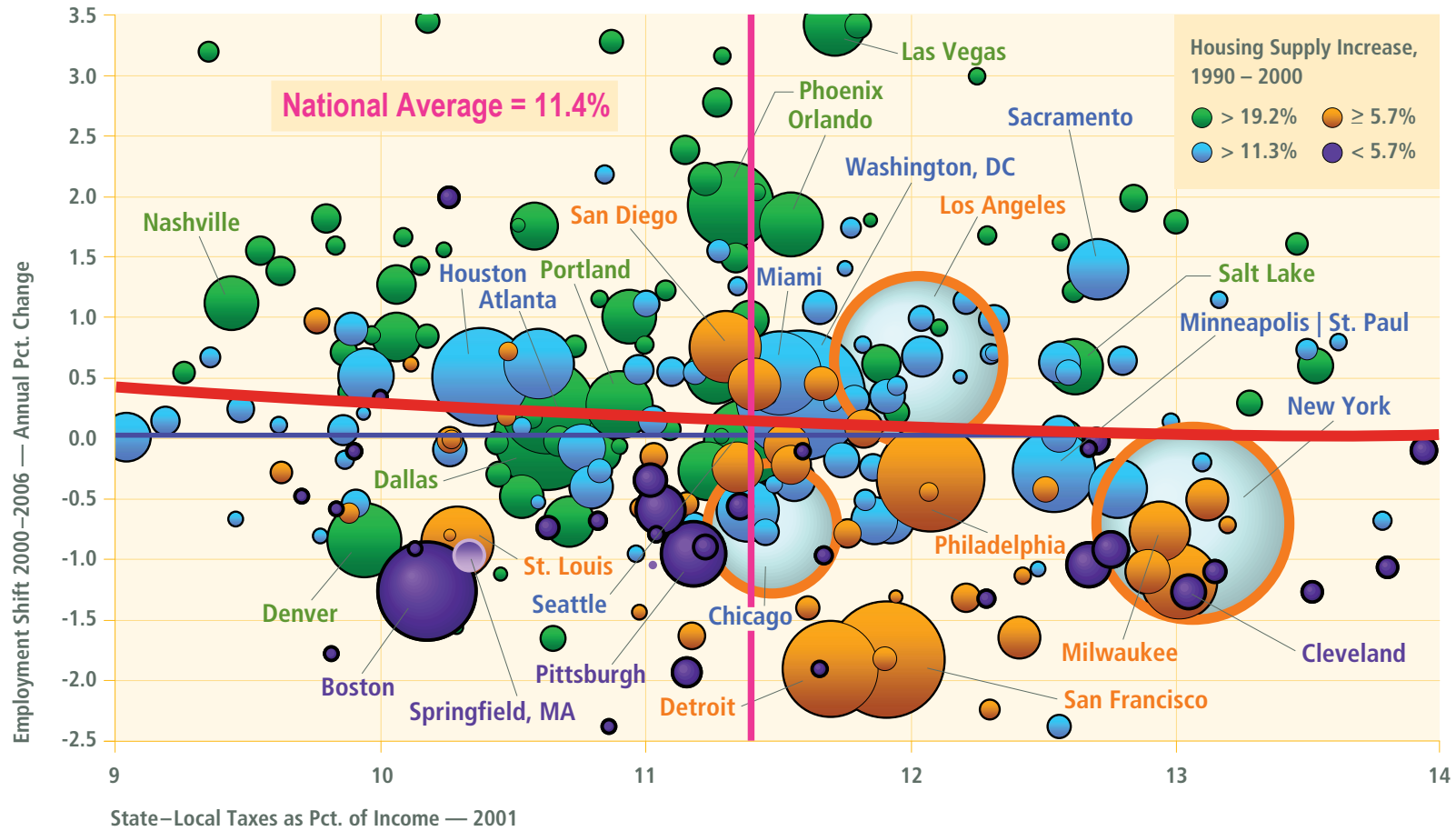
surprising given how few housing units we build.

The last section of Chart 7 refers to the percent of young college graduates who are native to the region. High-growth cities have far fewer locally-born college graduates. Indeed, the average for the high-growth larger cities is only 28 percent of locally-born young college graduates (Boston is at 47 percent). Successful cities, then, are highly dependent on their ability to attract large numbers of young college graduates to move in.

BOSTON IS NOT ATTRACTING ENOUGH NEW RESIDENTS.

Chart 8

Employment Shift vs. Tax Burden & Housing Production



State, local tax burdens have little impact on job growth

Most high-growth regions have higher taxes than Massachusetts

THE NOTION THAT HIGH TAX RATES discourage economic growth is all too common in public debate. There is, however, little evidence to support it. This can be seen in [Chart 8](#), which shows changes in employment share on the vertical axis, plotted against overall state-local tax burdens on the horizontal axis.

If the common view were correct, we'd see cities arrayed on a strong line from upper left (low tax, high growth) to lower right (high tax, low growth). Instead, there's virtually no pattern, and the trend line is basically flat. Indeed, Boston and Springfield are in what should be the empty quarter—low taxes and low growth—while Sacramento and Salt Lake City have high taxes and still gained employment share. Both cities also had high housing construction.

A striking finding is that there are no cities in the upper left-hand corner—that is, very low taxes and very high growth. The cities that scored the biggest gains in employment share—Phoenix, Orlando, Las Vegas—all have tax burdens higher than

Boston's. Apparently, low taxes are not conducive to strong growth. It also seems clear that very high tax burdens are also not conducive to growth; witness New York, Milwaukee and Cleveland.

Another striking finding is that the Boston area has a very low tax burden. Houston, Atlanta, and Dallas have similarly low tax burdens—but

built more housing and did not lose employment share.

Detroit and San Francisco, Chicago and Pittsburgh, Seattle, San Diego, Phoenix, and Las Vegas all have tax burdens roughly

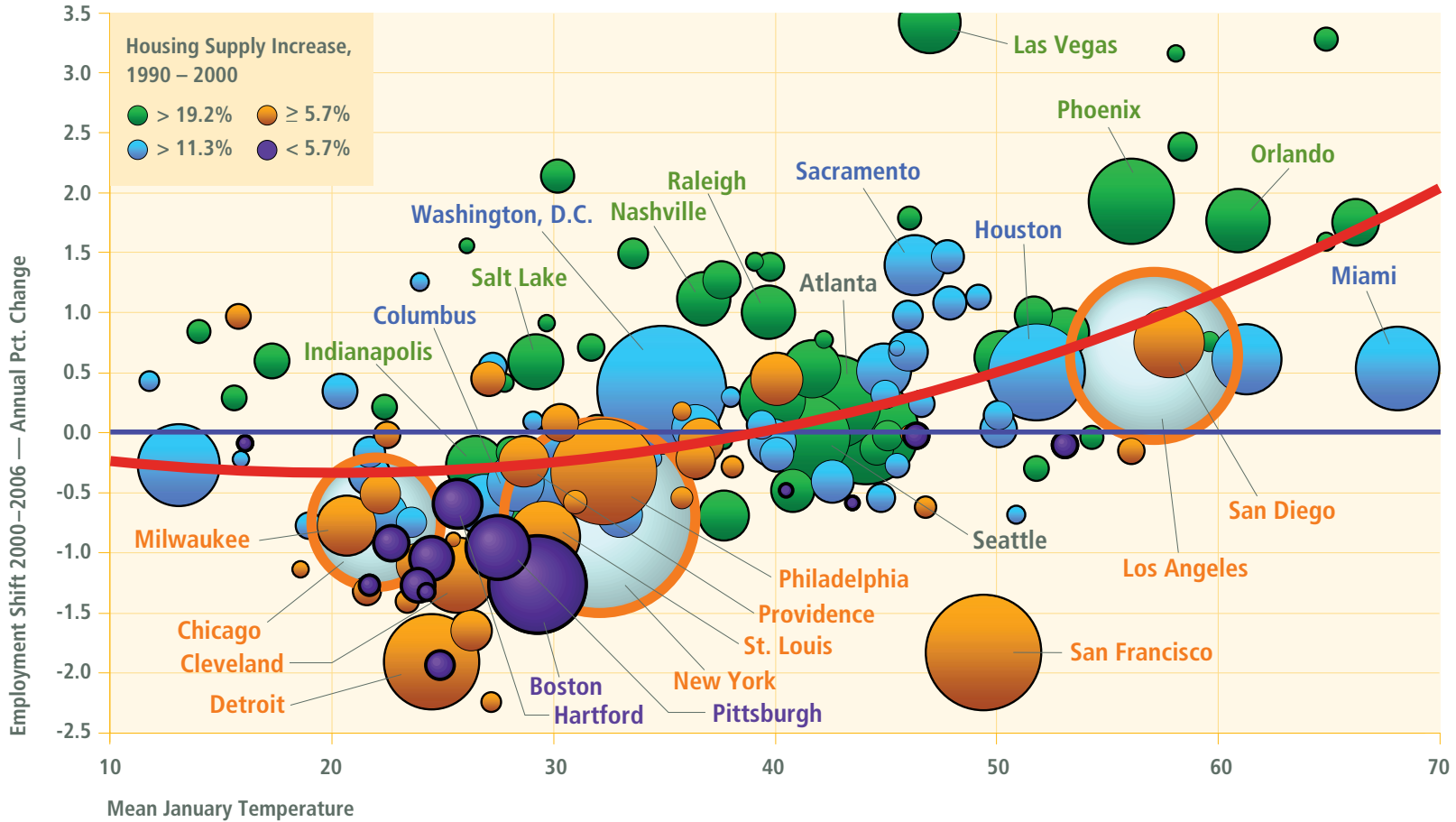
equal to the national average. Yet they range from a 2 percent loss of employment share to a gain of 3.4 percent. This reinforces the point: taxes are not a key factor.

The policy implication for Boston couldn't be clearer—restricting housing construction is a far greater drag on economic growth than our tax burden. If a modest increase in taxes could precipitate more housing construction (for example, by covering the added school cost), it would be a good investment.

THERE ARE NO CITIES THAT HAD VERY LOW TAXES AND HIGH GROWTH.

Note: Tax burden is defined here as total state, county, and local taxes, as a percent of personal income—the best measure of ability to pay and the purchasing power of tax revenues. When burden is defined on a per-capita basis, there is still be no correlation with employment growth.

Employment Shift vs. Climate



Really fast growth requires warm winters

But Boston grows a lot more slowly than other cold cities

IT'S NOT SURPRISING THAT WARM-weather cities like Las Vegas, Phoenix, and Orlando are major retirement destinations and have rapid employment growth. However, the degree of winter cold in northern cities doesn't seem to affect growth rates. For example, Boston, with somewhat milder winters, had slower employment growth than Milwaukee, Chicago, and Minneapolis.

The relationship between climate and growth is not a linear one, as shown in **Chart 9**. Between average January temperature of only 13 degrees (Minneapolis) and 32 degrees (Philadelphia) the trend line is virtually flat. Over this range, winter severity doesn't impact growth. As we get to border and Southern cities, growth is somewhat higher.

At any given temperature, there is variation in employment growth. Salt Lake City, Columbus, Indianapolis, and Providence have winters similar to Boston's, but all are growing more rapidly. Miami, with average January temperature in the high 60s, had the same small gain in employment

share as Houston (low 50s) and Salt Lake City (high 20s).

The multiple variable regression analysis sheds light on this relationship. If we look only at climate, we find that warmer cities do grow faster. If we factor in migration and housing construction, climate drops out as a significant predictor of employment growth.

Of course, climate is a major factor in explaining migration differences. Nonetheless, climate influences economic growth only to the extent it influences

migration decisions. This means that cities can overcome climate, by making themselves move-to destinations and by building more housing. Minneapolis and Salt Lake City are dramatic examples of this.

COLD-WEATHER CITIES LIKE INDIANAPOLIS GREW MORE THAN BOSTON.

Policy implications of this report



- **Knowledge-economy not enough:**

Boston's status as a knowledge-based economy is not enough to bring about sustained growth in the region's economy unless we build more housing and make this an attractive metro area for younger, educated workers on the move.

- **More housing a necessary condition:**

There are no major metro areas that have built as little housing as greater Boston that enjoyed any increase in employment from 2000 to 2006. With the exception of Los Angeles, every metro area that had growing employment had increased its housing stock at twice the rate of greater Boston from 1990 to 2000. Higher housing prices alone do not restrict growth; in some of the high-growth cities in the western U.S. home prices are almost as high as in Boston. But in these cities, home prices are high as a result of high growth. In Boston, home prices are high because of artificial restrictions on housing supply—it ranks well above other cities in the percent of homes built on large lots and well below in the number of multiple-unit homes (condos, townhouses, and apartments) built.

- **Quality of life more important than taxes:**

Obviously, high tax rates by themselves do not cause economic growth. But there's no evidence that low taxes promote growth; cities with low tax burdens (like Boston) are just as likely to lose employment share as to gain; none of the fastest growing cities have really low taxes. Since attracting new residents matters a lot to economic growth and tax rates do not, government policies that promote parks, good schools, transportation, police protection, affordable housing, higher education—are a better route to economic development than tax cuts.

- **Higher education bottleneck:**

High growth cities are heavily dependent on the in-migration of college educated workers. Recent restrictions on foreign students and foreign workers coming to the U.S., Boston's sky-high housing costs, and rising costs of private education make this an area of particular weakness for greater Boston. Our vulnerability is compounded by the fact that, compared to the rest of the country, there are so few available slots in Massachusetts' public colleges and universities.



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