

BEYOND THE BIG SIX: IDENTIFYING ALTERNATIVE US OFFICE MARKETS BASED ON LONG TERM DEMAND GENERATORS

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INTRODUCTION

US office building sale prices are 3.5% above the November 2007 peak of the last cycle¹ (107.6% Percentage Peak-to-Trough Loss Recovered). Much of the value increase is associated with major market Central Business District (CBD) office space in Boston, Chicago, Los Angeles, New York, San Francisco, and Washington². The Office-CBD Major Market Index is 27.5% above its previous peak (155.9% Percentage Peak-to-Trough Loss Recovered). The six major markets have experienced significant foreign and domestic investment. These markets mostly³ benefit from long term growth factors including high education attainment levels, high share of residents with Science, Technology, Engineering, and Math (STEM) degrees, significant high-tech location quotients⁴ (LQ), lack of exposure to the more volatile energy sector, and high current office employment.

Boston, Chicago, Los Angeles, New York, San Francisco, and Washington are global cities with strong economic engines. However, since these major markets are priced well beyond previous peak levels, alternatives will be identified. The alternative investment markets either have or are acquiring some of the underlying characteristics of the big six markets. Although they may never achieve the depth and status of the big six markets, they have long term value growth potential. Many of these metros are being transformed and will likely be larger and stronger office markets in 15 to 20 years time.

This paper will highlight select markets that excel in several long term growth factors that spawn and sustain office demand. These demand factors include the aforementioned education and high-tech emphasis, but also include characteristics that are attractive to corporations and young college graduates such as affordable housing. The markets are selected from a long term investment perspective independent of short term supply considerations. Focus is placed on secular change underlying cyclical rhythms.

VALUE APPRECIATION

CBD office is now 21.8% higher than the last peak (144.4% Percentage Peak-to-Trough Loss Recovered) while CBD office in major markets has soared 27.5% past the previous peak. As detailed in Table 1, CBD office in non-major markets and suburban office in major and non-major markets have not performed as well.

¹ The Moody's CPPI numbers are in nominal - not real dollars. The source for the presented Moody's CPPI data is Tad Philipp, Kevin Fagan, and Keith Leung, "Moody's/RCA CPPI: Industrial Leads Price Gains Over the Last Three and 12 Months", March 6, 2015. Data is as of January 2015.

² Moody's defines major markets as Boston, Chicago, Los Angeles, New York, San Francisco, and Washington, DC. These markets have attracted the most office investment over the 24 month period ending November 2014 see Tables 2 and 3.

³ Los Angeles has an education attainment rate of 31% compared to 32% for the national metro average. Similarly its high-tech LQ is below 1.0. Nevertheless, due in part to its international prominence, large population, restrictive building codes, and unique demand generators, it is a magnet for foreign and domestic investment and has experienced significant value appreciation beyond the past peak.

⁴ A location quotient (LQ) is an analytical statistic that measures a region's industrial specialization relative to a larger geographic unit (usually the nation). A LQ is computed as a) an industry's share some economic statistic (earnings, GDP by metropolitan area, employment, etc.) at a local level, divided by b) the industry's share of the same statistic at the national level. For example, a LQ of 1.0 in mining at a regional level means that the region and the nation are equally specialized in mining; while a LQ of 1.8 means that the region has a higher concentration in mining than the nation. Source for this definition is the U.S. Department of Commerce

Bureau of Economic Analysis, http://www.bea.gov/faq/index.cfm?faq_id=478

Table 1

Property Index	Percentage Peak-to-Trough Loss Recovered
Office	107.6%
Office CBD	144.4%
Office CBD - Major	155.9%
Office CBD - Non-major	95.6%
Office Suburban	67.6%
Office Suburban - Major	78.2%
Office Suburban - Non-major	57.3%

Source: The Moody's/RCA Commercial Property Price Index (CPPI). The index is a measure of commercial real estate value change. It is based on tracking sale price changes of individual properties that have resold.

National office real estate fundamentals have not fully recovered⁵. The year-end 2014 national office vacancy rate remains at 13.9%. Although improved, it has not reached its prerecession low of 12.5% and certainly not its 25 year low of 8.4% achieved in 2000. Year-end 2014 national inflation adjusted average office rent (real rent) is \$29.66/SF which is below the \$34.23/SF preceding peak level achieved in 2008 and well below the \$39.66/SF level of 2000. With the exception of San Francisco and Boston⁶, individual major office market fundamentals have not recovered.

INVESTMENT RETURN

Federal Reserve policy is the big factor hovering over investment activity including commercial real estate. The Federal Reserve's bond buying policy has pushed short-term interest rates to near zero, and has kept them there for several years. As a result investors put money into a wide range of asset classes including stocks, high yield bonds, and commercial real estate.

Since so much money chased limited assets, prices were bid up. Equity markets soared to unprecedented levels as less risky asset classes provided extremely low rates of return. In addition, high yield corporate debt spreads approached 10-year low points. This is the same dynamic that helped drive commercial real estate capitalization rates to prerecession lows and lifted commercial real estate values across the spectrum.

Office cap rates were 6.80% in 2014 just 25 bps higher than the lowest level exhibited in 2007 at 6.55%. Office cap rates spread to Treasuries were 426 bps compared to 192 bps in 2007. Despite office cap rates being near the low levels demonstrated in 2007, spreads to Treasuries are approximately 234 bps higher⁷. This suggests that the low cap rates are less a function of the relative value of commercial real estate to Treasuries but rather a function of low overall interest rates and favorable growth expectations.

Cap rate spread to Treasuries are at a relative high point and certainly have not recovered back to its low point in 2007. Should interest rates rise while spreads, rent and occupancy rates remain unchanged, value may decrease. The key is to identify markets with growth potential that may realize value growth in the face of cap rate expansion. It is important to recognize which markets will benefit from secular changes that may be obscured by cyclical trends.

Major Markets

The major markets of Boston, Chicago, Los Angeles, New York, San Francisco, and Washington, DC are driving high office building values. Aside from the availability of low cost capital, major market CBD office benefitted from foreign investment. US Gateway cities have attracted investors pursuing stable investments and in addition in the case of foreign capital the quest for safety⁸. Additionally, Houston had

⁵ The source of the data that appears in this paragraph is CBRE and is as of year-end 2014.

⁶ San Francisco has recovered both in terms of real rent and vacancy, however, Boston has recovered only in terms of vacancy.

⁷ Source for all the noted cap rates, spreads, etc. is Real Capital Analytics.

⁸ As an example see Henry Sender, "China's anti-corruption push may drive wealthy overseas", The Financial Times, November 11, 2014.

recently been a magnet for investment; however, high energy prices fueled demand, which might quickly evaporate if the recent rout in energy prices persists. Table 2 details the top metro areas for foreign and domestic investment in all property types while Table 3 details the same for office buildings..

Table 2

Top 10 Metros All Property Types Total Volume						
Past 24 months YE November 2014						
RCA Metros	Domestic		Crossborder		Grand Total	
	Number	Volume (USD)	Number	Volume (USD)	Number	Volume (USD)
NYC Metro	5,337	\$108,513,128,015	202	\$24,269,630,632	5,539	\$132,782,758,647
LA Metro	4,875	\$64,408,726,417	107	\$8,992,467,030	4,982	\$73,401,193,447
SF Metro	2,382	\$48,288,116,213	82	\$4,993,716,493	2,464	\$53,281,832,706
DC Metro	1,103	\$28,995,756,168	75	\$5,920,740,808	1,178	\$34,916,496,976
Chicago	1,759	\$27,566,415,162	86	\$3,733,983,877	1,845	\$31,300,399,040
Dallas	1,907	\$27,149,228,227	73	\$1,794,926,697	1,980	\$28,944,154,923
Houston	1,359	\$23,115,136,598	68	\$2,306,747,338	1,427	\$25,421,883,936
Boston	951	\$19,203,058,446	49	\$6,187,646,536	1,000	\$25,390,704,982
Atlanta	1,437	\$23,373,065,988	47	\$1,277,316,452	1,484	\$24,650,382,440
So Fla	1,544	\$21,235,648,024	90	\$2,390,196,007	1,634	\$23,625,844,031

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Table 3

Top 10 Metros Office Total Volume						
Past 24 months YE November 2014						
RCA Metros	Domestic		Crossborder		Grand Total	
	Number	Volume (USD)	Number	Volume (USD)	Number	Volume (USD)
NYC Metro	749	\$39,811,733,259	39	\$11,816,929,949	788	\$51,628,663,208
SF Metro	453	\$18,650,172,534	39	\$2,732,206,413	492	\$21,382,378,946
LA Metro	748	\$16,303,501,711	21	\$4,671,808,195	769	\$20,975,309,907
Boston	256	\$9,024,311,600	23	\$5,579,122,939	279	\$14,603,434,539
DC Metro	306	\$9,379,640,363	41	\$4,253,456,320	347	\$13,633,096,683
Chicago	290	\$9,421,330,206	29	\$2,570,882,914	319	\$11,992,213,120
Houston	211	\$6,850,336,426	12	\$1,231,900,000	223	\$8,082,236,426
Dallas	298	\$6,136,565,924	19	\$719,713,958	317	\$6,856,279,882
Atlanta	241	\$6,760,495,508	7	\$82,930,797	248	\$6,843,426,304
Seattle	150	\$4,298,176,401	17	\$1,120,865,366	167	\$5,419,041,766

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Market values in major markets have soared despite lagging market fundamentals⁹. With the exception of San Francisco, real office rents in major markets are between 11.1% and 22.0% below their previous peak¹⁰. Overall, record office building values notwithstanding, underlying real estate fundamentals have not recovered back to peak levels experienced before the last recession. In order to invest prudently it is important to identify long-term secular trends that underlay the broader real estate cycle being experienced.

FACTORS FOR EVALUATING LONG-TERM TRENDS IN METRO AREAS

College educated people tend to self-sort in to metro areas in which there are opportunities. In turn companies locate in places they can hire educated employees¹¹. This circle of opportunity becomes self-perpetuating as jobs are created in these metros. Accordingly, metros with high education attainment rates are favored. We also examine and prioritize markets in which young college educated persons¹² (YCE) live and are relocating to. Similarly markets with a high degree of STEM graduates attract employment growth. Technology jobs have a disproportionate impact on local economies. Markets with tech job growth and high location quotients in tech using office jobs are identified.

⁹ An example is Washington, DC. "The amount paid for premium properties rose despite the city's high vacancy rate and stagnant rents" See Max Taves, "Commercial-Property Prices in D.C. Go Their Own Way: Up", Wall Street Journal, November 4, 2014.

¹⁰ CBRE

¹¹ See Enrico Moretti, "The New Geography of Jobs", Mariner Books, Houghton Mifflin Harcourt, Boston, New York, 2013

¹² For the purposes of this report young college educated persons are those between the ages of 25 and 34 as used by City Observatory <http://cityobservatory.org/>.

The primary manifestation of office demand is office-using jobs (OUJ). Markets in which office-using jobs have grown over the past five years and are projected to grow over the next five years are highlighted. Young workers are attracted to metro areas with job opportunities and affordable housing. Metro areas with affordable housing include some of the highest population growth markets in the nation. Markets with high growth in the number of children between the ages of 5 and 14 will be noted. In addition to these children representing future demographic growth, the parents of this age group have usually set down roots at this point¹³, establishing a demographic base. Considered individually, the factors may not establish future demand growth. However, the confluence of several of these attributes point to long-term economic expansion.

Once the markets are identified using the aforementioned criteria, metros that benefit from those factors, but are major markets are not included. Markets with demand generators that include technology and energy are performing better than others. It remains to be seen what effect plummeting oil prices will have on energy dependent sectors. Accordingly, we are not including any energy centric markets on our list¹⁴. Since there are few barriers to entry in most American metro areas on the supply side, we focus on long term sustainable demand.

EDUCATIONAL ATTAINMENT

Metro areas with high education attainment levels have experienced much more economic growth than those with significantly below average education rates. This trend will likely continue and reinforce itself as college graduates self-sort to places with other college graduates. This takes the form of a persistent cycle in which “knowledge breeds knowledge”¹⁵. As the overall American population grew more educated between 1970 and 2010, metro areas became less alike in their rates of college degree attainment¹⁶: “A 10% increase in the percentage of an area’s adult population with a degree in 1980 predicts six percent more income growth between 1980 and 2000”¹⁷. “Differences in adults’ rate of bachelor’s degree attainment are associated with nearly three-quarters of the variation in per capita income among metro areas in 2010”¹⁸. “Metro areas where more than 33% of adults were college-educated had an average unemployment rate of 7.5 percent in early 2012, compared with 10.5 percent for cities where less than 17% of adults had a college degree”, according to Edward Glaeser¹⁹. Aside from serving as a proxy for the overall economic health of a metro area, education attainment rates point to more office-using jobs.

Some of the nation’s highest educational attainment levels are in the major market metro areas. The highest is Washington, DC with 46.8% of residents having achieved a Bachelors Degree or higher. The top 10 are rounded out by San Jose 45.3%, Stamford, CT 44%, San Francisco 43.4%, Madison, WI 43.3%, Boston 43.0%, Raleigh 41%, Austin 39.4%, Denver 38.2% and Minneapolis 37.9%²⁰. The national metro average is 32%.

¹³ Joel Kotkin, “Baby Boomtowns: The U.S. Cities Attracting The Most Families”, Forbes, September 12 2014.

¹⁴ This does not imply that good investments can not be made in energy centric markets with the right entry and exit points.

¹⁵ Alan Berube as quoted by Sabrina Tavernise, “A Gap in College Graduates Leaves Some Cities Behind”, New York Times, May 30, 2012. Alan Berube is a senior fellow and deputy director of the Brookings Metropolitan Policy Program. A former policy advisor to the U.S. Treasury Department, he is an expert on metropolitan demographics, low-wage workers, and urban poverty.

¹⁶ Alan Berube, “Where the Grads Are: Degree Attainment in Metro Areas”, Brookings.edu, May 31, 2012. Also from the same source “In the 20 most highly educated metro areas in 1970, 16 percent of adults held a college degree. In those same metro areas in 2010, 38 percent of adults held a college degree, a 22 percentage-point increase. The 20 least educated metro areas in 1970 made substantial progress too—growing their college degree share from 9 percent to 25 percent—but that 16 percentage-point increase still left them farther behind the “smartest” metro areas by 2010.”

¹⁷ Edward Glaeser, *Triumph of the City*, Penguin Press, New York, 2013.

¹⁸ Alan Berube, “Where the Grads Are: Degree Attainment in Metro Areas of the City”, Brookings.edu, May 31, 2012.

¹⁹ Edward Glaeser is an economist at Harvard and the author of “Triumph of the City”. As quoted by Sabrina Tavernise, “A Gap in College Graduates Leaves Some Cities Behind”, New York Times, May 30, 2012.

²⁰ <http://www.nytimes.com/interactive/2012/05/31/us/education-in-metro-areas.html>. Based on the Brookings Institute’s analysis of US Census American Community Survey data.

Table 4

Higher Education Attainment Rates by Metro Area (1970-2010)

Rank	Metro area	2010	1970	Change
1	Washington-Arlington-Alexandria, DC-VA-MD-WV	46.80%	22.10%	24.70%
2	San Jose-Sunnyvale-Santa Clara, CA	45.30%	19.30%	26.10%
3	Bridgeport-Stamford-Norwalk, CT	44.00%	17.60%	26.40%
4	San Francisco-Oakland-Fremont, CA	43.40%	16.80%	26.50%
5	Madison, WI	43.30%	20.00%	23.30%
6	Boston-Cambridge-Quincy, MA-NH	43.00%	14.20%	28.80%
7	Raleigh-Cary, NC	41.00%	13.40%	27.70%
8	Austin-Round Rock-San Marcos, TX	39.40%	16.30%	23.00%
9	Denver-Aurora-Broomfield, CO	38.20%	16.20%	22.00%
10	Minneapolis-St. Paul-Bloomington, MN-WI	37.90%	14.10%	23.90%
11	Seattle-Tacoma-Bellevue, WA	37.00%	14.70%	22.30%
12	New York-Northern New Jersey-Long Island, NY-NJ-PA	36.00%	12.40%	23.50%
13	Provo-Orem, UT	35.20%	15.80%	19.50%
14	Baltimore-Towson, MD	35.10%	10.30%	24.80%
15	Hartford-West Hartford-East Hartford, CT	34.60%	13.20%	21.30%
16	Atlanta-Sandy Springs-Marietta, GA	34.10%	12.00%	22.10%
	Colorado Springs, CO	34.10%	16.40%	17.70%
18	Chicago-Joliet-Naperville, IL-IN-WI	34.00%	11.20%	22.70%
19	San Diego-Carlsbad-San Marcos, CA	33.70%	14.00%	19.80%
20	Albany-Schenectady-Troy, NY	33.20%	12.40%	20.80%

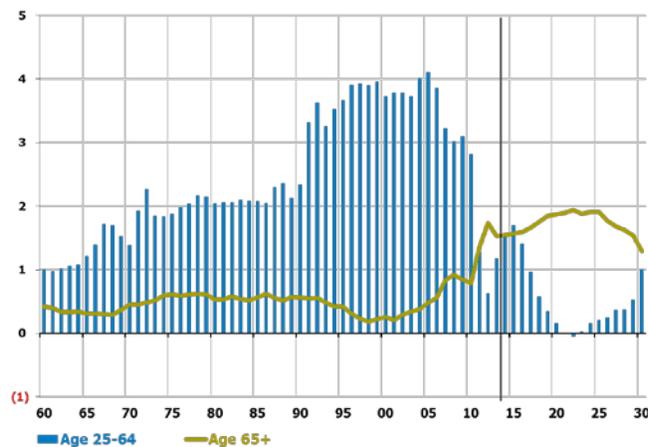
Source: Brookings Metropolitan Policy Program

Demographic Trends

A young growing population is important, as overall long-term demographic trends are cause for concern for office space demand. Once baby boomers leave the workforce in growing numbers between 2015 and 2030, there will be fewer workers to fill office buildings. Metros with a growing college educated millennial²¹ population will have a higher demand for office space.

Table 5

Annual Change in U.S. population (Millions)



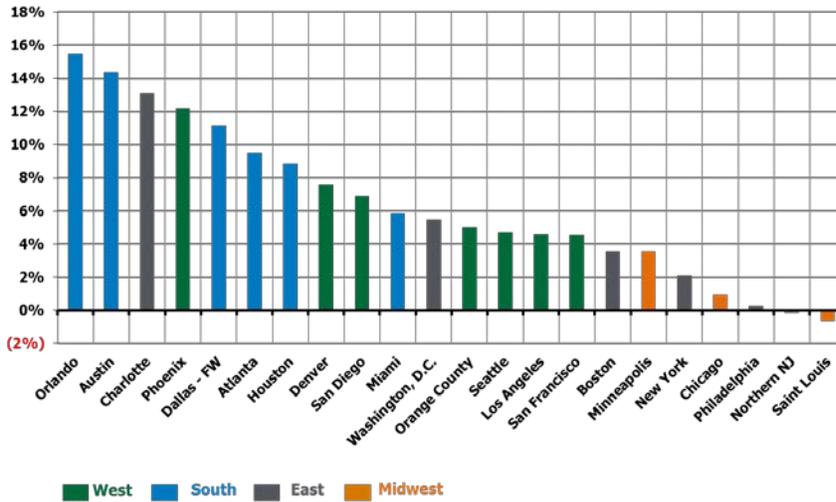
Source: Moody's Analytics, U.S. Census, CoStar Portfolio Strategy, Data as of Q3 2014

²¹ For the purposes of this report Millennials are considered those born between 1980 and 2000. They are currently aged 15 to 35 and will be aged 30 to 50 in 2030.

The following chart details forecast growth in working age population between 2014 and 2020.

Table 6

Cumulative Forecast Growth in Working Age Population (2014-2020)



Source: Moody's Analytics; CoStar Portfolio Strategy, Data as of Q3 2014

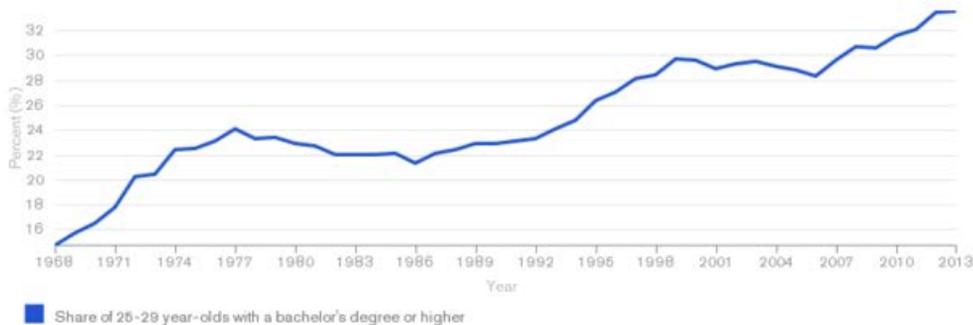
Population growth alone is not sufficient to fill office buildings. The focus needs to be on college educated population growth. College educated millennials will occupy office buildings well in to 2030 and will not begin retiring until 2045 and beyond. Employers favor locating and expanding operations in metro areas that have a young, highly educated, and growing workforce. Accordingly, we consider which metro areas have an increasing level of educated young people.

Once a trend is established it creates a virtuous cycle as more young college educated workers locate to a metro - companies relocate/expand within the metro – attracting more young college educated workers. Therefore let us consider the metro areas where the number of college educated people between the ages of 25 and 34 are growing either because of internal market growth or migration. Millennials are the most educated generation in US history²². As Table 7 illustrates²³, the share of Americans with a college degree has increased over the past half century.

Table 7

Higher Ed Heads Higher

Millennials are the best-educated generation ever, which bodes well for the economic outlook



Source: Matthew Chingos at Brookings using data from the Current Population Survey



²² Victoria Stilwell, "Millennials Most-Educated U.S. Age Group After Downturn", Bloomberg, Oct 8, 2014.

²³ This chart is for 25-29 year olds nationally and differs from the statistics presented below for the 51 largest markets.

The number of YCEs has increased 25.2% from 2000 to 2012 in the 51 largest metro areas²⁴. The share of the YCE population with a 4yr degree in 2012 was 37.5% in the 51 largest metro areas. Markets that exceeded the top metro average growth of 25.2% between 2000 and 2012 portend future economic growth and demand for office space relative to other markets. Including only metros that experienced growth of 30% or more and in which the existing share of YCEs is 30% or more highlights the 17 metro areas presented in Table 8²⁵.

Table 8

College Graduates aged 25 to 34

	Pct. Chg. 2000-2012	25-34 population with 4yr degree/ Total 25-34 population - 2012
Oklahoma City, OK Metro Area	56.8%	31.9%
Salt Lake City, UT Metro Area	50.1%	31.6%
Houston-Sugar Land-Baytown, TX Metro Area	49.8%	29.7%
Nashville-Davidson--Murfreesboro--Franklin, TN Metro A	47.6%	38.8%
Denver CSA	46.6%	38.9%
Austin-Round Rock-San Marcos, TX Metro Area	44.3%	40.8%
Orlando-Kissimmee-Sanford, FL Metro Area	43.3%	30.7%
San Diego-Carlsbad-San Marcos, CA Metro Area	42.6%	36.0%
Tampa-St. Petersburg-Clearwater, FL Metro Area	40.6%	29.7%
Portland-Vancouver-Hillsboro, OR-WA Metro Area	37.3%	37.1%
Washington-Arlington-Alexandria, DC-VA-MD-WV Metro	36.3%	51.9%
Sacramento--Arden-Arcade--Roseville, CA Metro Area	35.7%	29.5%
Buffalo-Niagara Falls, NY Metro Area	33.5%	42.1%
Baltimore-Towson, MD Metro Area	32.0%	41.8%
Indianapolis-Carmel, IN Metro Area	30.5%	37.4%
Los Angeles-Long Beach-Santa Ana, CA Metro Area	30.4%	34.3%
Charlotte-Gastonia-Rock Hill, NC-SC Metro Area	30.4%	38.7%
top 51 metropolitan areas	25.2%	37.5%

Source: Joe Cortright, City Observatory

This list generally follows a pattern of self sorting in which college educated Americans migrate to metros with economic growth opportunities²⁶. This is causing certain metros to diverge significantly from others. Oklahoma City and Houston benefited from a growing energy sector. Greater Salt Lake City benefits from internal population growth, in-migration, and a healthy high-tech sector²⁷. Nashville has benefitted from a growing healthcare sector, successful entertainment industry, relatively low cost housing, and no state income tax. Charlotte is a banking center and together with Nashville has developed into a southern alternative to Atlanta with less congestion and more growth. Denver, Austin, and Portland have performed well and have developed urban life that draws young people. San Diego is a long time favorite destination and Indianapolis has done better than average in drawing YCEs to its low cost environment. This list includes several surprises including Buffalo which appeals to a certain segment of YCEs seeking a very low cost alternative to New York City and Boston.

In contrast, Detroit experienced a 10.5% decline in the number of YCEs and Cleveland and Providence significantly below average increases of 0.89% and 6.38% respectively²⁸. San Francisco and San Jose experienced low increases, however, these markets already have very high shares (at 50%) of the age group with four year degrees. The high cost of living in these areas may limit future growth in this category. The Raleigh-Carey Metro area experienced slightly above average growth, but is starting from a very high base of 45.8%. Growth is happening in places with affordable housing, growing economies, growing YCE population, and growing office-using jobs. All these factors are feeding off each other in a beneficial loop.

Aside from the major and energy sector dependent markets, the list favors Salt Lake City, Nashville, Denver, Austin, Orlando, San Diego, Tampa, Portland and to a lesser extent Sacramento, Baltimore, Buffalo, Indianapolis and Charlotte.

²⁴ All the data concerning YCEs is from Joe Cortright, "The Young and Restless and the Nation's Cities", CityReport, October 2014.

²⁵ The reason for this screening mechanism is to highlight metro areas that have increases over a substantial base.

²⁶ See Enrico Moretti, "The New Geography of Jobs", Mariner Books, Houghton Mifflin Harcourt, Boston, New York, 2013.

²⁷ Flavia Krause-Jackson, "The App of Mormon? Utah Draws Tech Like Silicon Valley: Cities", Bloomberg, February 3, 2015 and Vauhini Vara, "How Utah Became the Next Silicon Valley", The New Yorker, February 3, 2015.

²⁸ Not shown in Table 8. See Joe Cortright, "The Young and Restless and the Nation's Cities", CityReport, October 2014

STEM EDUCATION AND HI TECH EMPLOYMENT GROWTH

High-Tech employment growth is directly correlated with the share of residents with a Bachelor's Degree in science, computer science (Technology), engineering, or math (STEM)²⁹. Markets with a considerable amount of residents with STEM degrees combined with a high growth rate of high-tech employment should portend solid future growth. The chart below presents markets with a strong pool of residents with a Bachelor's Degree in STEM³⁰.

Table 9

Metro	Residents w/S, CS, E, M Degree	High Tech Employment Growth 2003-2014
San Jose	20.44%	21.34%
San Francisco	13.73%	60.72%
Washington - NoVA - ME	13.13%	8.27%
Boston	12.34%	17.54%
Nashville	12.03%	48.97%
Raleigh	12.03%	36.88%
Austin	11.80%	24.81%
Seattle	11.66%	35.82%
San Diego	10.66%	13.40%
Orange County	10.64%	3.37%
Denver	10.46%	8.67%
Minneapolis	10.44%	9.46%
Baltimore	10.29%	22.33%
Chicago	10.21%	1.82%
Hartford	9.83%	7.58%
Stamford	9.65%	-11.50%
Houston	9.64%	13.20%
Portland, OR	9.28%	15.40%
Northern New Jersey	9.24%	-21.99%
Atlanta	9.07%	14.07%
Columbus OH	8.92%	15.88%
Indianapolis	8.92%	12.60%
Kansas City	8.89%	0.61%
Milwaukee	8.85%	-2.28%
Philadelphia	8.84%	-0.25%
Dallas - Fort Worth	8.83%	4.88%
Salt Lake City	8.67%	38.51%
Sacramento	8.66%	-4.84%

Source: U.S. Census; CoStar Portfolio Strategy

The above data concerning high-tech employment growth and STEM education mostly favors the metros detailed in the upper half of the charts. San Francisco, Nashville, and Salt Lake City exhibited the strongest growth. With the exception of the major markets, the list favors Nashville, Raleigh, Austin, Seattle, San Diego, Denver, Salt Lake City, Minneapolis, Portland, Indianapolis, and Columbus.

MARKETS WITH TECH JOB GROWTH

Technology is not the largest sector of the labor force, but it represents one of the major growth engines of overall employment. Technology jobs constitute 5% of office-using demand in CBDs and 8% in suburban markets³¹; however, they drive demand for other sectors as well. Innovation technology reflects on the overall vibrancy of the market. Consider that for 2014, net office space absorption as a percentage of total inventory excelled in tech heavy markets³². The net absorption advantage of tech heavy markets was even more substantial for the prior two year period and the prior five year period.

²⁹ Source: U.S. Census; CoStar Portfolio Strategy.

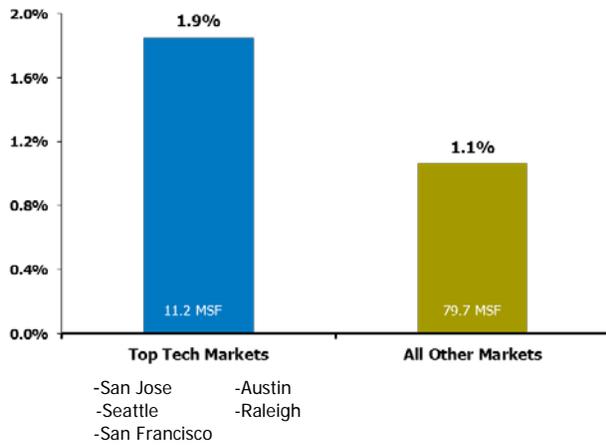
³⁰ Source: U.S. Census; CoStar Portfolio Strategy. Residents 25+ as of 2010.

³¹ CoStar Portfolio Strategy.

³² Top tech markets include San Jose, Seattle, San Francisco, Austin, and Raleigh. These are leaders in tech employment as a percent of total employment. More diversified markets with higher tech location quotients such as Washington, DC are not included in this set.

Table 10A

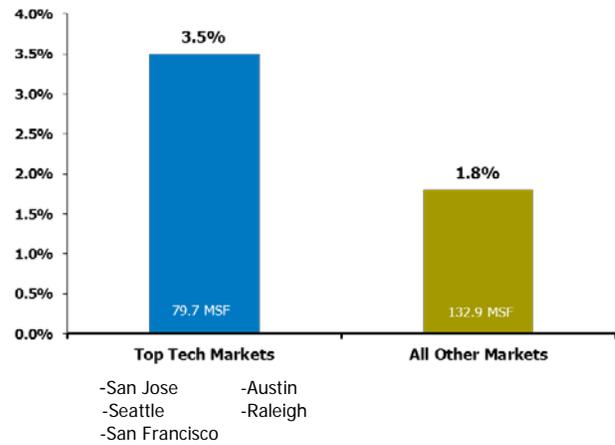
12 Month Net Absorption as % of Total Market Inventory



Source: CoStar Portfolio Strategy

Table 10B

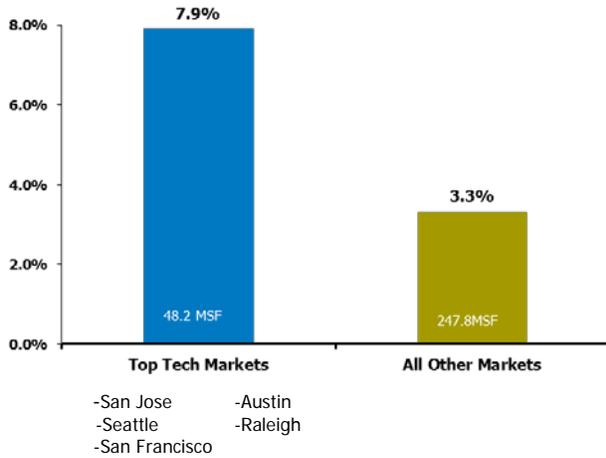
2-Year Net Absorption as % of Total Market Inventory



Source: CoStar Portfolio Strategy

Table 10C

5-Year Net Absorption as % of Total Market Inventory



Source: CoStar Portfolio Strategy

Enrico Moretti’s research indicates that for each new high-tech job in a metropolitan area, five additional local jobs are created³³.

The areas with strong growth rates, mostly, have strong concentrations of high-tech office jobs. High-tech office jobs are getting more concentrated as opposed to finance jobs that are dispersing³⁴.

³³ Based on his analysis of 11 million American workers in 320 metropolitan areas. See Enrico Moretti, “The New Geography of Jobs”, Mariner Books, Houghton Mifflin Harcourt, Boston, New York, 2013

³⁴ e-mail correspondence with Jon Southard of CBRE also see See Enrico Moretti, “The New Geography of Jobs”, Mariner Books, Houghton Mifflin Harcourt, Boston, New York, 2013

Table 11

	Office High-Tech LQ		Office High-Tech LQ		Office High-Tech LQ
San Jose	4.23	Oakland	1.57	Minneapolis	1.10
San Francisco	3.23	Atlanta	1.54	Chicago	1.09
Washington, DC	2.88	Dallas	1.53	Orange County	1.01
Seattle	2.38	Baltimore	1.46	Pittsburgh	0.90
Boston	1.97	Austin	1.38	Phoenix	0.86
Raleigh	1.97	Philadelphia	1.23	Los Angeles	0.80
Denver	1.90	Detroit	1.13	Houston	0.78
San Diego	1.62	New York	1.11		

Source: CBRE

The markets with the highest tech location quotients are as expected in the San Francisco Bay area/Silicon Valley. Other high-tech hubs include Seattle: 2.38, Boston: 1.97, Raleigh: 1.97, Denver: 1.90 and San Diego: 1.62. Other markets with better than average location quotients include regional economic capitals Atlanta: 1.54, Dallas: 1.53, and Chicago: 1.09. Five of the top six US investment markets score well.

OFFICE-USING JOBS

Office demand is driven by jobs that require office space. Office-using jobs (OUJ) for the top 54 markets tracked by CoStar increased 2.7% per year over the past five years and are forecast to grow 2.1% over the next five years.

The following charts detail growth in office-using jobs between 2009 and 2014 (past five years) and projected growth from 2014-2019 (next five years) for MSAs with population above one million.

Table 12

Cities with Office Job Growth - Past Five Years

MSA Name	past 5 years	Yearly Avg.
Raleigh-Cary NC	33%	6.6%
Austin-Round Rock-San Marcos TX	31%	6.2%
Nashville-Davidson-Murfreesboro-Franklin TN	31%	6.2%
San Jose-Sunnyvale-Santa Clara CA	28%	5.6%
San Francisco-San Mateo-Redwood City CA	27%	5.4%
Jacksonville FL	21%	4.3%
Dallas-Fort Worth-Arlington TX	20%	4.1%
Houston-Sugar Land-Baytown TX	20%	4.0%
Salt Lake City UT	20%	3.9%
Miami-Miami Beach-Kendall FL	20%	3.9%
Tampa-St. Petersburg-Clearwater FL	18%	3.7%
Charlotte-Gastonia-Rock Hill NC-SC	18%	3.6%
Atlanta-Sandy Springs-Marietta GA	17%	3.5%
Detroit-Warren-Livonia MI	17%	3.4%
Indianapolis-Carmel IN	17%	3.4%
West Palm Beach-Boca Raton-Boynton Beach FL	17%	3.3%
San Antonio-New Braunfels TX	16%	3.3%
Phoenix-Mesa-Glendale AZ	16%	3.3%
Las Vegas-Paradise NV	16%	3.2%
Los Angeles-Long Beach-Glendale CA	15%	3.0%
Portland-Vancouver-Hillsboro OR-WA	14%	2.9%
St. Louis MO-IL	14%	2.8%
Fort Lauderdale-Pompano Beach-Deerfield Beach FL	14%	2.8%
Seattle-Tacoma-Bellevue WA	14%	2.8%
Baltimore-Towson MD	13%	2.7%

Source: CoStar Portfolio Strategy

The markets that led growth patterns over the past five years where Raleigh-Cary NC: 6.6%, Austin-Round Rock-San Marcos TX: 6.2%, Nashville-Davidson-Murfreesboro-Franklin TN: 6.2%, San Jose-Sunnyvale-Santa Clara CA: 5.6%, San Francisco-San Mateo-Redwood City CA: 5.4%, Jacksonville FL: 4.3%, Dallas-Fort Worth-Arlington TX:4.1%, Houston-Sugar Land-Baytown TX: 4.0%, Salt Lake City UT:3.9% and Miami-Miami Beach-Kendall FL:3.9%.

Table 13

Cities with Office Job Growth - Next Five Years

MSA Name	next 5 years	Yearly Avg.
Phoenix-Mesa-Glendale AZ	18%	3.5%
Austin-Round Rock-San Marcos TX	18%	3.5%
West Palm Beach-Boca Raton-Boynton Beach FL	17%	3.3%
Raleigh-Cary NC	15%	3.1%
Dallas-Fort Worth-Arlington TX	15%	3.1%
Miami-Miami Beach-Kendall FL	15%	3.1%
Atlanta-Sandy Springs-Marietta GA	15%	3.1%
Charlotte-Gastonia-Rock Hill NC-SC	15%	3.0%
Nashville-Davidson-Murfreesboro-Franklin TN	15%	3.0%
Las Vegas-Paradise NV	15%	3.0%
Houston-Sugar Land-Baytown TX	15%	3.0%
Salt Lake City UT	15%	2.9%
Birmingham-Hoover AL	14%	2.8%
San Antonio-New Braunfels TX	14%	2.8%
Fort Lauderdale-Pompano Beach-Deerfield Beach FL	13%	2.6%
Oklahoma City OK	13%	2.6%
Tucson AZ	13%	2.6%
Oakland-Fremont-Hayward CA	13%	2.6%
Cincinnati-Middletown OH-KY-IN	12%	2.5%
Sacramento-Arden-Arcade-Roseville CA	12%	2.5%
Denver-Aurora-Broomfield CO	12%	2.3%
New Orleans-Metairie-Kenner LA	12%	2.3%
Newark-Union NJ-PA	11%	2.2%
Chicago-Joliet-Naperville IL	11%	2.2%
Jacksonville FL	11%	2.2%

Source: CoStar Portfolio Strategy

The markets projected to lead office-using jobs over the next five years are Phoenix-Mesa-Glendale AZ: 3.5%, Austin-Round Rock-San Marcos TX:3.5%, West Palm Beach-Boca Raton-Boynton Beach FL: 3.3%, Raleigh-Cary NC:3.1%, Dallas-Fort Worth-Arlington TX: 3.1%, Miami-Miami Beach-Kendall FL: 3.1%, Atlanta-Sandy Springs-Marietta GA:3.1%, Charlotte-Gastonia-Rock Hill NC-SC:3.0%, and Nashville-Davidson-Murfreesboro-Franklin TN: 3.0%.

Projected OJJ growth is not by itself an indicator of the long term vibrancy of an office market. For example, high projected job growth may be indicative of a market rebounding from significant great recession and housing bust job losses. These markets may also be fundamentally volatile. Other growth markets may be concentrated in a volatile industry such as energy. Growth markets with very low educational attainment rates may not inspire confidence in long term stability. If we separate out the energy markets³⁵, markets rebounding from significant job losses³⁶, markets with low education attainment rates³⁷, and major markets³⁸, the list favors Austin-Round Rock-San Marcos TX, Greater Miami-Southeast Florida³⁹, Raleigh-Cary NC, Dallas-Fort Worth-Arlington TX, Atlanta-Sandy Springs-Marietta GA, Charlotte-Gastonia-Rock Hill NC-SC, Nashville-Davidson-Murfreesboro-Franklin TN, Salt Lake City UT, and Indianapolis-Carmel IN.

³⁵ i.e. Houston-Sugar Land-Baytown TX, Oklahoma City OK.

³⁶ i.e. Phoenix-Mesa-Glendale AZ, Las Vegas-Paradise NV. These markets lost many jobs during the downturn and the outsized projected gains reflect a bounce back from a low point, not necessarily long term sustained growth.

³⁷ i.e. Phoenix-Mesa-Glendale AZ, Las Vegas-Paradise NV, Birmingham-Hoover AL, San Antonio-New Braunfels TX, St. Louis MO-IL

³⁸ i.e. San Jose-Sunnyvale-Santa Clara CA, San Francisco-San Mateo-Redwood City CA, Los Angeles-Long Beach-Glendale CA.

³⁹ i.e. Miami-Miami Beach-Kendall FL, Fort Lauderdale-Pompano Beach-Deerfield Beach FL, West Palm Beach-Boca Raton-Boynton Beach FL. Although these markets include some of the negative characteristics noted above, the metropolitan area appears poised for long term secular growth. Please see the addendum for more detail.

HOUSING AFFORDABILITY AND YOUNG FAMILIES

Housing affordability is important for employers since wages can be lower and young families can purchase homes for less. According to Jed Kolko, chief economist at the online real estate firm Trulia “Cities with the strongest job markets would grow even faster if more people could afford to live there. The additional population would help spur further job growth, which, in turn, would strengthen the local economy and foster more middle-class jobs”⁴⁰. Housing affordability is a significant draw for YCEs as well as young families with children aged 5-14. This age range is important because it encompasses when parents often move due to the cost of housing, schools and long-term economic security⁴¹.

Table 14 lists 52 markets with populations greater than one million in their order of housing affordability⁴². Being ranked in the top part of the chart does not necessarily indicate future growth or viability if it is not accompanied by growing economic opportunity. Conversely, certain metro areas experiencing economic growth within the third or even the fourth quadrant of this list offer are attractive alternatives to the most expensive markets.

Table 14

Metropolitan Market	Multiple	Median Price	Household Income
Detroit, MI	2.1	\$112,000	\$52,900
Rochester, NY	2.4	\$127,200	\$52,900
Buffalo, NY	2.6	\$134,900	\$51,600
Cleveland, OH	2.6	\$129,900	\$50,300
Cincinnati, OH-KY-IN	2.7	\$149,000	\$54,400
Grand Rapids, MI	2.7	\$145,500	\$53,500
Pittsburgh, PA	2.7	\$140,000	\$52,300
Saint Louis, MO-IL	2.7	\$150,200	\$55,500
Atlanta, GA	2.9	\$167,500	\$56,800
Indianapolis, IN	2.9	\$149,800	\$52,100
Kansas City, MO-KS	2.9	\$165,400	\$57,400
Louisville, KY-IN	2.9	\$151,200	\$51,900
Columbus, OH	3.0	\$165,700	\$55,200
Oklahoma City, OK	3.0	\$151,200	\$51,100
Memphis, TN-MS-AR	3.1	\$148,100	\$47,900
Tampa-St. Petersburg, FL	3.1	\$145,000	\$46,800
Minneapolis-St. Paul, MN-W	3.2	\$219,100	\$68,500
Dallas-Fort Worth, TX	3.3	\$193,500	\$58,500
Raleigh, NC	3.4	\$212,500	\$62,900
Birmingham, AL	3.5	\$174,400	\$49,300
Hartford, CT	3.5	\$233,800	\$67,700
Houston, TX	3.5	\$202,500	\$58,500
San Antonio, TX	3.5	\$186,400	\$52,700
Chicago, IL	3.6	\$221,800	\$61,800
Jacksonville, FL	3.6	\$186,500	\$52,500
Nashville, TN	3.6	\$191,800	\$53,000
New Orleans, LA	3.6	\$167,100	\$46,900
Virginia Beach-Norfolk, VA-N	3.6	\$208,000	\$57,300
Baltimore, MD	3.7	\$255,800	\$69,800
Philadelphia, PA-NJ-DE-MD	3.7	\$231,300	\$61,700
Orlando, FL	3.8	\$180,000	\$47,900
Phoenix, AZ	3.8	\$200,500	\$52,900
Austin, TX	3.9	\$246,000	\$63,000
Charlotte, NC	3.9	\$201,500	\$52,300
Las Vegas, NV	3.9	\$203,000	\$52,100
Richmond, VA	3.9	\$229,900	\$58,400
Salt Lake City, UT	4.0	\$250,000	\$62,700
Milwaukee, WI	4.1	\$219,500	\$53,000
Washington, DC-VA-MD-W	4.2	\$389,100	\$91,900
Providence, RI-MA	4.3	\$243,300	\$56,200
Sacramento, CA	4.7	\$275,300	\$58,200
Portland, OR-WA	4.8	\$291,300	\$60,300
Denver, CO	4.9	\$315,500	\$64,000
Riverside-San Bernardino, C	5.1	\$275,700	\$54,300
Seattle, WA	5.2	\$359,900	\$68,800
Boston, MA-NH	5.4	\$399,900	\$74,400
Miami, FL	5.6	\$270,000	\$47,900
New York, NY-NJ-PA	6.1	\$410,800	\$67,100
Los Angeles, CA	8.0	\$481,900	\$60,000
San Diego, CA	8.3	\$517,800	\$62,700
San Francisco, CA	9.2	\$744,400	\$81,200
San Jose, CA	9.2	\$860,000	\$93,400

Source: Wendell Cox (Demographia) and Hugh Pavletich (Performance Urban Planning), “11th Annual Demographia International Housing Affordability Survey” (2015 Edition: Data from Third Quarter 2014)

⁴⁰ Josh Boak, “Why areas with good jobs have hard-to-afford homes” Associated Press as presented in the Wall Street Journal, December 9, 2014.

⁴¹ Joel Kotkin “Baby Boomtowns: The U.S. Cities Attracting The Most Families”, Forbes, September 12, 2014.

⁴² Source: Wendell Cox (Demographia) and Hugh Pavletich (Performance Urban Planning), “11th Annual Demographia International Housing Affordability Survey” (2015 Edition: Data from Third Quarter 2014).

Domestic migration is increasingly driven by the quest for affordable housing. The country's fastest-growing cities are now those where housing is more affordable than average⁴³.

We also present metros that in fact have a growing population of young families as evidenced by the number of children between five and fourteen. The top 12 markets attracting young families with children have housing affordability indexes of 4.0 or less.

Table 15

Metro Area	Rise In No. Of Children Aged 5-14,	
	2000-13	Median Multiple
Raleigh, NC	55.7%	3.4
Austin, Tx	49.3%	3.9
Las Vegas, NV	39.0%	3.9
Charlotte, NC	32.9%	3.9
Phoenix, AZ	29.3%	3.8
Dallas-Fort Worth, TX	28.2%	3.3
Atlanta, GA	26.1%	2.9
Houston, TX	25.8%	3.5
Nashville, TN	22.7%	3.6
Orlando, FL	22.6%	3.8
San Antonio, TX	21.5%	3.5
Salt Lake City, UT	20.7%	4.0
Denver, CO	18.0%	4.9
Oklahoma City, OK	17.9%	3.0
Indianapolis, IN	13.4%	2.9
Riverside-San Bernardino, C	11.2%	5.1
Washington, DC-VA-MD-WA	10.0%	4.2
Columbus, OH	10.0%	3.0
Tampa-St. Petersburg, FL	9.6%	3.1
Portland, OR-WA	7.3%	4.8

Source: Joel Kotkin and Wendell Cox for rise in number of children and Wendell Cox and Hugh Pavletich, "11th Annual Demographia International Housing Affordability Survey" (2015 Edition: Data from Third Quarter 2014) for housing affordability⁴⁴

The above chart lists metros attracting families with young children. It includes markets with high growth in YCE, OUJ, and with relative affordable housing such as Raleigh, Austin, Charlotte, Dallas, Houston, and Nashville. The combination of affordable housing and economic growth attract young families, which in turn fosters further growth.⁴⁵

METRO CONSIDERATION

After considering the long-term factors detailed above, we set aside metros that have low education attainment rates⁴⁶ or are concentrated in the more volatile energy sector⁴⁷. Nine of the fourteen

⁴³ "This is a reversal from the early years of the millennium, when easy credit allowed cities to grow without regard to housing cost and when the fastest-growing cities had housing that was less affordable than the national average. Among people who have moved long distances, the number of those who cite housing as their primary motivation for doing so has more than doubled since 2007". See Shaila Dewan, "Affordable Housing Draws Middle Class to Inland Cities", New York Times, August 3, 2014.

⁴⁴ Joel Kotkin is R.C. Hobbs Professor of Urban Studies at Chapman University. He is the executive editor of www.newgeography.com. Wendell Cox is principal of Demographia, a St. Louis public policy consultancy

⁴⁵ Joel Kotkin, "Baby Boomtowns: The U.S. Cities Attracting The Most Families", Forbes, September 12 2014. Based on the work of Wendell Cox.

⁴⁶ For the purposes of this report a low educational attainment rate is defined as below 29%. Examples include Phoenix: 27.2%, Orlando: 28.1%, Las Vegas: 21.6% compared to national metro average of 32%. Miami-Ft. Lauderdale (28.1%) was included despite having a low educational attainment rate because of it being a global city with category changing potential.

⁴⁷ As the price of oil soared in recent years, energy dependent markets were very successful. With the price of oil down significantly— markets are exposed to the downside. Energy is an important demand driver. But over-dependency can render markets volatile. Markets that are diversified but have an energy component are more protected. Dallas and Denver formerly more dependent on energy now have more diverse economic bases. Dallas and Denver are also regional economic capitals and have business services, technology and healthcare demand drivers. Houston is more diversified than it had been in the 1970s but still significantly energy dependent as are Oklahoma City and New Orleans. The following is a CoStar list of selected metros and their energy location quotient (LQ): Houston: 5.92, Oklahoma City: 4.77, New Orleans: 2.32, Pittsburgh: 1.46, Dallas - Fort

highlighted markets are state capitals⁴⁸ which frequently have built in job engines in the form of state government and the presence of one or more universities. Since there are few US markets with true barriers to adding supply, the focus is on those areas with long term demand growth. Some of these markets are changing in a fundamental way. Please see addenda for more detail on the markets.

CONCLUSION

The metros that seem poised for long-term growth based on the criteria detailed in this report are Austin, Raleigh, Denver, Salt Lake City, Nashville, and Charlotte. These markets exhibit fundamental strength in high and/or growing education attainment levels. They have experienced a relatively high rate of growth in the number of college graduates aged 25 to 34, from 2000 to 2012. They have experienced growth and/or forecast to experience growth in office-using jobs. Housing is relatively affordable and young families have migrated to these metros. Most of the aforementioned metros have growing tech sectors. These office markets stand out in several long term growth factor categories that create and sustain office demand.

Other markets such as Seattle, San Diego, Atlanta, Dallas-Ft. Worth, Portland, Minneapolis, and Indianapolis exhibit long term growth attributes in certain categories that suggest consideration after factoring qualitative factors and overall market position. Seattle has the fourth highest technology location quotient in the US, a very high education attainment level, and is considered more affordable than rival California tech cities. San Diego has an above average education attainment level and has experienced a high growth rate in the number of college graduates aged 25 to 34. Portland is well known for being attractive to young people and has attracted YCEs and STEM jobs.

Although Atlanta and Dallas-Ft. Worth have had low growth in the number of college graduates aged 25 to 34, they are affordable housing markets that have attracted young families in great numbers. In addition, they have experienced growth in office-using jobs over the past five years and are expected to do the same over the next five years. Minneapolis and Indianapolis are the only Midwestern cities on our list. Minneapolis is notable for its high educational attainment level and high-tech employment growth. Indianapolis has had a high level of office-using job growth over the past five years and is forecast to have above average growth over the next five years. It is an affordable housing market and has attracted young families over the past decade.

In addition, Greater Miami, which lagged in many of the considerations, was included due to its strong projected growth in office-using jobs and it being a global city with potential for category changing growth.

Many of these metros are being transformed into fundamentally stronger cities and office markets. Seattle and Miami may catapult to tier one status over the next 15 to 20 years. Although most of the smaller markets may remain secondary destinations, they can nevertheless achieve long term growth and be a source of solid office building investment returns.

Selecting the appropriate metro is important, but equally as vital is discerning which CBD or suburban submarket are the most suitable. Similarly, strategically choosing the right office building within the preferred submarket is essential.

The metro area considerations detailed above go beyond cyclical rhythms and do not focus on entry points. We include markets that we consider to have sustainable growth over the long run. This is not a

Worth: 1.36, Denver: 1.32, San Antonio: 1.04, Salt Lake City: 0.75, Austin: 0.68, Phoenix: 0.33, Saint Louis:0.23, Richmond: 0.19, Los Angeles: 0.18.

⁴⁸ St. Paul is the capital of Minnesota and part of the Minneapolis-St. Paul metro area.

total return play and is not reflective of short term profitability⁴⁹. As is true with all markets, they are subject to cyclicity, overbuilding and supply/demand imbalance.

ADDENDA

Austin

Austin is the state capital of Texas, home to the University of Texas at Austin, and host to the annual South by Southwest SXSW music, film, and interactive festival. Private employers include Dell, IBM, AMD, and Apple. The Austin metro area has a very well-educated population with 39.4%⁵⁰ of metro area residents possessing a college degree compared to the national metro average of 32%⁵¹. It has also experienced the sixth highest (44.3%) percent increase in the number of college graduates aged 25 to 34, from 2000 to 2012. Austin's share of the same age bracket with a 4yr degree is 40.8%. It boasts the seventh highest share of residents with a degree in STEM and 24.8% growth in high-tech employment from 2003-2014. The location quotient for high-tech jobs is 1.37 which seems low considering its tech emphasis. However, it speaks to Austin's versatility and diversification. In addition to its role as a technology hub, Austin attracts biotech, pharmaceutical, government, and education jobs. Austin's housing affordability ratio is 3.9. Austin is the second highest metro in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 13.9% of the total population and grew by 49.3% between 2000 and 2013. Austin solid and growing educational base has attracted YCEs in great numbers. It boasts the seventh highest share of residents with a degree in STEM. Austin was second in the nation in growth of office-using jobs over the past five years and is forecasted for the same over the next five years. Austin is a relatively affordable housing market and as a corollary is one of the strongest metros in terms of young families.

Raleigh

Raleigh is the capital of North Carolina and home to North Carolina State University. It is considered part of the Research Triangle, which includes Durham, home to Duke University and Chapel Hill, home of University of North Carolina at Chapel Hill. The Raleigh metro area has a very well-educated population with 41.0% of the metro area residents possessing a college degree compared to 32% for the national metro average. Raleigh's share of college graduates aged 25 to 34 is high at 45.8% and increased by 26.7% percent from 2000 to 2012. It boasts the sixth highest share of residents with a degree in STEM at 12.0% and 36.9% growth in hi- tech employment from 2003-2014. Raleigh's high-tech location quotient is 1.97. Raleigh had the highest growth in OUJ at 6.6% over the past five years and is forecast to grow 3.1% over the next five years. A housing affordability ratio of 3.4 puts it in the more affordable category. Raleigh is the highest metro in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 14.6% of the total population and grew by 55.7% between 2000 and 2013. Raleigh has experienced very strong growth over the past five years. Raleigh has one of the strongest educational attainment bases in the nation and a growing number of YCEs. It is an affordable high-tech city both in terms of office space as well as housing.

Denver

Denver is the capital of Colorado and home of the University of Colorado Denver, University of Denver, and Metropolitan State College of Denver. Denver is also considered the economic regional capital of the mountain states. The Denver metro area has a very well-educated population with 38.2% of metro area residents possessing a college degree compared to the national metro average of 32%. It has experienced the fifth highest (46.6%) percent increase in the number of college graduates aged 25 to 34,

⁴⁹ Although there is no guarantee of future returns, we believe that good investment returns can theoretically be made in many markets with the right investment, entry, and exit timing.

⁵⁰ www.nytimes.com/interactive/2012/05/31/us/education-in-metro-areas.html.

⁵¹ <http://www.brookings.edu/blogs/the-avenue/posts/2012/05/31-educational-attainment-berube>. This is for the national metro average. The general number is lower.

from 2000 to 2012. Denver's share of the same age bracket with a 4yr degree is 38.9%. Denver residents with a STEM degree constitute 10.5% of the population. Denver's high-tech location quotient is 1.90 and growth in high-tech employment from 2003-2014 was 8.7%. Denver had 2.5% average annual growth of OUJ over the past five years and is projected to have 2.3% average annual growth over the next five years. Denver's housing affordability ratio is not favorable at 4.9, but compares well with more expensive California cities such as Los Angeles, San Francisco, and San Diego. Denver is also the 13th highest metro in terms of growth in families with children between the ages of 5 and 14 at 18.0% between 2000 and 2013. Denver's high-tech location quotient is 1.90 and it is less concentrated in the energy sector than it was in the past.

Salt Lake City

Salt Lake City is the capital of Utah and nearby Provo is the home of Brigham Young University. The Salt Lake City MSA anchors the center of the Salt Lake City–Provo–Orem Combined Statistical Area (CSA) which also includes the Provo-Orem MSA and the Ogden-Clearfield MSA. College degree achievement is 29.0%, 35.2% and 30.1% in the Salt Lake City, Provo-Orem, and Ogden-Clearfield MSAs respectively. It has also experienced the second highest (50.1%) percent increase in the number of college graduates aged 25 to 34, from 2000 to 2012. Salt Lake City's share of the same age bracket with a 4yr degree is 31.6%. Although, only 8.7% of its population is in possession of a degree in STEM, growth in high-tech employment from 2003-2014 was 38.5%. The Salt Lake City CSA benefits from a healthy high-tech sector⁵². Salt Lake City also leads the nation in absolute upward mobility⁵³.

Salt Lake City, Provo, and Ogden had 3.9%, 6.7%, and 3.5% average annual growth of OUJ over the past five years and are projected to have 2.9%, 3.2%, and 2.6% average annual growth over the next five years. Salt Lake City's housing affordability ratio of 4.0 is not as attractive as other metros highlighted in this study; however, demographic growth is considerable as it has a high local birthrate. It was the twelfth highest metro in terms of growth in families with children between the ages of 5 and 14 at 20.7% between 2000 and 2013.

Nashville

Nashville is the capital of Tennessee, home of Vanderbilt University, the Country Music Hall of Fame, Music Row, and a booming arts scene. Employers include Nissan, HCA, and Saint Thomas Health Services. The Nashville metro area has a low average educated population with 29.7% of metro area residents possessing a college degree compared to 32% for the national metro average. However, it has experienced the fourth highest (47.6%) percent increase in the number of college graduates aged 25 to 34, from 2000 to 2012. Nashville's share of the same age bracket with a 4 year degree is 38.8% compared to 37.5% for the top metro average. It boasts the fifth highest share of residents with a degree in Science, Technology, Engineering, and Math⁵⁴ (STEM) and is second only to San Francisco in growth in hi tech employment from 2003-2014 (49%). Nashville can claim the third greatest growth (6.2% annual average) in office-using jobs over the past five years and is forecasted for the ninth highest (3% annual average) over the next five years. A housing affordability ratio (household income to home price) of 3.6 puts it in the more affordable half of US housing markets⁵⁵. Nashville is also the ninth highest metro area in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 12.7% of the total population and grew by 22.7% between 2000 and 2013.

⁵² Flavia Krause-Jackson, "The App of Mormon? Utah Draws Tech Like Silicon Valley: Cities", Bloomberg, February 3, 2015 and Vauhini Vara, "How Utah Became the Next Silicon Valley", The New Yorker, February 3, 2015.

⁵³ Absolute Upward Mobility is a measure of the average economic outcome of a child from a below-median income family. See <http://www.equality-of-opportunity.org/index.php/city-rankings/city-rankings-100>.

⁵⁴ Defined as a BA degree in Science(S), Computer Science(T), Engineering(E), or Math(M).

⁵⁵ Top 52 markets with population in excess of one million.

Charlotte

Charlotte is the largest city in North Carolina and home to Bank of America's and Wells Fargo's east coast operations headquarters, Duke Energy, and Nucor Corporation. It also hosts the University of North Carolina at Charlotte and the NASCAR Hall of Fame. The Charlotte metro area has an average educated population with 32.2% of the metro area residents possessing a college degree compared to 32% for the national metro average. Charlotte's share of college graduates aged 25 to 34 is high at 38.7% and increased by 30.44% percent from 2000 to 2012. Residents with a degree in STEM constitute 8.1% of the population and the market experienced 21.3% growth in high-tech employment from 2003-2014. Charlotte had above average growth in OUJ at 3.6% over the past five years and is forecast for above average growth of 3.0% over the next five years. Charlotte's housing affordability ratio is 3.9. Charlotte is the fourth highest metro in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 14.2% of the total population and grew by 32.9% between 2000 and 2013. Charlotte has grown into a national finance center as well as one of several southeastern economic hubs.

Seattle

Seattle is home to Costco Wholesale, Microsoft, Amazon.com, PACCAR Inc., Starbucks Corporation and Nordstrom as well as the University of Washington-Seattle. The Seattle metro area has a well-educated population with 37.0% of the metro area residents possessing a college degree compared to 32% for the national metro average. Seattle's share of college graduates aged 25 to 34 is high at 39.4% and increased by 26.52% percent from 2000 to 2012. It boasts the eighth highest share of residents with a degree in STEM at 11.7% and 35.8% growth in high-tech employment growth from 2003-2014. Seattle's high-tech location quotient is 2.38. Seattle has become the center of the most intensive engineering in cloud computing: the design and management of global-scale data centers⁵⁶. Seattle had above average growth in OUJ at 2.8% over the past five years and is forecast for average growth of 2.1% over the next five years. A housing affordability ratio of 5.2 puts it squarely in the more expensive quadrant; however, it is more affordable than rival California cities San Francisco-Oakland (9.2), San Jose (8.7), San Diego (7.9) and Los Angeles (7.7). Seattle has experienced above average growth in the number of children between the ages of 5 and 14 at 3.8% growth between 2000 and 2013. Seattle has an excellent and growing educational attainment level with a solid hi tech location quotient⁵⁷. Its employment base is large and diversified. Although it has experienced a recent run up in market rent, it is still lower cost than its San Francisco Bay area rivals. Seattle's housing costs as well as its lack of a state income tax render its cost of living significantly lower than California rival cities.

San Diego

San Diego is the home of the U.S. Navy's Pacific Fleet and is a biotechnology hub. It also hosts University of California at San Diego, San Diego State and the University of San Diego. The San Diego metro area has an above average educated population with 33.7% of metro area residents possessing a college degree compared to 32% for the national metro average. Recently, it has also experienced the eighth fastest rates of growth in the number of college graduates aged 25 to 34, from 2000 to 2012 (42.6%). Its share of the same age bracket with a 4yr degree is a respectable 36.0% compared to 37.5% for the top metro average. Hi tech employment growth from 2003-2014 has been relatively mild at 13.4% since it begins from a strong base. San Diego's high-tech location quotient is 1.62 and 10.7% of San Diego residents have a degree in STEM. San Diego's tech sector also benefits from synergies with adjacent Tijuana, Mexico⁵⁸. San Diego had below average growth in OUJ at 2.0% and is forecast for below average growth of OUJ at 1.6% over the next five years. San Diego has a housing affordability ratio of 8.3 which puts it squarely in the least affordable quadrant. San Diego has experienced a decline in the

⁵⁶ Quentin Hardy, New York Times, "Seattle, the New Center of a Tech Boom", June 11, 2014.

⁵⁷ The fourth highest in the nation after 1- San Jose, 2- San Francisco, 3- Washington, DC.

⁵⁸ James Nash, Bloomberg, "Drones Lift Off as San Diego and Tijuana Bond Over Tech", February 27, 2015.

number of children between the ages of 5 and 14 of 4.7% between 2000 and 2013. San Diego has a solid and growing educated population and has attracted YCEs in great numbers. San Diego's high-tech location quotient is 1.62.

Atlanta

Atlanta is the capital of Georgia and the economic heart of the Southeast. Major corporations headquartered in Atlanta include Coca Cola, BellSouth, Delta Airlines, Home Depot, UPS, and Georgia-Pacific. It also hosts Georgia State University, Georgia Institute of Technology and Emory University. The Atlanta metro area has a well-educated population with 34.1% of metro area residents possessing a college degree compared to 32% for the national metro average. Recently, it has experienced one of the slowest rates of growth in the number of college graduates aged 25 to 34, from 2000 to 2012 (2.81%). However, its share of the same age bracket with a 4yr degree is a respectable 34.8% compared to 37.5% for the top metro average. High-tech employment growth from 2003-2014 has been relatively mild at 14.1%. Atlanta's high-tech location quotient is 1.54 and 9.1% of its residents have a degree in STEM. Atlanta had above average growth in OUJ at 3.5% and is forecast to be above average growth of 3.1% in OUJ over the next five years. A housing affordability ratio of 2.9 puts it squarely in the most affordable quadrant. Atlanta is also the seventh highest metro area in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 14.6% of the total population and grew by 26.1% between 2000 and 2013. It has been the ninth highest for office investment and overall investment volume over the past 24 months. Atlanta is a regional economic capital with a solid educational base. However, it has lagged in recent years in its ability to attract YCE. Although it has a high-tech LQ of 1.54, High-tech employment growth has been slower than expected. Atlanta is expected to experience above average growth in OUJ, but at a slower pace than experienced over the past five years. Atlanta is one of the most affordable housing markets in the US and as a corollary it is one of the fastest growing metro area in terms of young children. Although not poised for the torrid growth of some of its rivals, Atlanta has good prospects.

Dallas-Ft. Worth

The Dallas-Ft. Worth metro area is the economic heart of the Southwest. Major corporations based in the Dallas area include Exxon Mobile, AT&T, Fluor Corporation, Kimberly-Clark, Holly Frontier, J.C. Penney, Texas Instruments, American Airlines, and Southwest Airlines. It also hosts the University of North Texas, The University of Texas at Arlington, and The University of Texas at Dallas. The Dallas-Ft. Worth metro area has an average educated population with 31.4% of metro area residents possessing a college degree compared to the national metro average of 32%. Dallas has recently experienced a below average rate of growth in the number of college graduates aged 25 to 34, from 2000 to 2012 (20.1%). Its share of the same age bracket with a 4yr degree is 30.7%⁵⁹ compared to 37.5 for the top metro average. Just 8.8% of its residents have a degree in STEM. Hi tech employment from 2003-2014 has been relatively mild at 4.9%⁶⁰. Nevertheless, Dallas's high-tech location quotient is 1.53. Dallas-Ft. Worth had above average growth in OUJ at 4.1% over the past five years and is for above average growth of OUJ at 3.1% over the next five years. A housing affordability ratio of 3.3 places it in the more affordable half of large US markets. Dallas-Ft. Worth is also the sixth highest metro in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 15.4% of the total population and grew by 28.2% between 2000 and 2013. It has been the eighth highest for office investment and the sixth highest for overall investment volume. Dallas-Ft. Worth is expected to continue being the jobs juggernaut it has been over the last five years. Affordable housing and population growth and its position as the southwest's economic capital should bolster its position into the next decade.

⁵⁹ Dallas-Ft. Worth metro area.

⁶⁰ Dallas-Ft. Worth.

Portland

Portland is the largest city in Oregon and home of Portland State University. The Portland metro area has an above average educated population with 33.0% of metro area residents possessing a college degree compared to 32% for the national metro average. It has experienced a 37.3% percent increase in the number of college graduates aged 25 to 34, from 2000 to 2012 compared to 25.2% for the top metro average. Portland's share of the same age bracket with a 4 year degree is 37.1% comparable to the top metro average. The share of residents with a degree in Science, Technology, Engineering, and Math (STEM) is 9.28% and growth in high-tech employment from 2003-2014 was 15.4%. Portland experienced 2.9% annual average growth in office-using jobs over the past five years and is forecasted for 1.9% annual average growth over the next five years. A housing affordability ratio (household income to home price) of 4.8 puts it in the less affordable half of US housing markets. Portland is the 20th highest metro area in terms of growth in families with children between the ages of 5 and 14. Children in the aforementioned age bracket constitute 7.3%.

Minneapolis

Minneapolis is part of a metro area that includes St. Paul, the Minnesota state capital. It is also home to ten⁶¹ Fortune 200 companies as well as the University of Minnesota Twin Cities and the Mall of America. In 2010, the metro economy had overtaken Detroit's as the Midwest's second-largest after Chicago⁶². The Minneapolis-St. Paul metro area has a well-educated population with 37.9% of metro area residents possessing a college degree compared to the national metro average of 32%. It has experienced below average (21.3%) percent increase in the number of college graduates aged 25 to 34, from 2000 to 2012. The twin cities metro area share of the same age bracket with a 4yr degree is 44.5% compared to 37.5% for the top metro average. Minneapolis boasts the twelfth highest share of residents with a degree in STEM at 10.4%, but only 9.5% growth in high-tech employment growth from 2003-2014. Minneapolis's high-tech location quotient is 1.10. Minneapolis had below average growth in OUJ at 2.0% over the past five years and is forecast for below average of 1.4% over the next five years. A housing affordability ratio of 3.2 puts it squarely in the top half of US housing affordability. Minneapolis-St. Paul growth in families with children between the ages of 5 and 14 was 1.9% between 2000 and 2013. Minneapolis is an affordable alternative to Chicago, but still provides more value than the industrial centric cities of Cleveland and Milwaukee. Despite less than stellar growth in OUJ and YCE, it has a solid educational base, including YCEs far above the top metro average. Minneapolis' combination of affordable housing, a solid corporate foundation, and high educational attainment level, render it a compelling low cost alternative to Chicago and give it a solid competitive advantage to rust belt metros such as Cleveland, Milwaukee, and Detroit.

Indianapolis

Indianapolis is the capital of Indiana and together with Bloomington⁶³, situated 50 miles to the south, is a center for Medical Devices and Equipment⁶⁴, Drugs and Pharmaceuticals, and Agricultural Feedstock and Chemicals. Major corporations headquartered in Indianapolis include WellPoint and Eli Lilly & Company. The Indianapolis metro area has a low average educated population with 30.7% of metro area residents possessing a college degree compared to the national metro average of 32%. Young college educated persons have been migrating to Indianapolis. Recently, it has also experienced growth in the number of college graduates aged 25 to 34, from 2000 to 2012 (30.5%). Its share of the same age bracket with a 4yr degree is a respectable 37.4% (average for the top metro average). Just 8.9% of its residents have a degree in STEM. Hi tech employment from 2003-2014 has been relatively mild at 12.6%. Indianapolis had above average growth in OUJ at 3.48% and is forecast for slightly less than average growth of 2.0% over the next five years. A housing affordability ratio of 2.9 puts it squarely in the most affordable quadrant. Indianapolis is also the 15th highest metro in terms of growth in families with children between

⁶¹ United Healthcare, Target, Best Buy, CHS, Inc. SuperValu, 3M Company, US Bancorp, General Mills, Medtronic, Land O'Lakes.

⁶² "Minneapolis needs population growth", Star Tribune, September 7, 2013.

⁶³ <http://bloomingtonlifesciences.com/bloomington-1-in-medical-device-equipment-employment>.

⁶⁴ See Enrico Moretti, "The New Geography of Jobs", Mariner Books, Houghton Mifflin Harcourt, Boston, New York, 2013.

the ages of 5 and 14 at 13.4% between 2000 and 2013. Indianapolis is a low cost alternative to Chicago, Milwaukee, Cleveland, and Minneapolis and has the lowest vacancy rate of the peer group.

Miami

Miami is the major trading entrepôt⁶⁵ between the United States and Central America, South America, and the Caribbean. Joel Kotkin refers to the Miami area along with New York and Los Angeles as American city-states. "Greater Miami often seems more the capital of Latin America than it does an American region. Its population is heavily Hispanic, and trade, finance, construction and tourism tend to focus southward"⁶⁶. Miami's economy functions somewhat independently of other parts of the US⁶⁷. Accordingly, demand drivers are different than for other parts of the United States. Southeast Florida (Miami, Ft. Lauderdale, and West Palm Beach) in general and Miami in particular have attracted significant foreign investment. Miami retail is the target of frequent European and Latin American shopping tourism and Miami condominiums are repositories of flight capital. Miami also attracts those⁶⁸ that are uncomfortable living in certain Caribbean and Central and South American countries⁶⁹.

Tourism remains an important driver of the southeast Florida economy, but international trade is the cornerstone of its potential to be a major world-class city. According to the GAWC measure of global cities, Miami is considered an Alpha minus city and ranks 36th worldwide and sixth among American cities⁷⁰. Southeast Florida was the seventh largest destination of foreign investment for "all property types" and the tenth largest destination for capital from all sources for "all property types"⁷¹. Miami ranked seventh worldwide and second in the United States after New York on the list of "cities that matter to the world's wealthy" according to the 2014 "Wealth Report" by consulting firm Knight Frank LLC⁷². Greater Miami may be on its way to becoming a major American gateway for foreign investment.

Nevertheless, Miami lags in terms of educational attainment, high-tech jobs, and housing affordability. The Miami-Ft. Lauderdale metro area underperforms with 28.1% of its residents in possession of a college degree compared to 32% for the national metro average. The current share of 25 to 34 year olds with a college degree as a percent of all 25 to 34 year olds is 29.6%, significantly below the top metro average of 37.5%. However, growth in this demographic segment of 24.7% between 2000 and 2012 is close to the top metro average of 25.2%. Southeast Florida cities have a low share of residents with a degree in STEM; Miami - 6.6%, Fort Lauderdale - 6.7%, Palm Beach County 7.9%. High-tech Employment growth in the 2003-2014 time period has been especially anemic. Fort Lauderdale experienced a 1.9% increase and Miami a 10.3% decrease. Only Palm Beach County experienced an above average result at a 17% increase.

Southeast Florida cities are expected to experience significant office-using job growth over the next five years. Southeast Florida metro MSAs occupy the number 3 (West Palm Beach: 3.3%), 6 (Miami: 3.1%) and 15 (Fort Lauderdale: 2.6%), spots in terms of five year projected growth. The past five year growth in OUJ was also impressive at 3.9% for Miami, 3.3% for West Palm Beach and 2.8% for Fort Lauderdale. Southeast Florida is attracting investment and is now within the top ten metros for investment in all

⁶⁵ In this context the word is being used to signify Miami's use as a conduit and trading post between the US and Latin America. This has certain similarities to Hong Kong's economic role with mainland China. The traditional term associated with a preindustrial duty free trade zone is not intended.

⁶⁶ Joel kotkin, Forbes, "A Map Of America's Future: Where Growth Will Be Over The Next Decade" September 23, 2013.

⁶⁷ Joel Garreau out-lined that Miami effectively functions as the economic capital of the Southeast Florida, parts of central and South America and the Caribbean. See Joel Garreau, "The Nine Nations of North America", Houghton Mifflin Harcourt, 1981

⁶⁸ The most notable influx is that of Cuban refugees in the 1960s, but over the years other political and economic driven migrants have relocated to the area. These include immigrants from Haiti, Venezuela, Brazil, Argentina and other parts of Latin America.

⁶⁹ As a recent example see Reed Johnson, Luciana Magalhaes, and Jeffrey Lewis "Rich Brazilians, Wary of Government, Look Abroad. President Rousseff's Re-Election Prompts More Wealthy Brazilians to Seek to Move or Set Up Businesses in South Florida, Obtain U.S. Residency", Wall Street Journal, February 5, 2015.

⁷⁰ GaWC study - Jon Beaverstock, Richard Smith and Peter Taylor established the Globalization and World Cities Research Network (GaWC). A roster of world cities was outlined in the GaWC Research Bulletin 5 and ranked cities based on their connectivity through four "advanced producer services": accountancy, advertising, banking/finance, and law. The GaWC inventory identifies three levels of global cities and several sub-ranks. The 2008 roster, similar to the 1998 version, is sorted into categories of "Alpha" world cities (with four sub-categories), "Beta" world cities (three sub-categories), "Gamma" world cities (three sub-categories) and additional cities with "High sufficiency" or "Sufficiency" presence.

⁷¹ Real Capital Analytics

⁷² The Wealth Report 2014, Knight Frank LLC, London, <http://www.thewealthreport.net/resources/thewealthreport2014.pdf>, page 30

property types. This investment is not limited to Miami as it has expanded to other parts of the metro area including Ft. Lauderdale⁷³. Within Miami itself, areas which were long considered undesirable are being developed⁷⁴.

Southeast Florida has a unique position within the United States. It has been an investment magnet and has strong trade ties to Latin America and the Caribbean. Miami has the potential to become a major US gateway city. Although it lags in terms of educational attainment, high-tech, and housing affordability, its position as a regional economic hub between the United States, Latin America, and the Caribbean renders it a special opportunity.

⁷³ Robyn A. Friedman "Fort Lauderdale Finds Its Place in the Sun: Florida City, in Midst of a Comeback, Is Attracting Real-Estate Investors Willing to Fork Over Hefty Sums", Wall Street Journal, December 23, 2014.

⁷⁴ Nadja Brandt "Miami Building Boom Spreads Into Downtown Tent City", Bloomberg, October 27, 2014.

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