Regional Growth Variability

Metropolitan economies react differently to changing national economic cycles.

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AT 7:46 A.M. on October 17, 2006, America's population reached 300 million. Unlike McDonald's 100 millionth customer, who was showered with confetti, the 300 millionth American remains unknown. Was it a man or woman, boy or girl? A first-, second-, or fifth-generation native? Or was it an immigrant—legal or illegal—in search of a better life? It took more than fifty years for the U.S. population to grow from 100 million to 200 million in 1967, and not quite forty more to reach today's historic threshold.

According to current Census estimates, it will take less than thirty-five years to reach 400 million.

Based on research done with Wharton colleague Albert Saiz (see "Forecasting 2020 U.S. County and MSA Populations," *WRER*, Fall 2006), we estimate that the U.S. population will grow by roughly 65 million (22 percent) over the next twenty years. These 65 million new citizens will represent some 25 million additional households, of which approximately nine million will be immigrants. As we noted in the earlier paper, "Baby Boomers will be solidly in their retirement years by the end of the next twenty years, while the Baby Echo will be entering early middle age. To put things in perspective, 65 million people amount to the combined state populations of California, New York, and New Jersey, or the entire current population of France."

Unlike most European nations, as well as Japan and China, the United States has a growing population, and one that shows no sign of slowing. Real per capita income, too, will rise over the next twenty years, from about $25,000 to $39,000 (Table I). Similarly, real wealth per household will increase from about $425,000 to nearly $665,000. Over the next twenty years, many consequences will flow from a burgeoning and increasingly prosperous population. The United States will see increasing demand across all consumer-related goods and (particularly) services, since people will require more of everything: real estate and infrastructure, public education and cosmetic surgery, iPods and Xboxes.

Where will this larger and richer population choose to live, work, play, and retire? The research of Linneman and Saiz found, "higher real incomes and real wealth will propel the demand to live near oceans, major lakes, mountains, and in the best areas of our best urban centers." "Best" means safe and attractive neighborhoods. As Baby Boomers age with greater wealth and income than any previous generation, they will desire easy-to-navigate, warm, safe communities with access to the best medical facilities in the world.

Table I: Increasing spending power

	2005	2025 Est.
Real GDP (billions)	$12,790	$24,248
Real income per capita	$25,026	$39,053
Real net worth per household	$424,861	$663,000

HISTORY LESSONS

The Linneman-Saiz research provides detail concerning the precise geographic location of long-term population growth in the United States over the next twenty years. As this growth takes place, the national and local economies will go through hot and cold periods. This raises an important question: as the U.S. economy moves through cycles, which MSAs will over-react, and which will under-react? Those that over-react will be great places to be on the up-cycle (around trend growth), but will disproportionately suffer during down-cycles, while those that under-react will grow more steadily around their trends over the cycle.

We examined more than forty-five years of historical data on job growth and unemployment rates, and more than fifteen years of single-family home price appreciation in the thirty-nine largest MSAs (Table II). We performed a simple regression analysis of how each MSA's percentage employment growth covaries with U.S. percentage job growth (a metric of office-demand variability); how each MSA's unemployment rate covaries with the U.S. unemployment rate (a metric of retail and warehouse demand variability); and how each MSA's median real single-family home price covaries with the national median real single-family home price (a metric of local household wealth volatility).

For each MSA, we estimated a "beta" that summarizes how a 100 basis point (bps) change at the national variable affects the local indicator. The beta for the United States as a whole is defined as 1. Thus, an MSA with a beta of 1 registers (on average) an increase of 100 bps in employment growth (around its trend), when national employment rises by 100 bps. A beta of 0.5 means that local growth rises by 50 bps (above trend) when the national rate increases by 100 basis points. If an MSA's beta is 1.5, it means that when national employment rises or falls by 100 basis points, the local area responds 50 percent more (around its mean). Hence, a beta that is less than 1 indicates that the MSA does not boom (or bust) to as great an extent as the national economy. The estimated betas are a simple indicator of how coincident each MSA's economy is with movements of the national economy. They provide insight into the demand volatility around trend (pro forma) during unusual boom or bust times (which occur, but are never modeled in pro formas).

We also examined whether an MSA has the same beta when the national economy is booming, or when it experiences a bust. That is, an MSA might react differently depending on whether the national economy is growing or shrinking. For example, it is possible that as U.S. employ-

Table II: Historical MSA performance

MSA	Average Employment Growth %	Average Unemployment Rate %	Real (2006$) Median home price CAGR %
Atlanta	3.53	4.39	1.58
Austin*	4.89	3.94	3.28
Boston	1.17	5.00	3.30
Charlotte	3.01	4.40	1.80
Chicago	1.27	6.78	3.43
Cincinnati	1.88	4.69	1.25
Cleveland	0.50	6.36	1.12
Columbus	2.53	4.05	1.42
Dallas/Ft. Worth	3.10	5.08	0.19
Denver	2.02	4.32	3.86
Detroit	1.01	7.38	1.67
Fairfield County*, Conn.	0.86	4.42	5.73
Fort Lauderdale	5.22	5.50	n/a
Houston	2.83	5.73	2.27
Indianapolis	2.21	3.61	0.48
Las Vegas	6.26	5.25	5.26
Long Island, N.Y.	2.34	n/a	2.94
Los Angeles-Long Beach	1.38	7.14	3.32
Miami	2.70	7.27	6.14
Minneapolis	2.17	3.56	2.94
Nashville	2.93	4.02	1.77
New York City	0.40	8.14	n/a
Northern-Central N.J.**	0.95	6.29	2.75
Orange County	5.13	4.45	n/a
Orlando	5.74	4.73	4.38
Philadelphia	1.03	5.34	2.43
Phoenix	5.16	4.29	4.44
Portland	2.34	5.40	5.89
Raleigh-Durham	4.02	3.48	1.60
Riverside-San Bernardino	4.06	7.13	4.00
San Diego	3.57	5.18	4.63
San Francisco	0.96	4.55	3.71
San Jose*	2.73	5.46	6.21
Seattle	2.50	5.50	5.96
St. Louis	1.36	5.10	0.91
Tampa Bay	3.70	4.70	4.27
Washington, D.C.	3.20	3.72	4.49
Westchester County, N.Y.	1.48	7.16	2.83
West Palm Beach	5.21	6.59	n/a

* Home price data are calculated 1989-2006 with the following beginning year exceptions: Austin (1991); Fairfield County (2001); San Jose (2002).

** Home price appreciation covers the entire N.Y. metropolitan area, including NYC

Table III: MSA employment growth betas

MSA	Average growth	Capital city	Reaction to rising national employment	Reaction to falling national employment
U.S.	1.98		1.00	-1.00
Atlanta	3.53	C	1.28	-1.28
Austin	4.89	C	1.65	1.30
Boston	1.17	C	1.65	-1.65
Charlotte	3.01		1.40	-1.40
Chicago	1.27		1.08	-1.08
Cincinnati	1.88		0.95	-0.95
Cleveland	0.50		1.06	-1.06
Columbus	2.53	C	0.95	-0.95
Dallas	3.23		1.03	-1.03
Denver	2.02	C	1.02	-1.02
Detroit	1.01		1.74	-1.74
Fairfield County	0.86		1.11	-1.11
Fort Lauderdale	5.22		2.53	2.10
Houston	2.83		0.79	-0.79
Indianapolis	2.21		1.19	-1.19
Inland Empire	4.06		0.89	-0.89
Las Vegas	6.26		1.08	-1.08
Long Island	2.34		0.99	-0.99
Los Angeles	1.38		1.13	-1.13
Miami - Hialeah	2.70		0.99	-0.99
Minneapolis	2.17		1.16	-1.16
Nashville	2.93	C	1.26	-1.26
New York City	0.40		0.76	-0.76
Northern-Central N.J.	0.95		1.03	-1.03
Orange County	5.13		1.35	-1.35
Orlando	5.74		1.49	-1.49
Philadelphia	1.03		0.77	-0.77
Phoenix	5.16	C	1.36	-1.36
Portland	2.34		1.27	-1.27
Raleigh-Durham	4.02	C	1.08	-1.08
San Diego	3.57		1.42	0.21
San Francisco	0.96		0.87	-0.87
San Jose	2.73		1.47	-1.47
Seattle	2.50		1.22	-1.22
St. Louis	1.36		0.81	-0.81
Tampa Bay	3.70		1.19	-1.19
Washington, D.C.	3.20	C	0.84	-0.84
West Palm Beach	5.21		2.53	3.28
Westchester County	1.48		0.87	-0.87

ment growth increases, an MSA may have a beta of 1.5, but when the employment growth is negative, the MSA's employment decline may grow slower than that of the nation; for example, with a beta equaling 0.8.

The estimated employment growth rate betas are shown in Figure 3. For each MSA, the relationship between MSA employment growth rate and that of the nation is statistically significant at standard confidence levels. In the case of a rising national employment growth rate, a positive beta indicates that when national employment grows, the MSA employment growth rate increases as well. This is the case for all MSAs.

The last column in Figure 3 indicates how local employment growth changed in the face of a 100 bp decline in national employment. A negative entry indicates declining employment in this MSA when national employment weakened (a positive beta). All but four MSAs experienced (on average) negative job growth when national employment is negative. However, Austin, Fort Lauderdale, San Diego, and West Palm Beach all exhibit statistically significant job growth (though at lesser rates), even when the nation's job growth rate is negative. The positive demand-side responses of these four MSAs indicate that these local economies basically always continued to grow. That is, while they slow, they have been (statistically) recession-proof. West Palm Beach in particular has a high beta of 3.28, meaning that even when the national employment growth rate is negative, a 100 basis point U.S. decline results in job growth of 328 bps in West

Table IV: Reaction to change in national employment growth rates

0.5 < or = |beta| < 0.9	0.9 < or = |beta| < or = 1.1	1.1 < |beta| < or = 1.5	|beta| > 1.5
New York City	Columbus	Fairfield County	Boston
Philadelphia	Cincinnati	Los Angeles	*Austin*
Houston	Miami-Hialeah	Minneapolis	Detroit
St. Louis	Long Island, N.Y.	Indianapolis	*West Palm Beach*
Washington, D.C.	Denver	Tampa Bay	*Fort Lauderdale*
San Francisco	Dallas	Seattle	
Westchester County	Northern-Central N.J.	Nashville	
Inland Empire	Cleveland	Portland	
	Las Vegas	Atlanta	
	Raleigh-Durham	Orange County	
	Chicago	Phoenix	
		Charlotte	
		San Diego	
		San Jose	
		Orlando	

Italics indicate growing MSA employment when national employment falls; categorized by rising employment betas

Palm Beach. Similarly, Fort Lauderdale grows by 210 bps, even as the United States declines by 100 bps.

Long Island, Dallas, Denver, and Northern New Jersey exhibit employment growth rate betas closest to 1.0, indicating that local employment growth patterns moved closely in tandem with the nation (Table IV). New York City, Philadelphia, Houston, St. Louis, and Washington, D.C. have the lowest betas. Employment growth rates in these MSAs move with lower amplitude than the nation, although in the same direction.

At the other end of the spectrum, Fort Lauderdale, West Palm Beach, Detroit, Austin, and Boston exhibit the relatively highest betas, indicating job growth volatility notably greater than the nation. Detroit, Austin, and Boston generally booms when the nation adds jobs, but suffers badly on the downside.

We conducted a statistical analysis of MSA employment growth betas to determine if capital cities and high average employment rate growth MSAs have systematically different betas, but found no statistically significant relationship.

UNEMPLOYMENT RATE VOLATILITY

Estimates of unemployment rate betas are displayed in Table V. Once again, the relationship between MSA unemployment rates (a proxy for the general health of the MSA, and hence retail and warehouse demand), and that of the nation is statistically significant, and exhibits stronger relationships (much higher R-squared values) than is the case for the employment growth rate betas.

In the case of a rising national unemployment rate (that is, a weakening national economy), a positive beta indicates that when the national unemployment rate increases, the MSA unemployment rate also rises. This is the case for all MSAs. That is, no MSA is immune from rising unemployment when the national unemployment rate rises. Stated differently, all local economies suffer when the national economy declines, and gains when the national economy grows. Thus, even in the four recession-proof areas in terms of job growth (Austin, Fort Lauderdale, San Diego, and West Palm Beach), during times of rising national unemployment, the labor force expands more rapidly than jobs are created, weakening job prospects in the market. This reflects the phenomena that labor force growth expands at basically trend levels, while even though these MSAs add jobs, they are not added fast enough to offset the expanding local labor force during national downturns.

Nearly 60 percent of the metropolitan markets in our study have statistically

Table V: MSA employment growth betas

MSA	Average unemployment rate	Capital city	Reaction to rising national unemployment	Reaction to falling national unemployment
U.S.	4.80		1.00	1.00
Atlanta	4.39	C	0.78	-0.78
Austin	3.94	C	0.44	-0.31
Boston	5.00	C	1.63	-1.59
Bridgeport	4.42		1.20	-1.20
Charlotte	4.40		0.78	-0.78
Chicago	6.78		1.29	-1.29
Cincinnati	4.69		0.75	-0.80
Cleveland	6.36		1.30	-1.35
Columbus	4.05	C	0.59	-0.59
Dallas-Fort Worth	5.08		1.06	-1.00
Denver	4.32	C	0.80	-0.80
Detroit	7.38		1.95	-1.95
Fort Lauderdale	5.50		1.40	-1.33
Fort Worth	5.05		1.14	-1.09
Houston	5.73		0.86	-0.95
Indianapolis	3.61		0.58	-0.58
Las Vegas	5.25		0.83	-0.78
Los Angeles	7.14		0.74	-0.81
Miami	7.27		0.99	-0.99
Minneapolis	3.56		0.65	-0.59
Nashville	4.02	C	0.56	-0.49
New York City	8.14		0.74	-0.74
New York Metro Area	6.29		1.22	-1.28
N.Y.-Westchester County	7.16		1.24	-1.32
Orange County	4.45		1.16	-1.21
Orlando	4.73		1.42	-1.33
Philadelphia	5.34		1.09	-1.09
Phoenix	4.29	C	0.85	-0.79
Portland	5.40		0.58	-0.58
Raleigh-Durham	3.48	C	0.53	-0.41
Riverside-San Bernardino	7.13		1.78	-1.91
San Diego	5.18		1.30	-1.39
San Francisco	4.55		0.95	-0.95
San Jose	5.46		1.35	-1.35
Seattle	5.50		0.81	-0.85
St. Louis	5.10		0.82	-0.77
Tampa	4.70		1.30	-1.23
Washington	3.72	C	0.68	-0.68
West Palm Beach	6.59		1.75	-1.75

different unemployment rate betas in the face of rising and falling national unemployment rates. That is, while all of the MSA unemployment rates move in the same direction as that of the nation, the extent to which they move frequently differ, depending upon whether the national unemployment rate is rising or falling.

Tables VI (increasing unemployment rates) and VII (decreasing unemployment rates) group the MSAs by the absolute values of their betas. In some cases, MSAs are in different groupings, depending on whether the national unemployment rate is increasing or decreasing. In other cases, MSAs are in the same beta grouping regardless of the national trend, but had moved up or down within that category in relation to the reactions of the other markets. Ten markets, led by Riverside-San Bernardino, Houston, San Diego, Westchester County, and Los Angeles, show statistically greater reactions when the national unemployment rate is declining than when it is increasing. Specifically, Riverside-San Bernardino's "increasing unemployment" beta is 1.78, but its "decreasing unemployment" beta is 1.91. That is, while it always overreacts, it does so more in

Table VI: Reaction to rising national unemployment rates

$\|beta\| \leq 0.5$	$0.5 \leq \|beta\| < 0.9$	$0.9 \leq \|beta\| \leq 1.1$	$1.1 < \|beta\| \leq 1.5$	$\|beta\| > 1.5$
Austin	Raleigh	San Francisco	Fort Worth	Boston
	Nashville	Miami	Orange County	West Palm Beach
	Indianapolis	Dallas-Fort Worth	Bridgeport	Riverside-San Bernardino
	Portland	Philadelphia	New York Metropolitan Area	Detroit
	Columbus		N.Y.-Westchester County	
	Minneapolis		Chicago	
	Washington		Tampa	
	Los Angeles		Cleveland	
	New York City		San Diego	
	Cincinnati		San Jose	
	Atlanta		Fort Lauderdale	
	Charlotte		Orlando	
	Denver			
	Seattle			
	St. Louis			
	Las Vegas			
	Phoenix			
	Houston			

Table VII: Reaction to falling national unemployment rates

|beta| ≤ 0.5	0.5 ≤ |beta| < 0.9	0.9 ≤ |beta| ≤ 1.1	1.1 < |beta| ≤ 1.5	|beta| > 1.5
Austin	Indianapolis	Houston	Bridgeport	Boston
Raleigh	Portland	San Francisco	Orange County	West Palm Beach
Nashville	Columbus	Miami	Tampa	Riverside-San Bernardino
	Minneapolis	Dallas-Fort Worth	New York Metropolitan Area	Detroit
	Washington	Philadelphia	Chicago	
	New York City	Fort Worth	N.Y.-Westchester County	
	St. Louis		Orlando	
	Las Vegas		Fort Lauderdale	
	Atlanta		San Jose	
	Charlotte		Cleveland	
	Phoenix		San Diego	
	Cincinnati			
	Denver			
	Los Angeles			
	Seattle			

up-cycles than in down-cycles. Thirteen MSAs have asymmetric unemployment rate betas where their reaction is statistically more pronounced to a rising national unemployment rate. Some of these include Austin, Raleigh, Orlando, Fort Lauderdale, and Phoenix. The largest differential response is Austin, with 13 basis points.

San Francisco, Miami, Dallas-Ft. Worth, and Philadelphia are among the MSAs that moved roughly in concert with U.S. unemployment rates, while Austin, Raleigh-Durham, and Nashville reveal the lowest betas. Detroit, Riverside-San Bernardino, West Palm Beach, and Boston have the highest unemployment rate betas, indicating substantially greater movements (both up and down) at the MSA than at the national level. With a beta of almost two, Detroit is the most "boom-and-bust" MSA. That is, when the national unemployment rate was improving, it is generally very good in Detroit, but when national unemployment increases, Detroit really feels the pain.

We also conducted a statistical analysis of the MSA unemployment rate betas as a function of their average unemployment rate, and whether they are a state capital. We found no statistically significant impact of the average local unemployment rate, but state capital MSAs had

unemployment rate betas that are on average 32 basis points lower (and statistically significant). That is, capital MSAs are much less cyclical in their unemployment rates than other MSAs.

HOME PRICE APPRECIATION VOLATILITY

Real national housing prices are an indicator of the interaction of housing supply and demand, and capture the volatility of the main component of household wealth. Specifically, we estimated MSA betas for median real (in 2006 dollars) single-family home prices. The estimated betas are displayed in Table VIII. In general, there is a strong correlation between MSA and national median real home prices, although to a lesser extent than for unemployment rate betas. However, the betas are statistically significant for all MSAs. On average, capital cities had lower home price betas by 1.4 basis points per every 10 percent increase in job growth, in comparison to non-capital cities.

Our results reveal that when real median home prices are rising nationally, all of the MSAs in our study experience positive local home price appreciation, while when real national home prices are declining, home prices in all MSAs also decline. Thus, no MSA housing market is immune from the effect of a weak housing market.

Most MSAs exhibit symmetrical reactions to rising and falling real national home prices. That is, most MSA home prices correlate by the same magnitude, whether the national housing market is strengthening or weakening. However, Cincinnati, Houston and Cleveland exhibit statistically asymmetric housing price betas. In these cases, the betas are larger for falling national home prices. The disparities range from 90 basis points (Cincinnati), to as much as 154 bps (Cleveland) greater in a declining national housing market versus a strengthening national market.

Table IX reveals that the majority of MSA home prices have a slightly dampened reaction to that of the nation. New York, Orlando, and Columbus are among the MSAs that roughly moved in concert with the national housing market. In contrast, Raleigh-Durham and Austin are among those with the lowest betas, meaning that real home prices in those MSAs move to a lesser degree than national real home price appreciation or depreciation. Washington, D.C. real home prices, on the other hand, with a beta of nearly 2.6, experience hyper-reactions relative to national cycles.

Table VIII: MSA vs. U.S. single family home price reactions

MSA	Capital city	REAL HOME PRICES		
		Average median price ($000s)*	Reaction to rising national home prices	Reaction to falling national home prices
U.S.		224.8	1.00	1.00
Anaheim		403.0	0.79	-0.79
Atlanta	C	144.8	0.52	-0.52
Austin	C	150.6	0.48	-0.48
Boston	C	297.0	2.00	-2.00
Bridgeport		461.3	0.84	-0.84
Charlotte		158.4	1.11	-1.11
Chicago		201.6	0.92	-0.92
Cincinnati		138.5	0.56	-1.48
Cleveland		137.5	1.02	-2.18
Columbus	C	141.8	1.02	-1.02
Dallas-Fort Worth		140.2	0.87	-0.87
Denver	C	192.1	0.65	-0.65
Detroit		148.6	1.08	-1.08
Hartford	C	210.5	1.10	-1.10
Houston		124.1	0.50	-1.96
Indianapolis		125.6	1.02	-1.02
Las Vegas		178.2	0.50	-0.50
Los Angeles		313.8	0.77	-0.77
Miami		187.4	0.77	-0.77
Minneapolis-St. Paul		169.1	0.71	-0.71
Nashville	C	141.7	0.73	-0.73
New Haven		211.4	1.13	-1.13
New York Metro		285.7	0.72	-0.72
N.Y.-Westchester Cnty		322.6	0.90	-0.90
Norwich		223.1	0.68	-0.68
N.Y.-Edison, N.J.		243.9	0.94	-0.94
N.Y.-Nassau		282.0	0.52	-0.52
N.Y.-Newark		295.1	1.24	-1.24
Orlando		143.2	0.97	-0.97
Philadelphia		168.6	1.71	-1.71
Phoenix	C	152.7	0.85	-0.85
Portland		178.0	0.67	-0.67
Raleigh	C	169.5	0.16	-0.16
Riverside-San Bernardino		205.3	0.58	-0.58
St. Louis, Mo.		127.0	1.58	-1.58
San Diego		334.5	0.75	-0.75
San Francisco		467.2	0.85	-0.85
San Jose		705.1	0.52	-0.52
Seattle		218.1	1.63	-1.63
Tampa Bay		128.6	1.02	-1.02
Washington	C	247.9	2.57	-2.57

* Average of median home prices from 1Q89-2Q06.

Table IX: Reactions to changing real national home prices

|beta| ≤ 0.5	0.5 ≤ |beta| < 0.9	0.9 ≤ |beta| ≤ 1.1	1.1 < |beta| ≤ 1.5	|beta| > 1.5
Raleigh	Las Vegas	N.Y.-Westchester Cnty.	Charlotte	Saint Louis, Mo.
Austin	N.Y.: Nassau	Chicago	New Haven	Seattle
Houston	San Jose	N.Y.-Edison, N.J.	N.Y.-Newark	Philadelphia
Las Vegas	Atlanta	Orlando		Boston
	Cincinnati	Tampa Bay		Washington
	Riverside-San Bernardino	*Cleveland*		
	Denver	Columbus		
	Portland	Indianapolis		
	Norwich	Detroit		
	Minneapolis-St. Paul	Hartford		
	New York Metro			
	Nashville			
	San Diego			
	Miami			
	Los Angeles			
	Anaheim			
	Bridgeport			
	Phoenix			
	San Francisco			
	Dallas-Fort Worth			

Italics indicate assymetric results. Rising national home price scenario is shown.

CONCLUSION

Our analyses provide basic insights into how MSA demand fundamentals respond to national trends, and clarify how local markets prosper and lag in comparison to the nation's economy. Taken together, they provide a picture of both long-term growth trends and the risk of economic variability around these trends as the U.S. economy cycles. We observe that the San Jose, San Diego, and New York MSAs have unemployment rate betas that are significantly greater than their housing price betas. What does this mean? They are housing-supply constrained, and hence housing prices do not fall as rapidly as the economy slows. On the other hand, the housing betas for the Seattle, Philadelphia, and Washington, D.C. MSAs are greater than their respective unemployment rate betas, suggesting that housing prices in those markets are more volatile than their local economies. All are relatively less supply-constrained.

These analyses have important consequences for investors. Specifically, when the national economy is in a strong expansion phase, targeting office development in high employment beta MSAs will provide the greatest space-demand upside. As previously indicated in Table IV, when national employment grows, Fort Lauderdale, West Palm Beach, Detroit, Austin, and Boston exhibit the highest employment growth betas, and thus will experience the greatest regional percentage growth above that of the nation. During a national recession, on the other hand, low employment beta MSAs, such as New York, Philadelphia, Houston, St. Louis, and Washington, D.C., provide greater downside demand-risk protection.

Similarly, unemployment is a metric of retail and warehouse demand variability, and therefore focusing on the unemployment beta analysis for those sectors is most relevant. Referring back to Tables VI and VII, when national unemployment rates rise (a weakening economy), Detroit, the Inland Empire, West Palm Beach, and Boston unemployment rates have all historically increased to a much greater magnitude than the nation—indicating the greatest risk of experiencing a retail and warehouse demand bust. On the other hand, when national unemployment declines (a strengthening economy), those same markets would be expected to provide the greatest upside in retail and industrial demand.

By the same token, the housing price beta analysis provides a metric of local household wealth, given that one's home has accounted for an increasing share of personal net wealth. Thus, depending on risk tolerance, in strong economies, homebuilders may target markets (Washington, D.C., Boston, and Philadelphia) with high home price betas, but low beta markets (Raleigh, Austin, and Houston) on the downside. By the same token, it follows that when perceived household wealth increases, purchasing power will also increase, positively affecting retail and warehouse demand.

In summary, these beta estimates provide some insight into MSA reactions to movements of the national economy, and into the demand variability and risk of each MSA as the national economy moves through a cycle. They provide a metric with which to manage risk expectations around generally smoothly growing pro forma analyses of local demographics.

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