The Distinctive City:
Divergent Patterns in Growth, Hierarchy and Specialization

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Abstract

With accelerated world market integration, cities compete with each other cities as sites of production and consumption, targeting firms and households as semi-autonomous location decision-makers. Distinction may be sought in productive structure, consumption and identity. In this paper, we theorize contradictory trends towards homogenization and distinctiveness. Studying the occupational structure of fifty large US metropolitan areas, we find that distinctiveness has been increasing in economic base occupations though some heavily blue-collar cities' edge is eroding. Employment in consumption activities has been growing faster than in the economic base, and cities are becoming more alike in consumption structure. We conclude that the search for niches in exporting sectors and related occupational mix is key to urban resurgence.

In urban analytical and policy circles, many are celebrating the apparent resurgence of the city. Just what is resurging is often left unsaid in these upbeat accounts, which allude to phenomena such as intense downtown and port redevelopment, large investments in major arts, convention and sports facilities, and, in the United States, a return of well-heeled residents to the central city. Population and jobs may still be on the wane, and the public sector financially embattled, but the edge of crisis is off and a future of prosperity and vibrant activity anticipated.

In this paper, we argue that there is no generic resurgent city, at least at the metropolitan scale in the US.[1] Challenged by quickening commodity, service and capital market integration, some urban economies are finding specializations that enable them to thrive, while others are floundering. The traditional urban hierarchies of central place theory where each urban node serves a greater or lesser hinterland and larger cities capture higher order functions are breaking down. Instead, an unsettling competition has set in, where more remote markets must be found to substitute for previously assured hinterland customers while historically reliable lead export sectors face stiff new competition from farther afield. In this environment, cities of similar size and stature may diverge rapidly from each other in function, and some will find themselves eclipsed by upstarts. Economic development strategies are likely to fail when they focus single-mindedly on the export base, especially when cities ubiquitously attempt to mimic the success of fabled regions like Silicon Valley and Research Triangle.

The result is a rise in what we call “the distinctive city.” City leaders, understanding that their positions in urban hierarchies are not assured and that their traditional industrial strong suits are under attack, increasingly seek to distinguish themselves from other cities, domestic and international, with whom they see themselves competing for firms, workers and residents. In the first portion of the paper, we explore three dimensions of urban distinctiveness: in productive structure, consumption mix and identity/citizenship. We conceptualize how, in the contemporary world, decisions by firms, workers and households exert contradictory pressures on distinctiveness within all three dimensions, structured and mediated by decisions on the part of the public sector and other community actors. In the rest of the paper, we focus on distinctiveness in the productive structure of cities as manifest in occupational composition, although our findings suggest important trends in urban consumption patterns that should be further researched.

In the second portion of the paper, as a test of the "world cities" hypothesis, we ask whether cities' resurgence is associated with absolute size, and find that it is not. Work on world cities suggests that primate cities in each country, with pre-eminence in financial, corporate, governance and educational functions, are expanding their markets internationally and thus may be outpacing the performance of other cities in their national system. Our finding that the largest American metropolitan areas are growing more slowly than many others at mid-sized range suggests that a pre-eminent position in the urban hierarchy does not ensure resurgence—indeed, the Los Angeles metro experienced negative growth for six to seven years in the early 1990s.

In the third portion, we probe the durability of the US urban hierarchy, testing for the pyramiding of higher order functions (command and control activities and highly agglomerated innovative sectors) in the largest cities and relative homogeneity among occupational structures in metropolitan areas of similar size cohorts. We find mixed evidence. Some higher order functions do still cluster in the largest metros (New York, Chicago, Los Angeles), although these three are considerably heterogeneous in their occupational structures. Other key occupations appear to shun the largest cities and concentrate in the "second tier" of cities, those with employment between 800,000 and 1.4 million. These include computer professionals and mathematicians, architects and engineers and life, physical and social scientists—the heart of the much-touted "high tech" occupations.

Having confirmed the presence of considerable occupational distinctiveness among the larger American metros, we explore in the following section whether this productive distinctiveness has been increasing over the decades, as hypothesized. We first distinguish between economic base occupations and local-serving activities by looking at the skewness of occupations at two different levels of aggregation. We find that economic base occupations (i.e. those that are relatively highly skewed in their distribution) are indeed becoming more unevenly distributed across metro areas, but this pattern is countervailed to some extent by an erosion in the traditional production jobs in manufacturing that have been the trademark of many industrial cities.

The fourth section of the paper also demonstrates the growing significance of the consumption sector for overall urban employment growth. Remarkably, cities are becoming more alike in the share and significance of their local-serving occupations. This finding helps to explain why such wrenching events as wholesale deindustrialization in some cities has not diminished their employment rank as much as expected. Dramatic changes in consumption patterns in favor of locally-provided prepared food, child care, health care, personal and recreational services created large increases in jobs in every city. Not explored in this paper is the extent to which aggregate patterns of local-serving jobs, closely related to absolute size of city, obscure important consumption activity differences between cities, though we provide some glimpses of this.

In a fifth section, we ask whether overall occupational distinctiveness has increased over time among this metro set. We find that it diminished modestly in the 1980s, when deindustrialization was undercutting the premier export sectors of many urban economies, but increased in the 1990s, as several second-tier cities emerged as high tech centers while others distinguished themselves in areas such as the arts, health care, and other locally-oriented functions. For each city, we show its changing distinctiveness among economic base occupations.

In the following section, we ask whether cities that were initially or have become more distinctive have grown faster in overall employment. We find no relationship. This finding does not refute a claim that distinctiveness is important to the contemporary city. Cities that are losing on a traditional front may have no choice but to find new distinctive and appropriate economic activities. Even when they do, they may only reduce their losses rather than add jobs. We find that the fastest growing metros possess a mix of highly distinct and relatively average productive structures, demonstrating the limits of an analysis based only on the economic base. Several of the fastest growing metros are still attracting residents from their hinterlands, especially young workers, and/or are successfully competing for footloose residents, such as retirees, on the basis of amenities. We describe what we think is happening in several metro economies of different sizes, suggesting the contributions of different forms of distinctiveness and acknowledging that same metro regions appear to be more diversified and "average" than distinctive, and why.

In closing, we conclude that cities are not universally resurging but are engaged in a struggle to distinguish themselves from one another vis-à-vis both the external world and their own residents. We suggest that cities should conceptualize their economic base distinctiveness as a portfolio of older and newer specializations and devise ways of parlaying the assets of the former into the latter. They should expand their vision of the economic development mission beyond the productive sphere to consider distinctiveness in the consumption arena and explore how identity and affinity feed into community commitment. More theory, empirical work and evaluation of economic development practices are needed to guide cities through this multi-dimensioned search for distinctiveness.

I. Defining and Explaining Urban Distinctiveness

Cities can be thought of as distinctive along three dimensions – production, consumption and identity – that encompass the contexts faced and decisions made on the part of firms, households, and community actors (Figure 1). *Productive distinctiveness* captures relative uniqueness of a city's production factors – land, labor, capital, and technology. In practical terms, this is commonly defined on the basis of cities' sectoral structure, and in particular its trade specializations (i.e., its economic base). Productive distinctiveness is shaped by the discrete yet interactive decisions by firms and households: firms make decisions about where to locate on the basis of net profits, affected by the quality, availability and cost of labor, while households (and workers in them) make decisions about where to work based not entirely on specific job offers by firms but on broader labor market considerations.

Consumptive distinctiveness connotes the unique consumption patterns on the part of urban residents, reflected in the overall distribution of social activity across the market and non-market (i.e., household) spheres and within the market (Cortright, 2002). It can be gauged roughly by the employment associated with different consumption activities. Consumptive distinctiveness is shaped by the choices that households and their workers make regarding what to buy at what price, and whether non-pecuniary factors that affect their quality of life – environment, culture, networks and so on – trump purely economic considerations.

Finally, *identity distinctiveness* relates to the extent to which cities are recognized by residents and non-residents as being culturally unique. This can be grounded in a city's productive assets (e.g., Detroit's legacy as the "Motor City"), its consumption offerings (e.g., gambling in Las Vegas), but also less tangible aspects (e.g., Boston's historical status) that affect a distinctive "sense of place" (Bolton, 2002). Many cities have recently attempted to shape identity through "branding" exercises (Turok, 2006). This final dimension of urban distinctiveness is the hardest to measure, because it is often "cultural" in nature and not always reflected in indicators like employment statistics. Yet we suspect that identity distinctiveness is an important, if underappreciated, dimension to the how firms and households make choices about where to live, work, and invest.

Diverse theories of urban change have identified a number of tendencies that could diminish urban distinctiveness. Homogenizing forces on the production front include the consolidation of producer services in cities higher up the hierarchy and the disappearance of specialized craft and assembly workers from cities with the increasingly international division of labor. On the consumption front, shifts in spending toward inexpensive imported goods available in ubiquitous big box retail stores and patronage of chain restaurants and other service establishments erode distinctiveness. In the identity row, firms' indifference to prestige of address or historical ties to their communities (often following mergers or acquisitions) would diminish distinctiveness, as will residents' detachment from local identity and growing sense of themselves as global citizens or their preference for suburban environments regardless of region.

Other impulses and behaviors could heighten distinctiveness. Among firms, start-ups and spin-offs in hometowns or preferences for locating in certain non-hierarchical cities would add productive distinctiveness, as would workers' preferences to locate in cities with distinctive labor pools (rich in, say, artistic networks or computer analysts). On the consumption front, workers' preferences for amenity-rich cities, even at the expense of optimizing income, would enhance distinctiveness, especially if amenities are thought of in a multi-dimensional way to include climate (with some gravitating to sunshine and others to skiing), topography, culture, and variations in density (Glaeser et al, 2000). Regarding identity, firm managers might care about the cache of an address or region, and, like households, have a preference for historically-specific built environments or natural settings. Some residents might also be consciously committed to supporting a unique local production and consumption environment, buying "local," supporting food coops, and favoring live over packaged entertainment.

This depiction focuses on firm managers and household members as spatial decision-makers. But governments, non-profit institutions such as universities, and other community organizations are also important players in the shaping of urban distinctiveness and are major actors in the fashioning of economic development strategies. Sub-national governments attempt to preserve traditional manufacturing and service strengths through retention programs and incentives or to create new ones through high tech, entrepreneurship, and incubator initiatives. Their commitment of resources to local amenities helps to attract and retain managers (and thus firms) and skilled workers. Investments they make in identity, including historic preservation and cultural initiatives, pay off in similar ways. Or, they may commit their current resources and future tax base to suburban expansion and big box retail subsidies that rearrange where consumption takes places within the region and result in a less distinctive economy.

In what follows, we explore empirically whether urban distinctiveness can be documented, whether it can be explained by city's relative positions in size hierarchies, and whether it has been increasing over time across a set of larger cities in the US. We focus chiefly on the productive structure of cities, although our analysis also offers some insights into changing consumption patterns across cities. A city's production structure is distinctive to the extent that its employment composition differs from that of other cities. Distinctiveness is a relative rather than absolute measure in our analysis, and we also examine whether such distinctiveness is increasing or decreasing over time.

We use an occupational rather than an industrial lens for probing distinctive employment structures of cities. A focus on employment by occupation also enables us to grapple with the fact that the inter-urban distribution of jobs is a function not just of employers' location decisions but of households and workers, too. Interest in occupational analysis of metropolitan structure has waxed in recent years with a shift towards interest in human capital as a major factor in regional productive structure (Thompson and Thompson, 1985; Clark et al, 1986; Mather, 1999; Feser, 2003; Markusen, 2004; Markusen, 2006a). At least two recent studies have found that occupational structure has become more specialized across US and European cities while industrial specialization has declined (Duranton and Puga, 2005; Baade et al, 2003). Studies have also shown a weakening link between occupational and industrial diversification (Bagchi-Sen and Piggozi, 1993) and that across metropolitan areas, the same industry may be associated with quite different occupational profiles, especially in innovative sectors (Barbour and Markusen, 2006).

We use metropolitan areas (more precisely, primary metropolitan statistical areas) rather than municipalities to study cities empirically.[2] In the US, severe jurisdictional fragmentation means that core cities do not encompass the regional economy and labor market area. For historical reasons and because state governments determine the rules for local boundaries, core cities' shares of metro area economic activity vary significantly across the country.

II. Hierarchy and Resurgence

The literature on world cities over the past two decades has celebrated the gain of global functions in the largest cities of the world (Friedmann and Wolf, 1982; Sassen, 1991; Lyons and Salmon, 1995; Fainstein, 2001; Scott, 1998). Previously, hierarchical status was believed to be more closely associated with the size and prosperity of a city's hinterland (Borchert and Adams, 1963; Noyelle and Stanback, 1984; Esparza and Kremenc, 1996), but in this new formulation, the hinterlands of the global cities expand to include entire continents and sometimes the globe. In this process, cities at the top may distance themselves from their mid-sized counterparts while being even less dependent on their immediate surroundings.

As capital, commodity and labor markets integrate, the reasoning goes, cities at the top of the hierarchy are able to extend their hinterlands over greater stretches of the globe, enhancing their prowess and in some accounts, leaving second tier cities behind. Cheshire's introduction to this special issue suggests that in Europe, the largest conurbations continue to account for disproportionate shares of population and economic growth. The US, with its extensive set of large and medium-sized cities, offers an interesting arena in which to test whether the largest urban economies are growing fastest.

Over the past two decades, employment in the largest, "global" metro areas in the US has not resurged at the expense of other second tier metros (those with employment between 1.0 and 3.5 million.) The three "world city" metros--New York, Los Angeles and Chicago--posted among the lowest employment growth rates (Table 1).[3] They remain large, but their edge is eroding as employment in a number of second tier metros is growing more rapidly. Atlanta, Portland, Dallas, Minneapolis/St. Paul, and Seattle, among others, outpaced Chicago, New York, Los Angeles as job generators, and the growth rate gap widened in the 1990s. Core cities in these metros could be resurging more than those in the second tier metros, but it is difficult to test for this precisely because historically-evolved central city boundaries vary greatly in their spatial extensiveness.

These patterns suggest that world market integration is not privileging the cities at the top of their national urban hierarchies, at least in the US. In comparison, in some emerging market economies such as Mexico and Brazil, the largest cities are garnering the lion's share of market integration functions, while among medium-sized cities, some are growing more rapidly while others are losing ground (Markusen and Diniz, 2005). The evidence we have marshaled does not support a conclusion that hierarchically ordered functions are single-handedly driving shake-ups in the systems of cities.

III. Hierarchy vs. Specialization

Even if cities at the top of the hierarchy are not growing more rapidly, hierarchically-structured functions could still explain urban distinctiveness. The global cities literature suggests this, acknowledging that New York, for instance, may have lost craft and assembly work distinctiveness to other regions but has increased its hegemonic role as financial (Sassen, 1991) and cultural capital (Currid, 2006).

An alternative view holds that specialization is quite extensive among US cities, even those of similar size. In world cities, major functions such as finance, government, education and manufacturing headquarters are quite differentially deployed and have been so for decades (Markusen and Gwiasda, 1993; Abu-Lughod, 1995). Specialization is common among second-tier cities as well, in the US and elsewhere (Markusen et al, 1999). As surrounding rural and small town hinterlands become less and less important as markets for city producers, an unsettling competition has set in. More remote markets must be found to substitute for previously assured hinterland customers, and lead sectors face stiff new competition from farther afield (Howes and Markusen, 1993). In this environment, cities of similar size and stature may diverge rapidly from each other, and their leaders feel compelled to seek new niches.

In a second exercise, we asked whether the US urban hierarchy still appears to concentrate higher order functions (command and control activities and highly-agglomerated innovative sectors) in its largest cities. A finding of relative homogeneity among occupational structures in metropolitan areas by size cohorts would suggest that economies of scale do dominate in the inter-urban allocation of economic activity and that firms (and workers) are more or less compelled to embed themselves in cities whose size and functions are appropriate to their particular expertise. If some leading edge functions are found farther down the hierarchy, and if cities of similar size exhibit considerable heterogeneity in occupational structure, the case for specialization and distinctiveness regardless of hierarchical rank would be supported.

We do observe the clustering of some higher order functions in world cities, but occupational profiles reveal the failure of the largest metro areas to dominate across-the-board. The world metros of New York, Los Angeles and Chicago, each with employment of more than 3.5 million in 2000, excel in seven occupational groups: arts/entertainment/sports/media, law, protective services, business and finance, community and social services, office and administrative support, and personal care (Table 2). But among computer professionals and mathematicians, architects and engineers and life, physical and social scientists, they are outclassed by the group of second tier metros. These occupations form the heart of the "high tech" phenomenon. Their concentration in second tier cities provides evidence for the contention that these cities are winning in a competition for high tech activity against the world metros. We caution, however, that MSA definitions used here place in the second tier group suburban metros such as Silicon Valley (San Jose, CA), Orange County, and Middlesex/Somerset, NJ that some would consider to be portions of world city conurbations. The findings confirm a strong urban gravitation among these occupations towards the largest US cities, while craft and assembly, resource-based and some types of health care occupations favor smaller metros.

Within each size cohort, cities' occupational strengths vary substantially. Among those overrepresented in New York, Chicago and Los Angeles, only office and administrative service occupations show relative convergence among the three (Table 3). Of the five occupational groups in which the three cities together exceed the national norm by 20%, New York in every case outpaces the other two. Los Angeles meets the benchmark only in the arts, law and protective services, while Chicago meets it only in business and financial operations. Size, in other words, does not dictate specialization, even at this highly aggregated occupational level. Although New York, Chicago, and Los Angeles may each be affected by the growing importance of "world city" functions, their economic (and social) fabric remains quite distinctive from each other – a reflection of longer-term patterns and trends (Abu-Lughod, 1999). Similar distinctiveness in second-tier city employment structure is explored below.

Our findings suggest that shake-ups in the urban hierarchy are possible, especially across large territories such as North America and Europe. Even among functions that remain heavily concentrated in cities of a certain size, one or more of these cities may wrest leadership from others and widen the gap. Increasing returns to scale in a world of imploding barriers to communication and movement across vast distances create the potential for highly differentiated nodes to arise in global space. This reality creates the setting for city leaders to experiment in designing a portfolio of distinctive activities.

IV. Is Productive Distinctiveness Growing?

The evidence shown so far finds that cities are distinct in their occupational specializations and that these are only in part linked to size and position in the urban hierarchy. Distinctiveness in a city's economic base is expected to increase with a quickening pace of economic integration (Krugman, 1991; Howes and Markusen, 1993). To test this hypothesis, we first distinguish between occupations that comprise the economic base of cities--that portion of metropolitan employment that is associated with sales of goods and services outside the region--and those that are local-serving. We then use these distinctions to explore whether economic base and overall occupational distinctiveness increased among the fifty largest US metros between 1980 and 2000.

We use a convention common in regional science and urban economics to identify the occupations that comprise the metro economic base: those that show high rates of skewness across the set of cities. If an occupational group is local-serving, meaning that its output of goods and services is consumed primarily by the region's residents, then we expect its location quotient (the ratio of its share of area employment to national share) to be close to 1.0 everywhere. Across the set of cities considered here, we use the coefficient of localization (COL) to distinguish occupations that are skewed across metros from those that are relatively evenly spread. The coefficient is the sum of absolute deviations of region *r*'s employment share for a given occupation *o* across a set of regions *R* from its total employment share, multiplied by 100, divided by two to avoid double-counting (Isard, 1960: 252-54):

$$COL_o = \sum_r \frac{\left| \frac{E_{or}}{E_{oR}} - \frac{E_r}{E_R} \right| * 100}{2}$$

where E(r) = total employment in region r
E(R) = total employment in base region R
E(or) = employment in occupation o in region r
E(oR) = employment in occupation o in base region R

The COL index for any occupation could theoretically exhibit a range from zero to 100. A COL of zero reveals that an occupation's employment is distributed exactly proportionally to overall employment across all metros, whereas a COL of 100 indicates that all employment is concentrated within a single metro. Occupations with high COL rates comprise a specialty for some regions and, by definition, not others.[4] We use those occupations with high COL indices as a proxy for the urban economic base. For these activities, cities appear to be competing with each other, rural areas and small towns, and international sites.

The dataset for this analysis is drawn from the US Census Bureau's decennial Population Census, 5% Public Use Microdata Sample (PUMS), for the years 1980, 1990, and 2000.[5] Occupational employment totals for the civilian (i.e., non-military) labor force were obtained for the fifty largest metropolitan areas (based on employment) as of 2000[6], accounting for just over half of total US employment and approximately 62 percent of total US urban employment. To bridge significant differences in occupational classification across the three Census years, we developed a crosswalk based on detailed correspondence tables published by the Census Bureau (Scopp, 2003). The resulting dataset is based on the Standard Occupational Classification (SOC) system currently in use in the United States, and has been aggregated to the highest level (SOC major groups, N=22) to ensure maximum consistency over time.

From this dataset we calculated coefficients of localization for the 22 major SOC occupational groups for the years 1980, 1990, and 2000. To control for overall changes in occupational localization between the three years, we created an indexed COL that reflects the ratio, averaged across the three Census years, between that occupation's localization coefficient and the overall localization coefficient across all occupations.[7] The result is a rough measure of each occupation’s degree of skewness across the three time periods.

Occupations vary in their distribution across the cities, from a high indexed COL of 3.20 for farming, fishing and forestry to a low of 0.42 for office and administrative support (Table 4). We use the gap in indexed COL values around 1.75 to separate occupations that are highly skewed from those that are less so; we consider those above this line to constitute the economic base set. At the top of the table are occupations for which competition is fierce: high tech, arts and media, legal, and craft and assembly occupations.[8] Products and services embodying their work are largely exported from cities rather than sold locally. They encompass some but not all of the “creative class” occupations studied by Florida (2002) and some blue collar and nurturing occupations as well.[9] These occupations encompassed just 18% of total employment across the 50 metropolitan areas in 2000.

Although the following analysis uses highly aggregated occupational categories, we also computed occupational localization coefficients for more closely defined occupations (SOC minor groups, N=93). COL levels may be sensitive to the degree of disaggregation in the data, with more disaggregated occupational or industrial classification schemes tending to yield higher COL levels (i.e. even greater skewness), suggesting that more highly aggregated occupational classifications hide greater specialization within occupational groups (Moomaw, 1998). The base COL numbers exhibit a higher range for the minor SOC grouping than the major SOC grouping, although this is largely (but not completely) offset in the Indexed COL by the higher overall COL (i.e., the denominator). Working with the lumpier groups may thus understate distinctiveness in some occupations. Because we are working with a consistent set of occupational categories across all three time periods, the level of disaggregation used should not bias our findings for *changes* in distinctiveness.

A. Increasing Urban Distinctiveness in Economic Base Occupations

Distinctiveness in the economic base of cities increased between 1980 and 2000. Six of the seven economic base occupational groups increased their skewness over the period from 1980 to 2000. High-tech science and engineering occupations, architecture, arts and media are now more competitive and specialized across metros than they were in 1980. So are craft and assembly occupations: despite heavy losses in absolute numbers of jobs, the resulting distribution across cities was even more skewed in 2000 than in 1980. Only the fast-growing legal occupation showed a tendency towards deconcentration. This is powerful evidence favoring the heightening distinctiveness hypothesis.

B. Decreasing Urban Distinctiveness in Resident-serving Sectors

In contrast to the diverging economic base, resident-serving occupations are becoming more similar across US metropolitan areas. Occupations that are chiefly local-serving, with indexed COLs below 1.75, are arrayed in the lower portion of Table 4. These occupations are necessary to meet the consumption, routine production maintenance and office services of the region. Some workers in these occupations may be working for firms and industries that export outside the region, but their metro presence is proportional to labor force size regardless of the particular activities in the economic base. In contrast to the trend towards growing skewness in the economic base, most occupations with low localization rates appear to have become even more evenly spread over the twenty-year study period.

Thus consumption patterns in the US are becoming more similar across US metro areas. The spread of franchise retail stores and fast food outlets, the standardization of health care through Health Maintenance Organizations (HMOs), and the establishment of sprawling shopping malls and commercial strips in every city above a certain size threshold has standardized resident service functions so that the demand for labor looks more alike. The consumption sector, then, has been a force for diminishing distinctiveness across cities, with a few exceptions addressed below.

C. The Mix Paradox: Rapid Growth in Local-serving Occupations Trumps the Slower-growing Economic Base

In the 1990s, spatial concentration increased markedly for many occupations, especially those in the economic base. After declining for many occupations in the 1980s, skewness was up in the 1990s, especially for those occupations at the top of Table 4. All the economic base occupations except legal work favored some cities over others in the growth and reshuffling of the 1990s, while the lion's share of local-serving occupations remained at relatively low or even declining levels of specialization. Two trends were thus at work over this period: heightened firm and worker specialization in contested metropolitan exportoriented activities among cities and a tendency towards homogenization in urban consumption patterns.

In an overall test for growing urban distinctiveness, these two trends cancel each other out. Cities became more distinctive in their economic base but less so in their resident-related activities. Furthermore, more jobs have been created in the latter than in the former. In a period where overall employment grew by a third, employment in resident-related metro occupations increased by 40%, while in basic sectors it grew only 10% (Table 4). Demand and therefore jobs expanded more rapidly in restaurant meals, child care, health care, household services and arts and entertainment, supplied by people working locally.

The resident-oriented activities of large metropolitan economies have thus increased their share of metro employment. We offer three explanations: changing paid and household work patterns for women, secular changes in consumption patterns as incomes rise, and lower productivity growth rates in services compared with manufacturing and high tech sectors. Changing family structure and work patterns have externalized women's household labor as their labor force participation rates have risen dramatically. Work that was always done locally but has become formalized in paid jobs now registers in the employment statistics. Jobs in child care, food services and house cleaning have surged as more women work full time.

Faster growth in local-serving employment may result from shifts in consumption associated with affluence, the cheapening of many commodities vis-à-vis services, and changes in tastes and preferences. As the prices of manufactured consumer goods plunge, due to rising competition from offshore producers and outsourcing by domestic companies, consumers have more money to spend on the arts, entertainment (sports, casinos, dance), and discretionary personal care (spas, yoga and alternative health care) than they did previously. Certain groups of people tend to buy more locally-produced services, too. Young people, especially from smaller towns and rural areas, move to larger metros and spend disproportionate shares of their income on rent, fast food, clubs and public transportation. Older people may spend more on household and personal care services.

Finally, productivity growth has been much higher in many economic base sectors than in resident-related services, accounting for some of the huge losses in craft and assembly employment. Productivity gains remain difficult to achieve in local-serving activities. Furthermore, wages in the service sector are kept down by a surplus unskilled labor force and low productivity, so that employers substitute labor for labor-saving improvements. At a national minimum wage of $5.15, currently the standard in all but 17 states, more low-paid workers can be hired than in base sectors that pay higher wages.

Our findings suggest that there has been a secular change in the ratio of resident-related to economic base employment across all metropolitan areas. From a non-basic to basic ratio of somewhere around 3:1 for large metro areas, ratios may now be on the order of 4:1 or 5:1. We explore the implications of this shift in the concluding section.

D. Amenities-based Urban Distinctiveness

Is there any evidence in the occupational analysis that amenities and related factors might be contributing to greater urban distinctiveness? One problem with our use of COLs above is that we assume a skewed distribution of occupations results from production rather than consumption differences across cities. Although we believe this to be the case for the bulk of the employment allocated to the economic base, several occupations might owe their skewness to consumption differences (Cortright, 2002), at least in part.

The occupational group that encompasses artists, designers, entertainers, athletes, and media is very likely engaged in many activities that are local-serving, and demand for these could vary across cities. This occupational group is more highly concentrated and increasing in Los Angeles and New York than in all other urban size groups (Tables 2, 3). For instance, many artists in these cities work for the highly concentrated arts, advertising, broadcasting, and tourism industries that export their output all over the world. Some may be living in these cities to build careers, especially at young ages, because this is where the specialized labor pool is, or they may choose to live there and export their work and travel to perform because of their affinities for the city (Markusen and Schrock, 2006a). But it is also possible that households in these cities patronize the arts more than their counterparts in other cities. Having access to the highest quality of artistry, they shift some of their discretionary spending from purchased commodities to live entertainment or gallery purchases. We cannot separate out the local from the external demand from available data sources, though studies of arts participation have shown that citizens in New York do indeed participate in the arts more fully than those in other cities (National Endowment for the Arts, 1999).

In the above, we have also lumped an interesting intermediate group of occupations into the local-serving category: healthcare support, protective services, construction and extraction and community and social service occupations (Table 4). Intuitively, these occupations would seem to be primarily local-serving, because their work is almost entirely performed for local consumption. Two of these occupations in the intermediate group increased their skewness over the period: protective service workers and healthcare support occupations. Growing lopsidedness among the former may be associated with the rise of gated communities, a more prominent phenomenon in newer, residentially fast-growing southern and western metros.

Growing concentrations of nursing aides and home health aides are associated with the skewed distribution of care-intensive elderly residents across metros, particularly in New York and many of the second tier sunbelt metros where climate is a major amenity. Attracted to retirement cities, consumers with high personal care consumption needs spend their social security, Medicare and personal savings, accumulated elsewhere, creating new local jobs in these occupations. Many sunbelt cities foster residential communities for retirees as a growth strategy. Health care support occupations are twice as concentrated across US metros as health care practitioners and technicians, an occupational group twice the size. We attribute this health care support distinctiveness to the consumption side, a function of the "good climate" concentration of the elderly rather than to specialization in and export of health care services for the general population.

V. Metropolitan Distinctiveness

Cities can, as we have theorized, distinguish themselves on the basis of the productive structure, especially key economic base activities. Or they may develop by attracting new residents not tied to particular jobs--streams of retirees and young people from the hinterland and elsewhere, including immigrants. In this section, we show that cities are increasing their distinctiveness in scientific, computing, arts, design, media, engineering and architecture occupations but that a dramatic decline in the numbers of craft and assembly jobs has diminished the distinctiveness of some urban economies. The two forces have cancelled each other out over the period studied for large metros as a whole so that there is no broad-based increase in metropolitan economic base distinctiveness, but this may not be the case in the future. In addition, some cities, such as Las Vegas, Austin, and Orlando, with highly distinctive economic bases at the outset become more diversified over the period. At the same time, we find suggestive evidence from a look at selected cities that amenities and higher order hinterland service functions also contribute to developmental distinctiveness.

Using the Census dataset described above, we compute a regional distinctiveness index (RDI) to test whether employment levels in cities' economic base occupations are becoming more differentiated from each other over time and to identify those that are most distinctive. For a given set of occupations, the regional distinctiveness index is the sum of the absolute value of deviations between each occupations' employment share in a regional economy and its share of national employment, multiplied by 100 and divided by 2 to avoid double-counting:

$$RDI_r = \sum_o \frac{\left| \frac{E_{or}}{E_r} - \frac{E_{oR}}{E_R} \right| * 100}{2}$$

RDI measures the degree to which a region's occupational profile deviates from that of a benchmark (in this case, the metropolitan cohort). Like the COL measure, the values for RDI can theoretically range from zero to 100. A higher RDI indicates greater distinctiveness in its occupational profile relative to the benchmark region, while a lower RDI indicates lower distinctiveness.[10] If the region has exactly the same occupational distribution as the nation or benchmark region, the RDI for that region will be zero. In order to concentrate on productive distinctiveness, we compared only the economic base profiles for each region, defined as occupations with an indexed COL higher than 1.75. We use this indicator to rank metros on the basis of their distinctiveness from the group norm and to look at changes over time.

Metros vary quite a bit in their distinctiveness from the large metro norm (Table 5). In 2000, San Jose (Silicon Valley) had the most distinctive economic base structure in the set, closely followed by Grand Rapids (MI), Washington (DC), Greensboro (NC), and Detroit (MI). Each specializes occupationally. Silicon Valley is distinguished for its computer, math and engineering occupations (and under-represented among the science, legal, and arts occupations). Washington, DC stands out in legal and computing occupations (and is under-represented in the arts and engineering groups). Grand Rapids, Greensboro and Detroit are distinguished by their outsized craft and assembly workforces in furniture, textiles and autos respectively.

A group of chiefly mid-continental metros have the least distinctive economic base structures: Kansas City, Minneapolis/St. Paul, Columbus, Newark, Pittsburgh, Philadelphia, Dallas, Chicago, Atlanta and Salt Lake City. Each of these is quite diversified, its economic base occupational structure closely mirroring the overall metro profile. This diversification could be a mark of strength, a prospect we address below. It could also reflect that each is serving its hinterland with higher order functions.

The overall distinctiveness measure reveals little change over time, falling modestly in the 1980s and rising in the ensuing decade. In the 1980s, the implosion of craft and assembly occupations was a major contributor to the lessening of distinctiveness, and these losses were not compensated for by new, distinctive economic base activities. Thereafter, spatially-differentiated rapid growth in high tech and information-handing occupations outpaced slowing blue collar losses to generate a slight uptick in distinctiveness.

Yet metros individually exhibited dramatically different trajectories over time, exemplified by the subset shown in Table 6. Some already quite distinctive cities became more so, including the Boston, Los Angeles, Silicon Valley (San Jose) and the Research Triangle of Raleigh-Durham. Others became more diversified in their economic base. Las Vegas, once just a gambling town, added other economic base functions, while Austin, once dominated by the University of Texas and state government activities, diversified into arts and engineering fields. Portland, Minneapolis/St. Paul, Nashville, Boston, Los Angeles and the science and engineering-rich pharmaceutical complex of Middlesex-Somerset, New Jersey moved from relatively diversified base occupational profiles to become more specialized. Some already diversified economies become even more so: Atlanta, Phoenix, Pittsburgh, Chicago and Kansas City among them. In what follows, we speculate on the relationship between distinctiveness and resurgence, returning to our multiple sources of distinctiveness.

VI. Distinctiveness, Growth and Resurgence

Resurgence is a term that covers a plurality of meanings. For some, it means relatively faster growth of output, income and employment. For others, it denotes a come-back from a period of economic and social decline. For others, it refers to re-generation of the urban core, a phenomenon studied in several of the other papers in this special issue. It is our contention that most cities face the distinctiveness challenge in one way or another and that distinctiveness is a key to resurgence.

The patterns of productive distinctiveness explored here are not related in any simple way to overall metro employment growth. Employment growth is not a particularly good metric for urban resurgence. Some cities that are nurturing new areas of distinction may not see the results reflected in rapid growth; rather, these cities may prevent further stagnation due to competitive losses in other economic base activities. Some of the fastest growing cities are not so much resurging as surging, not yet having experienced structural decline. Some metros have no room to grow, especially those that are spatially constrained and ringed by other suburban metros (Los Angeles, San Francisco/Oakland, New York), so that resurgence might entail the remaking of their employment structures rather than absolute growth. But since employment growth rates are reliable and accessible, it is worth asking whether metros with high and/or increasing distinctiveness have outpaced other metros in growth. Testing for relationships between overall employment growth rates and competitive base distinctiveness in either 1980 or 2000, we find almost no correlation (between zero and 0.12). Nor is there any significant relationship between initial specialization and changes in distinctiveness over the period from 1980 to 2000.

Our findings constitute lack of evidence, too, for an obverse view that diversification should be associated with superior urban performance. The case for diversification has been made repeatedly. Comparing New York with Pittsburgh, Chinitz (1961) argued that an urban industrial structure dominated by oligopolistic firms in a single industry would dominate local labor, capital, land and public service inputs, driving entrepreneurs in other sectors away. Jacobs (1969) suggested that a diversity of activities would stimulate innovation and build new urban expertise. Quigley (1998) argued that diversified urban economies should be more productive. Attempts to test this proposition have generated mixed results, with Glaeser et al (1992) finding in favor of diversification but Henderson et al (1995) finding no relationship. Both these and our findings suggest that neither distinctiveness nor diversification alone can assure growth.

How can we interpret the colorful canvas of changing US urban distinctiveness (Table 6)? Returning to our causal theories of hierarchical functions, productive specializations, amenities and identity as determinants of distinctiveness, we can distinguish modal experiences. First, a number of cities attain rapid growth chiefly by providing higher order functions to a large hinterland and by attracting younger people from it. Atlanta is emblematic of this process, a city that has added employment rapidly despite low and declining distinctiveness in metro economic base occupations. Thus medium-to-large sized regional cities are able to out-compete neighbors and smaller towns for functions with growing scale economies and as friendly places for young people seeking education, training and less traditional lifestyles. Therefore central place theory still has something to offer students of resurgence.

Other cities have grown by drawing people from farther afield based on amenities, particularly climate, recreational opportunities and culture. Phoenix is an outstanding example, as are many other sunbelt cities that have attracted warm climate-seeking retirees. For these cities, consumption behavior and amenities preferences are more important than economic base distinctiveness. Portland is an example of a city that has attracted the young and the restless (Cortright, 2005), although it has also succeeded in building a distinctive electronics specialization. Thus we can infer that amenities and identity enter into the distinctiveness equation for many cities, though it may be hard to disentangle their contribution from that of other forces.

Some cities have lost traditional economic base specializations and are growing slowly as a result (bottom right quadrant of Table 6). Pittsburgh (steelworkers), Kansas City (writers of greeting cards, meatpackers), Hartford (insurance workers), and Providence (fishing, blue collar manufacturing) all have been unable to parlay their skilled labor from deindustrializing or dispersing activities into new forms of distinction. Chicago, the third largest metro, has become less distinctive in economic base functions but has added jobs somewhat faster than the more distinctive New York and Los Angeles, perhaps due to its role vis-à-vis its hinterland and the fact that its cost of living is not as high. Detroit, on the other hand, as Chinitz predicted decades ago, has been unable to diversify away from its embattled auto industry and is even more focused on automaking than previously, with slow growth consequences.

Some highly distinctive cities have grown rapidly by nurturing their expertise and using it to reach a threshold where diversification is possible. Outstanding examples are Austin and Las Vegas, mentioned above, and Washington, DC. The latter has been able to use its most distinctive resource, access to the halls of government power, to attract lawyers, membership organizations, and defense contractors to its environs, diversifying its base occupational profile modestly and making it one of the fastest-growing of the Atlantic seaboard cities.

The set of cities with increasing distinctiveness and robust growth rates reads like a list of the most-admired and mimicked in the nation: Seattle with its concentrations of aerospace and software engineers, and Raleigh-Durham, a small city that remade itself by targeting science and engineering occupations in branch plants of multi-regional corporations, both increased their already high levels of economic base distinctiveness. Silicon Valley joins these two, but ringed by other metros and mountains, it has not been able to add employment as rapidly. Other cities, like Nashville, with initially lower but increasing distinctiveness have posted relatively rapid growth rates.

The vulnerability of the distinctive city is a secular change over time in its unique strengths, requiring the redeployment of its talents and physical capital (Markusen, 1985). Some American cities have remade themselves by creating new occupational distinctions over the decades: Boston, New York, and Los Angeles seem to have indeed resurged, overcoming significant setbacks in traditional strengths to remake themselves in new ways, even though their employment rates have fallen behind the metro average. In part, these cities' resurgence may be tied in part to cultural amenities—each of them hosts distinctive contingents of arts and cultural workers whose activities may be tied to local consumption patterns as well as to exporting industries.

This analysis is interpretive only. Theoretical and empirical work on the impact of the consumption and identity dimensions of urban distinctiveness and their impact on economic development outcomes is badly needed. The absence of a clear relationship between productive distinctiveness and overall employment growth is not grounds for dismissing distinctiveness as a dimension of the developmental challenge faced by city and metropolitan leaders. In concluding, we reflect on the desirability of distinctiveness in urban economic development strategy and how some cities have pursued it.

VII. Conclusion and Implications for Urban Development Strategy

We have shown that American cities, even of the same size, possess markedly different mixes of economic activity and that this distinctiveness is heightening in the faster-growing economic base occupations. Some functions still exhibit hierarchical patterns--finance, the arts, media, architecture. But even among these, the specialization of labor is deepening and is not confined to the largest cities.

A highly distinctive city is not necessarily a "good" city in the sense of growth, stability, equity or quality of life. Becoming more distinctive may be a survival strategy for an older industrial city. It may not increase overall employment but it might countervail losses in uncompetitive functions. Becoming less distinctive might be an optimal growth strategy for an overly-specialized city like Las Vegas, Orlando or Washington, DC. Becoming a favored destination for retirees, i.e. becoming even more residential and less distinguished in any other way, may be a growth and stability strategy for smaller cities. Some highly distinctive cities are the envy of others, but some remarkably diversified cities, quite "average" in their occupational composition, are as well.

Much of economic development practice has been preoccupied with trying to climb the hierarchy of cities (or maintain one's rank) by replicating successful sectors, traditionally finance and business services, and more recently high tech, information and "creative economy," and tourism. These strategies generally try to match the competition elsewhere in terms of business climate (e.g., tax, regulatory structure), subsidies to attract or retain business, or the provision of comparable land or infrastructure (e.g., convention centers). This often-mindless groping for "best practice" can be attributed, in part, to the professionalization of the economic development field over the past quarter century and in particular the proliferation of economic development consultancies (LeRoy, 2005).

Our finding that metro locally-oriented employment has risen faster than basic employment does not at all negate the importance of a region's economic base. It is still the case that every metro competes against other regions, in the US and elsewhere, for the business of making inter-regionally traded goods and services. The incomes generated by traded output drive resident-related employment and constrain aggregate regional growth. Permanent losses in economic base functions can ripple through local-serving sectors, resulting in large overall employment losses, even in the largest US metros. Consider the dramatic downturn of the Los Angeles economy in the early 1990s following the implosion of its aerospace industry with post-Cold War defense cuts (Oden et al, 1996). It was seven years before employment in the Los Angeles economy returned to 1991 levels. Similarly, the dot.com and telecommunications bust in the Bay Area resulted in a drop of overall employment in the region of 13% between 2000 and 2003 (Dardia and Barbour, 2004). Our occupational analysis shows that, despite the ameliorating effect of urban industrial job decline, distinctiveness in the economic base of cities increased in the 1990s. Economic development advocates are thus right to focus on the economic base as central to creating well-paying and durable jobs.

Increasing economic base activity, however, may not be synonymous with an effort to attract and retain businesses directly via tax and subsidy competition. Decisions on the part of skilled workers to locate in cities are semi-autonomous of those made by firms, and their calculus places great importance on multiple amenity features that cities can cultivate. Workers may themselves start businesses in the regions they favor, and other firms may feel compelled to move to or open branches in amenities-rich economies in order to have access to the skilled labor they need. Thus investments in amenities compete with traditional economic development incentives for scarce public sector resources.

It is also possible to change resident attitudes towards consumption and community commitment in ways that bolster local spending--investments in the arts, amenities, sports and recreation facilities may increase employment through local recycling of income. We do not know how important an effect this is, but it is clear that in some cities, the prevalence of culture-related occupations is associated with relatively high arts participation and patronage on the part of citizens.

In this era of heightening specialization tendencies, cities are well-advised to play to their strengths and develop new ones. These should include their occupational strengths--the institutions that create and nurture human skill (schools, training centers) and organizations that represent and provide networking opportunities among members of occupations (professional associations, labor unions). Elsewhere we have laid out generic occupational assessment tools and related targeting strategies for city and state governments that complement the existing industry-targeting toolkit (Markusen, 2004).

Distinctiveness in a metro's economic base can be both an advantage, in innovative growth stages, and a disadvantage, in more mature phases. A sophisticated response to these dynamics suggests a portfolio approach in which cities nurture sets of occupations and industries that span the developmental gamut. An economic development effort can work to upgrade traditionally strong sectors, encouraging high road industrial restructuring (Parker and Rogers, 1999) while seeding new sectors that play to the human and physical assets accumulated in an earlier phase of specialization. A study of Colorado Springs, for instance, shows how this unlikely high plains city parlayed its unusual expertise in mining and recreation into new sequential rounds of recruitment and job growth in military installations, electronics branch plants and conservative Christian communications and publishing empires (Markusen and Gray, 1999). Entrepreneurship among trade or crisis-displaced managers and workers committed to their home-towns can be a strong force for stability and diversification of the economic base. This happened in Seattle in the early 1970s when Boeing employment plunged; many engineers and blue collar workers started new businesses that grew into strengths in medical instruments and software (Gray et al, 1996). Similarly, the carefully crafted re-use of military bases and shuttered defense plants helped some post-Cold War metros in the US and Europe build new specializations while others floundered (Markusen and Brzoska, 2000). In all these cases, active and intelligent economic development efforts that responded to a threat in an existing sector of distinction played an important role in the evolution of new forms of distinctiveness and resurgence.

Finally, more theory, empirical testing and evaluation of economic development practices are needed to guide cities through this multi-dimensioned search for distinctiveness. The fields of urban economics, regional science and economic geography have produced many insights into urban regeneration, but the challenges remain formidable.

Figure 1. Dimensions and Causes of Urban Distinctiveness

	Diminished Distinctiveness	Enhanced Distinctiveness
Production		
Firms	producer service functions absorbed into global cities	start-ups or non-hierarchical relocations of high tech, arts, media and other activities
	manufacturing relocated or outcompeted to international sites	
	penetration of multi-national brands and imported commodities via chains, malls, internet	
Households		workers' locational preferences for cities rich in distinctive labor pools
Public sector and other community actors		
	"low road" efforts to lower the costs of doing business	investments in distinctive human capital through education and training
		entrepreneurship support
Consumption		
Households	shifts to consumption of cheap imported goods, chain services	worker and retiree location preference for amenities-rich cities
		shifts towards unique, locally-provided culture and services
Public sector and other community actors		
	replication of shopping and entertainment complexes elsewhere	support for diverse and high local content cultural activities
Identity		
Firms	indifference to prestige of address or historical ties to community	sensitive to prestige of address
	desire to be ubiquitous (retail)	
Households	identity as global not local citizens	preference for historically-specific built environment or natural setting
	preference for placeless suburbia	commitment to unique local production/consumption environment
Public sector and other community actors		
	investments that mimic other cities' anchor assets	efforts to brand the city and build distinctive venues and attractions

Table 1. US Metro Areas, Total Employment Growth, 1980, 1990, 2000

Metropolitan Area	%Change 1990-2000	%Change 1980-1990	Total Empl 2000
Atlanta, GA	34%	48%	2,098,444
Denver-Boulder, CO*	30%	19%	1,281,989
Portland, OR-WA	28%	22%	968,429
Dallas-Fort Worth, TX*	24%	36%	2,577,689
Minneapolis-St. Paul, MN-WI	18%	23%	1,621,047
Houston-Brazoria, TX*	18%	17%	2,009,405
Seattle, WA	17%	33%	1,271,126
Washington, DC-MD-VA-WV	8%	36%	2,597,544
Chicago, IL	7%	9%	3,893,737
San Francisco-Oakland, CA*	7%	20%	2,065,065
Detroit, MI	7%	7%	2,047,169
San Diego, CA	6%	44%	1,328,893
Cleveland, OH	6%	1%	1,059,388
San Jose, CA	4%	22%	844,738
Pittsburgh, PA	3%	-1%	1,075,837
Boston, MA-NH	3%	12%	1,748,374
Miami, FL	2%	21%	922,717
Philadelphia, PA-NJ	0%	16%	2,361,552
New York-Bergen, NY-NJ*	0%	11%	4,548,029
Los Angeles, CA	-6%	21%	3,957,917

Source: HUD State of the Cities Data System, based on decennial population Census data.
Notes: Data are on PMSA basis except where noted with *, where PMSAs
of listed cities have been combined. Totals for all years based 2000 metropolitan boundaries, and include civilian and military employment.

Table 2. Selected Occupational Group Specialization by Metro Size Class, 2000

		Metropolitan total employment range (000s)				
Occupational Group	**All MSAs**	**>3,500**	**1,000-3,500**	**500-1,000**	**250-500**	**<250**
Computer and Mathematical	1.17	1.05	**1.56**	1.06	0.84	0.75
Legal	1.15	**1.47**	**1.26**	1.06	1.02	0.84
Business and Financial Operations	1.12	**1.26**	**1.23**	1.10	0.98	0.85
Arts, Design, Entertainment, Sports, Media	1.09	**1.87**	1.05	0.97	0.95	0.83
Architecture and Engineering	1.09	0.79	**1.36**	0.96	0.98	0.96
Life, Physical, and Social Science	1.05	0.96	**1.26**	0.95	0.89	0.92
Office and Administrative Support	1.04	**1.14**	1.04	1.06	1.01	0.95
Management	1.04	1.09	1.11	0.97	0.97	0.95
Protective Service	1.02	**1.30**	0.97	1.06	0.93	0.91
Healthcare Practitioners and Technical	1.01	0.98	0.95	0.99	**1.11**	1.10
Personal Care and Service	1.00	**1.13**	0.99	0.98	0.97	1.00
Community and Social Services	0.98	**1.20**	0.87	0.94	1.05	1.06

Source: Authors' calculations based on data from US Bureau of Labor Statistics, Occupational Employment Statistics, 2000. Occupations shown exhibit relatively high rates of skewness across US metros. Specialization
index of 1 indicates equal share of occupation in size class as in overall economy.

Table 3. Occupational Specializations, by group, US World Cities and all metros, 2000

Occupational Group	**Los Angeles**	**New York**	**Chicago**	**World Cities**
Arts, Design, Entertainment, Sports, Media	2.20	2.37	1.04	1.87
Legal	1.26	2.03	1.11	1.47
Protective Service	1.29	1.72	0.88	1.30
Business and Financial Operations	1.08	1.40	1.30	1.26
Community and Social Services	1.09	1.57	0.94	1.20
Office and Administrative Support	1.15	1.20	1.07	1.14
Personal Care and Service	0.82	1.64	0.94	1.13
Management	1.00	0.99	1.26	1.09
Computer and Mathematical	0.91	1.08	1.14	1.05
Education, Training, and Library	0.94	1.27	0.84	1.01
Healthcare Support	0.80	1.49	0.70	1.00
Healthcare Practitioners	0.97	1.01	0.96	0.98
Craft and Assembly Production	1.19	0.53	1.15	0.95
Transportation and Material Moving	1.16	0.60	1.08	0.95

Source: Same as Table 2.

Table 4. Occupational Localization, 50 Largest US Metros, 1980-2000

Occupational group	**Index COL**	**% Chng in Index COL 1980-2000**	**Empl Growth, US 1980-2000**	**Occupation Empl, US 2000**
Economic base occupations (Index COL > 1.75)			**10%**	**22,889,810**
Farming, Fishing, and Forestry	3.26	23%	-37%	954,755
Life, Physical, and Social Science	2.36	20%	36%	1,203,513
Computer and Mathematical	2.35	20%	316%	3,162,637
Legal	2.01	-12%	112%	1,423,337
Arts, Design, Entertainment, Sports, Media	1.94	3%	61%	2,477,332
Craft and Assembly Production	1.85	20%	-17%	11,003,719
Engineering and Architecture	1.85	10%	15%	2,664,517
Non-basic/residentiary (Index COL < 1.75)			**40%**	**106,826,838**
Healthcare Support	1.55	41%	66%	2,579,656
Protective Service	1.54	2%	64%	2,553,136
Construction and Extraction	1.32	-28%	26%	7,150,604
Community and Social Services	1.14	-9%	81%	1,945,926
Installation, Maintenance, and Repair	0.93	1%	21%	5,110,115
Healthcare Practitioners and Technical	0.93	42%	69%	5,985,446
Food Preparation and Serving	0.92	-10%	33%	6,263,129
Business and Financial Operations	0.92	-2%	95%	5,551,438
Building and Grounds Cleaning and Maintenance	0.91	44%	25%	4,250,257
Transportation and Material Moving	0.89	4%	14%	7,959,078
Personal Care and Service	0.86	-11%	66%	3,630,598
Management	0.71	20%	69%	11,884,694
Education, Training, and Library	0.70	-5%	53%	7,331,579
Sales and Related	0.56	-29%	56%	14,604,836
Office and Administrative Support	0.42	-38%	13%	20,026,346
Total, all occupations			**33%**	**129,716,648**

Source: Authors' analysis of data from US Census Bureau, decennial Population Census Public Use Microdata Sample (PUMS) 5% file, accessed from Integrated Public Use Microdata Series, Minnesota Population Center, University of Minnesota.

Table 5. Regional distinctiveness index (RDI), Economic base, Largest 50 Metros, 2000

Metropolitan area	RDI	Metropolitan area	RDI
San Jose, CA	6.25	Seattle, WA	2.30
Grand Rapids, MI	6.02	Nashville, TN	2.18
Washington, DC-MD-VA-WV	5.99	Sacramento, CA	2.16
Greensboro-Winston-Salem, NC	5.40	Tampa-St. Pete, FL	2.15
Detroit, MI	4.08	Indianapolis, IN	1.94
Providence, RI-MA	4.08	Baltimore, MD	1.83
Las Vegas, NV-AZ	4.01	Norfolk, VA	1.78
Riverside-San Bernardino, CA	3.61	Cincinnati, OH-KY-IN	1.72
Raleigh-Durham, NC	3.34	Phoenix, AZ	1.58
SF-Oakland, CA	3.23	Orange County, CA	1.48
Milwaukee, WI	3.21	San Diego, CA	1.47
Los Angeles, CA	3.19	Portland, OR	1.42
Charlotte, NC-SC	3.17	St. Louis, MO-IL	1.40
Cleveland, OH	3.16	Houston, TX	1.38
Middlesex-Somerset, NJ	3.16	Hartford, CT	1.34
Boston, MA-NH	3.04	Salt Lake City, UT	1.29
Austin, TX	2.90	Atlanta, GA	1.27
New York, NY-NJ	2.90	Chicago, IL	1.18
Miami, FL	2.77	Dallas-Ft Worth, TX	1.17
Nassau-Suffolk, NY	2.72	Philadelphia, PA-NJ	1.14
Fort Lauderdale, FL	2.66	Pittsburgh, PA	1.10
New Orleans, LA	2.55	Newark, NJ	1.03
Orlando, FL	2.54	Columbus, OH	0.96
San Antonio, TX	2.47	Mpls-St Paul, MN-WI	0.95
Denver, CO	2.39	Kansas City, MO-KS	0.84

Source: See Table 4. Calculated as the halved sum of absolute deviations in metro occupational share from 50 metro average for economic base occupational groups (Table 4).

Table 6. Regional Distinctiveness Trends and Growth Rates, Selected Metros, 1980-2000

	RDI, Economic Base		% change RDI	% E Growth		RDI, Economic Base		% change RDI	% E Growth
	1980	2000	1980-2000	1980-2000		1980	2000	1980-2000	1980-2000
High and Increasing Distinctiveness, Rapid Growth					**High but Decreasing Distinctiveness, Rapid Growth**				
Raleigh-Durham, NC	2.38	3.34	40	91	Austin, TX	3.62	2.90	-20	133
Seattle, WA	2.03	2.30	13	56	Washington, DC-MD-VA-WV	7.55	5.99	-21	47
					Las Vegas, NV-AZ	5.45	4.01	-26	177
					Orlando, FL	3.47	2.54	-27	117
Low but Increasing Distinctiveness, Rapid Growth					**Low and Decreasing Distinctiveness, Rapid Growth**				
Portland, OR	0.87	1.42	62	56	Atlanta, GA	1.88	1.27	-33	98
Mpls-St Paul, MN-WI	0.61	0.95	55	46	Phoenix, AZ	1.81	1.58	-13	112
Nashville, TN	1.84	2.18	18	60					
High and Increasing Distinctiveness, Slow Growth					**High but Decreasing Distinctiveness, Slow Growth**				
San Jose, CA	3.97	6.25	57	27	Providence, RI-MA	6.83	4.08	-40	16
New York, NY-NJ	2.22	2.90	30	11	Hartford, CT	3.52	1.34	-62	9
Detroit, MI	3.32	4.08	23	15					
Low but Increasing Distinctiveness, Slow Growth					**Low and Decreasing Distinctiveness, Slow Growth**				
Boston, MA-NH	1.72	3.04	77	15	Pittsburgh, PA	1.60	1.10	-31	2
Los Angeles, CA	1.94	3.19	64	14	Chicago, IL	1.55	1.18	-24	17
Middlesex-Somerset, NJ	1.94	3.16	63	36	Kansas City, MO-KS	0.84	0.84	-1	31

Source: See Table 5 for RDI source; Table 1 for employment growth source.

[1] We are grateful to the Hubert H. Humphrey Institute of Public Affairs at the University of Minnesota and the Public Policy Institute of California for resources to conduct and disseminate the research. The data analysis was supported in part by the National Science Foundation, Program in Geography and Regional Science, Grant No. 0136988. Thanks to Michael Leary for administrative assistance and editing. Thanks also to Trent Alexander of the Minnesota Population Center, University of Minnesota, for technical assistance with IPUMS data.

[2] Constantly shifting US metropolitan area definitions make it difficult to render a consistent geographic scale for analysis. In general, we have opted for the "primary metropolitan statistical area" (PMSA) level of analysis, which separates out subsections of larger urban conurbations – e.g., Orange County (CA) and Riverside-San Bernardino (CA) from Los Angeles, Nassau-Suffolk (NY) and Middlesex-Somerset-Hunterdon (NJ) from New York City. In certain cases, however, the need for consistency across Census years forced us to combine some PMSAs – including San Francisco-Oakland, Dallas-Fort Worth, New York-Bergen (NJ), and Denver-Boulder. The U.S. Office of Management and Budget substantially revised metropolitan area definitions in 2003, replacing PMSAs with "metropolitan divisions."

[3] It could be argued that the poor showing of Los Angeles and New York are over-stated by not including the adjacent metro areas (Orange, Riverside-San Bernardino, and Ventura-Oxnard for Los Angeles; Nassau-Suffolk, Middlesex-Somerset-Hunterdon (NJ), Stamford-Norwalk (CT), among others, for New York).

[4] As a measure of spatial concentration, the COL measure used here is conceptually and practically similar to, yet computationally simpler than, the widely used Gini coefficient (Holmes and Stevens, 2004).

[5] Specifically, the data were drawn from the Integrated Public Use Microdata Series (IPUMS) of the Minnesota Population Center, University of Minnesota (Ruggles et al, 2004). For a more detailed discussion of the data and methodology, see Markusen and Schrock, 2006b.

[6] Because of the need to ensure greater longitudinal consistency (see note 2), six PMSAs within the top 50 were combined in three (San Francisco and Oakland, CA; Dallas and Fort Worth, TX; and New York, NY and Bergen-Passiac, NJ), and three additional metros were added to the dataset (New Orleans, LA; Providence, RI-MA, and Grand Rapids, MI), restoring the total to 50.

[7] The overall COL value was calculated as the sum of COL values for each of the 22 occupations, weighted by each occupation's share of total employment in the 50 metro dataset.

[8] The Standard Occupational Classification puts all manufacturing production jobs in an occupational group labeled "production" occupations. In order not to confuse this group with our use of the term "production" to connote the productive structure of regions, we have used the term "craft and assembly" occupations for the former in our tables.

[9] For a critique of Florida's creative class concept and corresponding measures, see Glaeser, 2004; Lang and Danielson, 2005, and Markusen, 2006b.

[10] As with the COL measure discussed earlier, the RDI measure used here is conceptually and practically similar to other measures of specialization used within regional economic analysis, such as the so-called "Krugman Specialization Index (KSI)" (Krugman, 1991). Our RDI measure varies only in its scale (0 to 100, compared to 0 to 2 for the KSI); otherwise they are perfectly correlated.

References

Abu-Lughod, J. 1995. “Comparing Chicago, New York and Los Angeles: Testing Some World Cities Hypotheses.” In Paul Knox and Peter Taylor, eds. *World Cities in a World-System.* Cambridge: Cambridge University Press: 171-191.

Abu-Lughod, J. 1999. *New York, Chicago, Los Angeles: America’s Global Cities*. Minneapolis: University of Minnesota Press.

Baade, F.-J, C.-F. Laaser, and R. Soltwedel. 2003. “Urban Specialization in the Internet Age – Empirical Findings for Germany.” Working Paper, Kiel Institute for World Economics. http://www.uni-kiel.de/ifw/pub/kap/2004/kap1215.htm, accessed January 6, 2006.

Bagchi-Sen, S. and B. Pigozzi. 1993. “Occupational and Industrial Diversification in the United States: Implications of the New Spatial Division of Labor.” *Professional Geographer.* Vol. 45, No. 1: 44-54.

Barbour, E. and A. Markusen. 2006. "Regional Occupational and Industrial Structure: Does the One Imply the Other?" *International Regional Science Review,* forthcoming.

Bolton, R. 2002. "Place Surplus, Exit, Voice, and Loyalty," in Borje Johansson, Charlie Karlsson, and Roger Stough, eds., *Regional Policies and Comparative Advantage*, Edward Elgar, Cheltenham, UK: 469-488.

Borchert, J.R. and R.B. Adams. 1963. *Trade Centers and Trade Areas of the Upper Midwest*, Upper Midwest Economics Study, Urban Report No. 3. Minneapolis: University of Minnesota.

Chinitz, B. 1961. "Contrasts in Agglomeration: New York and Pittsburgh." *American Economic Review,* Vol. 51: 279-89.

Clark, G, M. Gertler and J.E.M. Whiteman. 1986. *Regional Dynamics: Studies in Adjustment Theory*. Boston : Allen and Unwin.

Cortright, J.. 2002. “The Economic Importance of Being Different: Regional Variations in Tastes, Increasing Returns, and the Dynamics of Development.” *Economic Development Quarterly*, Vol. 16: 3-16.

Cortright, J. 2005. *The Young and Restless in a Knowledge Economy*. Portland, Oregon: Impresa, Inc. for CEOS for Cities.

Currid, E. 2006. "New York City as a Global Creative Hub: A Competitive Analysis of Four Theories on World Cities." *Economic Development Quarterly*, forthcoming.

Dardia, M. and E. Barbour. 2004. "Reversal of Fortune: Will San Francisco Suffer L.A.'s Fate?" *California Policy Review*, Sphere Institute, Burlingame, CA.

Duranton, G. and D. Puga. 2005. “From Sectoral to Functional Specialisation.” *Journal of Urban Economics.* Vol. 57: 343-70.

Esparza, A.X., and A.J. Krmenec. 1996. “The Spatial Markets of Cities Organized in a Hierarchical System,” *Professional Geographer*, Vol. 48, No. 4: 367-378.

Fainstein, S. 2001. “Inequality in Global City-Regions,” in Allen J. Scott, ed. *Global City-Regions*. New York: Oxford University Press: 285-98.

Feser, E. 2003. “What Regions Do rather than Make: A Proposed Set of Knowledge-Based Occupation Clusters.” *Urban Studies*, Vol. 40, No. 10: 1937-58.

Florida, R. 2002. *The Rise of the Creative Class.* New York, Basic Books.

Friedmann, J. and G. Wolff. 1982. “World City Formation: An Agenda for Research and Action.” International Journal of Urban and Regional Research, Vol. 6, No. 3, September: 309-44.

Glaeser, E., H. Kallal, J. Scheinkman, and A. Shleifer. 1992. “Growth in Cities.” *Journal of Political Economy,* Vol. 100, No. 6: 1126-52.

Glaeser, E., J. Kolko and A. Saiz. 2000. “Consumer City.” Cambridge, MA: National Bureau of Economic Research, Working Paper No. 7790, July. (eglaeser@harvard.edu)
Glaeser, E. 2004. “Book Review of Florida’s ‘The Rise of the Creative Class.’” May. post.economics.harvard.edu/faculty/glaeser/papers.html.

Gray, M., E. Golob and A. Markusen. 1996. “Big Firms, Long Arms, Wide Shoulders: the ‘Hub-and-Spoke’ Industrial District in the Seattle Region.” *Regional Studies* 30 (7): 651-66.

Henderson, V.J., A. Kuncoro, and M. Turner. 1995. “Industrial Development in Cities.” *Journal of Political Economy,* Vol. 103, No. 5: 1067-90.

Holmes, T. J. and J. J. Stevens. 2004. “Spatial Distribution of Economic Activities in North America.” In Vernon Henderson and Jacques-Francois Thisse, eds., *Handbook of Regional and Urban Economics, Vol. 4: Cities and Geography*. Amsterdam: North-Holland: 2797-2844.

Howes, C. and A. Markusen. 1993. “Trade, Industry, and Economic Development.” In Helzi Noponen, Julie Graham and Ann Markusen, eds. *Trading Industries, Trading Regions*. New York: Guilford Press: 1-44.

Isard, W. 1960. Methods of Regional Analysis. Cambridge: MIT Press.

Jacobs, J. 1969. *The Economy of Cities*. New York Random House.

Krugman, P. 1991. *Geography and Trade.* Cambridge: MIT Press.

Lang, R. and K. Danielson, eds. 2005. “Review Roundtable: Cities and the Creative Class.” *Journal of the American Planning Association*, Vol. 71, No. 2: 203-220.

LeRoy, G. 2005. *The Great American Jobs Scam: Corporate Tax Dodging and the Myth of Job Creation*. San Francisco: Berrett-Koehler Publishers.

Lyons, D. and S. Salmon. 1995. “World Cities, Multinational Corporations and Urban Hierarchy: the Case of the United States.” In Paul Knox and Peter Taylor, eds. *World Cities in a World-System.* Cambridge: Cambridge University Press: 115-131.

Markusen, A. and C. Campolina Diniz. 2005. “Differential Regional Competitiveness: Opportunities and Constraints.” In Paolo Giordano, Francesco Lanzafame and Jorg

Meyer Stamer, eds., *Asymmetries in Regional Integration and Local Development.* Washington, DC: Inter-American Development Bank: 116-161.

Markusen, A. and G. Schrock. 2006a. "The Artistic Dividend: Urban Artistic Specialization and Economic Development Implications." *Urban Studies,* Fall forthcoming.

Markusen, A. and G. Schrock. 2006b. *The Distinctive City: An Occupational Approach.* Book manuscript, Project on Regional and Industrial Economics, the Humphrey Institute, University of Minnesota, January.

Markusen, A. and M. Gray. 1999. "Colorado Springs: A Military-anchored City in Transition." In Ann Markusen, Sean DiGiovanna, and Yong Sook Lee, eds., *Second Tier Cities: Rapid Growth Outside the Metropole in Brazil, Korea, Japan and the US.* Minneapolis: University of Minnesota Press: 311-332.

Markusen, A. and M. Brzoska. 2000. "The Regional Role in Post Cold War Military Industrial Conversion." *International Regional Science Review,* Vol. 23, No. 1: 3-24.

Markusen, A. and V. Gwiasda. 1993. "Multi-polarity and the Layering of Functions in World Cities: New York City's Struggle to Stay on Top." *International Journal of Urban and Regional Research.* Vol. 18: l67-193.

Markusen, A., S. DiGiovanna, and Y. S.Lee, eds. 1999. *Second Tier Cities: Rapid Growth Outside the Metropole in Brazil, Korea, Japan and the US*. Minneapolis: University of Minnesota Press

Markusen, A. 1985. *Profit Cycles, Oligopoly and Regional Development.* Cambridge, MA: MIT Press.

Markusen, A. 2004. "Targeting Occupations in Regional and Community Economic Development." *Journal of the American Planning Association,* Vol. 70, No. 3: 253-268.

Markusen, A. 2006a. "Human versus Physical Capital: Government's Role in Regional Development." In Jorge Martinez and Francois Vaillancourt, eds. *The Role of Government in Regional Economic Development,* forthcoming.

Markusen, A. 2006b. "Urban Development and the Politics of a Creative Class: Evidence from the Study of Artists." *Environment and Planning A,* forthcoming.

Mather, V. 1999. "Human Capital-Based Strategy for Regional Economic Development." *Economic Development Quarterly,* Vol. 13, No. 3: 203-216.

Moomaw, R. 1998. "Agglomeration Economies: An Artifact of Industrial Aggregation?" *Regional Science and Urban Economics,* vol. 28: 199-211.

National Endowment for the Arts. 1999. *Arts Participation by Region, State and Metropolitan Area.* Washington, DC: National Endowment for the Arts, Research Division, Note #2, January.

Noyelle, T. J. and T. M. Stanback, Jr. 1984. *The Economic Transformation of American Cities.* Totowa, NJ: Rowman & Allanheld.

Oden, M., A. Markusen, D. Flaming, J. Feldman, J. Raffel and C. Hill. 1996. *From Managing Growth to Reversing Decline: Aerospace and the Southern California Economy in the Post Cold War Era.* New Brunswick, NJ: Rutgers University, Project on Regional and Industrial Economics, February.

Parker, E. and J. Rogers. 1999. "Sectoral Training Initiatives in the U.S.: Building Blocks of a New Workforce Preparation System?" In Pepper D. Culpepper and David Finegold, eds., *The German System of Skill Provision in Comparative Perspective.* Oxford, UK: Berghahn Books: 326-362.

Quigley, J.. 1998. "Urban Diversity and Economic Growth." *The Journal of Economic Perspectives,* Vol. 12, No. 2: 127-138.

Ruggles, S., M. Sobek, T. Alexander, C.A. Fitch, R. Goeken, P. Kelly Hall, M. King, and C. Ronnander. 2004. *Integrated Public Use Microdata Series: Version 3.0* [Machine-readable database]. Minneapolis, MN: Minnesota Population Center [producer and distributor]. Online at http://www.ipums.org.

Sassen, S. 1991.*The Global City: New York, London, Tokyo.* Princeton: Princeton University Press.

Scott, A. J. 1998. "Global City-Regions: Economic Planning and Policy Dilemmas in a Neoliberal World." Paper presented at the World Bank Workshop on the World Development Report, 1999, Washington, DC, July 6-9.

Scopp, T. S. 2003. "The Relationship Between the 1990 Census and Census 2000 Industry and Occupation Classification Systems," Technical Paper #65. Washington, DC: U.S. Census Bureau, Economics and Statistics Administration, U.S. Department of Commerce.

Turok, I.. 2006. "The Distinctive City: 'Quality' as Source of Competitive Advantage." *Environment and Planning A,* forthcoming.

Thompson, W. and P. Thompson. 1985. "From Industries to Occupations: Rethinking Local Economic Development." *Economic Development Commentary,* Volume 9: 12-18.