A version of this paper was later published in the *Annals of Regional Science*

CITIES IN WESTERN EUROPE AND THE UNITED STATES: DO POLICY DIFFERENCES MATTER?

By Peter Gordon* and Wendell Cox**

ABSTRACT

Amid concerns of how U.S. cities "sprawl", it is useful to look at the cities of other developed nations, in particular Western Europe which has attained U.S.-type prosperity, but which is reputed to have cities Americans should look to as a model. We examine recent data which suggest that there are substantial development and transportation similarities between the two groups and that the cities of Western Europe are becoming more like those of the U.S.

JEL Classification R42, R48, R52

*Peter Gordon is a Professor, University of Southern California, Los Angeles, California (corresponding author, pgordon@usc.edu)

** *Wendell Cox is Principal, Demographia.com and Visiting Professor, Conservatoire National des Arts et Metiers, Paris.*

1. INTRODUCTION

We know that many of the world's great cities are special. We visit them because of their unique offerings and attractions. On top of culture, language, geography and history, many are also distinguished by policy and governance differences. Path dependence suggests that most of the differences will persist.

In this paper, we consider U.S.-western European city comparisons along various policy, human settlement, and passenger transportation dimensions.[1] The question addressed is whether, in the face of the previous remarks, urban planning policies matter. In their discussion of "urban sprawl," Nechyba and Walsh note that, "While we seek in this paper to address only the issue of urban sprawl in the United States, we suspect that greater insight into the causes of sprawl within the United States could be obtained from a better understanding of why cities in other developed societies look very different."[2] Our purpose is similar, but we are less sure of "very different."

Some suggest that "sustainability" planning and its presumed requirements are much more strongly emphasized by European politicians and policy makers – and that this example should guide U.S planners. Others report that "urban sprawl" has come to Europe[3]. We also hear from critics that peculiar U.S. policies cause the "sprawl" that so many of them worry about.[4] Or is it, as Rybczynski has

recently written, that "Virtually every technological innovation of the last fifty years has *facilitated*, if not actually encouraged urban dispersal" (italics added) and that is this a very broad tendency?[5]

A related question is whether there is an underlying market failure when it comes to U.S. urban development (Cervero, 1996). Are people, especially those living and working in the suburbs, getting many goods and services that they are not asked to pay for? Kenneth Jackson has famously noted that "Tax, housing and gasoline policies doom our cities" (*NY Times*, June 9, 1996). Or is the problem a policy failure instead? Has there been too much single-family home zoning (Levine, 2005)?

And what about these two thoughts by Ed Glaeser? "I doubt that I would be in the suburbs if it weren't for the antiurban public policy trifecta of the Massachusetts Turnpike, the home mortgage interest deduction, and the problems of urban schools." (Glaeser, 2011, p. 167) And "Transportation technologies shape our communities, and modern sprawl is the child of the automobile. … As

---

[1] The various chapters of Richardson and Bae (2004) are case studies that cover similar ground, including five that document the extent of "sprawl" in France. Various other studies focus on paired comparisons (see for example, Giuliano and Narayan (2003). Our approach differs from both.

[2] 2004, p. 177.

[3] Couch, et al. (2007)

[4] Some items in quotes because they are widely and casually used but not well defined.

[5] Rybczynski (2010), p. 170.

European car ownership has increased, Europeans also moved to the suburbs." (Glaeser, 2011, p. 178) Which of these two sentiments dominates the choices of most people?

2. BACKGROUND

We can begin by citing Bruegmann's introduction to his recent book. He notes that "sprawl" is not new and not particularly American.

> Most American anti-sprawl reformers today believe that sprawl is a recent and peculiarly American phenomenon caused by specific technological innovations like the automobile and by government policies like single-use zoning or the mortgage interest deduction on the federal income tax. It is important for them to believe this because if sprawl turned out to be a long – standing feature of urban development worldwide, it would suggest that stopping it involves something much more fundamental than correcting some poor American land-use policies. In the following chapters I will argue that the characteristics we associate today with sprawl have actually been visible in most prosperous cities throughout history. Sprawl has been as evident in Europe as in America and can now be said to be the preferred settlement pattern everywhere in the world where there is a certain measure of affluence and where citizens have some choice in how they live.[6]

Figure 1 illustrates some of the history Bruegmann cites. Two simple observations corroborate his discussion of what he sees beyond American shores. First, Table 1 shows suburbanization trends in the largest cities of the developed world on various continents. Suburbanization appears to be dominant everywhere in spite of presumably different policies. More than one commentator has noted stability at the top of city-size rankings[7]. The biggest cities manage to stay on top. Success breeds success. But how? Typically, the biggest cities attract enough human capital to continue to be innovative. But in doing so, do they grow up or out? Suburbanization is seemingly the physical accommodation that usually goes with the process – by which sufficient human capital is retained and accumulated. The largest cities apparently provide ever more suburban living which is the choice of most their people. But they do this in a way that does not defeat their productivity advantage. To be more precise, cities survive and grow if they find ways to continue to reap *net* agglomeration benefits – if they somehow find spatial arrangements whereby many possible negative diseconomies and externalities are avoided while many positive economies and externalities are exploited. But this suggests the workings of market forces that are difficult for policy makers to overcome.

Second, for the U.S. the fifty states have been ranked in terms of various "economic freedom" indices, which include state as well as local policy differences (Ruger and Sorens, 2009). Yet, whereas U.S. cities' development patterns have been shown to differ in terms of the recentness of their greatest growth, often simply defined in terms of "frostbelt" vs. "sunbelt" cities (especially those in Arizona, California, Florida, Nevada and Texas), correlations between urban form and regulatory regime as measured by any of the economic freedom indices identified by the authors (fiscal policy, regulatory policy, paternalism)

---

[6] Bruegmann (2005), p 17

[7] Duranton (2007)

are not apparent. Combining various indices, the authors report that the "freest" states were reported to be New Hampshire, Colorado and South Dakota; the "least free" were New York, New Jersey, Rhode Island, California and Maryland. No one suggests that U.S. metropolitan areas can be meaningfully grouped and differentiated by whether they are located in either of these two groups of states.

Whereas urban planning and development policies in Europe are usually a matter of national policy, they are mostly a matter of state and local policy in the U.S. A recent study by Pendall, Puentes and Martin[8] (applying factor analysis to survey results) has emphasized and described local land use planning and regulation policy differences through the U.S. But there are also moves in the U.S. to articulate a national urban strategy. There seems to be a desire among U.S. planners to "catch up" with their European counterparts. "Livability" and "sustainability" are ever more the stated policy goals of U.S. planners, many of whom make significant claims for the benefits of higher densities. As such, they look for ways to curb "urban sprawl" and promote "compact development." In October of 2010, the heads of the U.S. Environmental Protection Agency, Department of Transportation and Department of Housing and Urban Development announced their "Partnership for Sustainable Communities."[9] They agreed that the three federal agencies would join efforts on behalf of various "Livability Principles", including "Provide more transportation choices … Promote equitable, affordable housing, … Enhance economic competitiveness, … Support existing communities, … Coordinate and leverage federal policies and investments, … Value communities and neighborhoods …" Beyond the politically correct clichés, the document announces the involvement of the U.S. federal government and its resources in steering how local areas grow and develop. But efforts to enact a livability program have failed thus far and the post-2010 leadership of the House of Representatives has stated strong opposition to such programs.

This paper offers some comparisons between U.S. and western European cities. The cities of eastern Europe are left out because of their comparatively late start, with substantially rising affluence generally not occuring until after 1990. This is a compromise approach; many urbanized and urbanizing regions of the world are not included. The reason for the US-western Europe focus is that whereas international comparisons can be informative, they include the risks that come with differing measurement protocols. For the western-European cities, we prefer data sources that report on more than just one city (or metropolitan area) in more than one country. Admittedly, even the data aggregators (such as the UN, the EU and the OECD) accept varying data from local sources, but to the extent that some common vetting and screening were involved there is a degree of plausibility.

For purposes of clarity, it is useful to dispose of popular ideas like "automobile dependence" and various associated "addictions". It is fairly clear that as personal incomes rise, most people seek access to an automobile. The range and mobility are hard to beat. People like the greatly expanded choice set. As more people acquire greater range and mobility, origins and destinations disperse. And as trip-ends disperse, having a car becomes more desirable. This is a powerful positive feedback cycle. It also suggests that the expression "sprawl," though widely used, is not a useful descriptor because we are really discussing auto-oriented development. Dargay, Gately and Sommer (2007) document that the link between per capita income and auto ownership is a powerful and international phenomenon.

---

[8] Brookings (2006).

[9] http://www.epa.gov/dced/partnership/

Nevertheless, the simple story is complicated by the idea of induced demand. Do we drive more because there are more highways or are there more highways because we drive more? Supply and demand are always interdependent and difficult to identify. Statistical tests are complicated by various feedback effects. Hymel, Small and Van Dender (2010) have explored some of these complexities. New lane-miles increase accessibility to new locations and also reduce congestion somewhat. But congestion also dampens the ability of new lane-miles to induce new vehicle miles traveled. Duranton and Turner (2011) also show that extra road and highway capacity do not reduce congestion; vehicle-kilometers traveled and lane-miles grow together.

The comparison with western European cities is interesting because U.S.-style highway building came much later than in the U.S. Nevertheless, in a 2008 debate between Baum-Snow and Cox-Gordon – Redfearn (CGR) on whether U.S. suburbanization was caused by the development of the U.S. interstate highway system, CGR showed that there was significant suburbanization in European cities whether or not there was a freeway that "pierced" the core city.

At this point all major western European metropolitan areas have reached a point where automobile travel exceeds that of transit, and usually by a large margin. This conversion began later than in the United States, for various reasons. The most important would appear to be their later achievement of high living standards than in the United States, a phenomenon that was postponed a decade or two by World War II and its aftermath.

3. POLICY COMPARISONS

The strategy of this paper is to describe the major U.S.-western Europe urban policy differences and also the settlement-transportation differences as best we can. Some policy contrasts are quite clear and others are less clear. The simplest involves the well known fact that Americans get their gasoline much more cheaply than others in the developed countries. Most other places levy much higher excise taxes. *The Economist* (Figure 2) recently showed a January 2011 comparison chart of dollar prices (including taxes) per liter. The U.S. was the only place with prices below one dollar. Most of the European countries were between $1.50 and $2 per liter and three (Greece, Denmark, Netherlands) were above $2. While the policy justifications for these levels of excise tax are complex and vary from place to place, expensive gasoline has often been thought of as a way to limit the outward growth of cities.

The second policy contrast involves the treatment of housing. Most economists oppose the U.S. mortgage-interest deduction of the federal income tax code on both equity and efficiency grounds. On the equity criticism, mostly middle-class homeowners are able to pay interest with pre-tax dollars. The tax law distorts price signals and encourages leverage for purposes of home ownership. It is also regressive, favoring those whose marginal tax rates are highest. For the purposes of our discussion, the policy has been seen as a contributor to "urban sprawl." But Table 2 shows that home ownership rates in ten western European nations are higher than in the U.S. while seven western European countries have lower rates.

In addition, the 30-year home mortgage so popular in the U.S. has been widely seen by economists as being subsidized via the formerly implicit and now explicit participation of the GSE's "Fannie" and "Freddie." But Jaffee offers a detailed comparison of U.S. and Western European mortgage markets. He finds that "… there is strong evidence that the mortgage markets of Western Europe have operated for decades with limited government intervention." (p. 14) And in spite of this, "… the U.S. is just the median – 9th out of 17 developed countries – in terms of its owner occupancy rate," (p. 16).

Addressing Glaeser's last point on school quality differences between U.S. cities and suburbs, such contrasts may be a smaller concern in European countries with national education systems. To be sure, there likely to be quality differences within any school system, but there is now a move towards national standards in U.S. schools in reaction to seemingly intractable performance differences among U.S. schools.

But there is more. Crouch et al (2007) suggest that the emergence of "modern town planning" in Europe goes back to UK town planning legislation of 1909 (many times elaborated since then) and has concerned itself with the control of "urban sprawl." Land use and development policies are complex and difficult to summarize, but various writers have provided assessments for Europe as well as for specific European cities. "Many European cities pursue relatively stringent land use policies … the European compact city concept generally focuses on relatively high-density, mixed neighbourhoods in terms of land use, that are well accessible by public transport …" (Koster and Rouwendal, 2010, p. 2). "In the UK, reducing urban sprawl and revitalizing towns and cities have been dual, and related aims of the planning system and or urban policy for many decades … However, since the late 1980s these aims have been given a new language: that of sustainability. The 'sustainable city' is characterized in English spatial planning by the idea of the 'compact city.'" (Williams, 2004).

4. SIMILARITIES AND DIFFERENCES OF OUTCOMES

Three types of urban performance indicators relevant to out discussion can be compared. First, to what extent is there continued suburbanization? Second, what are average commute lengths (times or distances)? Third, what are the major modes of transport used by urban commuters? Policy makers in the U.S. as well as in western Europe seek to impact all three. They want to "contain" suburbanization, limit trip lengths and encourage the use of public transit. How has this worked out?

4.1 SETTLEMENT TRENDS

Suburbanization in the U.S. is widely acknowledged. Carlino (2000) offers a detailed discussion of the suburbanization of people and jobs. Table 3 shows 1950-2000 population growth for the 38 largest U.S. urbanized areas, their core cities and suburbs. In all but one (San Jose with significant core city annexations), the suburbs grew by more than the core city. The other two core cities with significant 50-year growth started with small populations; Phoenix had 106,000 residents and Riverside-San Bernardino only 63,000, but even these two experienced greater suburban growth. Glaeser et al (2001) document "job sprawl" in the U.S. for 1996.

The 2010 U.S. Census population data are now available and they show that the suburbanization trend continues. This is interesting in light of the many claims and predictions to the effect that settlement trends in the last decade included a "return to the cities."[10] In fact, however, the 2010 census shows (Tables 4a and 4b) that there were few urban cores that had densified in the United States. Nearly all of it occurred in the core municipalities of New York, San Francisco and Miami. Various other core cities have densified, but their increases have largely been from the development of greenfield land and even that at low suburban densities (like Rome, core municipalities such as Phoenix, Houston, Louisville and Charlotte have considerable suburban greenfield land within their boundaries)

To test the suburbanization *trends* question for the western European cities, we require data for at least two points in time for at least two geographical definitions of a place, usually city and suburbs. Urban Audit[11] provides demographic and economic data for most of the major European Union cities. Tables 5a and 5b show population data for the major Western European cities for which we have city as well as metropolitan area (Large Urban Zone, LUZ, is the label they use) information for two recent years (1996-2004).[12] These show that thirteen of the eighteen (Berlin, Edinburgh, Frankfurt, Glasgow, Hamburg,

---

[10] http://www.city-journal.org/2011/eon0406jkwc.html

[11] http://www.urbanaudit.org/

[12] Larger Urban Zones (LUZ) denotes the program for designating metropolitan areas (labor market areas) in Europe. The program was established by the Urban Audit, at the direction of the European Commission. The LUZ definitions are established at the national level within the European Union and nations, which also establish their own unique criteria. Generally LUZs are designated at the NUTS-2 or NUTS-3 geographical levels, which correspond to internal political boundaries that can be from second level (such as the Ile-de-France in France to portions of municipalities, such as central London (the inner boroughs of the Greater London Authority). As in the United States, with its

Helsinki, Lisbon, Liverpool, Madrid, Munich, Prague, Stockholm, and Zurich) experienced faster growth in their outer areas. To be sure, Liverpool showed population decline, but with slower decline in the suburbs. Four of the eighteen (Brussels, Copenhagen, London, Manchester) showed faster city growth than in the outlying areas (however each of these core cities remains below its population peak).[13] Nevertheless most places for which we have data grew most in their suburbs. Couch et al (2007) consulted the same data source for the period 1991-2001. They showed that all but two (Copenhagen and Stockholm) had most growth in their suburbs in this decade.

Population shift data are also available from another source that considers several cities but for a longer period. [14] Table 6 summarizes provides population data for the major Scandinavian cities and their suburbs for 1971-2001. Copenhagen and Stockholm show steady suburbanization through 1991 and then a seemingly steady growth of city and suburb to 2001. Helsinki, and Olso show steady suburbanization for the entire 40-year period.

Further, recent domestic in-migration data has generally shown the suburban areas to have more favorable trends than core cities, even in cases where the central cities are adding population. A review of domestic migration trends in 19 European metropolitan areas in the early and mid 2000-2010 decade indicated that all had more favorable trends in suburbs and exurbs than in the core cities[15]

---

metropolitan area definitions based upon county-equivalents, the NUTS-2 and NUTS-3 criteria produce considerable inconsistencies, especially in comparative land areas.

[13] Brussels peaked at 8 percent above its 2004 population in 1970, Copenhagen's peak was 52 percent higher in 1950, London's was 16 percent higher in 1939 and Manchester's 75% higher in 1931.

[14] www.usk.stockholm.se/internet/pub/stat utg/nordtab2.pdf

[15] (http://demographia.com/db-eurcitymigra.pdf)

The same trends are also documented in a third European data source from Kasanko et al (2005) who utilize the MOLAND (Monitoring LAND use/cover Dynamics) data derived from high-resolution satellite imagery to study development trends in 15 medium-sized to large European urban areas from the mid-1950s through the late 1990s.[16] Plotting the growth of built-up areas vs. population growth, they find that for all but one area (Munich), they found that the extent of growth was greater than population growth. They conclude that, "This can be an indication of urban sprawl …" (p. 14). A similar trend is revealed in many of the developing world urban areas.[17]

[16] http://moland.jrc.it

[17] http://www.newgeography.com/content/002172-the-evolving-urban-form-mumbai, http://www.newgeography.com/content/002283-the-evolving-urban-form-shanghai, http://www.newgeography.com/content/002255-the-evolving-urban-form-jakarta-jabotabek, http://www.newgeography.com/content/002198-the-evolving-urban-form-manila, http://www.newgeography.com/content/002088-the-evolving-urban-form-the-valley-mexico

http://www.newgeography.com/content/002545-the-evolving-urban-form-delhi

4.2 TRAVEL TIMES

Cities are "the engines of growth" and without the innovation that can only occur in major cities, national economies could not advance. But as cities grow they grow outward. And as they suburbanize there is the prospect that travel distances, especially commuting costs, can become unbearably large. The land use accommodation that seems to emerge is the simultaneous dispersion of jobs and housing in patterns that limit trip lengths, especially in terms of time spent commuting, which is the cost that most people are attuned to. There is little reason to think that this process is not universal.

Further, cities are more productive where people are more mobile. This is indicated in research, for example, by Prud'homme and Lee[18] as well as Hartgen and Fields[19] showing that the more jobs that can be accessed in a particular period of time, the greater the economic output of a metropolitan area. Greater access to jobs not only improves economic growth, but it also opens up greater opportunities for people and households to fulfill their aspirations for a better quality of life.

For the U.S. we can look at the American Community Survey (pooled 2005-2007) which reports journey-to-work trip times. Table 7 shows data for the twenty largest urbanized areas (U.S. Census designation of functional urban areas) as well as for the total for the 74 urbanized areas with 500,000 or more residents in 2007. The average for all areas was 25.9 minutes with a standard deviation of 3.55 (also all modes, U.S. data calculations by Thomas A. Rubin). The small variance between these places suggests that the concerns over extraordinarily long work trips in more dispersed environments are misplaced.

Considering privately operated vehicles only, the principal city vs. suburbs difference of mean commute times for the group of seventy-four was remarkably small, just over one minute. For nine of the top-twenty urbanized areas, travel times were either shorter or less than a minute greater in the suburbs than in the central cities.

Table 8 summarizes the U.S. Census and ACS metropolitan area data for broad area types for several years (all modes). There is seemingly very little change since 2000. Another U.S. data source (the National Household Travel Survey, NHTS) substantiates the same points. Tables 9a and 9b compare mean travel times for commuting as well as nonwork travel for two years (2001 vs. 2009) for four distinct urbanization types. The nine-year overall increase (all modes all metropolitan areas) for worktrips was small and only apparent in two of the sub-areas. And in both years, "suburban" travel times were less than "urban". "Second-city" (akin to "edge cities") were lower than either urban or suburban for both of the survey years. For the non-work trips, no changes between the two surveys are apparent. And, again, the "urban" trips are slightly longer.

Many of the nonwork trips are shopping trips. The International Council on Shopping Centers reports that there are more than 100,000 such places in the U.S. – and that these account for about one-half of all U.S. shopping space. The non-work trip data suggest, perhaps not surprisingly, that buyers and

[18] http://usj.sagepub.com/cgi/content/abstract/36/11/1849

[19] http://reason.org/files/ps371_growth_gridlock_cities_full_study.pdf

sellers co-locate in ways that allows them to keep doing business with each other. If shoppers choose suburban locations, so will shop owners. We see that "sprawl" does not imply traffic "doomsday".

What about western Europe? In 1997, Gerondeau noted that "The average home-to-work journey by car, despite the fact that it takes place during rush hours is *19 minutes* in Western Europe, the same, in fact as in North America. (p. xxxv, emphasis in the original). He also compared average person-trips per day for the U.S (3.9) and Western Europe (3.2). A more recent report[20] summarized in Table 10 compares overall work-trip travel times for all 99 reporting U.S. metro areas (2007) and 92 European area (all of Europe); the travel times were 23.6 minutes for the U.S. and 25.6 minutes for Europe, both slightly larger than Gerondeau's averages. The slightly longer duration[21] trips reported for the European cities could be accounted for by the greater use of public transportation. The longest average duration work trips in the U.S. are in the New York metropolitan area (almost 33 minutes), but that area also has the highest proportion of commuters using public transit (more than 30 percent in 2010).

The Urban Audit data source includes average journey-to-work travel time (one way, all modes) for many of the EU cities and their metropolitan areas. Table 11 shows 2001 average commute times for the major western European places for which city as well as metropolitan area (LUZ) data were available. For seven of the ten, the metropolitan area average was lower than the city average, indicating slightly shorter average trip durations in the suburbs. This finding also echoes the findings for the U.S. cities. Suburban worktrips are not necessarily longer duration trips.

4.3 MODE CHOICE

But whereas U.S. land use planning has been mostly a local matter, transportation policy has had a much stronger national influence. U.S. highway user fees significantly cross-subsidize urban transit.[22] All levels of government in the U.S. spend about $160 billion annually on highways and about one-fourth comes via the federal government. The federally funded roads carry about 84 percent of all road traffic. In 2009, the Federal government's Highway Trust Fund received just less than $53 billion in motorists' user fees, but almost 20 percent was diverted to public transit projects. In that year, public transit accounted for approximately 1.0 percent of surface travel passenger-miles and virtually none of the freight ton-miles. And what effect have these expenditures had? Figure 3 shows that the more spent on public transit, the less was transit's share of urban travel.

Yet, infrastructure use by mode of transport differs significantly between the U.S. and the EU countries. The data on differences among passenger-kms by major mode for the U.S. and 15 western European

[20] www.demographia.com

[21] Throughout, we use trip durations rather than trip distances. Most individuals may be unaware of distances, but are keenly aware of durations.

[22] Bicycling in the U.S. is still a small niche mode. Pucher at al. (2011) report that, "… the number of bike trips in the USA more than tripled between 1977 and 2009, while the bike share of total trips almost doubled, rising from 0.6% to 1.0%." The market share in passenger-kilometers would be much smaller.

nations (Table 12a) are broadly suggestive of the fact automobiles carry a larger share of surface transport in the US than in the EU. However, the only level at which there is comparability is in the aggregate (Table 12b), because of the important role, in both the US and EU of air transportation. At the aggregate level, the difference between the US and the EU remains, but is less pronounced.

The dominance of private auto use in the U.S. is clear and we have alluded to it in previous paragraphs and illustrations (Figure 3). In fact, we have described urbanization in the U.S. as simply auto-oriented development, which is a clearer representation than the pejorative and vague "urban sprawl". We have also found similar urban development in and around the western European cities. What is the role of the auto in Europe? Growing but not yet at the levels of the U.S. Table 13 shows the shares of auto use for commuting in major cities and metropolitan areas for various recent years. It has increased in most places over the time spans shown, but has not reached anywhere near the U.S. level. For mode shares as well as for commuting times, western Europe is more similar to New York than to the other U.S. large metropolitan areas. But New York has never stopped suburbanizing. Like New York, most western European cities continue to suburbanize.

CONCLUSIONS

In 1999, Pietro Nivola wrote, "With it's limited reach, it is fair to say that U.S. urban policy cannot even faintly 'Europeanize' the shape of American cities." (p. 52). Nivola showed that going back to federal urban renewal in 1949, a variety of policies had not changed the direction of U.S. urban development. What has happened in the years since 1999? Despite numerous assertions of an "urban revival", the 2010 census data for the U.S. show that suburbanization was still the dominant trend.[23]

In his 2006 review of a special issue of *Urban Studies* on Resurgent Cities, "Urban Myths and Policy Hubris: What We Need to Know," Cheshire noted the difficulties of making a policy impact on urban form. He pointed to the durability of physical forms as well as the "inertia exercised by the structure of property rights and the inertia imposed by norms and standards." (p. 1235). He reminded us that London after the fire of 1666, Chicago after its great fire, Berlin and Tokyo after aerial bombardments were all "rebuilt on their original layout." These observations complement the thoughts in the introduction, where we emphasized the idea that auto-oriented development is unlikely to be reversed or replaced. To be sure, Cheshire was referring to older city centers, whereas our observation focused on the outlying areas where most growth occurs.

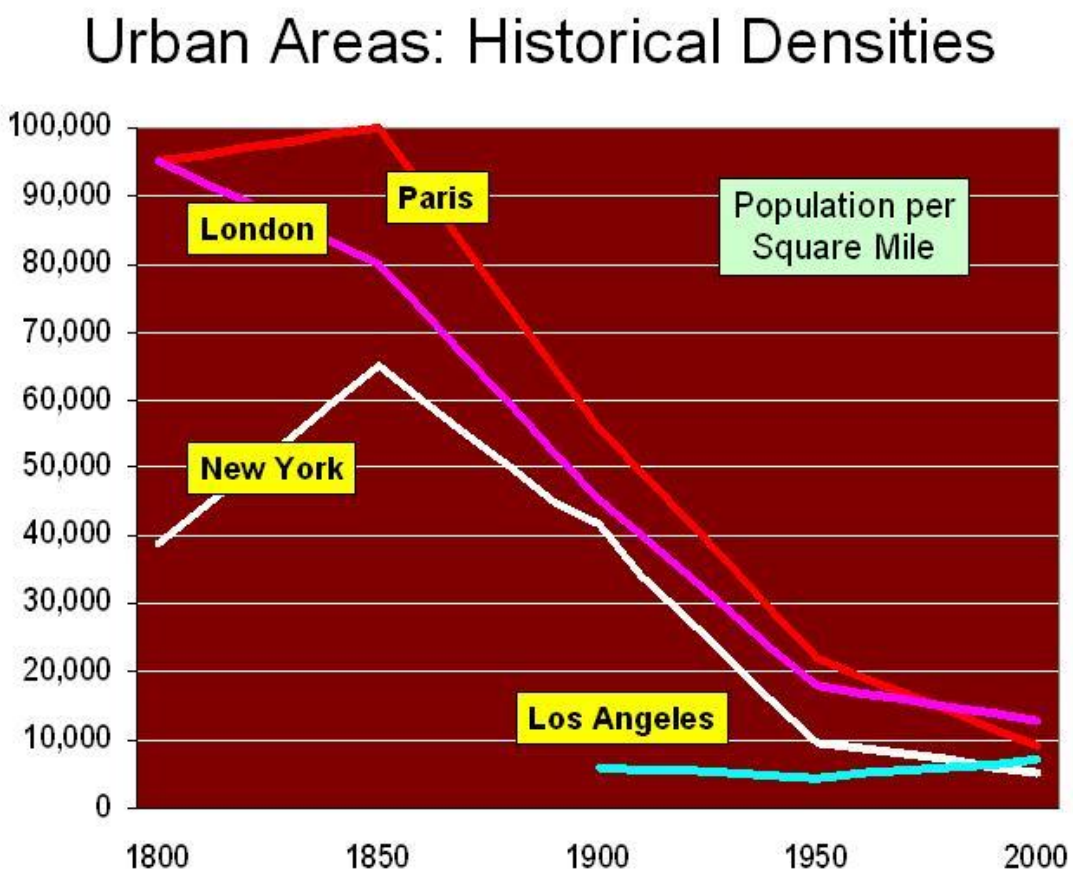
Or are the European cities "Americanizing"? An interesting response is by Richardson and Bae (2004), who claim that, "There appears to be convergence in settlement patterns in the U.S. and Western Europe." (p. 1) Bruegmann has a similar thought, writing that, "One of the most remarkable things about the development of European and American cities and suburbs since the 1970s has been the way in which they seem to be converging. In part it is because an increasing number of American central cities are becoming denser while European cities continue to decentralize." (p. 92).

But the convergence hypothesis is further challenged by the view that getting more Europeans out of transit and into an automobile is not much of a challenge, certainly when compared to getting Americans out of their cars and onto public transit. But the latter has been a U.S. policy goal for some years with no signs of any success. In other words, cities on both sides of the Atlantic are more likely to be Americanizing and also likely to continue doing so.

But the much bigger point is that for cities to continue in their role as the incubators of ideas and all the processes that create wealth, they will have to continue growing and that means suburbanizing. The biggest cities have been able to *continue* their important economic and cultural functions by growing outward. This should not be impeded. The good news is that efforts to do just that have apparently failed.

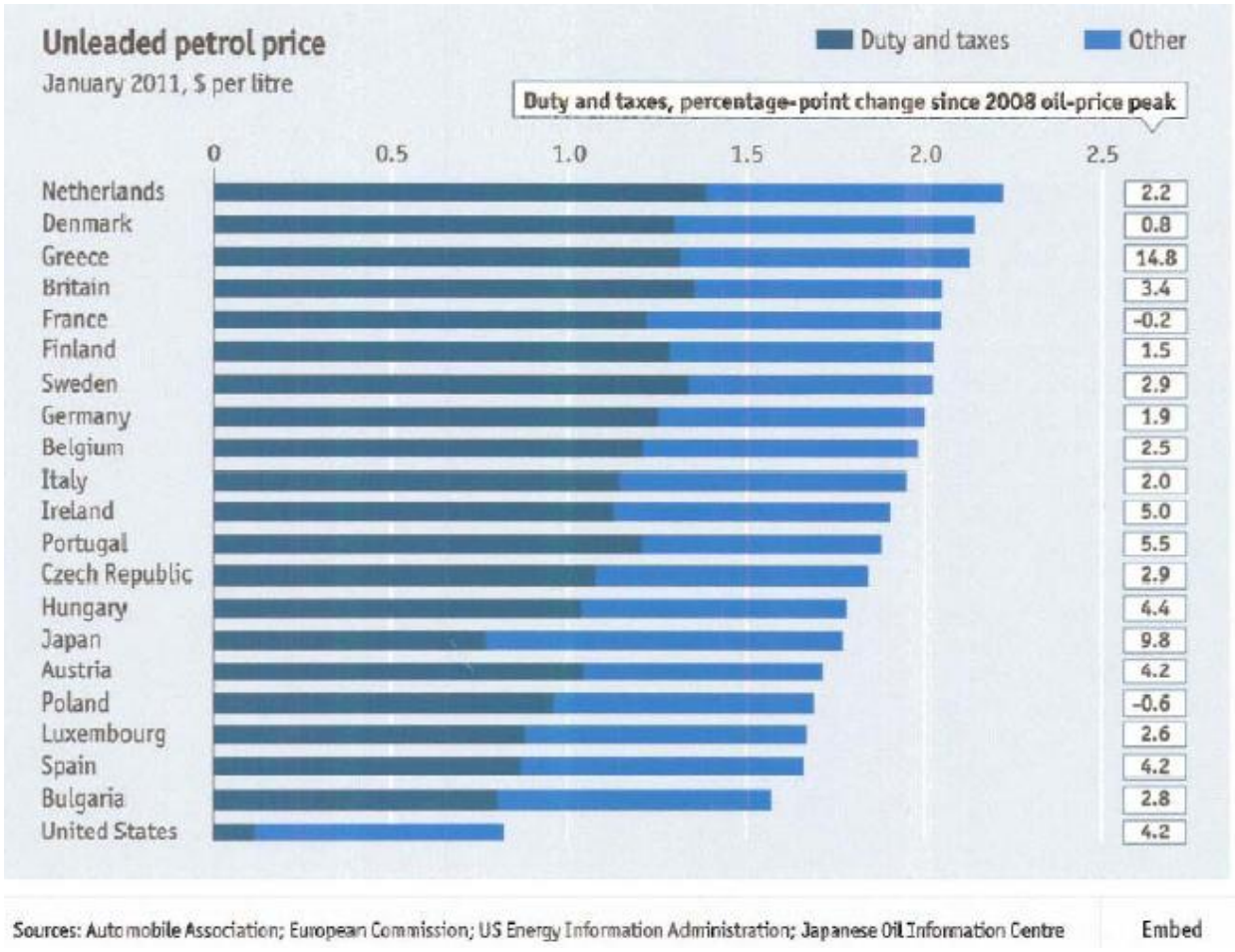
[23] Patrick Le Galles (2010) argues that "Cities are back in town" for both the U.S. and Europe.

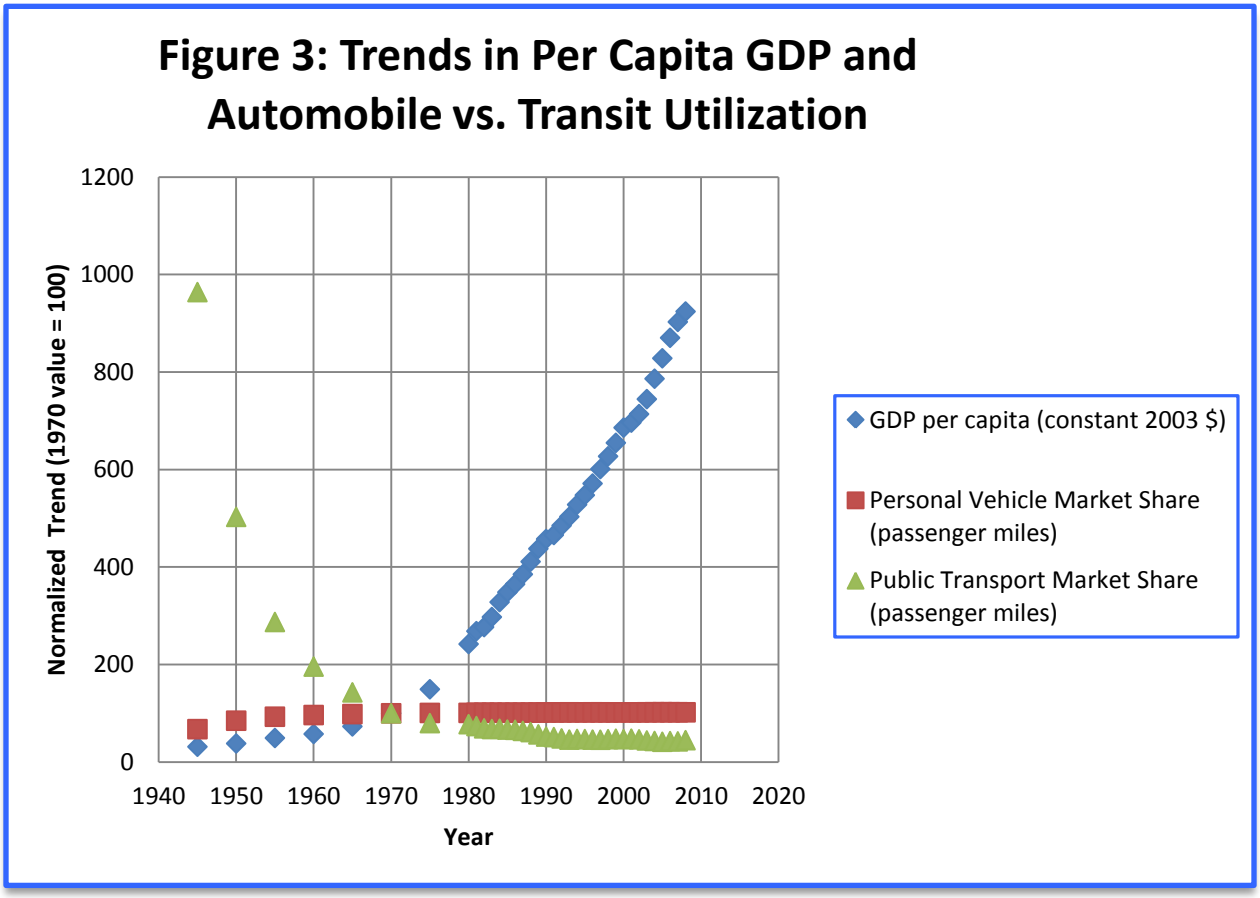
Figure 1:



Source: Demographia.com

Figure 2:


Unleaded petrol price
January 2011, $ per litre
Duty and taxes
Other
Duty and taxes, percentage-point change since 2008 oil-price peak
0
0.5
1.0
1.5
2.0
2.5
Netherlands 2.2
Denmark 0.8
Greece 14.8
Britain 3.4
France -0.2
Finland 1.5
Sweden 2.9
Germany 1.9
Belgium 2.5
Italy 2.0
Ireland 5.0
Portugal 5.5
Czech Republic 2.9
Hungary 4.4
Japan 9.8
Austria 4.2
Poland -0.6
Luxembourg 2.6
Spain 4.2
Bulgaria 2.8
United States 4.2
Sources: Automobile Association; European Commission; US Energy Information Administration; Japanese Oil Information Centre
Embed



Notes: (1) Personal vehicle and public transport market shares from http://www.publicpurpose.com/ut-usptshare45.pdf;

(2) National transit use data may be misleading because the New York City transit system accounts for about one-third of the nation's urban bus riders and about two thirds of the nation's rail transit riders (Winston, 2010)

TABLE 1: Suburbanization around the World

			Population Share		
	Since	Areas	Core	Suburbs	Classification
United States	1950	52	8.4%	91.6%	Urbanized areas over 1,000,000
Canada	1951	4	5.3%	94.7%	Metropolitan areas over 1,000,000
Western Europe	1965	42	-13.0%	113.0%	Metropolitan areas over 1,000,000
Japan	1965	8	7.6%	92.4%	Metropolitan areas over 1,000,000
Australia and New Zealand	1965	6	7.2%	92.8%	Metropolitan areas over 1,000,000
Hong Kong	1965	1	55.5%	44.5%	Metropolitan area
Israel	1965	1	-1.6%	101.6%	Metropolitan areas over 1,000,000
Total		114	5.6%	94.4%	

Source: http://www.demographia.com/db-highmetro.htm.

TABLE 2: Home mortgages and Owner Occupancy in the U.S. and Europe						
Statistical Measures Computed with annual data by Country for the years 1998 to 2008						
	(1)	(2)	(3)	(4)	(5)	(6)
	Mortgage To GDP Ratio	Rate of Owner Occupancy	Coefficient of Covariation Housing Starts	Standard Deviation of House Price	Mortgage Interest Rate Average Level	Mortgage Interest Rate Average
	2008	2008		Inflation		Spread (2)
Western Europe						
Austria	25.3%	57.0%	8.3%	2.6%	5.1%	0.66%
Belgium	39.8%	78.0%	16.3%	4.0%	5.87%	1.37%
Denmark	95.3%	54.0%	40.8%	6.1%	5.96%	1.41%
Finland	47.5%	59.0%	11.0%	3.4%	4.50%	0.05%
France	35.9%	57.4%	16.4%	5.5%	4.93%	0.53%
Germany	46.1%	43.2%	30.1%	0.8%	5.27%	0.97%
Iceland	129.0%	82.5%	56.3%	9.8%	5.01%	0.64%
Ireland	80.0%	74.5%	35.8%	11.5%	4.69%	0.22%
Italy	19.8%	80.0%	47.0%	3.1%	5.25%	0.64%
Luxembourg	43.5%	75.0%	19.2%	4.3%	4.33%	-0.16%
Netherlands	99.1%	57.0%	10.2%	5.5%	5.17%	0.77%
Norway	55.7%	77.0%	21.1%	5.0%	6.54%	1.61%
Portugal	63.3%	76.0%	31.5%	5.4%	5.15%	0.61%
Spain	62.0%%	84.5%	32.5%	2.5%	4.38%	-0.09%
Sweden	60.6%	52.0%	53.9%	5.1%	4.05%	-0.49%
UK	80.5%	59.0%	10.5%	5.0%	5.32%	0.42%
Euro. Average	**61.5%**	**66.6%**	**27.6%**	**5.0%**	**5.10%**	0.57%
US	**83.6%**	**67.8%**	**24.9%**	**5.5%**	**6.57%**	**1.82%**
US Rank	**4th of 17**	**9th of 17**	**9th of 17**	**4th of 17**	**1st of 17**	**1st of 17**

Notes:

(1) Unless noted otherwise, the data are all from European Mortgage Federation (2008), an annual fact book that contains comprehensive mortgage and housing market data for the years1998 to 2008 for the 16 Western European countries and the United States.

(2) The mortgage interest rate spread equals the mortgage interest rate (column 5) relative to the government bond rate of each country derived from the international Financial Statistics of the International Monetary Fund.

Source: Dwight Jaffee (2010)

TABLE 3: U.S. Core City vs Suburban Population Growth, 1950-2000, 38 Largest Urbanized Areas										
POPULATION (000s)	1950			2000						
38 Urbanized Areas	Urbanized Area	Core City	Suburbs	Urbanized Area	Core City	Suburbs	UZA Growth	Core City Growth	Suburban Growth	Suburban Growth Over Core City Growth
New York	12,296	7,892	4,404	17,800	8,008	9,792	45%	1%	122%	121%
Los Angeles	3,997	1,970	2,027	11,789	3,695	8,094	195%	88%	299%	212%
Chicago	4,921	3,621	1,300	8,308	2,896	5,412	69%	-20%	316%	336%
Miami	459	249	210	4,919	362	4,557	972%	45%	2070%	2025%
Philadelphia	2,922	2,072	850	5,149	1,518	3,631	76%	-27%	327%	354%
Boston	2,233	801	1,432	4,032	589	3,443	81%	-26%	140%	167%
Washington	1,287	802	485	3,934	572	3,362	206%	-29%	593%	622%
Atlanta	507	331	176	3,500	416	3,084	590%	26%	1652%	1627%
Detroit	2,752	1,850	902	3,903	951	2,952	42%	-49%	227%	276%
Dallas-Fort Worth	855	713	142	4,146	1,724	2,422	385%	142%	1606%	1464%
Seattle	790	612	178	2,712	563	2,149	243%	-8%	1107%	1115%
San Francisco-Oakland	2,022	1,160	862	3,228	1,176	2,052	60%	1%	138%	137%
Houston	701	596	105	3,822	1,954	1,868	445%	228%	1679%	1451%
St. Louis	1,401	857	544	2,077	348	1,729	48%	-59%	218%	277%
Minneapolis-St. Paul	987	833	154	2,389	670	1,719	142%	-20%	1016%	1036%
Phoenix	216	106	110	2,907	1,321	1,586	1246%	1146%	1342%	196%
Tampa-St. Petersburg	408	319	89	2,062	541	1,521	405%	70%	1609%	1539%
San Diego	433	334	99	2,674	1,223	1,451	518%	266%	1366%	1099%
Denver	499	416	83	1,984	555	1,429	298%	33%	1622%	1588%
Baltimore	1,162	950	212	2,076	651	1,425	79%	-31%	572%	604%
Pittsburgh	1,533	677	856	1,753	335	1,418	14%	-51%	66%	116%
Cleveland	1,384	915	469	1,787	478	1309	29%	-48%	179%	227%
Cincinnati	813	504	309	1,503	331	1,172	85%	-34%	279%	314%
Norfolk	385	294	91	1,394	234	1,160	262%	-20%	1175%	1195%

Riverside-San Bernardino	136	63	73	1,507	441	1,066	1008%	600%	1360%	760%
Portland	513	374	139	1,583	529	1,054	209%	41%	658%	617%
Providence	583	249	334	1,175	174	1,001	102%	-30%	200%	230%
Sacramento	212	138	74	1,393	407	986	557%	195%	1232%	1038%
Orlando	73	52	21	1,157	186	971	1485%	258%	4524%	4266%
Kansas City	698	457	241	1,362	442	920	95%	-3%	282%	285%
Las Vegas	639	476	163	1,314	478	836	106%	0%	413%	412%
Milwaukee	829	637	192	1,309	597	712	58%	-6%	271%	277%
Buffalo	895	580	315	977	293	684	9%	-49%	117%	167%
San Jose	176	95	81	1,538	894	644	774%	841%	695%	-146%
New Orleans	660	570	90	1,009	485	524	53%	-15%	482%	497%
Indianapolis	502	427	75	1,219	782	437	143%	83%	483%	400%
Columbus	438	375	63	1,133	711	422	159%	90%	570%	480%
San Antonio	450	408	42	1,327	1,145	182	195%	181%	333%	153%
Total	**51767**	**33775**	**17992**	**117851**	**38675**	**79176**	**128%**	**15%**	**340%**	**326%**

Source: Demographia.com

Table 4a: Population by Historical Core City Classification, 2000-2010											
	POPULATION		Municipality Area (Sq.Mi)			Comparison				
CLASSIFICATION OF HISTORICAL CORE CITY*	**2000**	**2010**	**Density: Population per Square Mile**	**Change: 2000-2010**	**% Change: 2000-2010**	1940 Area	2010 Area	Change	1950 Urban Area Land Area	2010 City Area Compared to 1950 Urban Area
1. Pre-War & Non-Suburban	19,331,511	18,907,845	11,885	(423,666)	-2.2%	1,546	1,591	2.9%	5,259	0.30
2.Pre-War & Suburban	19,449,338	20,969,224	2,929	1,519,886	7.8%	1,674	7,159	327.7%	3,594	1.99
3.Post War & Suburban	3,998,429	4,617,836	3,672	619,407	15.5%	116	1,258	984.9%	274	4.59
Total Historical Core Cities	42,779,278	44,494,905	4,446	1,715,627	4.0%	3,336	10,008	200.0%	9,127	1.10
53 core cities: cores of 51 metropolitan areas with more than one-million population in 2010 plus two; Oakland is a second core of San Francisco metropolitan area;										
St. Paul is second core of Minneapolis metropolitan area										

*Classification of Historical Cores

Nature of Historical Core Municipality: Classification based upon 2010 City Limits	Large Urban Core in 1940?	2010 City Limits
Pre-War & Non-Suburban	Yes	Is pre-war core; nearly all included land area was developed by 1940. Little development that is post-war suburban in character. Little or no change in boundaries since 1940.
Pre-War & Suburban	Yes	Includes pre-war core, however contains substantial development that is post-war suburban in character (2010 boundaries contain substantial areas that were greenfield in 1940)
Post War & Suburban	No	Has smaller pre-war core: less than 100,000 population in 1940 and nearly all development is post-war suburban in character.

The historical core municipality is the municipality with the largest 1940 population in the present metropolitan area (metropolitan statistical area).

There can be more than one historical core municipality in a metropolitan area, with the exception below.

There can be a second historical core municipality if (1) it is adjacent to a historical core municipality classified as "Pre-War & Non-Suburban," (2) had a 1940 population at least 25 percent of the first historical core municipality and (3) a population density of at least 5,000 per square mile.

Multiple municipality names listed in some other metropolitan areas for reference purposes.

Table 4b: Historical Core City Population by Classification, 2000-2010											
		POPULATION					*Municipality Area (Sq.Mi)*			*Comparison*	
HISTORICAL CORE CITY	**METROPOLITAN AREA**	2000	2010	Density: Population per Square Mile	Change: 2000-2010	% Change: 2000-2010	*1940 Area*	*2010 Area*	*Change*	*1950 Urban Area Land Area*	2010 City Area Compared to 1950 Urban Area
1: Pre-War & Non-Suburban											
Baltimore	Baltimore, MD		620,961	7,666	(30,193)	-4.6%	81	81	0.0%	152	0.53
Boston	Boston, MA-NH	651,154	617,594	12,760	28,453	4.8%	46	48	5.0%	345	0.14
Buffalo	Buffalo, NY	589,141	261,310	6,436	(31,338)	-10.7%	39	41	3.0%	123	0.33
Chicago	Chicago, IL-IN-WI	292,648	2,695,598	11,870	(200,418)	-6.9%	207	227	9.9%	708	0.32
Cincinnati	Cincinnati, OH-KY-IN	2,896,016	296,943	3,807	(34,342)	-10.4%	72	78	7.7%	146	0.53
Cleveland	Cleveland, OH	331,285	396,815	5,114	(81,588)	-17.1%	73	78	6.2%	300	0.26
Detroit	Detroit, MI	478,403	713,777	5,142	(237,493)	-25.0%	138	139	0.7%	423	0.33
Hartford	Hartford, CT	951,270	124,775	7,212	3,197	2.6%	17	17	-0.6%	53	0.33
Minneapolis	Minneapolis-St. Paul, MN-WI	121,578	382,578	6,969	(40)	0.0%	54	55	2.0%	231	0.47
New York	New York, NY-NJ-PA	382,618	8,175,133	26,981	166,855	2.1%	303	303	0.0%	1,253	0.24
Oakland	San Francisco-Oakland, CA	8,008,278	390,724	6,965	(8,760)	-2.2%	53	56	6.3%	287	0.20
Philadelphia	Philadelphia, PA-NJ-DE-MD	399,484	1,526,006	11,304	8,456	0.6%	135	135	0.0%	312	0.43
Pittsburgh	Pittsburgh, PA	1,517,550	305,704	5,498	(28,859)	-8.6%	52	56	6.7%	312	0.18

Providence	Providence, RI-MA	334,563	178,042	9,624	4,424	2.5%	18	19	3.4%	143	0.13
Rochester	Rochester, NY	173,618	210,565	5,882	(9,208)	-4.2%	35	36	2.9%	65	0.55
San Francisco	San Francisco-Oakland, CA	219,773	805,235	17,133	28,502	3.7%	47	47	0.0%	287	0.36
St. Louis	St. Louis,, MO-IL	776,733	319,294	5,150	(28,895)	-8.3%	62	62	0.0%	228	0.27
St. Paul	Minneapolis-St. Paul, MN-WI	348,189	285,068	5,399	(2,083)	-0.7%	52	53	1.1%	231	0.23
Washington	Washington, DC-VA-MD-WV	287,151	601,723	9,800	29,664	5.2%	61	61	0.0%	178	0.34
SUBTOTAL		572,059	18,907,845	11,885	(423,666)	-2.2%	1,546	1,591	2.9%	5,259	0.32
		19,331,511									
2: Pre-War & Suburban											
Atlanta	Atlanta, GA		420,003	3,187	3,529	0.8%	35	132	279.8%	106	1.24
Birmingham	Birmingham, AL	416,474	212,237	1,416	(30,583)	-12.6%	50	150	198.6%	101	1.48
Charlotte	Charlotte, NC-SC	242,820	731,424	2,454	190,596	35.2%	19	298	1444.0%	35	8.51
Columbus	Columbus, OH	540,828	787,033	3,742	75,563	10.6%	39	210	439.2%	65	3.24
Dallas	Dallas-Fort Worth, TX	711,470	1,197,816	3,496	9,236	0.8%	41	343	743.8%	143	2.40
Denver	Denver, CO	1,188,580	600,158	3,912	45,522	8.2%	58	153	164.9%	270	0.57
Houston	Houston, TX	554,636	2,099,451	3,626	145,820	7.5%	73	579	695.3%	105	5.51
Indianapolis	Indianapolis. IN	1,953,631	820,445	2,273	38,575	4.9%	54	361	571.0%	91	3.97
Jacksonville	Jacksonville, FL				86,167	11.7%		747	2373.5%		14.65

		781,870	821,784	1,100			30			51	
Kansas City	Kansas City, MO-KS	735,617	459,787	1,466	18,242	4.1%	19	314	1533.3%	149	2.10
Los Angeles	Los Angeles, CA	441,545	3,792,621	8,085	97,801	2.6%	448	469	4.6%	871	0.54
Louisville	Louisville, KY-IN	3,694,820	597,337	1,838	341,106	133.1 %	38	325	757.5%	67	4.85
Memphis	Memphis, TN-MS-AR	256,231	646,889	2,140	(3,211)	-0.5%	46	302	562.9%	110	2.75
Miami	Miami, FL	650,100	399,457	11,189	36,987	10.2%	30	36	17.8%	117	0.31
Milwaukee	Milwaukee, WI	362,470	594,833	6,190	(2,141)	-0.4%	43	96	121.4%	102	0.94
Nashville	Nashville, TN	596,974	601,222	1,270	55,698	10.2%	22	473	2051.4%	54	8.76
New Orleans	New Orleans. LA	545,524	343,829	1,900	(140,845)	-29.1%	181	181	0.0%	222	0.82
Norfolk	Virginia Beach-Norfolk, VA-NC	484,674	242,803	4,521	8,400	3.6%	28	54	90.4%	62	0.87
Oklahoma City	Oklahoma City, OK	234,403	579,999	956	73,867	14.6%	50	607	1118.9%	67	9.06
Portland	Portland, OR-WA	506,132	583,776	4,347	54,655	10.3%	64	134	111.5%	114	1.18
Richmond	Richmond, VA	529,121	204,214	3,398	6,424	3.2%	21	60	180.8%	48	1.25
Salt Lake City	Salt Lake City, UT	197,790	186,440	1,709	4,697	2.6%	53	109	107.8%	76	1.44
Sacramento	Sacramento, CA	181,743	466,488	4,765	59,470	14.6%	14	98	614.6%	42	2.33
San Antonio	San Antonio, TX	407,018	1,327,407	3,257	182,761	16.0%	36	408	1041.7%	90	4.53
San Diego	San Diego, CA	1,144,646	1,307,402	4,030	84,002	6.9%	95	324	240.8%	133	2.44
Seattle	Seattle, WA				45,286	8.0%			22.5%		0.68

		1,223,400	608,660	7,255			69	84		123	
Tampa	Tampa-St. Petersburg, FL	563,374	335,709	2,995	32,262	10.6%	19	112	490.0%	180	0.62
SUBTOTAL		303,447	20,969,224	2,929	1,519,886	7.8%	1,674	7,159	327.7%	3,594	3.22
		19,449,338									
3. Post-War & Suburban											
Austin	Austin, TX		790,390	3,143	133,828	20.4%	26	252	856.3%		
Las Vegas	Las Vegas, NV	656,562	583,756	4,449	105,322	22.0%	22	131	489.0%		
Orlando	Orlando, FL	478,434	238,300	2,124	52,349	28.2%	13	112	796.9%		
Phoenix	Phoenix, AZ	185,951	1,445,632	2,796	124,587	9.4%	10	517	5229.9%		
Raleigh	Raleigh, NC	1,321,045	403,892	2,828	127,799	46.3%	11	143	1159.9%		
San Bernardino	Riverside-San Bernardino, CA	276,093	209,924	3,546	24,523	13.2%	19	59	211.6%		
San Jose	San Jose, CA	185,401	945,942	5,408	50,999	5.7%	15	175	1081.8%		
SUBTOTAL		894,943	4,617,836	3,672	619,407	15.5%	116	1,258	984.9%		
		3,998,429									
TOTAL		42,779,278	44,494,905	4,446	1,715,627	4.0%	3,336	10,008	200.0%		
NOTES											
Data from US Bureau of the Census											
Large Louisville population 2000-2010 increase due to a municipal-county consolidation											
Las Vegas 1950 urban land area: Assumed to be the city limits of Las Vegas (Las Vegas was not an urban area in 1950)											
2000 to 2010 population includes population growth due to annexations											

TABLE 5a: Population data for cities and surrounding metro areas (LUZs, large urban zones)						
	CITY			*LUZ*		
	1996	*2004*	*1996-2004 CHANGE*	*1996*	*2004*	*1996-2004 CHANGE*
BERLIN	3458760	3387828	-2.05%	4906861	4971331	1.31%
BRUSSELS	948122	999899	5.46%	1714905	1800663	5.00%
COPENHAGEN	476751	501664	5.23%	1752078	1822569	4.02%
EDINBURGH	444910	453700	1.98%	760940	787700	3.52%
FRANKFURT	647304	646889	-0.06%	2465195	2517561	2.12%
GLASGOW	598840	577700	-3.53%	1781380	1747100	-1.92%
HAMBURG	1707990	1734830	1.57%	3020995	3134620	3.76%
HELSINKI	525031	559716	6.61%	1120593	1224107	9.24%
LISBON	619704	529485	-14.56%	2333763	2435837	4.37%
LIVERPOOL	458300	444500	-3.01%	1395800	1365900	-2.14%
LONDON	6901300	7429200	7.65%	11256000	11917000	5.87%
MADRID	2866850	3099834	8.13%	5091336	5804829	14.01%
MANCHESTER	406400	437000	7.53%	2514000	2539100	1.00%
MUNICH	1225810	1249176	1.91%	2399898	2531706	5.49%
PRAGUE	1204953	1170571	-2.85%	1958368	1964750	0.33%
STOCKHOLM	711119	761721	7.12%	1725756	1860872	7.83%
ZURICH	360826	364528	1.03%	1032177	1110478	7.59%
Source: Urban Audit (http://www.urbanaudit.org/)						

TABLE 5b: Patterns of growth and sprawl across European cities (selected cities from Couch, et. al, , 2007, p. 65)								
	Total resident pop 1991		Total resident pop 2001		City pop as % of LUZ pop	City pop as % of LUZ pop	Pop change	Change in % of LUZ pop in the core city
CITY					1991	2001	1991-2001	1991-2001
	City	LUZ	City	LUZ	%	%	%	%
Birmingham	1004500	2374300	977087	2335652	42.3	41.8	-1.63	-0.5
Liverpool	475600	1438000	439476	1362004	33.1	32.3	-5.28	-0.8
Dublin	478389	1341661	495781	1535496	35.7	32.3	14.4	-3.4
Copenhagen	464773	1718805	499148	1806667	27	27.6	5.1	0.6
Stockholm	674452	1641669	750348	1832210	41.1	41.2	11.1	0.1
Berlin	3465748	4866047	3388434	4935524	71.2	68.7	1.4	-2.5
Vienna	1539848	2062969	1550123	1823210	74.6	73.1	2.8	-1.5
Athens	772072	3072922	789166	3894573	25.1	20.3	26.7	-4.8
Rome	2775250	3761067	2546804	3700424	73.8	68.8	-1.6	-5
Lisbon	663394	2266202	564657	2363470	29.3	23.9	4.3	-5.4
Brussels	950045	1687200	973565	1750328	56.3	55.6	3.7	-0.7
Amsterdam	702444	1232488	734594	1320137	57	55.6	7.1	-1.4

TABLE 6: Suburbanization Trends in Major Scandinavian Cities, 1971-2001

		1971	1981	1991	2001
COPENHAGEN	Region	1759358	1739860	1713736	1806667
	City	625678	493771	464773	476281
	City share	35.60%	28.40%	27.10%	27.60%
HELSINKI	Region	847898	938504	1044465	1200568
	City	522235	482833	492487	555474
	City share	61.50%	51.40%	47.10%	46.30%
OSLO	Region	793783	821216	879758	980714
	City	481548	452023	461644	508726
	City share	60.1%	55%	52.5%	51.9%
STOCKHOLM	Region	1345774	1386980	1491726	1643255
	City	744912	647214	674452	750348
	City share	55.3%	46.7%	45.2%	45.7%

Source: www.usk.stockholm.se/internet/pub/stat_utg/nordtab2.pdf

TABLE 7: Commuting times, largest urbanized areas, by mode and place of residence

		Urbanized Area			Principal City(ies)			Outside Principal City(ies)		
URBANIZED AREA	Total Population (2007)	Total	Car, Truck, or Van	Public Transit	Total	Car, Truck, or Van	Public Transit	Total	Car, Truck, or Van	Public Transit
NEW YORK-NEWARK, NY-NJ-PA	18,192,356	33.1	27.9	51.0	37.6	31.7	48.5	29.4	26.7	59.8
LOS ANGELES-LONG BEACH-SANTA ANA, CA	12,170,434	27.0	27.3	47.0	27.7	27.5	46.3	26.6	27.2	48.4
CHICAGO, IL-IN-WI	8,436,753	29.7	28.7	49.5	32.8	31.7	44.4	28.4	27.7	58.9
MIAMI, FL	5,243,922	27.1	27.6	47.0	27.9	27.1	43.8	27.1	27.6	47.9
PHILADELPHIA, PA-NJ-DE-MD	5,187,101	26.8	26.2	46.9	30.6	28.1	45.1	25.7	25.8	49.7
DALLAS- FORTWORTH-ARLINGTON, TX	8,436,753	24.7	25.3	48.5	24.4	24.6	49.0	25.1	25.9	47.6
HOUSTON, TX	4,299,865	26.9	27.3	49.5	25.5	25.4	49.1	28.1	28.8	51.0
WASHINGTON, DC-VA-MD-WV	4,170,722	30.9	30.2	45.5	28.0	26.6	37.5	31.4	30.5	48.9
BOSTON, MA-NH	4,078,563	27.3	26.9	43.8	28.3	27.1	38.5	27.1	26.8	47.1
ATLANTA, GA	4,030,041	29.0	29.5	52.5	24.8	22.9	48.2	29.5	30.1	54.6
DETROIT, MI	3,865,146	24.5	24.9	53.0	25.5	24.1	55.2	24.3	25.0	47.7
PHOENIX-MESA AZ	3,224,405	24.4	25.0	45.2	25.0	25.3	44.8	23.6	24.6	46.3
SAN FRANCISCO-OAKLAND, CA	3,194,665	26.1	25.4	41.3	26.7	26.2	37.6	25.8	25.1	47.6
SEATTLE, WA	2,864,058	25.6	25.8	43.1	23.2	22.7	35.1	26.3	26.5	50.3
SAN DIEGO, CA	2,742,048	23.2	24.1	50.4	21.6	22.1	48.5	24.7	25.8	52.9
MINNEAPOLIS, ST. PAUL, MN-WI	2,431,421	21.7	22.0	37.5	20.6	20.2	35.2	22.0	22.5	40.5
TAMPA-ST. PETERSBURG, FL	2,200,242	23.6	24.7	39.0	21.9	22.4	41.4	24.3	25.4	36.9
BALTIMORE, MD	2,131,119	27.1	26.5	51.8	27.8	24.7	47.8	26.9	26.9	59.0
ST. LOUIS, MO-IL	2,105,838	22.7	22.9	43.8	23.1	21.4	46.9	22.6	23.1	40.9
DENVER-AURORA, CO	2,064,871	24.1	24.5	43.7	23.8	24.1	40.6	24.2	24.8	47.3
TOTAL ALL UZAs > 500,000	146,371,987	25.9	25.2	48.1	26.3	24.2	45.6	25.7	25.6	52.5

Source: Calculations by Thomas A. Rubin from American Community Survey data, 2005-2007

TABLE 8: Commute Times, U.S. Census and American Community Survey (minutes, one-way, all modes)										
	Census		**ACS**					% Change		
	1990	2000	2005	2006	2007	2008	2009	'90-'00	'00-'09	'05-'09
US	22.4	25.5	25.1	25.0	25.3	25.5	25.1	13.8%	-1.6%	0.0%
In metropolitan										
In metropolitan statistical area		26.1	25.7	25.6	25.9	26	25.7		-1.5%	0.0%
In principal city**		24.8	24.4	24.2	24.6	24.6	24.2		-2.4%	-0.8%
Not in principal city		26.9	26.5	26.4	26.8	26.9	26.7		-0.7%	0.8%
* For 1990 & 2000 Census, metropolitan areas only										

** For 1990 & 2000 Census, central city

New Note: The "principal cities" definition, adopted in the 2000s, is substantially different from the former "central city" definition. Principal cities must meet population and employment thresholds and may be located anywhere in the metropolitan area (including outside the urban agglomeration). There also may be many principal cities. For example, the Los Angeles metropolitan area officially has 25. Thus, in many cases, there is no comparability between the former "central cities" and "principal cities." Our work in Tables 4 is designed to address this problem.

TABLE 9a: Mean Commute Times (minutes, one-way, all modes), 2001 and 2009						
	Urban	Suburban	Second City	Town and Country	All Metro	
2001	**28**	**24**	**21**	**24**	**24**	
Population*	39757	61105	43140	60757	204050	253131
Prop of US Pop	15.7%	24.1%	17.0%	24.0%	80.6%	
2009	**28**	**24**	**22**	**25**	**25**	
Population*	49563	69223	45322	65532	229639	283017
Prop of US Pop	17.5%	24.5%	16.0%	23.2%	81.1%	
Source: Author calculations from 2001 and 2009 NHTS						
Note: NHTS defines an "urban continuum" from "urban" to "suburban" to "second city" to "town and country" * Excludes ages 0-4						

TABLE 9b: Mean Nonwork Travel Times (minutes, one-way, all modes), 2001 and 2009						
	Urban	Suburban	Second City	Town and Country	All Metro	
2001	**19**	**17**	**17**	**18**	**18**	
Population*	39757	61105	43140	60757	204050	253131
Prop of US Population	15.7%	24.1%	17.0%	24.0%	80.6%	
2009	**19**	**17**	**17**	**18**	**18**	
Population*	49563	69223	45322	65532	229639	283017
Prop of US Population	17.5%	24.5%	16.0%	23.2%	81.1%	
Source: Author calculations from 2001 and 2009 NHTS						
Note: NHTS defines an "urban continuum" from "urban" to "suburban" to "second city" to "town and country"						

TABLE 10: Average Work Trip Travel Time
One-way
United States and Europe

Metropolitan Population	United States 2007	Europe (Latest)	# of Cases: United States	# of Cases: Europe
>5,000,00	28.8	32.0	9	4
2,500,00 - 5,000,00	25.9	27.1	10	9
1,000,000 -2,500,000	23.3	27.2	32	33
5,000,00 -1,000,000	22.4	23.7	48	46
Overall	23.6	25.6	99	92

In minutes, all reporting metropolitan areas
Data from Eurostat and US American Community Survey
Over 5 million population average: US 8.3M, Europe 8.5M

Source: http://www.deomgraphia.com

TABLE 11: Mean journey-to-work travel times, western European cities and their metropolitan areas, 2001

CITY 2001 Entity Name	Average time of journey to work (minutes)
Brussels	33
Edinburgh	30
Glasgow	31
Liverpool	29
London	43
Manchester	34
Milan	27
Napoli	27
Rome	32
Zurich	25
Unwtd average	31
LUZ 2001 Entity Name	Average time of journey to work (minutes)
Brussels	30
Edinburgh	28
Glasgow	26
Liverpool	24
London	37
Manchester	26
Milan	27
Napoli	25
Rome	32
Zurich	25
Unwtd average	28

Source: Eurostat

TABLE 12a: Mode use comparisons -- Passenger transport proportions, billions passenger-kilometers, 2007

	Rail	RAIL	Buses and Coaches	BUSES AND COACHES	Private cars	PRIVATE CARS	Total road transport	Total Passenger Miles
Belgium	9.9	7.2%	18.1	13.2%	109.9	79.9%	128	137.6
Denmark	6	7.8%	7.5	9.7%	63.9	82.6%	71.4	77.4
Finland	3.8	5.1%	7.5	10.0%	63.8	85.0%	71.3	75.1
France	80.3	9.4%	47.1	5.5%	727.8	85.1%	774.9	855.2
Germany	79.1	7.8%	66.2	6.5%	869	85.7%	935.2	1014.2
Greece	1.9	4.3%	6.1	13.8%	36.2	82.1%	42.3	44.1
Italy	49.8	5.7%	104.1	11.9%	720.2	82.4%	824.3	874.1
Netherlands	16.3	9.1%	15.6	8.7%	148.8	83.1%	163.6	179
Norway	3.4	5.4%	5.9	9.4%	53.1	85.0%	59.1	62.5
Portugal	4	4.0%	10.6	10.5%	86.6	85.7%	97.2	101.1
Spain	21.9	5.2%	59.2	14.0%	343.3	80.9%	402.5	424.3
Sweden	10.4	8.8%	8.5	7.2%	99.6	84.1%	108.1	118.5
Switzerland	16.2	14.7%	5.3	4.8%	88.2	80.3%	93.8	109.9
United Kingdom	48.4	6.1%	49.8	6.3%	690	87.5%	739.8	788.2
United States	9.3	0.2%	238.6	5.3%	4278.6	94.5%	4517.3	4526

Sources: *OECD in Figures, 2009*, p 20-22.

Table 12b: Aggregate mode use comparisons – passenger-kilometer proportions

	AUTO	2-WHEEL	BUS & COACH	RAILWAY	LIGHT RAIL & COMMUTER RAIL	TRAM & METRO	AIR	SEA	TOTAL
EU27	**4,725**	**155**	**547**	**409**		*89*	561	41	6,527
USA	**7201.8**	**29.6**	**243**	37.1	*21.1*		939.1		8,472
MODE %									
EU27	72.4%	2.4%	8.4%	6.3%		1.4%	8.6%	0.6%	100.0%
USA	85.0%	0.3%	2.9%	0.4%	0.2%		11.1%		100.0%

http://ec.europa.eu/energ/publications/statistics/doc/2010_energy_transport_figures.pdf

LEGEND

URBAN

INTERCITY

BOTH

TABLE 13: Share Journeys to Work by Car, Western European Countries, Major Core Cities and Major Metropolitan Areas with Data Available for More than One Year

		2003-06	1999-02	1994-98	1989-93
Country					
Denmark		55.7	51.2		
Germany		68.1	67		
Ireland		63.3	67	57	
Spain		56	57.3		
Sweden		62	63.1		
Switzerland			53.9		47.9
Core City					
Copenhagen		26.3	35	42	
Berlin		44.3	46.7	46.8	39
Hamburg		50.8	50.9	50.9	49.6
Munich		41	43.6	40.8	39.9
Cologne		55.2	54.2	58.5	55.9
Frankfurt		42.7	45.3	45.8	41.4
Dublin		40.2	43	39	
Madrid		47.3	34.7		
Barcelona		31.5	28.3	33.9	30.5
Rome			56.7		55.8
Milan			45.6		41.7
Vienna			41.1		41.4
Lisbon			39.3		23.4
Stockholm		33	38		28.6
Zurich			23.7		24.7
Geneva			32.6		33.8
Metropolitan Area					
Copenhagen			52	60	
Berlin		52.6	53.5	51.4	38.8
Hamburg		60.5	59.9	61.3	59
Munich		63.4	55.1	52	50.5
Cologne		63.5	64	65.6	64.4
Frankfurt		64.1	64.5	63.6	60.9
Dublin		57.5	60	53	
Madrid		54.4	42.8		
Barcelona		71.6	46.7		
Lisbon			42		20.9
Stockholm		48	46		
Zurich			45.4		43.2
Geneva			50.1		48.2

Source: Eurostat

REFERENCES

Bruegmann, Robert (2005) *Spawl: A Compact History*. Chicago: University of Chicago Press.

Buehler, Ralph (2009) "Determinants of Automobile Use: Comparison of Germany and the U.S." *Transportation Research Record*, No. 2139, p. 161-171.

Carlino, Gerald A. (2000) "From Centralization To Deconcentration: People and Jobs Spread Out" *Federal Reserve Bank of Philadelphia Business Review* (November/December).

Cervero, Robert (1996) "Jobs-Housing Balance Revisited: Trends and Impacts in the San Francisco Bay Area" *Journal of the American Planning Association* 62(4), p 492-511.

Cheshire, Paul C. (2006) "Resurgent Cities, Urban Myths and Policy Hubris: What We Need to Know" *Urban Studies*, 23(8), 1232-1246.

Couch, Chris and Lila Leontidou and Gerhard Petschel-Held (2007) *Urban Sprawl in Europe: Landscapes, Land-Use Change and Policy*. Oxford: Blackwell.

Dargay, Joyce and Dermot Gately and Martin Sommer (2007) *Vehicle Ownership and Income Growth: 1960-2030*.

Duranton, G. (2007), "Urban evolutions: The fast, the slow, and the still", *American Economic Review* 97 (1):197-221

Duranton, Gilles and Matthew A. Turner (2011) "The Fundamental Law of Road Congestion: Evidence from U.S. Cities" *American Economic Review*.

European Environment Agency (2006) *Urban sprawl in Europe: The ignored challenge*. Brussels: EEA Report No. 10/2006

Faludi, Andreas (2008) *European Spatial Research and Planning*. Cambridge, MA: Lincoln Institute of Land Policy.

Le Gales Patrick (2010) "Cities are back in town: the US/Europe comparison" Cahier Europeen numero 05/06 du Pole Ville/metropolis/cosmopolis, Centre d'Etudes Europeennes de Sciences Po (Paris)

Gerondeau, Christian (1997) *Transport in Europe* Boston: Artech House, Inc.

Giuliano, Genevieve and Dhiraj Narayan (2003) "Another Look at Travel Patterns and Urban Form: The US and Great Britain" *Urban Studies*, 40:11, 295-2312

Glaeser, Edward L. (2011) *Triumph of the City* New York: The Penguin Press.

Glaeser Edward L. , Matthew Kahn, and Chenghuan Chu (2001) "Job Sprawl: Employment Location in U.S. Metropolitan Areas". Washington, DC: The Brookings Institution.

Gordon, Peter and Bumsoo Lee (2003) “Settlement Patterns in the U.S. and Canada: Similarities and Differences – Policies or Preferences?” Keynote address at 26th Australasian Transport Research Forum, Wellington, NZ.

Hartgen, David T. and M. Gregory Fields (2009) “Gridlock and Growth: The Effect of Traffic Congestion on Regional Economic Performance” Reason Foundation Policy Study 371.

Jaffee, Dwight M. (2010) “ Reforming the U.S. Mortgage Market Through Private Market Incentives” presented at the Federal Reserve Bank of St Louis, Now. 17, 2010.

Kasanko, Marjo and Jose I. Barredo, Carlo Lavalle, Valentina Sagris, Elisabetta Genovese (2005) “Towards urban un-sustainability in Europe? An indicator-based analysis” presented at the 45th Congress of the European Regional Science Association, Amsterdam, August 23-27. A later but similar version appeared in *Landscape and Urban Planning* (2007).

Koster, Hans R.A. and Jan Rouwendal (2010) “The Impact of Mixed Land Use on Residential Property Values” Tinbergen Institute Discussion paper TI 2010-105/3, VU University Amsterdam and Tinbergen Institute.Levine, Jonathan (2005) *Zoned Out: Regulation, Markets and Choices in Transportation and Metropolitan Land Use*. Washington, DC: Resources for the Future Press.

Nechyba, Thomas J. and Randall P. Walsh (2004) “Urban Sprawl” *Journal of Economic Perspectives*, 18:4, 177-200.

Nivola, Pietro S. (1999) *Laws of the Landscape: How Policies Shape Cities in Europe and America*. Washington, DC: The Brookings Institution.

Pendall, Rolf and Robert Puentes and Jonathan Martin (2006) “From Traditional to Reformed: A Review of Land Use in the Nation’s 50 Largest Metropolitan Areas.” Washington, DC: Brookings Institution.

Prud’homme, Remy and Chang-Woon Lee (1998) “Size, Sprawl, Speed and the Efficiency of Cities” Observatoire, del’Economie et des Institutions Locales, Universite de Paris.

Pucher, John and Ralph Buehler and Mark Seinen (2011) “Bicycling renaissance in North America? An update and re-appraisal of cycling trends and policies” *Transportation Research A,* 45, 451-475.

Richardson, H.W. and Bae, C. (2004) *Urban Sprawl in Western Europe and the United States*. Aldershot, UK: Ashgate.

Ruger, William P. and Jason Sorens (2009) *Freedom in the 50 States: An Index of Personal and Economic Freedom*, George Mason University: Mercatus Center.

Transportation Research Board (2001) *Making Transit Work: Insight from Western Europe, Canada and the U.S.* Special Report 257. Washington, DC: National Research Council.