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The Role of Economic Theory in Regional Advocacy

Joyce N. Levine

Regionalism is now being explored by a wide variety of communities. One of the most hotly debated assertions of the 1990s was that regional unity, however defined, leads to higher levels of economic growth. Yet despite this faith in the power of regionalism, the beneficial economic effects of regional planning remain elusive. This review presents and integrates three bodies of literature related to the proposed link between metropolitan unity, as expressed through planning, and economic outcomes.

CONVERGENCE OVER TIME:
REGIONALISM AND ECONOMIC THEORY

Starting in the late 1970s, the U.S. economy underwent nearly two decades of wrenching change that caused widespread economic malaise: ahistorically high unemployment rates; stagnant productivity; high inflation rates; sluggish wage increases or, in some cases, actual declines; and a general worry that America was falling behind the rest of the world in production, ingenuity, and wealth. By the close of the century, however, the United States had regained much of its prosperity. Inflation and interest rates were low, the labor market was tight, and the nation was again accumulating record wealth.

However, only within the past few years have some of the less noticeable economic changes become apparent. For urban planners, perhaps the most salient of these changes has involved scale. Macroeconomics has been both expanding globally and shrinking below the level of the nation-state, and both trends have very real

significance at the metropolitan level. This article pulls together and links three bodies of literature on somewhat disparate but ultimately closely related topics, with the goal of showing how the role of the supraurban region has evolved, particularly with respect to economic theory and development.

The first of the three bodies of literature is a historical look at discussions of metropolitanism, including such good-government ("reform") recommendations as those made by Charles Merriam in the 1930s and the U.S. Advisory Commission on Intergovernmental Relations in the 1960s and 1970s. The authors included in this section have argued that the urban region or metropolitan area is the appropriate arena for dealing with a variety of contemporary problems, including equity, race, taxation, education, and economic development.

Beginning in the late 1970s, however, a gap opened in this traditional line of regional thought. Primarily because of California's Proposition 13, Reaganomics, and associated program and budgetary cuts, "big government" solutions fell out of favor and many regional agencies instigated or enlarged by federal incentives retrenched. Promotion of coordination and consolidation gave way to promotion of competition and public choice as the keys to better government. In addressing

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this challenge, the second literature grouping starts out with three closely related subjects:

- public choice theory, which values fragmentation and competition in improving government efficiency and responsiveness, based largely on Tiebout's (1956) thesis about citizens "voting with their feet";
- political fragmentation and its effects on economic development, fiscal policies and capacities, and various types of equity; and
- the relationship between central cities and their neighboring suburbs, hypotheses concerning which range from suburban dependence to independence to interdependence.

The challenges presented in these works helped to set the stage for the so-called *new regionalism* and the new planning discussions arising within it. The new regionalism is quite different in many ways from that of earlier eras; it now tries to emphasize bottom-up efforts and the primary role of state rather than federal government in promoting regional initiatives. In addition, the new regionalism rests heavily on considerations of economic growth and competitiveness rather than public-sector efficiency alone, which helps to strengthen the notion that regional planning and not just regional governance may have a real effect on metropolitan prosperity. This is not to belittle or ignore theories of regions that have arisen in the contexts of transportation, environmental, or cultural studies. Rather, it emphasizes that the roots of the new regionalism lie primarily within the private sector or in public-private partnership efforts, despite continuing efforts to provide it with a normative foundation (see, e.g., Cisneros 1996; Swanstrom 1995). Moreover, it may be that the ability of advocates of regionalism to demonstrate that economic benefits arise from coherent metropolitan-wide efforts would grant them greater legitimacy than that provided by good-government arguments alone.

The third major body of literature looks at the region's role in the evolution of urban economics. From its wellspring in philosophies such as those of the Regional Planning Association of America and the Chicago school of human ecology as well as the work of several German geographers, urban economic theory has focused primarily on the region, not the individual city, and its sources of growth, development, and expansion. The ways in which urban economics link directly to the regionalism movement are explored by looking at the convergence of theories and policies in economic development, business, and political economy that occurred in the 1990s, especially with respect to the rise of the global economy and its ramifications for urban development and growth.

Following on this body of work, the next logical question is, Does regional planning—a governance mechanism intended to increase regional coordination short of changing regional structure—have any effect on economic growth? It is important to note that very little empirical work has been done with respect to planning outcomes in general or metropolitan planning in particular. However, theoretical work has begun to build a more complete picture of the components of regional planning that may matter most. Opinion is still divided: Economic development policy and practice? Education? Growth management? Transportation and infrastructure? Recreation or other aspects of the quality of life? This last section of the review develops a predictive model of regional economic behavior, showing how these assorted considerations should fit together.

Each of the review sections proceeds more or less historically, because the evolution of each stream of scholarship is important to understanding its current position. What often started out as disparate research pursuits have gradually converged on a widening band of commonly held ground, if not a true consensus. The recent resurgence in the importance of urban regions, especially within the realm of economics, cannot be rationalized in a vacuum. The new regional emphasis has been reached not by a change in fancy or the swing of some historic pendulum but by real trends in urban development, global economics, and political economic thought.

However, much of the literature reviewed here should be labeled, "Beware: advocacy within." It has been noted time and again throughout the century that proponents of metropolitan/regional reform have argued from theoretical and normative perspectives rather than a base of empirical findings. In part, this has been due to the endurance of the reform arguments themselves: it is difficult for anyone with a rudimentary understanding of economics to argue against the potential for economies of scale, lower per unit costs, elimination of duplication, and greater uniformity and hence equity in service provision that should be the by-products of metropolitan coordination. In part, too, the challenges of data collection have daunted empirical research. Metropolitan areas were not defined until the 1950 census, after which their definitions have often fluctuated over time. Moreover, much of the most useful data has been collected only at the county level (and sometimes, as in New England, below that level), which means that researchers must devote a fair amount of time and energy just to assembling data in appropriate analytical units and to standardizing those units over time. Hence, until the relatively recent advent of desktop data processing and powerful, user-friendly statis-

tical software packages, analyzing metropolitan conditions was largely limited to descriptive analyses; as recently as 1977, the first true empirical study of American regional economic growth, *Regions, Resources, and Economic Growth* (Perloff et al. 1960) could still be referred to as “monumental” (Friedmann and Weaver 1977, 116). Not that descriptive studies are not enormously useful, but the study of linkages and interactions requires complex inferential statistics that defy manual calculation. Now that statistical analysis is no longer the bailiwick of statisticians, quantitative research on metropolitan issues has begun to proliferate.

Nonetheless, a good deal of what has been written about regionalism and the metropolis, including some of the most influential recent works (see, e.g., Peirce 1993; Dodge 1996; Cisneros 1993; and even Downs 1994), worries less about factual niceties and more about larger philosophical or ideological truths. Indeed, part of the reason why the public choice movement has figured so prominently in the regionalism debate has been its success in questioning empirically—and in some cases, debunking—some of the grander claims of the regionalists.

In the end, the regional movement is being forced to take a more pragmatic stance toward what can and cannot, should and should not, be achieved. The crux of the debate revolves around well-being: can regional planning and coordination generate higher levels of economic prosperity? Whatever survives of the reformist impulse will be stronger and more solidly grounded as a result of this debate.

REGIONAL GOVERNANCE: THE METROPOLITAN AREA AS MANAGEMENT UNIT

During the 1980s, a seemingly new phenomenon appeared: the metropolitan area as economic competitor. However, this was not really a new idea. During the 1920s, the Regional Planning Association of America (RPAA), the nation’s first true regional advocacy group, had identified the region as an organic unit, although its members focused more attention on cultural unity than on economics (Friedmann and Weaver 1977). Lewis Mumford perhaps best articulated the RPAA’s philosophy:

Regional planning asks not how wide an area can be brought under the aegis of the metropolis, but how the population and civic facilities can be distributed so as to promote and stimulate a vivid, creative life throughout a whole region—a region being any geographic area that possesses a certain unity of climate, soil, vegetation, industry, and culture. (cited in Sussman 1976)

At about the same time, the Chicago school of urban ecology, best represented by Robert E. Park, Roderick D. McKenzie, and Louis Wirth, similarly argued that the metropolis is the natural, organic form of industrial civilization. Later, Wirth went on to advocate the metropolis as a planning unit, arguing that whatever else the city might be, “it is first and foremost a human settlement resting upon an economic base with more or less widespread economic ramifications” (cited in Friedmann and Weaver 1977, 58). The same year, Victor Jones’s landmark work *Metropolitan Government* started from a similar point to recommend metropolitan government (Stephens and Wikstrom 2000). Burgess, Hoyt, and Harris and Ullman subsequently developed theories of urban growth (the concentric ring, sector, and multiple nuclei theories, respectively) that are still used to model metropolitan-scale phenomena (see, e.g., Davis 1998).

Location became less important during the 1950s and 1960s with the advent of systems theory and social physics, which eventually merged into the foundation for a new discipline, regional science. Regional planning became divorced from specific places with specific histories and entered a more abstract realm. Metropolitan areas were defined as functional centers; Walter Isard identified additional costs he dubbed “transportation-inputs” (later to be known as the “friction of distance”) and held them to be as important a factor of production as capital and labor costs (Friedmann and Weaver 1977). Berry (1970, 1964) evolved the systems concept into a major policy doctrine by arguing that each city performs certain functions within a system of cities—not as an isolated growth center of its own. Therefore, each city’s place in the hierarchy dictated to a large measure what kind of growth it would experience and how much. The focus of attention was no longer a bounded region but open city systems.

Meanwhile, on the ground, the problems of the metropolis continued unabated and largely unreformed. The lack of change was not due to a lack of rhetoric about change, however. The Progressive Era reform movement, in addition to seeking to eliminate bossism and corruption, targeted government efficiency as a highly desirable goal. This led political scholar Chester Maxey of Western Reserve University to point out in 1922 that political development seldom keeps pace with social and economic change and that “the fractionalization of local governmental authority” represents a significant impediment to progress. Paul Studenski, in his landmark study of metropolitan areas in 1930, described the organization of metropolitan areas “as no organization at all” and declared that the fundamental problem of the metropolis was the fragmentation of local government. This theme was

repeated by noted University of Chicago political scientist Charles Merriam in 1933, political scholar Victor Jones in 1939 and 1942, and Luther Gulick, professor of municipal science and administration at Columbia University and onetime city administrator of New York City, in 1960 (Stephens and Wikstrom 2000, 33-44; see also Gulick 1962).

The theme was subsequently picked up by the U.S. Advisory Commission on Intergovernmental Relations (ACIR). Until its demise in the mid-1990s, ACIR continued to study and recommend alternate forms of intergovernmental cooperation and regionalism. Although it waxed more or less adamant with changing ideological tides, particularly during the 1980s, it struggled to retain its reformist stance by advocating higher levels of regional cooperation if not outright metropolitan government (ACIR 1995, 1991, 1988, 1974, 1961).

During this period, regional science also began exploiting many of the analytical methods now customarily used in economic planning and development: economic base analysis, input-output analysis, cost-benefit analysis, social accounting, and locational analysis. In their ground-breaking 1960 book, *Regions, Resources, and Economic Growth*, Perloff and three colleagues not only completed the first major survey of subnational regional economic conditions but also developed what came to be called shift-share analysis, another technique still widely used. However, despite all this intellectual ferment, regional economic development stayed strangely divorced from the realities of place. The pragmatism of political economy was nowhere in evidence. Economic challenges were to be overcome by the power of numbers and concepts.

Perhaps as a result of this reliance on abstractions, real-world economic development practice lagged. Practitioners continued to focus on individual, politically bounded communities at the state and municipal levels, which were the actual arenas where development decisions were made and development occurred. Economic development policies remained rooted in attempts to influence the cost of production factors, especially land and taxes. Industrial recruitment was pursued via "state entrepreneurialism" in the form of tax abatements, investment credits, low-interest loans, land write-downs, and labor-training grants (Eisinger 1999). In this context, regional planning played only a small role, primarily in coordinating efforts to develop large-scale projects that required the participation of more than one community or level of government.

Nonetheless, in the 1980s, private sector decision-making processes changed sufficiently to herald the reascendance of real metropolitan areas and induce change in public sector economic development prac-

tices. Industrial and commercial decisionmakers began to look first not at individual communities but at the attributes of their encompassing metropolitan areas. Only after the metropolitan area had passed muster did specific building sites come into consideration. Increasingly, what mattered was not just tax abatements and land write-downs but the performance of the public schools, the presence of cultural and arts facilities, a good climate with an unsullied environment, a well-trained work force, and a good regional airport. "New wave" economic development practices began to proliferate: job-training and work-preparedness assistance, school-excellence programs, university-based and state-supported research and development, technology transfer programs, development of fiber-optics communication capabilities, and even increased metropolitan cooperation as a benefit in and of itself (Bartik 1991; Warner 1989; Kanter 1995; Clement 1995; Kresl 1995; Segedy 1997).

Moreover, it began to become clear that the suburbs, contrary to some opinions (e.g., Garreau 1991), were not independent entities capable of complete economic divorce from the central cities that had spawned them. Rather, evidence accumulated throughout the decade that cities and suburbs are economically interdependent, each assuming distinctive roles but growing more intertwined, not less, as years passed.

CHALLENGE AND COUNTERCHALLENGE: REGIONAL COORDINATION VERSUS FRAGMENTATION

For the first half of the twentieth century, as it was during the nineteenth, production was divided largely into two sectors: industrial (manufacturing) and agricultural. These production archetypes had matching locational archetypes: city and countryside. Although suburbs were certainly not a new phenomenon, they were rarely major production sites competitive with their urban neighbors. That changed following World War II. Suburbanization took on both momentum and scope that far exceeded what had come before. Most important, the suburbs became a production site that rapidly challenged the dominance of the city, which was now called the "central" city. Individual suburbs jockeyed for economic development among themselves and against the city itself, competition that became much more fierce and institutionalized during the slow-growth 1980s.

At no point in the structure of the American Federal system of government are problems of intergovernmental relations so marked, varied, and difficult as in the large metropolitan areas. (ACIR 1961, 1)

These words still ring true. In the forty intervening years, little significant metropolitan reform has occurred to reduce the numbers of local municipalities, abolish horse-and-buggy government structures such as townships, or stem the proliferation of special-purpose districts (Foster 1997). Consolidations have been limited primarily to central-city/central-county mergers in the South (e.g., Lexington–Fayette County, Kentucky; Baton Rouge–East Baton Rouge Parish, Louisiana; Jacksonville–Duval County and Miami–Dade County, Florida; Athens–Clarke County, Georgia; and Indianapolis–Marion County, Indiana) and to rural school districts struggling to provide services to declining populations.

Metropolitan governmental fragmentation has long been a topic of debate among urban political scientists, economists, sociologists, and planners (Maxey 1922 and Merriam, Parratt, and Lepawsky 1933, cited in Stephens and Wikstrom 2000, 33–34 and 39; Downs 1973; Cox & Nartowicz 1980; Jackson 1985). Luther Gulick stated that “municipal home rule is not the right to be left alone beyond a legally defined bulwark, but rather, the right to participate as an equal partner in arriving at decisions which affect community life” (ACIR 1961, 21). ACIR noted that, where cities have been able to annex and hence to “keep abreast of the geographic spread of the urban population,” many of the difficulties associated with complex governmental structure have been avoided—a theme picked up later by David Rusk (1995, 22). Schneider (1980, 24) quoted Robert Lineberry and Ira Sharkansky’s 1974 work to highlight the extreme atomization that fragmentation can reach:

If a cartographer were to color every municipality in each metropolitan area a different color, he would need 474 different colors for the St. Louis SMSA. . . . As a matter of comparison, there are approximately four times as many local governments in the St. Louis area alone as there are nation states in the world.

However, the issue of suburban fragmentation faded in the 1980s during the heyday of the *new federalism* and the ascendance of public choice theory. In contrast to the 1960s and 1970s, the 1980s produced little in the way of discussion, much less advocacy, of regionalism. If anything, the dominant ideology of the 1980s was competition, not cooperation. This was reflected in the rediscovery during the 1970s of Charles Tiebout’s (1956) thesis about the benefits to the average citizen of interjurisdictional competition. Tiebout argued that citizens “vote with their feet” by relocating from one jurisdiction to another to choose the package of public goods and services that best suits their needs. An entire school of thought, public choice theory, grew from this

argument—even though Tiebout was simply indulging in an intellectual exercise.

Empirical research appeared in support of this thesis (see, e.g., Ostrom 1983; Parks and Oakerson 1989; Percy et al. 1995; Hawkins and Hendrick 1997), showing that local governments become more efficient, and perhaps even more equitable, under conditions of competition for residents. Although some authors agreed that voluntary cooperation between adjacent governmental units might be valuable for a few activities, on the whole, competition was considered the desired norm (see, e.g., Niskanen 1988).

Even before Tiebout’s (1956) theorem was repopularized, however, skeptics began to appear. Political scientist Paul Peterson (1981, 32), although conceding that individual economic decisions help to shape the urban fiscal environment and that suburban school districts may actually approach Tiebout’s ideal, argued that in most cases the ideal cannot be obtained for three reasons:

- Government services are necessarily similar for large numbers of residents because governments cannot truly customize individual bundles. Therefore, the average taxpayer always receives less in benefits than he or she pays for in taxes but also never receives all the services he or she is willing to pay for. In other words, there can be no ideal match between citizen and jurisdiction.
- Public services have few or no pricing mechanisms that can pinpoint the misallocation of resources; hence, provision of those services cannot be perfectly efficient.
- Local governments cannot charge according to actual consumption, which allows some residents (and non-residents) to overconsume some public goods, such as highway interchange capacity, to the detriment of others.

By the early 1990s, researchers working with refined analytical models began to find conflicting and even negative outcomes from interjurisdictional competition à la Tiebout (see, e.g., Dolan 1990; Foster 1993; Lewis 1996). Political economists reduced their emphasis on Tiebout but continued to explore other potential benefits of jurisdictional fragmentation, especially within metropolitan areas. Once again, scholars were divided as to whether competition in governance or economic development was beneficial, neutral, or detrimental to the public interest. Yet here, too, empirical evidence began to suggest that economic competition was not a panacea for urban ills:

- DeHoog et al. (1991) found that comparable African American neighborhoods in the two major metropolitan areas in Kentucky (Lexington, which has a consolidated city-county government, and Louisville, which

does not) were better off and more satisfied with public services under the consolidated government; in fact, the satisfaction of white residents under both consolidated conditions was virtually equal, but satisfaction of black residents under fragmented conditions was much lower.

- The same year, after reviewing several empirical studies, ACIR (1991, 53) concluded that “a preponderance of the evidence and judgment regarding state and local competition for economic development is that such activity is generally not cost effective from the point of view of the offering government or the nation as whole.”
- Lewis (1996, 3) counseled “caution to those analysts who argue that decentralized institutions can routinely find solutions to the problem of ‘governing the commons.’” He examined the role of political institutions in shaping metropolitan growth and argued that each municipality, given its constituency, locational (dis)advantages, and other characteristics, will manifest a different set of preferences and outcomes. Moreover, the multiple decision points in a fragmented political environment make it more likely that any fundamental, regionwide change will be blocked. As a result, politically fragmented metropolitan areas seem to weaken their central business districts (CBDs), disperse commuters and lengthen commuting times, and generate greater suburban job/housing mismatches—all of which, Lewis argued, drive up public costs.
- Kollman et al. (1996) used a dynamic model to demonstrate that some political institutions perform better than others under conditions of Tieboutian competition. This research suggests that the Tiebout model has limited applicability.
- Agranoff and McGuire (1998), after surveying 237 cities in Illinois, Indiana, Michigan, Ohio, and Wisconsin, concluded that state governments play an important role in economic development: “A city clearly does not ‘go it alone’ in promoting its local economic well-being” (p. 162).

These examples do not provide the final word on fragmentation, however. Morgan and Mareschal (1999) sampled income disparities, central-city inclusion, and racial isolation indexes in ninety-seven of the nation’s largest metropolitan areas and found only limited support for some of the presumed evils of fragmentation. Racial isolation was significant in more fragmented metropolitan areas, as expected; however, lower central-city inclusion was related to higher levels of fiscal health, and city-suburban income disparities were not significant. They concluded that municipal boundaries have social, if not economic, meaning.

Nonetheless, public choice seems to have lost some of its luster, primarily because of its inability either to produce consistent empirical results or to obey the perfect-competition rules laid out by Tiebout (1956).

Moreover, macroeconomics in the late twentieth century turned out to be more complex than originally thought. Increasing numbers of scholars and practitioners seem to recognize that, especially in economic development, competition may have indeed become a negative-sum game now that the economic arena is no longer national but global. As Fry (1995, 36) wrote, “At a minimum, government and business leaders must work together and not permit municipal political boundaries to frustrate their efforts to create ‘entrepreneurial city regions.’” (The impacts of globalization on urban economic development and regional cooperation are discussed more fully in the next section.)

Meanwhile, the fragmentation debate took on new life in 1991 with the publication of journalist Joel Garreau’s controversial book, *Edge City*. Garreau argued that suburbia is no longer a stepchild of the central city but a freestanding economic and political entity consisting of edge cities, sometimes referred to by others as “suburban downtowns.” To Garreau, edge cities like Tyson’s Corners, Virginia (near Washington, D.C.) and Schaumburg/Hoffman Estates, Illinois (near Chicago) have everything the city has, only newer and better: office buildings, retail centers, ethnic restaurants, and open spaces. Moreover, they are far more convenient to the people who use them than the traditional downtown of the central city will ever be. As a result, he claimed, suburbs no longer need the central city, economically or politically.

This assertion spawned a vigorous debate as to whether suburbs were indeed independent of their central cities. Geographers Hartshorn and Muller (1992) expressed some reservations about the independent nature of suburban downtowns while nonetheless acknowledging their belief in the existence of such entities. They pointed out that a primary motivation for the interest in competitive federalism is a concern with (local) government failure. Ledebur and Barnes (1992), writing at the same time, argued that “cities and suburbs have a common and essential stake in their shared economies” (p. 5). Stanback (1991) similarly argued that “city and suburb are linked in a symbiotic yet competitive relationship” (p. 1).

Starting in 1992, the empirical evidence began to mount. Voith (1992), Savitch et al. (1993), and Collins (1994), using various model specifications, all found correlations between central-city and suburban incomes and growth levels. These works, however, were criticized as being too simplistic and nontheoretical by Hill et al. (1995), who subsequently focused on structural reasons for city-suburban disparities but nonetheless came to the conclusion that cities and their suburbs are interdependent parts of the same economy and that central-city decline will be a long-term drag on the

entire region. Ihlanfeldt (1995) dissected the various reasons that might underlie suburban independence versus dependence (regional image, central-city amenities, fiscal externalities, economic specialization, and suburban economic maturity) and concluded that, although cities and suburbs are still interdependent, central cities are losing their advantage. Somewhat later, Haughwout (1999, 1997) found evidence that central-city infrastructure investments and cooperative regional investments have positive effects on suburban housing values.

More recently, Mumphrey and Akundi (1998) completed a wide-ranging critique of the suburban dependency hypothesis and found weaknesses in most of the previous research. Moreover, they reported the results of a study conducted in 1995 by the National Center for the Revitalization of the Central City that found that inner-suburban declines did not follow central-city declines, that suburbs could substitute for cities as metropolitan economic engines, and therefore that city decline by itself had negligible effects on the region as a whole (p. 148). They suggested that the suburban dependence, downtown dependence, and elasticity hypotheses “are wedded to a narrow interpretation of the traditional monocentric model” that cannot address relationships in a polycentric urban structure (p. 147). Their conclusions were bolstered by Weinstein (1998), who found that metropolitan areas where the central cities are more burdened by the region’s poverty have faster job growth, suggesting that the suburbs are not just filling in for but compensating—perhaps overcompensating—for the city’s economic decline.

This debate goes on. Voith (1998) found that income growth in large cities enhances suburban growth but income growth in small central cities has little effect. Furthermore, he pointed out that changes in the attributes of one locality affect equilibrium outcomes in the rest of the region, so that if the quantity of regionally valued, productivity- or welfare-enhancing attributes provided by cities increases, city income growth would be expected to have a positive effect on suburban income and land values. His model suggests that a 1 percent increase in the rate of city income growth in a city of 1 million causes an increase in the rate of suburban income growth of 0.45 percent. For suburban housing values, the comparable figure is even higher, 0.88 percent.

These results imply that suburban residents, and by extension, the nation, have important stakes in the prosperity of large central cities. Large central cities perform valuable functions that are not replaced when they decline. The evidence of a positive causal relationship suggests the possibility that both cities and suburbs could improve

their welfare through cooperative actions to arrest urban decline. (P. 463)

Housing issues, particularly affordable housing, have drifted in and out of regional or metropolitan planning considerations over time. Nonetheless, metropolitanism has long been a source of optimism for housing reformers and advocates for the poor. Satellite cities and new towns were urged as a means of providing working-class housing and alleviating central-city crowding throughout the late nineteenth and much of the twentieth centuries (Hall 1996). More recently, the *Mt. Laurel* decisions (67 N.J. 151, 336 A.2d 713 [1975]; subsequent decisions in 1983, 1986) in the New Jersey courts and a similar kind of decision in *Gautreaux v. Chicago Housing Authority* (296 F. Supp. 907 [N.D. Ill. 1969]) in Illinois called for supramunicipal or even supracounty placement of housing for families with low and moderate incomes. In the absence of federal pressure to disperse public housing, these state courts showed the way toward metropolitan reform and planning by declaring that providing affordable housing is a responsibility that transcends municipal jurisdictions.

The federal government was not totally idle throughout the 1960s and 1970s, however. In fact, federal programs did much to create, expand, and support regional planning efforts. For example, in the early 1960s the federal government required creation of metropolitan planning organizations (MPOs) to manage regional transportation coordination. Most of the federal programs were unifunctional and largely uncoordinated: Section 208 water quality planning; air quality monitoring and improvement under the Clean Air Act (1970) and multiple amendments; solid waste disposal planning under the Resource Conservation and Recovery Act of 1976; regional economic development under various programs of the Economic Development Administration; planning for the aged and the handicapped; and some health services. However, the A-95 Circular, which granted to areawide agencies the authority to review, comment on, and coordinate all requests for federal funding, was comprehensive in both its application and impact. Moreover, these federal programs raised the profile of the urban region and made it clear that many governmental interests transcend local boundary lines.

Nonetheless, federal deficits and ideological change eventually led to sharp reductions in funding for regional and metropolitan agencies and the abolition of many of the planning programs, including A-95 review. As a result, beginning in 1973 with his book *Opening Up the Suburbs*, and in articles for a number of years following, Anthony Downs of the Brookings Institution raised a rare voice in urging regionalism as a means for achiev-

ing greater societal equity. In 1992, his book *Stuck in Traffic* asserted that low-density sprawl is one of the primary long-term causes of congestion and that transportation issues can be addressed only by the region acting as a whole. Two years later, *New Visions for Metropolitan America* helped to move regionalism back onto the front burner. Here, Downs made much the same argument he had made twenty-one years earlier: racial and economic disparities are not only socially unacceptable but burdensome even to the suburbanites who seem to benefit from them, and solutions cannot be found without the participation and cooperation of all parts of the metropolitan area.

Interest in regionalism continued to soar in the 1990s, thanks in part to a change in White House occupancy and a concomitant drive to “reinvent” government. Unlike in the 1960s, when the ACIR noted that the political leverage of metropolitan areas was “weak at the state capital and strong in Washington” (1961, 1), today most regional initiatives are generated at the state level or below. Increasingly, states trying to cope with runaway growth—or simply runaway development—and its accompanying highway and infrastructure costs are turning to regional solutions that require coordination, if not cooperation, between local jurisdictions (DeGrove 1992). Florida, Georgia, Maryland, New Jersey, Oregon, and Washington, among others, have adopted state planning guidelines that give special attention to metropolitan concerns such as sprawl. It is within this context, at least in part, that regional planning staged a notable comeback during the 1990s.

Suddenly, too, Downs was not alone in his advocacy. Oliver Byrum (1992), on leave from his job as director of the Minneapolis Planning Department, wrote that rising income disparities, concentrated poverty, shortages of affordable housing, and educational differences could not be dealt with by any central city acting alone, even with federal and state aid. Byrum became the latest in a long line of urban reformers to argue for metropolitan-wide dispersal of the poor as well as suburban assistance—in policies, programs, and political support as well as dollars—in dealing with homelessness, unemployment, and urban decay.

Byrum’s exhortation reached only a limited audience, but he was soon joined by other voices. Urban designer Jonathan Barnett (1995) argued that uncoordinated design and unplanned growth were degrading the character of the urban environment and reducing the cohesiveness of metropolitan areas. Former Secretary of Housing and Urban Development Henry Cisneros, both during and after his tenure (1996, 1993), strongly advocated regional cooperation in solving central-city problems, such as providing improved life opportunities for inner-city children, as well as in curb-

ing sprawl. And Minnesota State Legislator Myron Orfield (1997) presented not only an analysis of problems common to metropolitan areas nationwide—concentrated minority populations and poverty, disparate educational quality, and so on—but also something of a legislative blueprint for addressing those problems.

At a more mundane level, in 1995 ACIR recommended that the planning capacities of MPOs be rebuilt to replace capacities that were lost during the 1980s. The MPOs had regained visibility in 1991 as critical links in the implementation of the Intermodal Surface Transportation and Efficiency Act (ISTEA). By the mid 1990s, ACIR wanted MPOs to become more conscious of growth management, energy, recreational issues, and zoning in addition to more traditional concerns with land use and economic development (ACIR 1995, 22). This represented the first time in nearly two decades that this once-staunch proponent of regionalism had urged greater attention to regional problem solving as opposed to simply greater interjurisdictional cooperation. (Shortly afterward, ACIR was abolished.)

Regional planning solutions are not always urban panaceas, however. Logan and Molotch (1987) blasted the federal government for subsidizing income-stratified suburban growth without even going so far as to coordinate those subsidies. Scott Bollens (1997), in writing about regional governance in Southern California, argued that the single-function, single-mandate focus of many state-legislated regional activities has created “aggressive public entities that lack the capacity for self-evaluation” (p. 113). Moreover, “division of tasks across agencies with different governance structures and agency missions has undoubtedly caused difficulties in policy formation and coordination” (p. 115). He referred to this problem as “shadow regionalism,” which he said may be a necessary step toward fuller regional cooperation but may also create enduring, single-purpose compartmentalization that is little better than the municipal fragmentation it purports to rationalize. Norris (1994) painted a chilling picture of resistance to and withholding of political support from regionalism in the Baltimore area, conditions that led to the ultimate demise of the Baltimore Regional Council of Governments (BRCOG) in 1992 and its replacement by the more narrowly focused Baltimore Metropolitan Council. He contended that local politics, particularly the lack of control over BRCOG that was perceived by local elected officials, was the BRCOG’s undoing. According to Norris, regional entities lacking constitutional/legal status, direct citizen contact or representation, and the power to tax—conditions characteristic of most such entities—will “continue to live tenuously” (p. 166).

Many urban scholars have given up on regionalism. In light of warnings such as Norris’s and the lack of

effective regional governance in all but a select few metropolitan areas, they ask, why should we continue even to discuss regionalism? Why should our metropolitan areas not simply continue the status quo of fragmented local government, ad hoc cooperation, compartmentalized regionalism, and growing city-suburban income and educational disparities? On what basis might regionalism be made to matter?

The answer may be this: economics. Two important recent works tackle these questions by couching them in the language of economic development. In their 1998 opus, *The New Regional Economies*, National League of Cities executive William Barnes and Cleveland State University professor Larry Ledebur dismissed the city-suburb debate:

In a local economy, city and suburb are interdependent parts of the whole; their roles and relationships need to be specified in each locale. Similarly, the metropolitan government versus fragmentation debate can and should give way to a more useful synthesis for options for governance and policy making that can nurture the regional economic commons. (P. 5)

Barnes and Ledebur (1998) contended that what they call the nationalist view of the economy also sets up false choices between local and national interests. Under this paradigm, “local” becomes equated with “special interest”; there is no national forum in which localities are considered to be at the table as legitimate participants in national economic policy making. Moreover, the nationalist view allows local officials and citizens to treat the economy as something either entirely beyond their control or entirely under their control—the false equation of political autonomy with economic autonomy.

Barnes and Ledebur (1998) proposed a new economic paradigm with four components:

- Economic regions, *not* state or local political jurisdictions, are the basic building blocks of the national economy.
- Economic regions are understood to focus on internal integration and interdependence, *not* on political one-upmanship.
- The national economy is in fact a national system of economic regions, *not* a cognate of the political jurisdiction of the federal government.
- Contrary to Jacobs’s (1984) assertions, governmental boundaries *do* have significant effects on economic matters. (See the next section for a more complete discussion of Jacobs’s work.)

Barnes and Ledebur (1998) did, however, draw explicit distinctions between economics and politics:

“there is an underlying local economic region of which the city and suburban governmental jurisdictions each comprise only parts. The jurisdictions are not separate economies; they are governmental overlays” (p. 39). They likened the economic region to a spider’s web: movement at any point will cause reverberations at all points. The specifics of that mutual interdependence will vary from area to area, an observation that helps to explain the diverse results obtained by earlier researchers.

Barnes and Ledebur (1998) asked a crucial question: “How do we govern and nurture a metropolitan economic system in which political boundaries are not congruent with the functional regional economy?” (p. 67). They pointed out that jurisdictions often make decisions driven primarily by highly localized interests, which can result in minimal improvements in productivity and competitiveness at great cost; that is, political autonomy creates a false sense of economic autonomy and produces decisions that are often zero-sum or even negative-sum for the region as a whole. Moreover, local jurisdictions are highly constrained in the types of economic tools they can use, which sometimes distorts the outcomes. No jurisdiction at any level of government is compelled to look at the region as a whole. Barnes and Ledebur did not mince words: denial of interdependence “fosters the seeds of the spatial suicide occurring in many of our nation’s urban areas” (p. 84).

Answering Barnes and Ledebur’s (1998) question, however, is not easy. As they discussed, incentives for interjurisdictional cooperation are limited largely to four instances: economies of scale in service provision; significant spillover effects; responses to external threats; or, in rare cases, federal or state programs that promote some form of cooperative action. Yet, if economic interdependence is a fact, then collaboration is a defining political challenge. The authors argued that if the region becomes the economic focus, several outcomes become highly unlikely: that investments would be made that create sharp disparities in the quality of schools, which would adversely impact the quality of the regional workforce; that investments would be made in disjointed transportation systems or in infrastructure that facilitates artificial and wasteful accelerated turnover in housing and building stock; that investments would be made that simply move economic activity around within the region rather than contributing to regional productivity; or that segregating households by class or race would be viewed as efficient or rational economic development policies.

Although some of these propositions are relatively easy to swallow, others seem more than a little naive. Barnes and Ledebur (1998) seemed to forget that economics is not the only factor taken into account in pub-

lic decision making; indeed, to witness some recent public decisions raises the question of whether economics (as opposed to fiscal matters) could possibly have been a consideration at all, much less a significant one. Issues of equity, distributive politics, image, political debt, community dominance, and socioeconomic and racial solidarity or distancing can easily loom at least as large as matters of dollars and cents (or sense). Regional cooperation does not come easily in America, and the reasons for this are legion.

To their credit, Barnes and Ledebur (1998) viewed the solution not as one of establishing a new form of government or minimizing existing government but of reconstructing government by focusing on operational criteria. To achieve this will require building a new civic culture that allows governments to function regionally rather than punishing them for it. The needed governance/policy structure will necessarily involve substantial and legitimate conflict; therefore, it must strive to discover what is truly problematic and important, and it must be able to manage conflict and facilitate production of constructive outcomes. This all sounds suspiciously like regional planning:

Organizing the region is an effort to provide the political visibility, accessibility, responsibility, and accountability necessary to deal with regional problems as public policy issues. Proper representation in the regional planning organization helps to ensure that decisions with inter-jurisdictional consequences will be made jointly by those jurisdictions affected. This, in itself, is a goal to be valued highly . . . regional purposes and plans should deal with issues that local plans cannot. (So et al. 1986, 152)

In concluding, Barnes and Ledebur (1998) argued that

it is bad for democracy that the policy arena for “economics” is so far removed from the lives of citizens that leaders can report—with apparent sincerity and without fear of reproach—that the economy is booming and yet most people are not doing very well. (P. 178)

They are fairly convincing in laying out a new perspective on urban economics and a new rationale for regional cooperation, which they argue can be achieved by adapting existing organizations incrementally. However, other than making a vague recommendation for the adaptation of existing local/regional structures, they ended up begging the question of how to implement what they propose. If the need for regionalism were as transparent as they claim, one is entitled to presume there would be more instances of it and more widespread optimism about its future. Moreover,

Barnes and Ledebur moved us no closer to understanding if any of this is really worth pursuing. Like the reformists who came before them, they espoused a doctrine without substantiating its ultimate worth.

Yet surely governmental structure and its cognates in cooperative efforts affect the regional economy—don’t they? Indeed they do, said former Albuquerque mayor and national regionalism guru David Rusk (1995), who argued that how local governance is organized helps shape how people define themselves as a community. Hence, more unified governance should lead to a more unified society.

Rusk (1995) offered four new “laws of urban dynamics”:

- Only elastic cities—that is, cities that can effectively expand their boundaries, either by annexation or by commanding the regional stage—grow.
- Fragmentation divides, unification unites—that is, governmental structure shapes people’s perceptions of their citizenship and commonality.
- Ties do bind—that is, suburbs cannot abandon their central cities and successfully create viable, self-contained economies.
- Ghettos can only become bigger ghettos—that is, true rebuilding of inner cities cannot happen without comprehensive regional approaches that limit premature disinvestment and abandonment.

Rusk’s (1995) primary contribution to the fragmentation versus regionalism debate is his methodical analysis of a large number of metropolitan areas using primarily census data from 1950 to 1990. His elasticity score is computed using the combined effect of each city’s population density in 1950 and the degree to which it expanded its city limits from 1950 to 1990, with boundary expansion given three times the weight of initial density. The result is a score ranging from zero to forty, and cities are arrayed along this continuum in five groups of 22 to 25 ($N = 117$): zero-, low-, medium-, high-, and hyper-elastic cities. Subsequent analyses of these groupings suggest that the greater the elasticity of the city and the greater its growth in population and income, the higher the ratio of city to suburban income, the lower the poverty level in the central city, and the lower the segregation indexes for both blacks and Hispanics.

Although Rusk (1995) galvanized the regional discussion and influenced other scholars, his work is not without its flaws. Blair et al. (1996) found that although indicators of metropolitan growth appear to support the elasticity hypothesis, indicators of metropolitan economic welfare do not. They pointed out two theoretical issues. First, Rusk did not satisfactorily explain the conceptual link between elasticity and the central city’s ability to establish development policies that benefit the

entire metropolitan area; and as a result, he offered little insight into mechanisms that might be used by inelastic cities to expand their options. And second, Rusk's growth model assumes that territorial expansion and control are the dominant factors in metropolitan health; it is thus primarily a *fiscal*, not an economic, model. They also pointed out several methodological problems such as directionality (does elasticity cause metropolitan growth, or does growth simply put the city in a stronger position to expand its boundaries?) and the use of only fourteen cities (seven pairs) to illustrate most conclusions without controlling for differences among them (five of the elastic cities are state capitals, but only two of the inelastic ones are; and manufacturing of durable goods dominates in the inelastic cities, suggesting underlying issues of economic structure).

Blair et al. (1996) used regression analysis to test the elasticity hypothesis and reported three findings:

- Economic indicators imply better economic health in elastic cities; however, this result could be a statistical artifact or an effect of the expansive tendency of younger, rapidly growing cities.
- Elasticity is a significant predictor of both metropolitan population growth and metro employment growth, but its explanatory power is low.
- Elasticity is *not* a significant predictor of income growth or poverty decline at the metro level, but the corresponding state economic variables *are* significant.

Weinstein (1998) noted similar shortcomings. He found that higher elasticity and city income growth predict faster metropolitan job growth, consistent with the theory that suburbs are better off when the city is better off. However, metropolitan job growth was also correlated with *lower* central-city inclusion and *higher* city-suburban income disparities, contrary to Rusk's (1995) findings. Moreover, Weinstein found no link between elasticity or inclusion on one hand and faster city or suburban income growth on the other. These results support Blair et al.'s (1996) finding that elasticity predicts population growth but not income growth. Mumphrey and Akundi (1998) stressed Rusk's omission of economic theory in questioning his concept: "Is an inelastic city a city that is unable to annex, a city without a diversified economic base, or both?" (p. 152).

Moreover, much of what Rusk (1995) seemed to find may be little more than historical or political artifacts. Central cities in younger metropolitan areas, as a group, were found to be more elastic than older ones—which may mean simply that younger central cities are not yet landlocked or are located in states the annexation and incorporation laws of which favor established cities. This phenomenon would also account for the lower

number of suburban governments Rusk found in more elastic areas. His formula for elasticity may be questioned—why is boundary expansion given so much more weight than initial density? By choosing 1950 as his benchmark, too, Rusk automatically disadvantaged many long-established central cities in favor of a spate of new metropolitan centers that were small, free-standing towns at that time. Of course, these newcomers have grown faster.

Yet, Rusk's (1995) work serves as an interesting prelude to a discussion of regional economic theory because of his view of structural variables that seem to cause or enable regional growth. This has long been the quest of urban economic theory: determining what factors cause metropolitan areas to develop, grow, and change so that better public intervention policies can be devised.

URBAN ECONOMICS: THE METROPOLITAN AREA AS GLOBAL ECONOMIC UNIT

Relative to other social sciences, urban economics is a young discipline, in part because it occupies a kind of middle ground between microeconomics and macroeconomics. In addition, issues of spatial arrangement and of what constitutes the public interest (employment, property taxes, fiscal stress, etc.) complicate public sector economic matters. Moreover, the field emerged just as "urban" was coming to mean "metropolitan" and "suburban" as well. As a result, urban economics has evolved fairly rapidly through a variety of theoretical concepts.

Perloff et al. (1960) identified two major theoretical threads, "or, possibly more accurately put, two major concepts of (or approaches to) the organization of aggregate data to help explain these phenomena" (p. 57). The phenomena being explained are the volume aspects of economic development—growth in employment and total output—and the welfare aspects of economic development—growth in income and wealth. Factors that affect volume include the relative costs of production (materials and labor) and the relative costs of transportation. Factors that affect welfare include the ratio between population change and employment and population characteristics that differentiate one region or metropolitan area from another, such as age distribution, racial attributes, educational level, and available skills.

The first of the two theories is variously referred to as regional development theory or, more recently, employment-sector theory. This theoretical framework posits that economies pass through a series of fairly predictable development stages from subsistence agriculture to initiation of sophisticated tertiary (service) activ-

ities. These phases are grounded in economic anthropology and history. The first phase occurs when hunting-gathering and haphazard plant cultivation give way to systematic production of agricultural staples. This allows, in fact demands, establishment of essentially permanent human settlements—the first phase of urbanization.

Agricultural production begins to yield surplus food, which allows human settlements to support non-agricultural specialists including warriors and tradesmen (Diamond 1999). As transportation improves, the region develops some trade and eventually local specializations. This permits the advent of a true second stratum of the population located with reference to the people who produce food for them (North 1955), including some who provide services to the rest of the population. As trade increases, the region moves through a succession of agricultural products, agriculture becomes more specialized, and new cultivation techniques free labor for other pursuits. The population continues to grow and, suffering from diminishing returns in agriculture and other extractive industries, the region industrializes, which according to North (1955, 241) “means the introduction of so-called secondary industries (mining and manufacturing) on a considerable scale.” A final stage of regional growth comes with specialization in tertiary industries, such as capital management and special services to businesses and individuals, for export to less advanced places.

A variant of this theory asserts that a rise in per capita income, whatever its source, is typically accompanied by a decline in the proportion of the labor force employed in agriculture and a rise in other kinds of employment—first in manufacturing (secondary activities), then in service (tertiary) activities. The main causes of these sectoral shifts are twofold. The first relates to different income elasticities—for example, demand for agricultural products increases less rapidly than does per capita income. The second arises from differential rates of change in labor productivity—for example, the ability to produce more food with less labor (Perloff et al. 1960).

The main value in this theory lies in its identification of sectoral shifts as an important dynamic of economic advance, in terms of growth both in the volume of economic activities and in income. It has regained salience in advanced economies due to the decline in secondary activities and the rising importance of tertiary activities. This trend first emerged as a transformation within the manufacturing sector itself, where it was noted that internal and external services were playing an increasingly important role in corporate production (Noyelle and Stanback 1984). In the United States, this identification of so-called “producer services” later evolved into

a broader recognition of the role of professional and business services in generating wage gains and general prosperity in the wake of declines in manufacturing (Beyers 1992; Hicks and Rees 1993; Proulx 1995; Thompson 1995).

However, the presumption that every society passes through virtually identical developmental stages is precarious. The economy of the United States, for example, did not originate in the transition from hunting-gathering to agricultural specialization and beyond but inherited in midstream the European transition from agricultural specialization into industrialization. Moreover, the presumption that reliance on agriculture continues to diminish may also be suspect. A state with an export base consisting mostly of agricultural products may come to have a low percentage of its employment in the agricultural sector and yet still be essentially dependent on agriculture as the foundation of its economy.

These are some of the reasons why the second of the two theories, export-base theory, was developed and advanced in America by economist Douglass North (1955), based on work in location theory that had been done by such German predecessors as Losch and Weber. Export-base theory asserts that growth in a given (economic) unit is initiated by the response of the industries *within* this unit to an increase in demand arising *outside* the unit (North 1955). This increase in demand leads to an expansion of other economic activities, particularly local trade and service activities, through a multiplier process. Various terms are used to apply to the sectors that rely on external demand versus internal demand: basic versus nonbasic, nonlocal versus local, and primary versus secondary (Hirsch 1973, 187).

North (1955) developed this theory largely in response to the failure of regional development theory to explain the development of the American economy (p. 240). Not only did he not believe that the regional development approach had much relevance to either the United States or Canada, but he felt that “a great deal of secondary (and tertiary) industry will develop automatically either because of locational advantages . . . or as a passive reflection of growing income in the region” (p. 251). Moreover, export-base theory opens the way for interregional effects of growth—that is, it allows that what happens outside the region may be just as important as what happens within it, perhaps even more important at certain crucial times. Also, in North’s formulation, export-base theory describes the formation of local capital, which increases through indigenous savings and eventually takes the place of imported capital as the region continues to mature (pp. 252-53).

Export-base theory has its weaknesses, of course. Hirsch (1973) identified several, including the assumptions that certain relationships remain relatively stable over time (e.g., the volume relationships between basic and nonbasic activities) and that prosperity is determined only by basic activities, with nonbasic activities essentially along for the ride. Moreover, these assumptions deny the possibility of growth-inducing autonomous changes within the urban economy or via the stimuli of government expenditures or improvements in local infrastructure. Hirsch went on to promote input-output analysis as a way of correcting for these deficiencies. However, his concern was primarily with policy and public and private decision making rather than economic structure. The broad tenets of the export-base approach retain most of their validity in describing the shape and potentials for change in the regional economic environment.

Although not truly an economic theory, central-place theory deserves mention at this point because it helps to describe the spatial dynamics of economic growth. Central-place theory might be viewed as an expansion of Burgess's concentric-ring theory to systems of cities rather than to a single city or metropolitan region. As such, it assists in conceptualizing regional hierarchies and rank differentiations among communities of different sizes and spacings (Berry 1970; Berry and Kasarda 1977). In essence, central-place theory posits that cities of different sizes perform different functions, that larger cities tend to include all the functions of smaller cities in addition to those appropriate only at their size, and that cities of certain sizes are therefore spaced at predictable intervals determined by their particular clusters of functions.

In this sense, central-place theory and location theory come together. Given a market of a certain size, firms will tend to locate at what they perceive as the "median" location—that is, the location where the most sales will tend to be. This is one reason why big cities tend to keep growing bigger and central-place characteristics tend to be self-reinforcing. As described by planner-economist William Alonso (1964), firm location is determined by four broad groups of factors: market locations and densities; total transport costs, including the costs of input delivery, output delivery, transshipment (terminal costs), time trade-offs, and per unit trade-offs; availability, quality, and cost of the work force; and public costs including taxes.

These considerations fall well within the range of neoclassical economics and have been augmented by other scholars, for example, Mills and McDonald (1992). They suggested three important additions to Alonso's (1964) formula: First, agglomeration economies—that is, benefits that accrue to a firm by reason of

its proximity to other firms engaged in either the same industry or different industries—are an important part of a region's ability to respond to challenges and increased demand. Second, educational systems and other quality-of-life factors assist in firm attraction and retention. And third, growth industries also need access to outside capital, internal and external innovations, and numerous forms of agglomeration economies.

Kresl (1995) advanced the proposition that competitiveness in the global economy depends on productivity and agglomeration economies. He also laid out his criteria of competitiveness, which include high-skill, high-income jobs; goods and services with high income-elasticity of demand; environmentally benign production; a pace of economic growth that does not overtax public or private resources; and activities that enable the region to gain control over its future rather than having to accept whatever comes (again, we hear a call for regional coordination).

Kresl (1995) divided economic determinants into two groups: economic and strategic. Economic determinants include most of the classical components of economic development theory—factors of production such as labor and capital, location, physical infrastructure, and economic structure—but add to the list social infrastructure, especially public education and political stability, as well as "urban amenities" (culture, major-league sports, an international airport, good health care, low crime, and environmental quality). Strategic determinants are harder to measure. They include effective governance that avoids the two extremes of "elephant and mouse" (exemplified by the Chicago metropolitan area) and overly egalitarian (exemplified by the Buffalo, New York, metropolitan area), where no one is in charge; public-private cooperation and coordination in economic matters; an urban (economic) strategy that helps both public and private decisionmakers to choose among possible futures and to mobilize and direct resources, including the efforts of higher levels of government, to achieve what they choose; and institutional flexibility, which can help reduce costs to businesses and improve the odds of strategic success (pp. 52-65).

Although more complex theories of economic growth—for example, disequilibrium dynamic adjustment theory, which attempts to merge economics, political decision making, and spatial considerations into a comprehensive theoretical package (see Mills and McDonald 1992)—have been advanced, the classic formulations, when coupled with Kresl's (1995) effort at modernization, retain both descriptive and predictive power to model regional economies. They remain the essence of urban economic theory. Whether they

describe microeconomic or macroeconomic phenomena is largely beside the point.

However, it is important to note that the field of macroeconomics has undergone significant transformations in recent years and that perhaps the most important transformation involves scale. On one hand, the nation-state is losing policy dominance because of the increasingly transnational and rootless nature of the modern corporation. Economic relationships that once required mediation by the national government are now conducted directly across political boundaries. On the other hand, these direct dealings open the way to localized macroeconomic policy making. Yet, "localized" no longer means "municipal." No individual municipality of any size commands the full range of information and other resources required to meet global economic challenges. As a result of these two pressures, what seems to be evolving is a worldwide system of urban regions engaged in global trade. The urban region is large enough to encompass a wide variety of skill types, production techniques, and places of innovation while still being small enough to respond quickly and precisely to specific demands.

One of the authors who first saw this pattern emerging was Jane Jacobs. In her long career as an urbanist, Jacobs has been instrumental not only in diagnosing a wide range of urban ailments but also in recommending appropriate treatments, even if only implicitly. The neotraditional or New Urbanism movement of the 1990s arose, in part, as a response to Jacobs's 1961 polemic about development in America's cities and what makes a good urban neighborhood. More important in the present context has been her perspective on what we commonly refer to as the U.S. economy.

Regardless of its specific form, urban economic theory had resided squarely within a fairly stable macroeconomic context that for many years bore the imprimatur of Keynesian thought. In 1984, Jacobs became one of the first urban scholars to challenge this macroeconomic orthodoxy, which in the early 1980s was already unable to account for the new realities of the American economy. One of the principal tenets of her argument is that economists had relied too heavily on political definitions to describe economic phenomena:

Nations are political and military entities, and so are blocs of nations. But it doesn't necessarily follow from this that they are also the basic, salient entities of economic life or that they are particularly useful for probing the mysteries of economic structure. . . . Indeed, the failure of national governments and blocs of nations to force economic life to do their bidding suggests some sort of essential irrelevance. (Pp. 31-32)

In a twist on export-base theory, Jacobs (1984) adhered to an import-substitution view of urban economics: "A city economy which does not or cannot replace domestic imports with its own production is feeble at best, and helpless at worst, when it comes to replacing foreign imports" (p. 43). However, her use of the word *city* is a bit misleading, because what she really meant was an urban region: "City regions are not defined by natural boundaries, because they are wholly the artifacts of the cities at their nuclei; the boundaries move outward—or halt—only as city economic energy dictates" (p. 45).

Jacobs (1984) argued that the economies of cities and their hinterlands make up and drive the national economy rather than the national economy's defining and shaping cities as traditional macroeconomic thought would dictate:

I have argued that all developing economic life depends on city economies; it depends on them by definition because, wherever economic life is developing, the very process itself creates cities and has probably always done so. (P. 122)

Jacobs's (1984) observations turned out to be prescient. Logan and Molotch (1987, 247) soon noted that U.S. cities, no longer part of the only important capitalist society on earth, were being pushed to be competitive with places all over the world. By the early 1990s, Sassen (1994) could point clearly to the emergence of a set of "global cities" that were the prime foci of international trade, development of innovative financial instruments, and flows of high-level information. In 1991, in *The Borderless World: Power and Strategy in the Interlinked Economy*, Ohmae noted the same phenomenon:

On a political map, the boundaries between countries are as clear as ever. But on a competitive map, a map showing the real flows of financial and industrial activity, those boundaries have largely disappeared. Of all the forces eating them away, perhaps the most persistent is the flow of information—information that governments previously monopolized. (Quoted in Barnes and Ledebur 1998, 15)

Later, Ohmae (1995, viii) argued that future economic prosperity requires limiting the power and role of nation-states and giving more autonomy to regions to "allow—or better, encourage—the economic pendulum to swing away from nations and back toward regions." Similarly, Kanter (1995, 353) declared that "in the global economy of the future, national opportunities will be led by world-class metropolitan centers

within nations," and countries will only be as strong economically as the localities they contain. As a result,

Cities and surrounding regions must work together to foster world-ready businesses, workplaces with employability security, communication and learning within and across industries, civic engagement, more inclusive community leadership, and *regional bodies that look across jurisdictions to create larger benefits for the whole*. (P. 354, emphasis added)

This change-in-scale theme has been reiterated in a number of forms. Thompson (1995, 5) argued that

in the absence of a much greater national government interest and aptitude in local economic development, the state could fill a political vacuum until metropolitan governments are formed or until central cities show that they can dominate or lead the surrounding ring.

Agranoff and McGuire (1998) noted that subnational economic development policy was once characterized by a paradigm that accepted prevailing economic forces as affected only by national policies or trends but is now seen to be situated in a more complex, and more localized, web of actors. Barnes and Ledebur (1998) took the regionalism proposition to its logical mature form by proposing a "U.S. Common Market" made up of local economic regions. Although the national economy, and the overarching ability of the federal government to affect local economies via monetary and trade policies, cannot be ignored, these writers painted a much different and, for many purposes, more useful picture of the role of metropolitan areas in the evolving global economy.

Of course, some caution is in order here. Advances in transportation, information management, and communications are changing concepts and perceptions of space at a dizzying pace. Air travel, just-in-time manufacturing and inventory control, teleconferencing, e-mail, and Internet commerce are seriously eroding the importance of place. Corporations are increasingly free to locate production and control sites at far-flung distances and are increasingly ingenious in using outsourced suppliers for a variety of services.

Yet, humans have needs that are not economic, and as a result urban regions are more than just economic constructs. It may be that economics will dictate less and less of the spatial organization of urban regions but without these regions losing much of their economic function. High-level negotiations still demand face-to-face interactions, entertainment and recreation remain desirable economic adjuncts and development tools, and the movement of goods and people continues to

demand efficient transportation networks. Physical—that is, place-based—investments are crucial to all of these activities. Many human transactions may retreat into the ether, but production of most goods and services will remain place-bound in the near-term future.

As a result, another of Jacobs's (1984) principal contentions remains important: that urbanization economies matter more than localization economies—that is, economic growth is more reliant on the spillover of ideas and technology *between* industries than *within* industries. It was only gradually that Jacobs was granted her full due for this notion. Ongoing research seems to indicate that urbanization economies—what Jacobs summarized as "drift" (p. 221)—are more important to long-term growth, whereas localization economies may be more important to short-term productivity (see, e.g., Beeson 1992). This body of research supports the conventional economic-development wisdom about the strength and desirability of diversified economies, something borne out in empirical studies (e.g., Pollard and Storper 1996).

Similarly, Nelson and Foster (1999) implicitly relied on conventional economic theory in their attempt to add issues of regional governance to the more traditionally economic factors that affect economic growth and prosperity. They found that an increase in metropolitan income share is positively associated with three structural factors—the density of elected general-purpose government officials, the predominance of special districts, and the presence of multicounty entities charged with either management or utilities—and negatively associated with the density of elected special-district and school-system officials.

The primary proregional argument, as discussed by these authors, is that regional governance structures enhance the quality of life, which in turn attracts individuals and firms. This argument has multiple underpinnings, several of which derive from economic and fiscal considerations. For example, political integration is usually more efficient in the administration and production of public services. Regional structures are superior in realizing production economies and capturing externalities and are better able to coordinate growth and reduce social and fiscal disparities. The region can draw on a larger pool of human, material, and financial resources. Moreover, potential investors are often repelled by multiple layers of government, confusing lines of authority, and the high transaction costs of dealing with multiple small units of government. And, limiting interjurisdictional competition helps reduce waste of local resources.

The authors cited above have pointed out that overlying regional structures might be suspect to reformists,

since they might merely add to the total number of governments and actually confound coordination—except that such structures can also create an environment that fosters collaboration and metropolitan planning. Indeed, research suggests that citizens of metropolitan regions may be better off economically *with* regional entities than *without*.

This constitutes a powerful suggestion that regional planning, too, may enhance regional economic prosperity. Such planning is the first step in the regional collaborative process; it is based on open dialogue designed to pinpoint areas of mutual concern and potential action; and it strives to be holistic with respect to the same unit of analysis that concerns urban economics, the metropolitan area. Metropolitan planning often addresses concerns that are significant to businesses, such as the adequacy of transportation networks, sewage system extension and capacity, delivery of an adequate supply of water, development limitations due to poor air quality or uncontrolled sprawl, reuse of contaminated industrial lands, workforce development, and provision of public amenities. Hence, it seems reasonable to include regional planning, as a measure of regional coordination, among the factors that positively affect the economic welfare of the metropolis.

BUILDING A MODEL OF REGIONAL ECONOMIC DEVELOPMENT

Drawing on the theoretical constructs discussed in this review, the factors that seem to affect regional economic development can be readily assembled. They fall into three broad categories: economic, quality of life, and quasi-governmental.

Economic Factors

The importance of sectoral shifts as economic inputs is drawn from regional development/employment-sector theory. In the past, emphasis would have been placed on the shift from agricultural (primary) to manufacturing (secondary) activities. Today, with global economic change and the movement of production to low-cost, low-regulation environments primarily in less developed countries, the emphasis is on the shift from manufacturing to service (tertiary) activities. Employment changes in these sectors are now crucial in any urban economic model. Moreover, such employment changes indicate the strength of the service sector and its ability to compensate for declines in manufacturing employment.

From export-base theory comes the importance of such economic inputs as value-added manufacturing production and the newly important export of high-

order services. Employment and earnings in the finance, insurance, and real estate (FIRE) sector, as well as in business and professional services, have also gained prominence as economic engines. Because innovation and entrepreneurship are crucial to the replacement of dying exports with new and growing ones, the availability of investment capital and the rate of business formation or self-employment take on new importance, as do the presence of major universities and other sources of research and development or technology transfer. So does educational attainment, as a measure of both the work force's sophistication and productivity and its ability to adapt to changing economic circumstances—to reinvent itself as the economy changes. To account for the knowledge spillovers described by Jacobs (1984), a smaller firm size relative to total employment may become a factor as well.

Central-place and location theory both stress the importance of metropolitan size as a factor in economic growth in terms of both type and rate of growth. Agglomeration economies are more likely to arise as metropolitan size increases and market density tends to intensify. Various public-side augmentations of these theories have been offered within the past decade, including an emphasis on adequate infrastructure (including information technology and telecommunications) and political stability and/or simplicity.

Quality-of-Life Factors

In an era of increasingly footloose industries, quality-of-life factors have gained greatly in importance. Segedy (1997) listed nearly forty such factors; however, many of these overlap with the other categories presented here. Factors that relate directly to the quality of life of urban residents include ample recreation and open space; accessible, affordable, and high-quality health care; clean air and water; good public schools; inexpensive, high-quality housing; local art and cultural opportunities; low crime rates; low risk of natural disasters; presence of professional sports teams; proximity to a waterfront; short commutes or a transportation system that compensates for distance with convenience and efficiency; and a pleasant climate.

Quasi-Governmental Factors

Factors related to history, government, and local culture can affect the cohesion of the metropolitan region and, hence, certain aspects of how well it responds to economic challenges (Foster 1997). Local tax burden, regulatory climate, and jurisdictional fragmentation arise in location theory. Urban morphology—for example, metropolitan age, inclusiveness, and subnational region—may be no less important. State mandates for

planning by lower levels of government can provide a platform for intergovernmental cooperation and joint action that might not otherwise exist.

Measuring the Outcome: Economic Performance

As for judging economic performance, two types of measures are important. One type measures the success of the businesses themselves and the growth of various industrial sectors. The most important measures of this type are increases in total industrial earnings, increases in sectoral earnings, and increases in total employment. Increased employment may also be considered a valid measure of the other type of economic outcome, improved citizen welfare. Other appropriate measures of welfare include increases in per capita and household income, decreases in family and individual poverty, increases in accumulated household wealth (e.g., bank deposits), and increases in the local share of national income relative to other areas.

CONCLUSION: DOES REGIONAL PLANNING MATTER TO ECONOMIC PROSPERITY?

As the literature in this review indicates, there is no hard answer to this question. There are, however, many solid theoretical reasons for believing that the answer is yes. As urban economics and political economy mature, as macroeconomists and business theorists turn more attention to the effects of space on investment and policy, as advocates of regionalism and sensible local government reform begin better to identify the nature of the mutual interests that unite suburbs to cities and the public sector to the private, they are converging toward a single theme: the metropolitan area as a critical unit of analysis in national policy and global economics.

As a result, the metropolitan region has regained salience as a focus for scholarly attention. What is particularly needed at this juncture are empirical efforts to identify and isolate planning outcomes in general and the outcomes of metropolitan planning and coordination efforts in particular. The small amount of empirical evidence that has been produced to date is tantalizing but limited. Yet, given the way that several major streams of thought representing a variety of disciplines have come together, as well as the regional dimensions of many of our thorniest urban problems—growth management, affordable housing, concentrated poverty, employment disparities—the need for such research has gained both importance and urgency. A concerted effort to better define and measure planning inputs and outcomes could yield valuable insights of immediate practical use to the practice of planners and policy analysts nationwide.

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The Built Environment and Human Activity Patterns: Exploring the Impacts of Urban Form on Public Health

Lawrence D. Frank

Peter O. Engelke

An increasing body of evidence suggests that moderate forms of physical activity (such as walking and bicycling), when engaged in regularly, can have important beneficial effects on public health. This article reviews current public health, planning, and urban design research to determine, first, how walking and bicycling might be critically important exercise behaviors for improving public health, second, how urban form affects the frequency of walking and bicycling as a form of physical activity, and third, how the public health considerations outlined in this article might reorient planners' thinking toward the realization of health-promotive environments. The current lack of emphasis on the interdependencies between built form and overall quality of life, as measured by health, safety, and welfare considerations, suggests the need for a rethinking of public policy approaches to transportation investment and land development.

City planning and public health professions share common roots. Historically, many major planning initiatives grew out of health-related concerns. Haussmann's radical plans for Paris in the 1850s were intended in part to improve air flow and abate unhealthy sanitary conditions (Saalman 1971). Public health problems

occupied a central place in the thinking of Frederick Law Olmsted, who believed that low-density residential neighborhoods combined with parks and open

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space would help to solve many of the health problems faced by urban America in the nineteenth century (Szczygiel and Hewitt 2000). In his treatise, *How the Other Half Lives*, Jacob Riis photographically documented unhealthy living conditions in New York City, helping to catalyze a legacy of fair-housing legislation (Fairbanks 2000). The landmark 1926 Supreme Court ruling in *Euclid, Ohio v. Ambler Realty*, resulting in the Zoning Enabling Act, was predicated on the health, safety, and welfare impacts of land use actions (Beuscher et al. 1976). Modern exclusionary zoning practices, requiring greater travel distances between where we live, work, and play, may be counter to the original health intent imbedded within the Zoning Enabling Act. Through the lens of our car culture, city planning and its allied professions have become unaware of the health impacts that our land use and transportation decisions have on the ability to walk and bike, the most common forms of physical activity.

THE URBAN FORM/PHYSICAL ACTIVITY/ PUBLIC HEALTH NEXUS

Public policy interventions designed to improve regional mobility, traffic congestion, and air quality could simultaneously generate significant public health benefits through increasing levels of moderate physical activity. Land use decisions and transportation investments have important but, for the most part, poorly understood influences on walking and bicycling and, hence, public health. In our view, the influence of urban form on physical activity and public health represents a significant and underutilized opportunity for planning scholars to expand their research into important new fields of inquiry and for planning practitioners to develop tools to implement health-promotive environments.

Figure 1 is a model of the interconnections between public health, physical activity patterns, and the built environment. Physical activity provides a nexus through which these generally disconnected strands of public policy can be combined. The dynamic interaction between land development and transportation investments produces built environments that encourage or discourage physical activity. Physical activity patterns, in turn, are related to public health, primarily through the direct influence of activity patterns on health. However, a reverse process—levels of obesity or chronic disease in the general population—may serve to dampen physical activity.

Although physical activity has long been an important theme in the public health literature, it has yet to occupy a central place in the planning literature. The transportation planning literature is dominated by

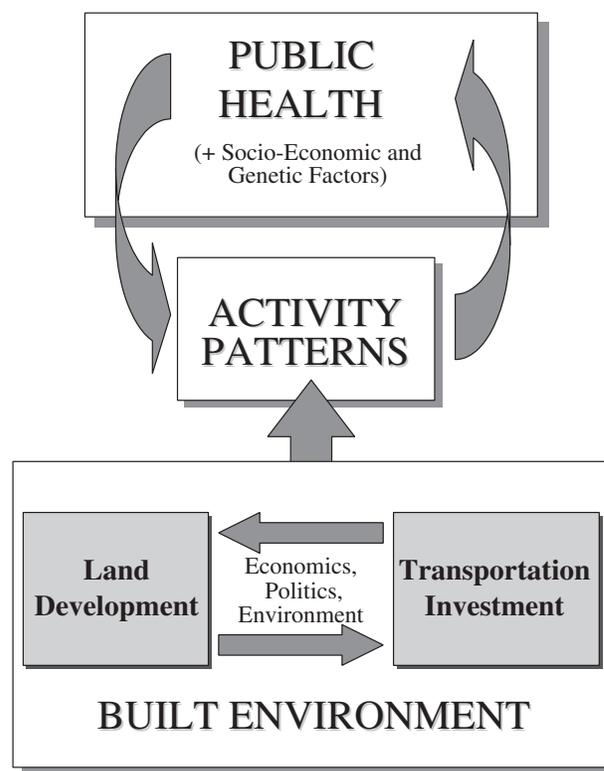


FIGURE 1. Linkages between Land Use, Transportation, and Public Health

automobile-related problems such as congestion mitigation, auto trip generation, or air quality. Rarely does nonmotorized transportation occupy a central focus in the literature on travel behavior and land development in America (Cervero 1986; Crane 1996a, 1996b; Ewing 1997; Gordon and Richardson 1997; Newman and Kenworthy 1989). Where research has extended to nonmotorized transportation, it has been silent on the health benefits of walking and biking as forms of physical activity (Frank and Pivo 1995; Moudon et al. 1997).

The Importance of Nonmotorized Transportation

Although vehicle ownership is approaching market saturation, time behind the wheel is still on the rise, as is miles of travel per capita, albeit to a lesser extent (Federal Highway Administration [FHWA] 1997; P. Hu and Young 1999). Land-intensive exclusionary zoning practices and independent, disconnected development patterns create a landscape that renders walking and biking irrational as modes of travel. Many of the costs associated with increased auto dependence remain unlinked to the specific public and private investment decisions that create physical environments. The public

health issues related to our dependence on automobiles to date have dealt with vehicle and pedestrian safety issues and with the effects of automobile emissions on health (Cambridge Systematics 1994; Surface Transportation Policy Project 1998).

These issues may be overshadowing an equally significant problem—how our urban form discourages physical activity. Although a roadway widening may improve vehicular flow, it also can reduce the space allocated to nonmotorists, reduce streetscape amenities, and increase hazards associated with higher vehicle travel speeds. Therefore, street widening often dampens the desirability of walking and biking (Rapoport 1987; Untermann 1987).

Public Health, Activity Patterns, and the Built Environment

The intent of this article is to make explicit the linkages between urban design and public health. The first linkage is the relationship between physical activity and public health (Figure 1). Walking and biking, two common forms of moderate physical activity, lead to sustained health benefits. The next linkage is between physical activity and urban design as shown in Figure 1. To introduce this linkage, we draw on the concept of the health-promotive environment. The planning literature on this subject suffers from a lack of attention to nonmotorized transportation and also from methodological problems extending from limited data (Frank 2000). Yet, research conducted in the United States and in Europe suggests that urban form has a powerful influence on walking and biking and on overall household activity patterns (Pucher 1998; Moudon et al. 1997; Lawton 1999). Planning scholars have an important and perhaps underestimated role in crafting a research agenda that reflects these linkages between public health, nonmotorized transportation, and the built environment.

PHYSICAL ACTIVITY AND PUBLIC HEALTH

An increasing body of research in the public health field suggests that significant health benefits can be achieved through the accumulation of moderate physical activity in regular short bouts. The benefits of daily, moderate physical activity have the potential to be more effective than more structured, vigorous forms of exercise such as jogging or aerobics because of increased levels of adherence to these activities.

A General Model of Health and Physical Activity

An exhaustive review conducted by the Surgeon General of the relationships between physical activity and health concluded that substantial health gains

could be realized if all persons included regular, moderate physical activity in their lives (U.S. Department of Health and Human Services [USDHHS] 1996). This type of activity was defined as including activities such as thirty minutes of brisk walking or bicycling, fifteen minutes of jogging, or thirty to forty-five minutes of gardening on most days of the week. This report also reflects one set of opinions within the public health field that those persons at lower baseline physical activity levels may enjoy higher marginal returns to per unit increases in physical activity than those at higher baseline levels (Pate et al. 1995).

The Surgeon General's recommendation contains three elements: intensity, duration, and frequency of exercise. According to Bouchard and Shephard (1994), the *intensity* of exercise relates to the level at which a person's body is working, either in absolute terms (e.g., as a multiple of the individual's basal metabolic rate) or in relative terms (e.g., as a percentage of the individual's maximal heart rate). *Duration* is the period of actual physical activity. *Frequency* is the number of sessions engaged in over a week or month.

As an example of a study that attempted to define the intensity, duration, and frequency of walking for health, a clinical study of the activity patterns of 17,416 men and women by Stofan et al. (1998) reported that people who engaged in brisk walking for thirty minutes on most days of the week ranked in the highest two quintiles for cardiorespiratory fitness. The authors discovered that those with the highest cardiorespiratory fitness levels consistently walked more frequently than those with low or moderate levels of activity. As a second example, in a review of studies, Morris and Hardman (1997) divided the duration, frequency, and intensity goals for walking into two sets of goals: a "basic" target for middle-aged people should be the ability to walk at a normal pace for at least 1.6 kilometers on level ground without fatigue, sore muscles, sweating, or fast breathing; a "more desirable" target was the ability for such people to walk the same distance without the symptoms at the same speed but on a slight incline. As a final example, Shephard (1997) agreed that a normal walking pace may provide a sufficient level of intensity for elderly persons but was skeptical as to whether this standard is sufficiently intense for young or middle-aged individuals. Additionally, he maintained that bicyclists who ride at an average speed of ten miles per hour are exercising at an adequate level of intensity for the maintenance of good health.

The recommendations in the Surgeon General's report are reflected in national public health goals. In *Healthy People 2010*, a decadal articulation of national health objectives, the USDHHS (2000) advocated increasing the proportion of Americans who engage in

TABLE 1. *Healthy People 2010* Objectives for Physical Activity Consistent with Surgeon General Recommendations for Regular, Moderate Physical Activities

22-1	Reduce the proportion of adults who engage in no leisure-time physical activity
22-2	Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least thirty minutes per day
22-6	Increase the proportion of adolescents who engage in moderate physical activity for at least thirty minutes on five or more of the previous seven days
22-14	Increase the proportion of trips made by walking
22-15	Increase the proportion of trips made by bicycling

SOURCE: U.S. Department of Health and Human Services (2000).

NOTE: Numbers refer to chapters and specific objectives in *Healthy People 2010* Objectives.

regular, moderate physical activity and decreasing the proportion of Americans who lead a sedentary lifestyle (Table 1). The USDHHS defines *moderate physical activity* as “activities that use large muscle groups and are at least equivalent to brisk walking,” whereas a *sedentary individual* is defined as “a person who is relatively inactive and has a lifestyle characterized by a lot of sitting.”

Levels of Physical Inactivity in the United States

Unfortunately, survey data consistently show that most Americans are not meeting the goals set out in *Healthy People 2010*. A recent review by Mokdad et al. (1999) of data from two primary national health surveys, the Behavioral Risk Factor Surveillance System (BRFSS) and the National Health Information Survey (NHIS), reported that only 20 percent of the population engage in regular, sustained exercise. Physical inactivity levels generally are higher for minorities, the elderly, the less educated, women, and lower income groups (Mokdad et al. 1999). Other studies report similar findings. In a review of 1990 NHIS data, Jones et al. (1998) estimated that only 38 percent of adults met the Surgeon General’s guidelines for moderate physical activity. In a review of 1996 BRFSS data by the Centers for Disease Control and Prevention (CDC) (USDHHS et al. 1999), about 30 percent of the respondents reported no leisure-time physical activity. Moreover, public health researchers report that levels of physical activity have remained steady, or even declined, over the past several decades (Andersen et al. 1999; Marcus and Forsyth 1999; Mokdad et al. 1999; Prentice and Jebb 1995).

The Price of Physical Inactivity

The public health literature has established physical inactivity as a major health problem on a par with other risk factors for mortality and chronic disease. To cite one study that provides an indication of the scale of the problem, McGinnis and Foege (1993) estimated that poor diet and sedentary living patterns caused some three hundred thousand deaths in 1990 (14 percent of all

deaths), ranking as the second leading cause of nongenetic deaths behind tobacco but well ahead of such well-known causes as firearms and motor vehicle accidents. Epidemiological research has shown that regular physical activity can reduce risk factors for many chronic diseases including coronary heart disease, some cancers, hypertension, diabetes, osteoporosis, obesity, anxiety, and clinical depression (Paffenbarger et al. 1986.; Pate et al. 1995).

PHYSICAL ACTIVITY AND MORTALITY

In a review of observational studies (where investigators observe the health experience of individuals who are active or inactive), Paffenbarger and Lee (1996) concluded that individuals with higher physical activity levels experienced lower mortality levels. The studies reviewed by these authors consistently reported an inverse relationship between mortality and level of physical activity. One study (Leon et al. 1987) found that men who engaged in moderate physical activity had a mortality risk only 73 percent of that for men in the least active category. Another study (Blair et al. 1989) examined a sample of 10,244 men and concluded that slight improvements in fitness can have a dramatic effect on long-term mortality risk.¹ Other studies have yielded similar findings, even after controlling for genetic factors (e.g., Kujala et al. 1998).

Another body of research has estimated the aggregate effect of physical inactivity on health. Hahn et al. (1990) assessed excess mortality from chronic disease in the United States using state-adjusted data from 1986. Using a form of statistical analysis wherein mortality in a population is attributed to risk factors in the population, the authors examined nine risk factors singly for their contribution to deaths from chronic diseases in the United States.² Of the nine risk factors, sedentary living ranked third, with the authors attributing 23 percent of deaths in the United States to physical inactivity. Utilizing similar methods, Paffenbarger and Lee (1996) attributed 15 percent of all deaths to physical inactivity.

PHYSICAL ACTIVITY AND CHRONIC DISEASE

The CDC defines cardiovascular disease (CVD), cancer, diabetes, and chronic obstructive pulmonary disease as the four main chronic diseases. The CDC estimates that these four diseases caused 72 percent of all deaths in the United States in 1996. The CDC charges that lifestyle choices—in particular, tobacco use, poor nutrition, and lack of physical activity—play significant roles in the onset of these diseases (CDC 1999a).

The public health literature finds strong support for a relationship between physical inactivity and CVDs, including coronary heart disease (CHD) and stroke (Francis 1997). In a study of data from two national health surveys, the CDC determined that sedentariness was the most common modifiable risk factor for CHD, present in 58 percent of reported cases; in contrast, cigarette smoking was present 25 percent of the time, obesity 22 percent, and hypertension 17 percent (CDC 1990). Findings from epidemiological studies corroborate these results. Studies of risk factors for CVDs have found physical inactivity to be the leading risk factor for CHD in middle-aged and elderly men (Haapenen-Niemi et al. 1999), whereas others have found that moderate exercise can lower blood pressure and certain types of cholesterol (Anspaugh et al. 1996; Sallis, Haskell, Fortmann, Wood, et al. 1986).

The Surgeon General's report summarized the health research on the effect of physical activity on cancer and concluded that physical activity has been associated with a decreased risk of colon cancer and that there are inconsistent associations between (or a lack of data about) the effect of physical activity on other cancers (USDHHS 1996). Sternfeld (1992) observed that there are important and unanswered questions about the relationships between physical activity and cancer. She concluded, however, that because physical inactivity levels are very high, the aggregate (population-wide) effects of increased physical activity levels on cancer prevention may be high even if physical activity has only a small protective effect on the individual.

There is considerable evidence linking physical activity to the most common type of diabetes (USDHHS 1996). A cohort study by F. Hu et al. (1999) specifically addressed walking as a predictor of the most common form of diabetes, type 2 (non-insulin-dependent) diabetes. The health and activity patterns of a cohort of seventy thousand women who did not have diabetes at the baseline year were tracked for eight years. Women who walked the most had only 58 percent of the risk of contracting diabetes when compared with completely sedentary women after controlling for possible confounding effects such as age and hypertension. Whereas brisk walking reduced the level of risk the most, moderately

paced walking also generated a significantly lower comparative risk.

PHYSICAL ACTIVITY AND OVERWEIGHT/OBESITY

Severe overweight and obesity are linked to a variety of chronic health problems, including diabetes, high blood pressure, and high cholesterol levels (USDHHS 1996). An analysis by Must et al. (1999) of nearly seventeen thousand adults who participated in a nationwide health survey (conducted in two phases, 1988 and 1994) reported that 42 percent of men and 28 percent of women were overweight, and 21 percent of men and 27 percent of women were obese. Similarly, Mokdad et al. (1999) revealed that obesity levels in the United States increased from 12.1 percent of all adults to 17.9 percent between 1991 and 1998. Obesity levels increased for both genders, in each state, and across all races, educational levels, age groups, and smoking statuses. These studies defined *overweight* and *obesity* using the commonly accepted body mass index (BMI) formula, determined as a person's weight in kilograms divided by the square of his or her height in meters; overweight persons were defined as having a BMI of 25 to 29.9, whereas obese persons were defined as having a BMI greater than 30.

Studies generally show that physical fitness is negatively correlated with measures of overweight and obesity (see, e.g., Stofan et al. 1998; Anspaugh et al. 1996; Sallis, Haskell, Fortmann, Wood, et al. 1986). A number of studies also provide evidence in support of the proposition that lack of exercise contributes to overweight and obesity or can have a positive effect on weight reduction. Prentice and Jebb (1995) examined trend data in Britain and concluded that long-term increases in physical inactivity correlate with increases in obesity more closely than dietary changes correlate with obesity. In an epidemiological study of the effect of exercise on body weight and fitness in obese women, Andersen et al. (1999) concluded that moderate levels of physical activity may provide long-term benefits for weight reduction. The Surgeon General's report, however, asserts that there is conflicting evidence with respect to the effect of physical activity on obesity (USDHHS 1996).

PHYSICAL ACTIVITY AND QUALITY OF LIFE

Regular physical activity maintains muscle strength, peak bone mass, joint structure and function, and perceived physical and mental health status (USDHHS 1996; Unger 1995). Moreover, the benefits of regular physical activity may accrue more to persons in the last decades of life, as it may delay the onset of partial or total disability, chronic diseases, and total dependence on medical care providers (Shephard 1994).

ECONOMIC COSTS OF PHYSICAL INACTIVITY

Premature death and disability caused by CHD, diabetes mellitus, colon cancer, and other illnesses related to physical inactivity result in tremendous health care costs in the United States. CVD, for example, accounts for the highest percentage (14 percent) of medical expenditures for the six highest diagnostic disease categories and has been estimated to cost the United States more than \$150 billion per year in direct and indirect costs (CDC 1994; Stone 1996).³ A study by Pratt et al. (2000) of respondents to a 1987 national medical expenditures survey found that average annual direct medical costs for those who regularly engaged in physical activity were lower (\$1,242) than for those who reported being inactive (\$2,277; $p < .01$). Cost differences remained after stratifying on the presence of physical limitations (\$1,019 vs. \$1,349; $p < .01$) and within each subgroup (e.g., women, men, smokers, nonsmokers). The authors conservatively estimated that \$76.6 billion per year (in 2000 dollars) in direct medical costs could be saved if all physically inactive persons in the United States were to meet current health standards for regular, moderate physical activity.

PHYSICAL ACTIVITY AND HEALTH-PROMOTIVE ENVIRONMENTS

The studies presented above, linking physical activity with public health, are consistently "aspatial." These studies do not attempt to correlate the various measures of health or physical activity with exposure to walkable and unwalkable environments. However, given the importance of walking to health, public health scholars have recognized the importance of addressing the ways built environments promote or discourage physical activity, either as a topic for research or as embodied in public policy.

Therefore, public health models have shifted toward emphasizing the health-promotive environment. Health promotion is a branch of health research and is defined as "any planned combination of educational, political, regulatory, and organizational supports for actions and conditions of living conducive to the health of individuals, groups, or communities" (Green and Kreuter 1999, 506). Health-promotive environments are conceptualized as those that "provide environmental resources and interventions that promote enhanced well-being among occupants of an area" (Stokols 1992, 6). Such environments can be defined in terms of the health outcomes—physical, mental, emotional—that result from human interactions with an environment over time. Thus, environments can be thought of as enablers (or, alternatively, disablers) of health behavior

and can be defined at multiple spatial scales (Stokols 1992).

As an example, Sallis et al. (1998) offered a model for research into physical activity (see Figure 2). The model suggests that public health research should focus on the creation of supportive environments, defined as some combination of settings, facilities, and programs that encourage physical activity. Various definitions of "ecological," "environmental," or "health-promotive," such models stress that environments are important determinants of health (Marcus and Forsyth 1999; McLeroy et al. 1988; Sallis and Owen 1999).

Physical Activity Adoption and Maintenance

Research indicates that people may be more willing and able to adopt moderate physical activities and, once such activities are begun, to maintain them over time, as compared with forms of vigorous physical activity. In general, survey data reveal that there is considerable resistance among nonexercisers, especially among middle-aged and older persons, to taking up high-intensity and program-centered activities (Laitakari et al. 1996). Resistance to adopting moderate physical activity regimens appears to be lower. In a study of physically inactive Australian adults, Booth et al. (1997) found that nearly 60 percent of the participants said that their most preferred activity was walking. A study that tracked the exercise behaviors of fourteen hundred California adults (Sallis, Haskell, Fortmann, Vranizan, et al. 1986) yielded similar findings, with data suggesting that whereas middle-aged persons rarely adopted vigorous activity exercise regimens, adults at all ages adopted moderate activity regimens much more frequently. Moreover, once adopted, moderate exercise was much more likely to be maintained than was vigorous activity: half of those who were vigorously exercising initially had quit after one year; in contrast, about 70 percent of the respondents who reported high levels of moderate activity at baseline continued such activity after one year (Sallis, Haskell, Fortmann, Vranizan, et al. 1986).

The incorporation of activity into daily living is especially significant for people who dislike vigorous structured activity, do not have access to facilities, or do not have enough time for structured activities. In the public health literature, *lifestyle interventions* encourage physical activity in daily life. In contrast, *structured interventions* target individuals through structured programs. In a review of studies, Dunn, Andersen, et al. (1998) found that lifestyle interventions demonstrate long-term effects in increasing levels of moderately intense physical activity. Other studies have shown that those who are sedentary are more likely to adopt moderately intense and inexpensive activities that fit into

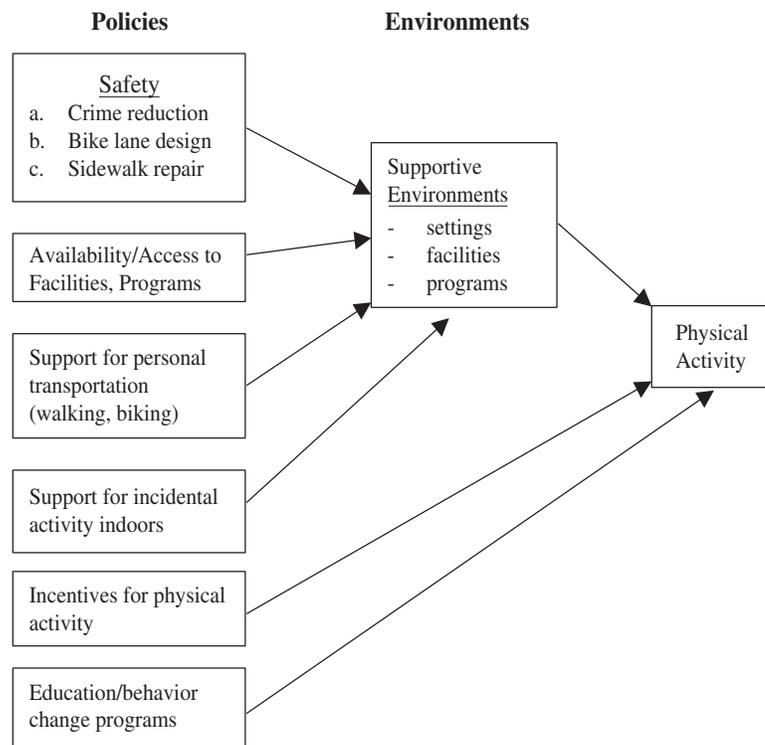


FIGURE 2. Environmental Influences on Physical Activity: One Model for Research and Theory in the Public Health Literature

SOURCE: Reprinted from Sallis et al. (1998) with permission from Elsevier Science.

daily living patterns than they are to enroll in a structured activity such as becoming a member of a health club (Laitakari et al. 1996; Owen and Bauman 1992; Shephard 1997). Moreover, studies suggest that lifestyle interventions may lead to greater long-term maintenance of physical activity (Andersen et al. 1999; Dunn et al. 1999; Dunn, Garcia, et al. 1998).

Barriers to Physical Activity

The above considerations have led public health researchers to concentrate on understanding the barriers to physical activity. In general terms, the literature defines barriers along two lines:

- *Personal barriers* are subjective considerations that restrict an individual's motivation or ability to exercise. Frequently cited personal barriers include lack of time, physical inability to exercise, lack of social support, child care responsibilities, and lack of health knowledge (Booth et al. 1997; Myers and Roth 1997; Sallis, Haskell, Fortmann, Wood, et al. 1986). Personal barriers are often conceptualized as perceptible; time constraints, for example, may be as much a perceptible condition as an objective one (Dishman and Sallis 1994).

- *Environmental barriers* are real-world conditions that place restrictions on physical activity, such as the lack of bike lanes on roads. Few public health models have defined the role of the physical environment in health to a level of great detail (Sallis and Owen 1990).

In surveys of why people do not walk or bike more frequently, both types of barriers show up in the responses (Go for Green/EnviroNics 1998). Illustrative is the summary of factors influencing nonmotorized mode choice as defined by the FHWA (1994). As Table 2 shows, mode choice is a combination of subjective and objective factors, with several, such as distance to destination and traffic safety, considered by the FHWA to contain elements of both.

One of the most commonly reported personal barriers to exercise is lack of time (Booth et al. 1997; Oja et al. 1998; Owen and Bauman 1992). Although it is true that vehicle miles of travel (VMT) have been increasing over time, evidence has shown that the amount of time spent on commuting to work has remained relatively constant (Pisarski 1996). The idea that people are willing to invest a fixed amount of time each day into travel is a phenomenon known as the "law of constant travel

TABLE 2. Factors Influencing Choice to Walk or Bicycle

Personal and subjective factors	
Distance	
Traffic safety	
Convenience	
Cost	
Valuation of time	
Valuation of exercise	
Physical condition	
Family circumstances	
Habits	
Attitudes and Values	
Peer group acceptance	
Environmental factors	
Distance	
Traffic safety	
Weather	
Topography	
Infrastructural features	
Pedestrian/bike facilities, traffic conditions	
Access and linkage of pedestrian/bicycle facilities to desirable destinations	
Existence of competitive transportation alternatives	

SOURCE: Federal Highway Administration (1994).

time" (Hupkes 1982). It suggests that an increased travel time requirement for vehicular travel necessarily reduces the time that a household may choose to budget for travel devoted to other modes. The notion of an anthropologically based travel time budget is supported through findings from a household activity-based travel survey conducted in and around Portland, Oregon, in 1994, which suggested that households tend to allocate a consistent amount of time to travel, regardless of regional location or the urban design and transportation characteristics of its environs (Lawton 1999).

Although some public health scholars have asserted that changes to the built environment have the potential to increase physical activity much more than policies aimed at influencing individual behavior (e.g., Schmid et al. 1995), environmental barriers to physical activity are poorly understood. Little research has been performed regarding which environmental barriers may hinder decisions to adopt and maintain physically active lifestyles. Although a number of studies have been conducted that suggest a relationship between environmental variables such as neighborhood safety and the presence of exercise facilities in neighborhoods (CDC 1999b; Linenger et al. 1991), this line of research is in its infancy. Environmental barriers may have disproportionate impacts on different subgroups within the population, most especially for vulnerable groups. The Organization for Economic Cooperation and Development (OECD) (1998) reviewed studies from different

member states on the personal mobility of the elderly and observed that the elderly may restrict their mobility because of safety considerations more than other groups. Such concerns may be related to the particular difficulties the elderly face when negotiating the urban environment. For example, slower walking speed may restrict an elderly person's ability to safely negotiate crosswalks and other features of the built environment.

Similarly, safety issues dominate the literature on children's travel. Because children perceive the environment in different ways than adults, are smaller in size, and lack experience in traffic situations, children are frequently the victims of traffic accidents. A number of scholars have speculated that parents have been withholding permission for their children to travel by themselves because of increased fears of traffic dangers, resulting in fewer trips by children on foot or by bicycle and more trips as passengers in cars (Davis 1998; Daisa et al. 1996; DiGiuseppi et al. 1997; Hillman et al. 1990; Roberts 1993). As a result, more and more children are relying on the car for mobility rather than walking and biking, translating into travel habits carried into adulthood.

PHYSICAL ACTIVITY AND THE BUILT ENVIRONMENT

For the purpose of understanding walking and bicycling, the built environment is broken down into three components: transportation systems, land development patterns, and micro-scale urban design.

Transportation Systems

Transportation systems provide connections between activities. These "vascular" systems determine the physical pathways and the relative utility across modes of travel. At the macro or subregional level, the supply or capacity for movement across arterials, bikeways, railways, and limited-access highways impacts the choice of mode for commuting and other trips between centers or urban areas. Within urban centers and communities, the layout of the street network and the distribution of space for different modes of travel within a given right of way impact the directness and quality of travel. It is at this scale that the ability to walk and bike between places of residence, commerce, employment, and recreation is determined. Collectively, travel between centers or areas of a region and travel within centers or communities operate in a synergistic manner. Transit's regional success hinges on the pedestrian environment at the local and neighborhood scale. The ability to forgo car ownership requires having competitive forms of transit and nonmotorized movement. Therefore, these alternative modes of travel to the car operate as a system, the relative convenience

and attractiveness of which is reliant on the presence of and linkage between distinct modes of travel.

Generally, there are two types of street networks. Well-connected street networks tend to have smaller blocks and more intersections and offer more direct movement between activities. The grid pattern is the archetype of high connectivity and is capable of increasing walking and biking by reducing the distance between trip origins and destinations, offering alternative pathways of movement, creating interest, and moderating vehicular travel speeds through the closer spacing of intersections (Southworth and Owens 1993; Frank et al. 2000).

The contrasting system is the dendritic street network. In this type of system, streets are hierarchical and curvilinear and often follow land contours. Residential streets loop back on themselves or terminate in cul-de-sacs and feed into major arterial roads, which are designed for heavy traffic volumes and often feature no pedestrian or bicycle amenities. These networks are characterized by a low number of blocks and intersections per unit of area, increasing trip length and decreasing route and modal choice (Frank 2000; Southworth and Owens 1993).

Land Development Patterns

Land development patterns define the arrangement of activities and impact the proximity between trip origins and destinations. We define and discuss two patterns. The first is compactness or density, which can be measured in terms of the number of persons, households, or employees per acre, square kilometer, or square mile (Dunphy and Fisher 1996; Frank et al. 2000; Holtzclaw 1994). There is an extensive literature on density and its relationship to travel choice (Cervero and Gorham 1995; Dunphy and Fisher 1996; Frank and Pivo 1995; Holtzclaw 1994; Kitamura et al. 1994; Steiner 1994). Higher density has been associated with reduced trip lengths, reduced vehicle ownership (by obviating the need to own a vehicle), and increased mode choice options (Frank and Pivo 1995).

In a literature review, Churchman (1999) argued that there is little consensus in the planning literature regarding the following: how to define density with precision, over which geographic scale to measure the concept, how to define the goals of densification (e.g., ecological, transportation, housing, or social goals), how to weight the importance of objective density numbers versus the subjective experience of density (e.g., the psychological experience of crowding), and whether higher or lower density is desirable in the first place. Density also masks other measures that are perhaps more causal in explaining travel choice. Handy (1996a) argued that “sets of choices”—travel destinations—

are correlated with density and serve to shape travel behavior rather than density itself. Other studies point out that neighborhoods with certain attributes attract individuals who have a preference for walking and bicycling. According to this view, such persons may simply move to neighborhoods that facilitate these activities (Kitamura et al. 1994; Krizek 2000). Regardless, increased compactness and concentration of uses (density) is a fundamental requirement for shortening distances between activities. However, density alone does not address the presence of, and ease of access to, complementary uses within a walkable distance.

The degree to which different activities (residential, commercial, retail) are located within close proximity to one another, or land use mix, is associated with reduced trip lengths (Frank and Pivo 1995), lower level of per capita auto ownership, increased transit usage for the journey to work (Cervero 1988), and more travel choices for all trip purposes (Apogee Research 1998). However, it remains uncertain at what geographic scale mix should be measured and what an “ideal” combination of uses would be within differing urban contexts. Collectively, density and mix determine the geographic proximity between activities, whereas connectivity impacts the directness one can travel by mode between activities.

Micro-Scale Urban Design

The pedestrian and cyclist are more sensitive to urban design features of the built environment than the motorist. Rapoport (1987) argued that the critical determinant of urban design features is the “number of noticeable differences,” which is a function of the rate at which a person moves through the built environment. Motorists have a limited ability to process detail in the environment because speed demands concentration; therefore, the ideal environment for a motorist is low in complexity. Conversely, pedestrian and bicycle travel, being much slower, afford the ability to notice differences in the streetscape. A rich pedestrian environment, therefore, is one that maintains the pedestrian’s visual and sensory attention. Streets that are abrupt, irregular, complex, and changing will be more highly valued by a pedestrian (Rapoport 1987).

Streets with ample sidewalks, bike lanes, and crosswalks on which pedestrians and cyclists can travel will be perceived as safer. The perception of safety is influenced by faster or slower automobile travel along the street itself (Handy 1996b). Over the past half century, road design standards have favored high-speed, motorized travel that serves to counter the promotion of walking and biking for mobility and recreational purposes (Ewing 1994; Hess 1997; Southworth 1997; Southworth and Ben-Josef 1995; Untermann 1987).

TABLE 3. Alternative Methods to Calculate Land Use Measures

Measure	Defining Characteristics	Strengths/Weaknesses
Aggregate (zonal)	Frequently used to measure urban form characteristics Assigns an average score to each household in a zone	Relatively easy to acquire data at the zonal level Fails to capture intrazonal variation Households at edges of zones are influenced by characteristics of adjacent zones
Crow fly	Household becomes level of analysis Household is placed at the center of a circle Urban form attributes within the circle are assigned to the household	More difficult and expensive to gather data for each household Has the major advantage of assessing the urban form characteristics around each household
Network	Places household at center of street network Creates a ratio of network distance to "crow fly" distance	Even more difficult and expensive to gather and analyze data Maps and assesses the degree to which street network surrounding a household is high or low in route directness
All-mode network	Same as network except pedestrian and transit systems are also mapped	Most difficult and expensive measure Precisely measures degree to which a household is located in transit-, pedestrian-, and bicycle-supportive environments

Finally, urban design features at the neighborhood level, including the placement and design of buildings, parking lots, and other features in the neighborhood (Owens 1993), impact the desirability of nonmotorized travel.

Empirical Evidence

Empirical studies of the relationship between urban form and travel behavior have yielded inconsistent results. There are several reasons for the inconsistency.

First, there is no consensus regarding which theoretical models to apply. Crane (1999) asserted that few studies address the theoretical reasons for how the demand for travel changes with land use patterns. Second, most studies only address linkages between urban form and motorized transportation, largely due to the lack of data on nonmotorized transport. In addition, the ability to document causality is hindered by cross-sectional research designs whereby household travel patterns are systematically compared with the urban form context in which these residences are located for one point in time (Cervero and Kockelman 1997; Frank et al. 2000). The Puget Sound Transportation Panel chronicles the travel characteristics of approximately sixteen hundred households between 1989 and 2000 and is one of the only data sets to provide any ability to longitudinally test the effects of changes in land use and transportation actions on the travel choices of a small, but relatively stable, cohort (Krizek 2000).

However, understanding the effects of the built environment on nonmotorized travel remains difficult because of the systematic underreporting of short nonmotorized trips. A study by Hassounah et al. (1993) of travel data in Toronto, Canada, revealed that trip underreporting (due to either trip reporting by proxy—whereby a member of a household reports trip information for another household member's travel—and memory lapse) was the rule for short discretionary trips. Although their analysis was limited to automobile trips, a study by Brög et al. (1982) of trip underreporting in Germany found significant differences by mode as well as trip type. Not only were short and discretionary trips underreported much more frequently, the nonreported trip rate for all nonmotorized modes was 21.1 percent, whereas that for motorized modes was 9.9 percent. The problem of trip undercounting by land use type (e.g., urban vs. suburban) was not explored in either study.

Third, urban form variables tend to covary across space. It is difficult to determine precisely which factors correlate the most with travel behavior patterns because those land development patterns that are conducive to walking and biking are often found in the same neighborhoods as those where street networks and design also favor nonmotorized travel. For example, density is correlated with other land use characteristics that are believed to influence nonmotorized travel and, thus, may serve as a proxy for other variables that

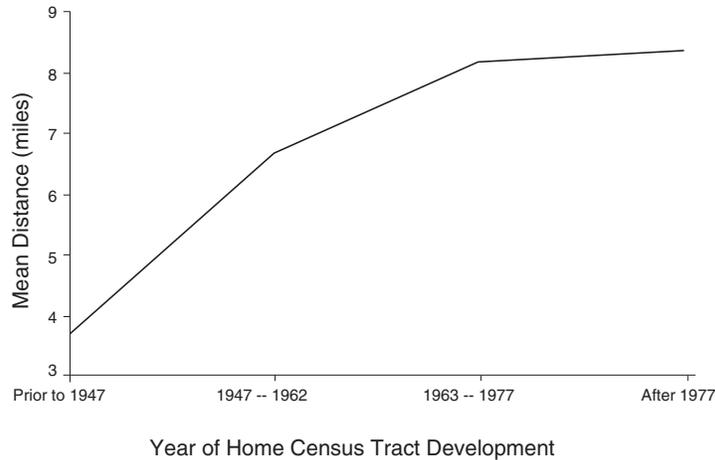


FIGURE 3. Average Distance Traveled to Recreational Destinations by Year of Home Census Tract Development, Puget Sound Area, 1996

are determinative. Unfortunately, the literature has not, in general terms, separated out the influence of these other factors (Steiner 1994).

Fourth, empirical studies define key measures differently; include and exclude different independent variables; control for different non-urban-form variables; and, perhaps most important, rely on wholly different levels of data aggregation. Table 3 provides a categorization scheme for alternative methods of measuring land use patterns and transportation systems. Many studies rely on aggregate data that is most often collected at large geographic scales such as census tracts or traffic-analysis zones (TAZs). As discussed by Krizek (2000), aggregation assigns an overall score—for, say, density or land use mix—to a large surface area that may contain significant intrazonal variation. In addition, households located on the edges of zones may be influenced more by the urban form characteristics of adjacent zones than by the aggregate score assigned to the zone in which the household is located.

The “crow fly” and “network” cells of Table 3 attempt to correct the deficiencies of aggregate data by assigning urban form attributes such as land use measures or street network configurations to each household. Although these measures have found their way into some of the literature (e.g., Boarnet and Greenwald 2000; Crane and Crepeau 1998), their widespread adoption is constrained by the difficulty and expense of obtaining data at this level of detail. Finally, the best data on nonmotorized transportation are represented in the “all-mode network” cells of Table 3. This level of data would provide detail about the bicyclist and pedestrian routes on which nonmotorists travel. Unfor-

tunately, such data are rarely collected, due in part to the expense involved in such mapping. Many studies employ urban form variables that are measured at several of the levels in Table 3.

Review of Studies

The conceptual and methodological issues outlined above are reflective of the problems that planners have had in understanding the effect of urban form on transportation in general and on nonmotorized transportation in particular. One widely shared hypothesis, for example, is that older neighborhoods possess a set of characteristics that impact travel behavior. The age of residential development may be a proxy for land use and transportation investment variables such as density, land use mix, regional location, pedestrian amenities, and street grid layout (Frank 2000). To illustrate, Frank (2001) used data from a Puget Sound Transportation Panel to generate a figure (reproduced here as Figure 3) showing that the average distance one needs to travel for recreational purposes decreases with the age of the neighborhood, implying that persons who live in older neighborhoods have better access to recreational facilities such as parks.

This usage of the Puget Sound data is descriptive. Therefore, it does not address travel distance per mode, control for sociodemographic factors, or the likelihood that recreational walking and bicycling trips are undercounted for some types of neighborhoods. Handy (1996b) found that residents of “traditional” neighborhoods walked to the store much more frequently than did those in “late modern” neighborhoods; however, there was much less variance in the

number of strolls around the neighborhood (i.e., trips without a destination).

A standard approach to addressing the connections between urban form and travel behavior is the case-control study. Here, the strategy is to select neighborhoods based on differences in urban form parameters (such as density, mixture of uses, and street network configuration with the neighborhood as the unit of analysis and each household assigned the neighborhood's urban form score) and, usually, control for one or more socioeconomic variables such as income. Differences in travel behavior across typologies (e.g., "standard suburban" vs. "traditional" neighborhoods) are ascribed to the differences across the urban form categories. These studies generally find that reported levels of walking and bicycling are higher and/or automobile usage (as measured, for example, by vehicle miles or hours of travel) lower in traditional neighborhoods than in standard suburban neighborhoods (Cervero and Gorham 1995; Friedman et al. 1994; Handy 1996a, 1996b, 1992; Holtzclaw 1994; Shriver 1997); a smaller number have found fewer or weaker relationships (Ewing et al. 1994).

Most of the neighborhood-based studies attempt to select neighborhoods that meet certain urban form criteria (e.g., high density and high street connectivity); some attempt to control explicitly for additional urban form variables. Related studies by Hess et al. (1999) and Moudon et al. (1997), for example, selected and paired twelve commercial neighborhoods in the Puget Sound area. They controlled for density, mixture of uses, and regional location to isolate the effect of street network connectivity and the safety of pedestrian facilities on pedestrian travel. Half had grid street networks and high-quality pedestrian facilities (safe rights-of-way, continuous sidewalks, directness of pedestrian routes between residential and commercial development), whereas the other half were characterized by disconnected street networks and pedestrian facilities. All sites had small- and medium-sized commercial centers and were surrounded by medium-density residential development. The six neighborhoods with greater connectivity and better facilities generated higher pedestrian traffic volumes than those with poorer levels of connectivity and poorer facilities; Moudon et al. (1997) found that on average, urban sites have about three times the pedestrian volume of suburban sites.

Other studies have assessed the relationships between urban form attributes and travel behavior but have used data at higher levels of aggregation. Cervero (1988), for example, ran a series of regression equations to assess the impact of mixed-use development at fifty-seven suburban office centers. He found that the percentage of total site floor space dedicated to retail

use (a measure of the mixture of uses at the center) was positively and significantly related to walk and bike commuting. Studies by the firm Parsons Brinckerhoff Quade and Douglas (1993a, 1993b) attempted to measure the impact of building setback and pedestrian amenities such as sidewalks on travel. In the study on building setbacks (Parsons Brinckerhoff Quade and Douglas 1993b), researchers established an index of the proportion of all buildings built before 1951 in each of the region's four hundred traffic analysis zones, based on the belief that structures built before the 1950s were typically built to the front of the lot line rather than set back to allow for automobile parking. Regression models showed that a higher index score (meaning a higher percentage of older buildings) had an independent and negative effect on VMT. Descriptive data showed that mode share for walking and bicycling increased with higher index scores.

Another body of literature has attempted to assess the before-and-after impact of transportation investments on mode choice. For example, case studies of the effects of traffic calming techniques on pedestrian and bicycle travel in northern Europe, where such street design treatments are widely used, have repeatedly shown that traffic calming increases bicycling and walking levels, decreases automobile/pedestrian accidents, and slows vehicular traffic (Clarke and Dornfeld 1994; Eubank-Ahrens 1987; Tolley 1993; Wynne 1992). In a series of reviews, Pucher (1998, 1997) and Pucher and Clorer (1992) assessed the impact of infrastructural and policy changes at the municipal level for increasing bicycle and pedestrian use in certain German cities from the 1970s through the 1990s. These cities created extensive car-free zones, implemented widespread traffic-calming measures, created and expanded networks and facilities for bicycles, restricted the parking supply in downtown areas, prohibited new roadway construction, and severely restricted vehicle speed limits on many streets.

A number of core objections have been raised to the standard model discussed above. First, a number of scholars claim that these models fail to address the thorny problem of neighborhood self-selection. As Krizek (2000) asserted, observed differences in travel behavior across land use types may be more a function of the values and preferences that residents of certain types of neighborhoods possess; traditional or neotraditional neighborhoods may simply attract people who place a higher value on walking and bicycling. To address this problem, Krizek employed the Puget Sound Transportation Panel to assess household travel choices before and after a residential relocation wherein the households moved from one type of neighborhood to another. The study found that there were few signifi-

cant differences in travel behavior when households relocated from standard suburban to traditional neighborhoods and vice-versa, leading Krizek to conclude that self-selection has a greater impact on travel than urban form. This study utilized urban form data corresponding to several of the levels in Table 3 (census data are used for density; street networks are measured at a 150-square-meter grid cell level; street design and nonmotorized pathway variables are excluded from the analysis).

In a neighborhood-based study, Kitamura et al. (1994) regressed socioeconomic and urban form attributes such as density, mixture of uses, street patterns, transit access, and sidewalk availability on mobility. Although the study showed that urban form variables influenced vehicular and nonmotorized travel, the authors found that attitudes toward environmental issues, transit, and automotive mobility explained the highest proportion of data.

A second set of objections stem from the general premise that neighborhood-based studies and similar approaches fail on theoretical grounds. As was discussed briefly earlier, standard approaches fail to provide a conceptual framework for assessing the trade-offs that occur when urban form variables are changed. For example, when trip distances are shortened, how does the demand for trips, including the demand for travel by different modes, change?

In two studies, Crane (1996a, 1996b) posited that travel is a function of costs (in terms of time and money) and preferences (how one feels about alternative modes). Thus, an improvement in access that results from a shortening of trip distances (caused by densification, mixing of uses, and/or improved street connectivity) likely will increase trip taking (Crane 1996a). Moreover, if the cost of travel by car falls more rapidly than for walking or biking, the effect of such urban form changes may reduce physical activity. Thus, the combined effect of urban form changes will be ambiguous: some changes, such as a change to a grid pattern, may increase trip generation across all modes, whereas other types of changes, such as traffic calming, will dampen automobile trip generation (by increasing the cost of auto trips) and encourage travel by other modes (Crane 1996b).

These ideas have been tested empirically by a number of scholars (Boarnet and Greenwald 2000; Boarnet and Sarmiento 1996; Crane and Crepeau 1998). Boarnet and Sarmiento (1996) modeled the demand for nonwork trips as a function of trip prices, income, land use variables that affect prices, neighborhood amenities (believed to influence neighborhood choice), and sociodemographic variables. Their main conclusions

were that, first, land use variables such as mixed-use development appeared to be weakly related to travel behavior and, second, that measures of connectivity, in this instance grid street patterns, appeared to increase automobile trip generation. Crane and Crepeau (1998) reached similar findings. After controlling for trip costs, sociodemographics, and land use characteristics around the trip origin, their analysis found that neighborhood street pattern had no effect on automobile or pedestrian travel.

These studies attempted to measure land uses and transportation investments at a finer scale, for example, measuring grid patterns at the street network level of analysis outlined in Table 3. However, all resorted to aggregated data for some of their land use variables, reflecting both a continual and practical need to rely on such readily available data and on a need to utilize large amounts of cross-sectional data for the purposes of rigorous statistical modeling. Moreover, these studies generally focused on automobile travel and, to a significantly lesser degree, nonmotorized travel. As a result, their models are underspecified. They do not, for example, attempt to model the independent effect of micro-scale design attributes on the propensity to walk, attributes that Crane's (1996a, 1996b) theoretical formulations would suggest are important determinants of the demand for such trips. These attributes would include both site design features and, more important, street design features, such as traffic calming strategies, that have the simultaneous effect of slowing traffic speeds and encouraging bicycling and walking.

CONCLUSION AND FUTURE RESEARCH

The public health literature is unequivocal in claiming that significant improvements to public health could be achieved through increased levels of daily, moderate physical activity. Furthermore, public health research also shows that this type of physical activity might be increased most efficiently through the creation of health-promotive environments in which physical activity is encouraged via urban form. The upshot of the research is that all modes of travel are not equal; from a public health perspective, nonmotorized transportation generates positive consequences whereas motorized forms of transportation generate negative ones independent of air quality issues. Specifically, auto use and auto-oriented design render urban spaces dangerous for walking and consume time that could be used for other health-promoting activities.

However, a fundamental disconnect between the public health and city planning professions stems from a separation of responsibilities and institutional barriers

ers to joint research. As an example, the widespread implementation of automobile-supportive land development and transportation investment patterns have systematically underestimated and misspecified the underlying public health costs and benefits of such development.

To realistically increase the level of walking and biking, it will be essential to reintroduce development practices that make it easier to engage in such activities during the course of one's daily activities. This may mean not only the introduction of the types of urban design features advocated by neotraditionalists into developments located at a region's periphery but also the retrofitting of existing urban areas. For example, the provision of nonmotorized linkages between residential, commercial, and employment areas reduces the time required for travel on foot while holding the time requirements for auto access constant. In accordance with microeconomic theory, this should render a relative increase in the utility of walking and biking versus driving and promote physical activity while reducing auto dependence.

In this regard, more research is required to effectively measure the variation in the level of physical activity across distinct land use patterns, including the impact of micro-scale urban form features that have been, to a large extent, neglected in the transportation planning literature. This line of research needs to also investigate the linkages between time usage, travel, and physical activity. Finally, work is needed to understand the complex set of factors that impact how different segments of the population react to various forms of physical activity interventions, including land development and transportation investment strategies.

The reliance on self-reported travel data collected to update regional travel demand models has limited the ability to understand all forms of travel in general and nonmotorized travel in particular. Through the deployment of global positioning systems, physical activity monitors, and electronic diaries within travel surveys, it will become possible to more accurately assess how the built environment impacts nonmotorized travel. Through this process, it may become possible to cultivate a meaningful theoretical model that explains the nexus between our activity patterns and the built environment.

NOTES

1. The figures cited are relative risk (RR) statistics. Bauman (1998) explained that the relation between physical activity and most health outcomes, including mortality, is usually expressed as RR. According to Bauman, RR is "calculated as the ratio of the rate of the outcome in those who are inactive compared with the outcome in those who are more active" or vice-versa (p. 279). For example, an outcome (level of

incidence of, say, death) for physically active men is 2.1/1,000 person-years whereas the outcome for sedentary men is 5.8/1,000 person-years. The RR for mortality for the active compared to the sedentary is 0.36 (2.1 divided by 5.8). See Powell and Blair (1994, 852).

2. A second common statistic in the health field is population attributable risk (PAR). According to Powell and Blair (1994), PAR allows estimation of the percentage of deaths (or other health outcome measures) that theoretically would not occur if the risk factor—in this case, physical inactivity—were not present in the population. Because the number of outcome cases in which the risk factor not present is not observable, researchers estimate the number using the RR of inactive persons with respect to active individuals.

3. The six highest diagnostic disease categories include cardiovascular, injury, neoplasm (malignant tumors), genitourinary, respiratory, and musculoskeletal.

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Book Review

Hise, Greg, and William Deverell. 2000. *Eden by Design: The 1930 Olmsted-Bartholomew Plan for the Los Angeles Region*. Berkeley: University of California Press. vii + 248 pp. \$17.50. ISBN 0-520-22415-9.

Eden by Design represents a rare opportunity to understand the complex process of plan making for an expanding metropolitan area. The book provides insights into the strategies behind the development of the 1930s document *Parks, Playgrounds, and Beaches for the Los Angeles Region* by the Olmsted Brothers and Harland Bartholomew and Associates. That document was viewed as a first step in identifying the area's future needs, designing a countywide system, and establishing guidelines for the plan's implementation. In its time, it was considered "remarkable" and a "bold vision" for more than fifteen hundred square miles stretching from the arid Antelope Valley in the north to the harbor in Long Beach, from the beaches of Malibu out to Riverside County. The original document is reprinted in the book since limited copies remain, and the authors liken their work to "urban archaeology." The authors indicate that a search of national publications in the early 1930s did not produce any mention of the plan. One is left to wonder why the plan was never given significant public attention; the urgency with which it was commissioned and the prominence of the firms that developed it would have justified national acclaim. Was this plan a failure? And, as the authors themselves ask, is it now worth close study?

The first part of the book addresses the planning process and the manner in which a citizens committee, made up primarily of chamber of commerce members and their associates, commissioned the original document. Readers will quickly realize that although the movers and shakers of 1930s Los Angeles were behind this effort, the overall political climate may explain why this document did not receive the attention or acclaim it warranted. Also, the plan was commissioned in the early part of the Great Depression, and the poor economic situation suggests that this was an overambitious effort.

The second part of the book presents the original 178-page document in its entirety. The authors of that document made the case for distinguishing Los Angeles from other cities in the country. They wrote, "The Los Angeles Region is the only great metropolis that has developed almost wholly since the invention of the automobile," and the "recreation of its people is

largely dependent on the mobility the auto provides." The reader gains a better understanding of the magnitude of the planning effort that was involved. The document also provides a truly regional perspective of Los Angeles and is a vital part of the history of that city.

The final section of the book contains a dialogue between the authors and landscape architect Laurie Olin. He further illuminates the significance of the Olmsted-Bartholomew plan and places the document within the history of landscape planning in the United States. Planners and landscape architects alike will benefit from his comments.

The book goes beyond the analysis of the plan to uncover and make transparent the factors that led to the commission and creation of the document, and this is very instructive. The readers have the benefit of this insight as well as the ability to peruse the original document. The authors invite the readers to imagine the Los Angeles that might have been had the plan been adopted and implemented. Whether the Los Angeles region would have been a different place had the Olmsted-Bartholomew plan been fully embraced by the public is left an open-ended question. The authors note in *Eden by Design*, however, that the plan did become "a point of reference for future planning efforts."

The book has much to offer its readers and is an important addition to the planning literature. As the authors argue, the original plan does serve as a reference point for future plans. *Eden by Design* is itself an important reference on the American planning tradition.

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Abstracts

HISTORY/THEORY/ADMINISTRATION

10. Planning History

10-2 HISTORY OF PLANNING

16-0343

Bayliss, Darrin. 2001. Revisiting the cottage council estates: England, 1919-39. *Planning Perspectives* 16, 2: 169-200.

Keywords: Cottage council estates. Great Britain. Planning history. Suburbs. Urban history.

The suburban cottage council estates of interwar England are an example of how hopes for social transformation emerging in a new physical environment produced by planning worked out in practice. Their roots lay in the antiurbanism of the nineteenth century. To improve the physical and moral health of the population, reformists had rejected the contemporary city in favor of a more rural environment. The adoption of the preindustrial English village as the model for development appeared to offer harmonious social relations and a sense of community too. Although these sentiments were diminished by the end of World War I, their legacy was still apparent. Under the influence of Raymond Unwin, the promotion by the Tudor Walters Report of picturesque cottages, streets, gardens, and greens presupposed an improved way of life for the cottage council estates that drew on these romanticized images of the past. Rarely has the social life that developed on the estates been associated with such images. Instead, one of the strongest narratives of suburban working-class life is the loneliness and desolation of the cottage council estates. The estates are usually depicted, especially by modern commentators, as bereft of any sense of community. In particular, the layout of the housing, together with the absence of other facilities and amenities, are thought to have hindered the development of social life. Rather than engendering a sense of community, the physical environment is held chiefly responsible for its absence. This paper reexamines these assumptions about the relationship between city plan and social relations by detailing the development of social life in the interwar period on the

Roehampton and Watling estates, two of the London County Council's cottage estates. Community, it is argued, was not absent from either estate. The precise nature of community that emerged on each estate, together with the wider development of social life, is linked not to the estates' physical planning but instead to their social composition.

16-0344

McKee, Guian A. 2001. Liberal ends through illiberal means: race, urban renewal, and community in the Eastwick section of Philadelphia, 1949-1990. *Journal of Urban History* 27, 5: 547-83.

Keywords: Conflict management. Eastwick District, Philadelphia. Philadelphia. Racial relations. Urban renewal.

During the 1950s and 1960s, the reform Democrats who gained control of Philadelphia's city government conceived of a plan that would make Eastwick, a section of Philadelphia, the largest urban renewal area in the United States. Through the reorganization of urban space in Eastwick, Philadelphia's reform liberals thus attempted to promote racial integration while attacking decentralization and deindustrialization, the two dominant patterns of U.S. political-economic development following World War II. Nevertheless, the pursuit of these goals brought an attendant element of tragic irony, inasmuch as the project required the destruction of the area's unique existing community, which, unlike most of Philadelphia, was already racially integrated. Constrained by local financial limitations, regulations of federal urban policy, and their own presumptions about Eastwick, the postwar liberals found no way to balance the interest of the existing community with their otherwise innovative effort to address the social and economic problems facing the postwar city. The ensuing clash between the community and the city demonstrated that working-class urban residents could engage in interracial political action. Despite the conflict, the Eastwick project attained many of its original goals: provision of lower middle income housing and creation of the

The subject and author indexes following this section refer to abstract numbers.

infrastructure for a significant employment base, which among other accomplishments provided the physical and economic foundation for the eventual emergence of a stable and largely integrated community in the new Eastwick.

10-3 HISTORY OF CITIES AND REGIONS

16-0345

Bauerlein, Mark. 2001. *Negrophobia: a race riot in Atlanta, 1906*. San Francisco: Encounter Books. x + 337 pp. Illus. \$25.95. ISBN 1-893554-23-6.

Keywords: Atlanta, Georgia. Racial relations. Racial riots. Racism. Urban history.

At the beginning of the twentieth century, Atlanta, Georgia, was regarded as the gateway to the new, enlightened, and racially progressive South. Although whites and blacks were still separate and regarded unequal by all except an elite of black intellectuals, an atmosphere of respect and cooperation mitigated the effects of segregation and rendered it an apparently transitory social arrangement. For example, white business owners employed blacks at wages that gave them access to the new black middle class. Black leaders headed congregations, edited periodicals, and taught classes. The hope of escaping the memories of the Civil War and human bondage, however, was shattered in 1906 when, in the middle of a hotly contested gubernatorial contest, Georgia politicians raised issues of race and white supremacist newspapers trumpeted a "Negro crime" scare. Seizing on rumors of black predation against white women, the supremacists launched a campaign based on fears of miscegenation and sexual hysteria, a Negrophobia culminating in a bloody riot that left more than a dozen dead, stymied race relations, and foreclosed on the possibility of a New South for another fifty years. These developments, and the events that accompanied them, are traced in this volume. The rivalries of Booker T. Washington and W.E.B. Du Boise are described; the role of Thomas Dixon in glamorizing the Ku Klux Klan through *The Clansman* is explained; and other public figures, black and white, who witnessed or participated in the events leading to the riot and the riot itself are portrayed.

16-0346

Russo, David J. 2001. *American towns: an interpretive history*. Chicago: Ivan R. Dee. xiii + 350 pp. Illus. \$28.95. ISBN 1-56663-348-6.

Keywords: Rural areas. Small towns. Social history. Urban history.

For the vast majority of Americans who lived in rural places from the seventeenth to the nineteenth century, the small town provided the most important context for their lives. The town was a focal point and trade center, chiefly for farmers but also for fishers, loggers, miners, and even industrial workers so long as industrial production

depended on waterpower. People lived out their life spans in small towns. This volume examines the founding and development of towns as well as the varieties of life that towns embraced from earliest colonial times to the present. Although the aim of the author is to discern patterns in the lives of American towns, he illustrates these patterns with numerous examples of the ways that towns were founded, grew, or declined; gave way to larger urban areas; and finally reappeared in idealized forms. Towns today provide Americans with nostalgia for a past that most of them have not experienced. Towns are characterized by neighborliness, intimacy, and human scale—but also by intolerance, narrow-mindedness, and a tendency to exclusivity. The book begins with some commonalities and differences in towns' foundings and their sites, then focuses on their political, economic, social, and cultural lives. The book concludes by comparing the town in myth with its reality.

11. Concepts of Planning

11-1 APPROACHES (COMPREHENSIVE/ STRATEGIC/COLLABORATIVE)

16-0347

Ammons, David N. 2001. *Municipal benchmarks: assessing local performance and establishing community standards*. Thousand Oaks, CA: Sage Publications. ix + 501 pp. Tables, figs, appendices. \$59.95. ISBN 0-7619-2078-1.

Keywords: Local government. Performance evaluation. Performance standards. Public services.

This volume provides the tools that, according to the author, are needed to establish and assess an individual municipality's performance. Following the introduction, the book describes and analyzes the techniques employed for establishing the benchmarks generally used. Relevant national standards developed by professional associations and actual performance targets are presented; performance results from a sample of well-known city governments are also provided. The book is then organized by a series of thirty alphabetically arranged topics, beginning with animal control and ending with water and sewer services. Other topics include emergency services, the city attorney, finance, human resource administration, parking services, police, social services, and traffic engineering and control. The final chapter discusses performance milestones, how they are determined, and the processes in comparing them with actual performance. Appendices include citations of municipal documents and acronyms.

11-2 PLANNING THEORIES

16-0348

Hopkins, Lewis D. 2001. Planning as science: engaging disagreement. *Journal of Planning Education and Research* 20, 4: 399-406.

Keywords: Planning profession. Planning theory.

Planning scholarship will benefit from research conversations focused on cumulative knowledge about how planning works and how urban settlements work. Our everyday decisions present opportunities to (1) Initiate and sustain conversations through conferences. (2) Referee papers to encourage cumulative scholarship. (3) Cultivate funding sources. (4) Establish awards that recognize contributions to conversations. (5) Hire faculty with scholarly conversations in mind.

16-0349

Sager, Tore. 2001. Positive theory of planning: the social choice approach. *Environment and Planning A* 33, 4: 629-47.

Keywords: Planning profession. Planning theory. Urban design.

Most planning theory is normative and does not aim at explaining the design of planning processes. However, once the relationships between organizational characteristics and the various modes of planning are established, these connections can be used for developing positive planning theory. The problem is to explain why an agency practices a particular mode of planning (synoptic, incremental, and others) or even why it performs a specific variant of such a mode. It is argued that the impossibility theorems of social choice provide a useful platform for attacking such problems. To explain the practice of planning agencies, a scheme for linking agency properties and planning modes is combined with alternative strategies for resolving dilemmas of agency decision making. A brief survey of other theoretical approaches to the construction of positive planning theory opens the discussion and places the social choice analysis in a theoretical context.

11-3 ETHICS AND VALUES

16-0350

Kite, Stephen. 2001. Architecture as Virtú: Adrian Stokes, Ezra Pound and the ethics of patterned energy. *Journal of Architecture* 6, 1: 81-96.

Keywords: Architecture. Discourse analysis. Ethics. Planning profession. Ezra Pound. Professional ethics. Adrian Stokes. Value orientations

If we characterize ethics as properly directed energy, how are the multiple energies involved in a complex artifact such as a work of architecture—those of client, architect/artist, crafter, and material—to achieve a synthesis of art and life that embodies an ethical environment and, in formal terms, navigates the snares of abstraction on one hand and the literary/associative on the other? The paper begins with an outline of the discourses within modernism in the first half of this century that were concerned with these issues. It focuses on the dialogue between Adrian Stokes (1902-72) (bracketed by many commentators with Ruskin and Pater as among the most important English aesthetes) and the poet and critic Ezra Pound. Stokes's theory of art

offers a profoundly corporeal interpretation of architecture and the urban environment that draws on the Renaissance concept of virtú, empathy theory, and psychoanalysis. With Pound, he sought a solution to the contemporary equation of art and life by reappraising the Renaissance notion of virtú, especially as evidenced in the work and documented in the writings of Alberti. The paper examines these ideas and their implications for cities and buildings that might embody an ethic.

11-4 PLANNING EDUCATION

16-0351

Dalton, Linda C. 2001. Weaving the fabric of planning as education. *Journal of Planning Education and Research* 20, 4: 423-36.

Keywords: Instructional techniques. Metaphor. Planning education. Research trends. Weaving metaphor.

This article explores planning education as a fabric. Over the past century, the central strands of planning knowledge and pedagogy have been remarkably consistent despite changing labels. Nevertheless, tensions persist regarding the identity of planning and nature of professional education. The biggest changes have occurred among the weavers. During the latter half of the twentieth century, social scientists replaced practitioners as teachers. Also, students emerged as demanding learners, calling for an interactive role in their education. Furthermore, the field emerged from one in which the planner was a "man who" to acute consciousness about ethnic and gender diversity. The author concludes that planning education in the twenty-first century should draw from multiple theories of practice-applied knowledge that help planners understand ethical responsibility, communicate effectively, and address community problems meaningfully as they create the future.

16-0352

Ebrahim, Alnoor, and Leonard Ortolano. 2001. Learning processes in development planning: a theoretical overview and case study. *Journal of Planning Education and Research* 20, 4: 448-63.

Keywords: Economic development. Learning processes. Nongovernmental organizations. Organizational behavior. Organizational culture. Planning education.

Planners work with various kinds of organizations, sometimes to provide technical expertise and other times to facilitate communication between different organizations and interest groups. Planners are also important players in organizational learning. In this article, the authors describe how organizational practices change through learning. Drawing from the sociological literature on organizational behavior, the authors develop a conceptual model of organizational learning. This model is then applied to the case of a nongovernmental organization (NGO) engaged in

development planning in western India. We show not only how learning processes have led to behavioral change in this NGO but also ways in which learning has been constrained.

16-0353

Godschalk, David R., and Linda Lacey. 2001. Learning at a distance: technology impacts on planning education. *Journal of Planning Education and Research* 20, 4: 476-89.

Keywords: Distance education. Planning education. Technology.

How are planning educators responding to the challenges and opportunities of distance education? The authors explore this question through a planning school survey, a case study, and brainstorming about change factors. They find that planning education programs are slow to adopt new technology, except for incorporation of e-mail and Web technology into traditional on-campus courses. Most respondents believe that distance learning will be important, but few distance learning courses are taught. Reported obstacles are extra demands on faculty, lack of compensation for course development, low faculty interest, incompatibility with course content, and inadequate technical support. The case study describes the design and teaching of a successful distance learning course in which student work improved. Four catalysts that could speed adoption of distance learning are (1) generational change, (2) program survival, (3) institutional conformity, and (4) practice demand. The authors conclude that as future-oriented professionals, planners should lead in applying technology to improve planning education.

16-0354

Moore, Keith Diaz. 2001. The scientist, the social activist, the practitioner and the cleric: pedagogical exploration towards a pedagogy of practice. *Journal of Architectural and Planning Research* 18, 1: 59-79.

Keywords: Architectural education. Planning education. Political movements. Religious beliefs. Scientific methodology. Social activism. Theory-practice relations.

This paper is an initial effort to address two pressing issues facing architectural education: (1) the scarcity of critical engagement of the pedagogical approaches employed in architectural education; and (2) the rift between the academic community and the practice of architecture as discussed in the Carnegie Report (Boyer and Mitgang 1996). Although the views of specific individuals may change over time, underlying personal pedagogues are implicit worldviews that shape and affect how human activity is conceived, the definition of what construes knowledge, and how that knowledge is learned. All of these, in turn, affect how one teaches, researches, and practices. The paper illustrates that there is a range of pedagogues within architectural education but that the approach that is most

espoused but least utilized and therefore least well developed is that which tries to adopt the epistemological assumptions of architectural practice. The paper suggests that practice operates within a systemic world of social meaning where the line between ontology and epistemology is blurred, and it also suggests that human agency is at the core of practice. The opportunities and difficulties with such a pedagogy are briefly outlined.

11-5 APPLICATIONS/TECHNIQUES

16-0355

Beauregard, Robert A. 2001. The multiplicities of planning. *Journal of Planning Education and Research* 20, 4: 437-39.

Keywords: Modernism. Planning profession. Planning techniques. Planning theory.

Planners are no more addicted than the average professionals to ruminating over who they are and the meaning of what they do. For planners, however, the search for order is also part of their contribution to society. Consequently, questions of internal coherence, purpose, and identity are particularly compelling. If order does not characterize the profession, how can the profession expect to convince the world of order's benefits? Contemporary planning is the offspring of late-nineteenth-century modernism. For centuries prior, scholars had been slowly eroding the belief that society was a product of divine intervention. As society came to be seen as a consequence of human action, it also became possible to imagine bringing it under control (Toulmin, 1990). Governments and markets would provide the institutional means.

16-0356

Birch, Eugenie Ladner. 2001. Practitioners and the art of planning. *Journal of Planning Education and Research* 20, 4: 407-22.

Keywords: Planning education. Planning practice. Planning profession. Urban design.

Over time, practitioners, both in the "field" and in academia, have revised their conceptions of the three facets (defined here as design, craft, and presentation) of the art of planning, responding to evolving societal needs and growing demands of university-based professional training. Tracing the contents of successive American Planning Association (APA) (and its predecessors') mission statements and several versions of the "Green Book" (and its predecessors) reveals these dramatic changes and demonstrates the profession's remarkable adaptability. In the future, as practitioners continue to elaborate the art of planning, they must maintain and strengthen their own internal links, remain focused on the profession's underlying themes and, most important, emphasize and reward applied research drawn from in-field experience. The Association of Collegiate Schools of Planning and the

APA/American Institute of City Planning have decisive roles in this effort.

16-0357

Howland, Marie. 2001. Response to Birch, Hopkins, and Dalton. *Journal of Planning Education and Research* 20, 4: 440-42.

Keywords: Planning practice. Research trends. Scientific methodology.

Genie Birch's article "Practitioners and the Art of Planning" (2001 [this issue]) traces the planning profession's recognition that planning is both science and art. Birch's article suggests that scientific ways of knowing carry more weight. Lew Hopkin's article "Planning As Science: Engaging Disagreement" (2001 [this issue]) argues for the creation of intellectual conversations as a means of advancing the science of planning. Although entering from different paths, both Birch and Hopkins advocate the same new direction. Planning academics should be more engaged in discourse, debate, and scholarly writing about today's most significant urban issues. They suggest as examples urban sprawl; the new urbanism; the social, spatial, and economic aspects of zoning; and land modeling. Linda Dalton (2001 [this issue]) has provided an overview of planning education and how it has integrated art and science into the curriculum, with art emphasized until the 1950s, science gaining significance from the 1950s to the 1990s, and a return to an appreciation of the art of planning and civic beauty with the new urbanism and research on sustainability. What is given less attention in these essays is some exploration of what we mean by the statement that planning is both art and science.

16-0358

Teitz, Michael B. 2001. Commentary on the ACSP mini-symposium. *Journal of Planning Education and Research* 20, 4: 443-44.

Keywords: Planning profession. Research trends.

No profession should go unexamined. Thus, I am very pleased to have the opportunity to comment on the three articles that have been commissioned as a part of this effort to reexamine the state of the discipline in planning education. Together, they constitute a valuable marker for us to assess where we stand as educators, scholars, and professionals in a field that is hard to define and always somewhat uncertain about itself. The articles led me to ask three questions. First, what is our discipline? Second, what should be our agenda for the future as revealed here? And third, what do we need to do next? The articles provide valuable guidance for all of these concerns.

16-0359

Bock, Joseph G. 2001. Towards participatory communal appraisal. *Community Development Journal* 36, 2: 146-53.

Keywords: Citizen participation. Economic aid. Economic development. Mediation. Political violence. Program planning. Violent behavior.

In view of the persistent problem of communal violence in many developing countries, aid agencies are likely to use two different approaches in fostering social/communal harmony between groups with differing identities. One is to screen project proposals using an impact assessment tool. The other is to add a communal tension/harmony dimension to a commonly used project development methodology known as participatory rural appraisal. This article argues that using a screen for project selection is less desirable than instituting a communal tension/harmony dimension to a rigorous process of program design, which is more consistent with sound development practice.

16-0360

Edmunds, David, and Eva Wollenberg. 2001. A strategic approach to multistakeholder negotiations. *Development and Change* 32, 2: 231-53.

Keywords: Forest conservation. Forestry. Natural resources. Negotiation. Research trends. Stakeholders.

Environmental and development practitioners increasingly are interested in identifying methods, institutional arrangements, and policy environments that promote negotiations among natural resource stakeholders leading to collective action and, it is hoped, sustainable resource management. Yet, the implications of negotiations for disadvantaged groups of people are seldom critically examined. The authors draw attention to such implications by examining different theoretical foundations for multistakeholder negotiations and linking these to practical problems for disadvantaged groups. The authors argue that negotiations are based on an unhealthy combination of communicative rationality and liberal pluralism, which underplays or seeks to neutralize differences among stakeholders and poses considerable risks for disadvantaged groups. The authors suggest that negotiations influenced by radical pluralist and feminist poststructural thought, which emphasize strategic behavior and selective alliance building, promise better outcomes for disadvantaged groups in most cases, particularly on the scale and in the historical contexts in which negotiations over forest management usually take place.

16-0361

Lamb, Berton Lee, Nina Burkardt, and Jonathan G. Taylor. 2001. The importance of defining technical issues in inter-agency environmental negotiations. *Public Works Management and Policy* 5, 3: 220-32.

Keywords: Environmental programs. Environmental research. Hydroelectricity projects. Negotiation. Project licensing. Research trends. U.S. Federal Energy Regulatory Commission.

The role of technical clarity in successful multiparty negotiations was studied. Investigations involved in-depth interviews with the principal participants in six consultations conducted under the U.S. Federal Energy Regulatory Commission's hydroelectric power project licensing procedures. Technical clarity was especially important in these cases because they concerned science-based questions. The principal issues in the six cases were fish passage, instream flow for fish habitat, and entrainment of fish in hydropower turbines. It was concluded that technical clarity was one of the most critical elements in resolving these conflicts. In the least successful negotiations, parties failed to address the basic values of the dispute before plunging into technical studies. The results of those studies usually highlighted the potential for negative outcomes and increased polarization between the participants. In the most successful negotiations, the various parties shared an understanding of each of their basic values. These shared understandings led to technical studies that cast the negotiation in a positive light and illuminated possible solutions.

11-7 CITIZEN PARTICIPATION

16-0362

Baeten, Guy. 2001. The Europeanization of Brussels and the urbanization of "Europe": hybridizing the city—empowerment and disempowerment in the EU District. *European Urban and Regional Studies* 8, 2: 117-30.

Keywords: Brussels, Belgium. Citizen participation. European Union. Globalization. Parochialization. Urbanization.

Regeneration practices in the European Union (EU) district in Brussels, Belgium, clearly reveal how a mismatch has grown between Brussels', economic and cultural globalization and its political-institutional parochialization. Brussels', global mission is being inserted into well-tested local formats of urban governance that have existed throughout the postwar period. Local power brokers continue to form remarkable economic growth coalitions that are successfully maneuvering through obstacles that would prevent them from cashing in on Brussels' internationalized economy through property development. Any government strategy that would deal with the rapid internationalization of Brussels and the EU district—socially, economically, culturally, or politically—is simply absent. Important segments of Brussels', social fabric are excluded from participation in public political and cultural life. Meanwhile, the success of extreme right-wing parties—which are fiercely contesting the multiculturalization of Brussels—has risen to alarming levels, while different cultural groups in Brussels are de facto generating hybridized cultural expressions which might form the base of a new *modus vivendi* of community, citizenship, economy, and politics.

16-0363

Fenger, Menno, and Pieter-Jan Klok. 2001. Interdependency, beliefs, and coalition behavior: a contribution to the advocacy coalition framework. *Policy Sciences* 34, 2: 157-70.

Keywords: Advocacy. Citizen participation. Oil industry. Policy analysis. Policy making. Political coalitions. Political movements.

In this article, a hypothesis is developed that explains the development and maintenance of advocacy coalitions by looking at both the interdependencies and the policy belief systems of the actors. The importance of this approach is demonstrated by applying it to the debate on oil and gas leasing in the outer continental shelf of the United States. It turns out that the attention for interdependency contributes to the possibility of explaining the behavior of single actors and advocacy coalitions.

16-0364

Giarchi, George Giacinto. 2001. Caught in the nets: a critical examination of the use of the concept of "networks" in community development studies. *Community Development Journal* 36, 1: 63-71.

Keywords: Citizen participation. Community development. Network analysis.

This paper reviews the use of the term "networks" in community studies. The author refers to the nebulous meanings attached to the term and likens its omnibus application to that of the concept of "community." In the literature, a mode of intercommunication, whether technological, organizational, interrelational, or merely social, is described as a network. To date, its widespread usage is unquestioned in academia and community development practice. However, this paper demonstrates that the concept of network is a metaphor that is only valid when referring to informal connections, such as within self-help or user-led groups, or relationships between kin, friends, or neighbors. The author makes the sociological point that network as a metaphor cannot be used to denote both the formal and informal because conceptually they are opposites. Social scientists are mixing their metaphors. The author also evaluates the mathematicized uses of network analysis, concluding that "circle" is a preferable, less mechanistic alternative when referring to the informal domain. The usage of circles in community development studies is illustrated in selected empirical research programs.

16-0365

Gregory, Robin, Tim McDaniels, and Daryl Fields. 2001. Decision aiding, not dispute resolution: creating insights through structured environmental decisions. *Journal of Policy Analysis and Management* 20, 3: 415-32.

Keywords: Decision making. Dispute resolution. Environmental policy. Stakeholders.

Public participation in environmental decisions has become commonplace. A favored model for public input is to use the tools of dispute resolution to seek consensus among members of a multiparty stakeholder group. The authors believe that a focus on dispute resolution and consensus building can pose impediments to the creation of insights for decisionmakers and lead to the adoption of inferior policy choices. Instead, they advocate an alternative approach to stakeholder participation characterized as decision aiding through a structured process based on constructive, multiattribute techniques and value-focused thinking. In this paper, some of the major difficulties posed by a dispute resolution approach are articulated and the principles of a decision-aiding process reviewed, and this alternative approach is illustrated by describing a stakeholder consultation involving water use for a hydroelectric facility on the Alouette River in British Columbia, Canada.

16-0366

Haidari, Shokrullah Hamd, and Susan Wright. 2001. Participation and participatory development among the Kalhor Nomads of Iran. *Community Development Journal* 36, 1: 53-62.

Keywords: Appropriate technology. Citizen participation. Economic development. Kalhor (tribal society). Iran. Islam.

Participation (*mosharekat*) is guaranteed under the constitution of the Islamic Republic, the priorities of which are to enhance the economic conditions and power of marginalized areas and poor people, including villagers and nomads, and to use the country's own considerable human and technological resources in appropriate development. However, the meaning of "participation" has been long debated, and its implementation is often contradictory. After reviewing three phases in approaches to participatory development, an ethnographic study of Kalhor nomads in west Iran explores how ministries' continuing top-down approach and the weakness of local institutions inhibit understanding of the differential and gender-based impacts of existing technological developments and of women and poor people's ideas of what would constitute development.

12. Policy and Planning Administration

12-1 AGENCY DECISION MAKING

16-0367

Bac, Mehmet. 2001. Corruption, connections and transparency: does a better screen imply a better scene? *Public Choice* 107, 1/2: 87-96.

Keywords: Decision making. Political corruption. Political reform.

A higher level of transparency in decision making increases the probability that corruption or wrongdoing is detected. It may also improve outsiders' information about the identities of key decision makers, thereby enhancing incentives to establish "connections" for corruption. The connections effect may dominate the detection effect for local improvement in transparency and generate an increase in corruption, a prediction sharply in contrast with standard theories of transparency.

16-0368

McGuirk, Pauline M., and Andrew MacLaran. 2001. Changing approaches to urban planning in an "entrepreneurial city": the case of Dublin. *European Planning Studies* 9, 4: 437-57.

Keywords: City planning. Dublin. Entrepreneurship. Ireland. Local government.

The paper reviews the manner in which urban planning in Dublin, Ireland, has changed in response to central government urban renewal initiatives and an increasing ethos of entrepreneurialism within the local authority of Dublin Corporation. The paper outlines the marginalization of local planning functions and the undermining of planning powers through the establishment of special purpose renewal agencies. Dublin Corporation planners have consequently sought refuge in integrated micro-area planning, marking a shift in philosophy regarding the appropriate role for planning in the context of entrepreneurial governance. The paper provides an empirical account of the relationship between changing approaches to urban renewal and the evolution of local planning practice, noting the challenges and opportunities for urban planning created by altered governance structures and approaches.

16-0369

Moe, Ronald C. 2001. The emergent federal quasi government: issues of management and accountability. *Public Administration Review* 61, 3: 290-312.

Keywords: Accountability. Citizen participation. Federal government. Interest groups. Quasi-nongovernmental organizations.

There has been a growing trend in the federal government toward reliance on organizations that commingle legal attributes of the government and private sectors. These hybrid organizations now constitute a quasi-government that occasions both interest and concern by political leaders, practitioners, and scholars alike because these organizations touch the very heart of democratic governance: To whom are these hybrids accountable? How well is the pub-

lic interest being protected against the interests of private parties? In this article, the author seeks to define the quasi-government and place these hybrid entities into manageable categories from which legal and behavioral generalizations may be drawn. Are hybrid organizations a problem or a solution. Looking critically at this question, the author suggests that the answer may depend in large measure on which of two management paradigms the reader accepts: the constitutionalist management paradigm or the entrepreneurial management paradigm, both of which are defined and discussed. The author concludes that the increasing reliance on hybrid organizations constitutes a threat, not only to accountable management within the government, but to the fundamental values of democratic governance as well.

12-2 CITY MANAGEMENT

16-0370

Frederickson, H. George, and Gary Alan Johnson. 2001. The adapted American city: a study of institutional dynamics. *Urban Affairs Review* 36, 6: 872-84.

Keywords: Council-manager government. Governmental structure. Local government. Mayor-council government. Urban areas.

Almost all U.S. cities are established by state charter as either mayor-council or council-manager cities. For decades, these two legal-statutory categories have been used by researchers as dichotomous variables in descriptions of city governmental form and in statutory equations. This study indicates that the mayor-council and council-manager categories, although legally based, mask several important empirical characteristics of U.S. city government. Using a large data set, the authors indicate that the structures of U.S. cities are surprisingly dynamic. Cities tend to change their structures incrementally. Over time, cities with mayor-council statutory platforms will adapt many of the characteristics of council-manager-form cities to improve their management and productivity capacities. Over time, cities with council-manager statutory platforms will adopt features of mayor-council-form cities to increase their political responsiveness, leadership, and accounting capabilities. Because each of the two legal forms of cities adopts features of the other, these cities now constitute a third form of the U.S. city—the adapted city.

16-0371

Freire, Mila, and Richard Stren, eds. 2001. *The challenge of urban government: policies and practices*. WBI Development Studies. Washington, DC: World Bank, 2001. Tables, figs., appendices. xli + 442 pp. \$30.00. ISBN 0-8213-4738-1.

Keywords: City management. City planning. Local government. Public policy. Research trends. Urban areas.

This volume is the product of the first in a series of courses on urban development and city management that have

been conducted worldwide under the program called Urban Challenges of the Twenty-First Century. The course on which the book is based was held in Toronto, Canada, in May 1999. Sponsored by the Canadian International Institute Agency and the government of Spain and organized jointly by the World Bank Institute, the city of Toronto, the Canadian Urban Institute, and the University of Toronto, the course consisted of a series of modules addressing a variety of topics in city management and urban development. The chapters in this book correspond to the modules. Following an editorial introduction, the chapters address metropolitan issues, including metropolitan region design and the impact of the global economy on cities; municipal and subnational financial management, with a focus on Porto Alegre, Brazil; revenue raising, including user charges in local government finance and the demand-side approach to planning water supply; private involvement in the provision of user services, including solid waste disposal and infrastructural development; land and real estate markets, such as property taxation and the Portland, Oregon, experience; urban poverty, including poverty reduction through partnerships; management of the urban environment; and transportation in the context of metropolitan growth, including traffic management and the integration of urban transport with city planning.

16-0372

Novy, Andreas, Vanessa Redak, Johannes Jäger, et al. 2001. The end of Red Vienna: recent ruptures and continuities in urban government. *European Urban and Regional Studies* 8, 2: 131-44.

Keywords: Austria. Local government. Political reform. Real estate industry. Social democracy. Urban governance. Vienna.

After decades of corporatist urban governance dominated by social democracy, Vienna is undergoing a process of economic and political restructuring. This process is expressed physically in large urban development projects, Donau City being the most important. Donau City is a large real estate project on the left bank of the Danube, based on public-private partnership. Because of the liberalization of the housing market, new private actors are increasingly important, influencing decision making in the Donau City project. In urban planning in general, growing interest in real estate investment has resulted in new planning procedures incorrectly labeled as bottom-up. In fact, this is a fragmented, privatized, opaque, and ad hoc form of urban governance accompanied by a new elitist hierarchy formed by leaders of the city's administration, business, and academic worlds. This new, unaccountable elite has elaborated a strategic plan for Vienna with little reference to the citizenry. Therefore, the new liberal form of governance goes hand in hand with important continuities concerning co-optation, exclusion, and conflict avoidance. The article ends by stressing the importance of alternative political projects that aim at participatory democracy overcoming deep-rooted authoritarian structures.

12-3 FISCAL PLANNING/BUDGETING

16-0373

Armstrong, Harvey W. 2001. Regional selective assistance: is the spend enough and is it targeting the right places? *Regional Studies* 35, 3: 247-57.

Keywords: Economic aid. European Union. Governmental expenditures. Great Britain. Regional development.

This article examines the U.K. Regional Selective Assistance scheme and critically appraises ongoing reforms. These reforms have been triggered by the process of redrawing the map of eligible areas within new European Commission competition policy guidelines. A recent U.K. government white paper on competitiveness has also led to significant changes being considered. It is argued that although the existing reforms have not fundamentally changed the nature of Regional Selective Assistance, they may well be harbingers of more threatening challenges, particularly after 2006.

16-0374

Hondroyannis, George, and Evangelia Papapetrou. 2001. An investigation of the public deficits and government spending relationship: evidence for Greece. *Public Choice* 107, 1/2: 169-82.

Keywords: Budgetary deficit. Governmental expenditures. Greece.

This paper tests the validity of the Buchanan-Wagner hypothesis for Greece: increases in public spending are the result of the tolerance of large deficits over the period 1961-94. To test this hypothesis, three unit-root pretests, the Dickey-Fuller, Phillips-Perron, and Kwiatkowski et al. and maximum likelihood estimation techniques of cointegrating vectors and a vector error-correction model are employed. A long-run relationship is found to exist between government spending, deficit, income, wages, and adult population, and the importance of short-run deviations are presented. The empirical evidence suggests that the Buchanan and Wagner hypothesis seems to find support for Greece in the long-run and the short-run. Furthermore, productivity in the public sector is lower than in the private sector, and the growth of income is not an important determinant of the increase in the relative size of public spending.

16-0375

Nam, Chang Woon, Rüdiger Parsche, and Matthias Steinherr. 2001. The principles of parallel development of fiscal capacity between state and municipalities as useful benchmarks for the determination of the inter-governmental grants in Germany. *European Planning Studies* 9, 4: 525-37.

Keywords: Fiscal capacity. Germany. Intergovernmental grants. Local government. National government.

The conventional theoretical and empirical references related to the intergovernmental fiscal transfer system in Germany appear to heavily concentrate on the issues surrounding the measurement of local expenditure needs of a municipality and their coverage through the down flow grants when the municipal tax revenue is insufficient to match the needs. This study introduces additional important research fields in this context. First, it attempts to analyze the role of the development of tax revenue and fiscal power of the grant provider (the state) as well as the joint financial relationship between the state and (different types of rural and urban) municipalities in the determination of intergovernmental grants. Second, when the total volume of the state grants is determined, the study examines how this amount should be horizontally distributed among these groups—under the particular consideration of different tax capacities in varied categories of municipalities—to achieve the equal growth of hypothetical per capita fiscal capacity.

16-0376

Souza, Celina. 2001. Participatory budgeting in Brazilian cities: limits and possibilities in building democratic institutions. *Environment and Urbanization* 13, 1: 159-84.

Keywords: Belo Horizonte, Brazil. Brazil. Budgeting. Citizen participation. Democratization. Porto Alegre, Brazil. Urban areas.

This paper describes participatory budgeting in Brazil, where citizen assemblies in each district of a city determine priorities for the use of a part of the city's revenues. This is one of the most significant innovations in Latin America for increasing citizen participation and local government accountability. After describing its antecedents, as various local governments sought to increase citizen involvement during the 1970s and 1980s, the paper reviews the experience with participatory budgeting in the cities of Porto Alegre and Belo Horizonte. It describes who took part in different (district and sectoral) citizen assemblies, the resources they could call on, and the priorities established. It also discusses its effectiveness regarding increased participation, more pro-poor expenditures, and greater local government accountability. While noting the limitations (for instance, some of the poorest groups were not involved, and in other cities it was not so successful), the paper also highlights how participatory budgeting allows formerly excluded groups to decide on investment priorities in their communities and to monitor government response. It has helped reduce clientelist practices and, perhaps more important for a society as unequal as Brazil, helped to build democratic institutions.

12-4 POLICY ANALYSIS

16-0377

Tewdwr-Jones, Mark. 2001. Research briefing: planning and the national assembly for Wales: generating distinctive-

ness and inclusiveness in a new political context. *European Planning Studies* 9, 4: 553-62.

Keywords: Great Britain. Land use. Policy making. Political reform. Research trends. Wales. Wales National Assembly.

The creation of the National Assembly for Wales in May 1999 was part of a series of constitutional reforms in the United Kingdom initiated by the Labour Government after 1997. The Assembly, which has been awarded policy-making powers only, is still in its infancy, and any assessment of the perceived success of the new forum would be premature. Nevertheless, there are signs emerging that could give rise to the view that the Assembly will carve out a degree of distinctiveness in its approach to governance and substantive policy areas compared to that operating in England generally and the land use planning system in particular. This review paper charts the birth of the National Assembly for Wales, outlines its responsibilities and functions in relation to planning, and assesses what has happened on the ground in its first 18 months. Overall, the paper portrays politicians and officials in the new governance framework searching for distinctiveness, inclusiveness, and policy ownership; the task is to offer something different compared both to the system existing previously and to the ongoing processes of institutional restructuring under way in other parts of the United Kingdom. It situates planning within the crucible of decentralization and devolution, since planning has been awarded a central facilitating role within the governance and restructuring process as part of the Welsh Cabinet's determination to deliver sustainable development in the twenty-first century.

12-5 POLITICS AND PLANNING

16-0378

Dowding, Keith. 2001. Explaining urban regimes. *International Journal of Urban and Regional Research* 25, 1: 7-19.

Keywords: City planning. Politics. Clarence Stone. Urban regimes.

This article examines the history of the use of regimes in urban politics. It argues that the highlight is Clarence Stone's *Regime Politics* because he uses the concept of regime to answer a specific problem: why did politicians with different electoral bases of support create similar governing coalitions? Stone's answer acknowledges the need for the capacity to act within structures of power. Broadening the account to different types of regime makes analysis more descriptive and less explanatory. Nevertheless, rather than dismissing broader accounts, it is better to unpick the components underlying different regime forms to understand the capacity to act in different contexts. In this study, the author finds that factors that go into explaining collective action provide the foundations for regime analysis.

16-0379

Gainsborough, Juliet F. 2001. *Fenced off: the suburbanization of American politics*. Washington, DC: Georgetown University Press. viii + 191 pp. Tables, appendices. \$70.00. ISBN 0-87840-830-4.

Keywords: Congressional districts. Political ideology. Public policy. Suburbs. U.S. Congress.

As suburbs have become less economically and socially dependent on the central cities, suburban and urban residents have diverged not only in their voting patterns but also in their thinking about national politics. Although political reporters have long noted this difference, few quantitative studies have been conducted on suburbanization alone—above and beyond race or class—as a political trend. The author contends that as congressional districts become increasingly suburban, so-called soccer moms and livability agendas come to dominate party platforms and the needs of the low-income groups in cities disappear from political debate. The author also seeks to establish that the suburbs offer a powerful voting block that is being courted with sophisticated new strategies.

16-0380

Hoatson, Lesley. 2001. Community development practice surviving New Right government: a British and Victorian comparison. *Community Development Journal* 36, 1: 18-29.

Keywords: Australia. Community development. Great Britain. Political Conservatism. Political Right. Victoria State, Australia.

For most of the nineties, the Australian state of Victoria was led by a New Right government, and community development (CD) practice had difficulty surviving. Community workers wondered whether Britain's CD experience had anything to teach those struggling down under. This paper is based on British and Victorian research undertaken in 1998. Data were gathered through individual and group interviews with fifty-five English and Scottish and forty Victorian practitioners. Although New Right policies were implemented in different periods in both places, there are common themes around how people involved with CD practice handled New Right agendas. Three phases of reaction: a retreat/isolation phase, one of adaptation and defense, and one of rebuilding, can be identified. These phases are linked to how community development practice has operated within different paradigms. It builds on work that this author and her colleagues Jane Dixon and Dick Sloman undertook in 1996 in summarizing the key elements of welfare and contract state paradigms, which, although originating from Victorian material, have many similarities with British experiences. It goes on to include how Blair's "third way" relates to these, thus providing Victorians with some prediction about the context in which community development work may progress if Victoria borrows yet again from British ideas.

16-0381

Hogen-Esch, Tom. 2001. Urban succession and the politics of growth: the case of Los Angeles. *Urban Affairs Review* 36, 6: 783-809.

Keywords: Economic growth. Los Angeles. Urban succession.

The author contends that the current movement to secede San Fernando Valley from the city of Los Angeles exposes significant weaknesses in the existing literature on urban fragmentation. By constructing a theoretical framework, the author explains the effort as primarily a conflict between interest groups over the power to control urban growth. Second, existing scholarship cannot explain why progrowth valley business organizations and slow-growth home owner associations have aligned to form a potent, although seemingly unlikely, urban coalition. The author concludes that these traditional land use foes share far more common ground on growth issues than conventional theories predict. In particular, both share elements of a suburban land use vision that provides a substantive formulation for collective action.

16-0382

Mossberger, Karen, and Gerry Stoker. 2001. The evolution of urban regime theory: the challenge of conceptualization. *Urban Affairs Review* 36, 6: 810-35.

Keywords: Atlanta, Georgia. Clarence Stone. Urban regime theory.

Urban regime theory came to prominence with the publication of Clarence Stone's study of Atlanta, Georgia, in 1989, although earlier work by the Fainsteins (1983) and Elkin (1987) have also been influential. Since then, regime analysis has been extensively used to examine urban politics both inside North America and beyond. The authors contend that the wide use of regime analysis is a recognition of its value and insights but that some applications have stretched the concept beyond its original meaning to the point that the concept itself runs the risk of becoming meaningless and a source of theoretical confusion. By sifting through the extensive literature applying regime theory, the authors establish the core concepts of the theory and identify the key fields where it has made a contribution. It is suggested that regime analysis has helped considerably in reorienting the power debate in North America and in facilitating the analysis of politics beyond the formal institutions of the government outside North America.

16-0383

Stone, Clarence N. 2001. The Atlanta experience re-examined: the link between agenda and regime change. *International Journal of Urban and Regional Research* 25, 1: 20-34.

Keywords: Atlanta, Georgia. Poverty. Urban regime theory.

In recent years, Atlanta, Georgia, appears unable to move from diffuse problem recognition to the framing of a broad program of action despite major problems associated with a high level of poverty. With its exceptionally fragmented structure of local government, a tradition of business wariness of a strong governmental sector, and continued reliance on personal and informal collaboration, the city has failed to put together a plan to address the social investment needs. Atlanta's once vaunted biracial coalition shows signs of a declining ability to adapt to emergent issues and frame purposes accordingly.

12-6 MUNICIPAL/PUBLIC SERVICES

16-0384

Ebreo, Angela, and Joanne Vining. 2000/2001. Attitudes and beliefs about volume-based pricing: a four city comparison. *Journal of Environmental Systems* 28, 1: 1-24.

Keywords: Illinois. Interurban comparison. Pricing. Solid waste. Waste disposal.

This article examines the public's opinions of solid waste management issues in three counties in downstate Illinois. The responses of residents of communities with a volume-based pricing system for garbage collection were compared with responses of residents of communities without such a system. Contrary to our expectations, respondents exposed to volume-based pricing systems did not differ from those respondents who had not experienced these systems in their level of agreement with various statements pertaining to volume-based pricing. Furthermore, the self-reported waste reduction behaviors of residents in the various communities did not differ as a function of the type of collection system imposed. However, respondents' self-reported waste reduction behavior was found to be related to certain beliefs about volume-based pricing, particularly related to its function as a reminder about goods that people purchase and consume.

16-0385

Henley, Andrew, and Dennis Thomas. 2001. Public service employment and the public-private wage differential in British regions. *Regional Studies* 35, 3: 229-40.

Keywords: Employment. Great Britain. Pay differentials. Private sector. Public sector. Wages.

Successive forms of regional policy in the United Kingdom have sought to support the maintenance and creation of public sector employment opportunities in relatively disadvantaged regions. Nationally negotiated public sector pay rates mean that the private-public pay gap is likely to be wider in lower demand regions. This will be reinforced by the relative absence of private sector employment crowding-out in such higher unemployment regions. This paper investigates the association between private and

public sector service employment using panel data for British regions and estimates regional public-private wage differentials using British Household Panel Survey data for 1991 to 1996. Across Britain, private sector employment growth is weakly positively associated with higher public service employment growth, but the association is stronger in Scotland and the north of England. The pattern of regional wage differentials found is consistent with lower crowding-out in higher unemployment regions. This suggests that regional government employment policy can have beneficial effects, providing there is sufficient segregation of private and public sector labor markets to ensure that higher pay in public sector service jobs does not undermine the labor market competitiveness of private sector employers.

16-0386

Higgs, Helen, and Andrew Worthington. 2001. Consumer preferences and water charging options in a large urban municipality: a case study. *Public Works Management and Policy* 5, 3: 211-19.

Keywords: Decision making. Public services. Urban areas. Water supply.

Limited dependent variable techniques are used to model the decision-making process in a dual-pricing household water system as employed in Brisbane, Australia. In this system, households could initially choose to remain on a standard ratable value principle of payment for water or move to a volumetric, user-pays system. Because of uncertainty associated with future household water demand, the option to remain on the existing system has value and is thereby incorporated into the appropriate decision-making model. A number of property and household characteristics are found to influence the choice of water charging system along with the value of the option. These include property size and ratable value, the number of household members, the type of garden vegetation, and the presence of various household appliances.

16-0387

Milroy, Craig A., Patricia C. Borja, Fernando R. Barros, et al. 2001. Evaluating sanitary quality and classifying urban sectors according to environmental conditions. *Environment and Urbanization* 13, 1: 235-55.

Keywords: Brazil. Environmental conditions. Public services. Salvador, Brazil. Sanitation services.

This paper describes how principal components and cluster analyses were used to quantitatively score and rank sanitary conditions in thirty areas of Salvador (northeast Brazil) and to identify groups of areas with similar environmental quality prior to a program to improve sanitary infrastructure. In collecting data street by street, a broad

definition of sanitary quality was used, encompassing type and quality of housing, paving, water supply, sewage disposal, drainage, and household waste disposal. All variables used in the principal components analysis were coded to reflect the absence of infrastructural elements that contribute to health and environmental quality. Summary variables generated by the analysis were used to score the sanitary quality of each of the areas, and cluster analysis identified four groups of areas, representing high, intermediate, poor, and very poor sanitary quality. Higher rates of parasitic infection among children aged 7-14 years of age were found in areas with the worst sanitary conditions, with prevalence increasing progressively from the group with the best sanitary quality to the group with the worst sanitary quality. This kind of analysis provides a method both to appraise the needs of each community (including being able to prioritize areas most in need and identify areas with special sanitation needs) and to score baseline conditions that later allow the impacts of interventions to be assessed.

16-0388

Seppälää, Osmo T., Jarmo J. Hukka, and Tapio S. Katko. 2001. Public-private partnerships in water and sewerage services: privatization for profit or improvement of service and performance? *Public Works Management and Policy* 6, 1: 42-58.

Keywords: For-profit organizations. Privatization. Sanitation services. Service quality. Water supply. Wastewater disposal.

There is no empirical evidence that private enterprises manage and operate facilities more efficiently than public ones. Instead of privatization, it is better to promote viable public-private partnerships and commercialization of services. The core business of water and sewage works should preferably be retained by a municipality-owned enterprise. In the selection of the model(s) of water service implementation, one must consider the nature of the services, the long-term experiences, and transaction costs. The nature of water and sanitation service activity itself requires that long-term development should be considered in decision making. The institutional framework must be such that all parties benefit from cooperation. Whichever management or contract model is selected, the ownership of the utilities should preferably remain in the hands of municipalities whose decisions on services citizens should be able to influence through local democracy. The responsibility for arranging water services lies de facto with the public sector.

16-0389

van Horen, Basil. 2001. Developing community-based watershed management in Greater São Paulo: the case of Santo André. *Environment and Urbanization* 13, 1: 209-22.

Keywords: Community relations. São Paulo, Brazil. Water supply. Watershed protection.

This paper describes how watershed protection is being combined with settlement upgrading and land-use management within an area that serves as one of Greater São Paulo, Brazil's, main sources of fresh water. This is being undertaken in the municipality of Santo André. Unlike previous watershed protection measures, which proved ineffective, it recognizes the need to combine the protection of watersheds with the improvement of conditions in existing settlements and guiding, rather than prohibiting, further settlement. The paper describes how the community-based watershed management involves the inhabitants of illegal settlements and other stakeholders in an adaptive planning framework that first seeks consensus on what is to be planned before developing the plan, its implementation, and its operation, maintenance, and monitoring.

13. Planning Law and Legislation

13-1 ENVIRONMENTAL LAW

16-0390

Cane, Peter. 2001. Are environmental harms special? *Journal of Environmental Law* 13, 1: 3-20.

Keywords: Environmental law. Environmental liability. Environmental pollution. Pollution costs.

Major pollution incidents and a concern for the future well-being of the planet have caused many lawyers to support the idea of a distinct civil liability regime for compensating environmental damage. But unless we are sure that environmental harms do deserve special treatment, special liability regimes may prove to be a mistake in the long run. The main aim in the design of liability law should be to distribute the past costs of pollution rather than to punish or act as a future deterrent. A critical evaluation of the nature of environmental harms suggests that they are not special in a way that justifies a special legal regime, and where liability regimes are used as a means of raising money to clean up the environment, they are a costly and cumbersome means of doing so. Similarly, when most legal systems start from a position that noncontractual liability for harm should be based on fault, it is difficult to justify in terms of legal policy and principle a pocket of strict liability for environmental harm. People who view environmental harms as presenting distinctive legal issues do so because they focus on the environmental source of the harm rather than its nature. This may be useful politically, but it creates legal confusion. In constructing regimes for liability for environmental harms, it is important to appreciate the limits of compensation law for achieving our environmental goals.

16-0391

Lübbe-Wolff, Gertrude. 2001. Efficient environmental legislation: on different philosophies of pollution control in Europe. *Journal of Environmental Law* 13, 1: 79-87.

Keywords: Command-and-control regimes. Economic policy. Environmental law. Environmental pollution. European union. Legislation. Pollution control.

The efficiency of economic instruments and command-and-control regulation is often contrasted. But even within more traditional regulatory approaches, there is a wide choice of strategies and their comparative effectiveness needs to be analyzed. In Europe, in the area of pollution control, three different approaches can be distinguished: technical prescriptions, emission standards, and quality standards. If one adopts the premise that management by objectives is generally more efficient than detailed prescription, judgments about the comparative efficiency of these approaches can be made. Although the European IPPC Directive uses language referring to technical standards, it does not follow that it is based on technical prescriptions. Inefficient technical prescriptions may exist at the national level, but they are not due to European environmental law. At first glance, the type of quality-oriented approach that has characterized British pollution control should be more efficient than the more emission-oriented German approach. But this is only likely to be true if the quality approach takes a sufficiently broad perspective of the environment, and it is questionable whether British policies do this.

16-0392

Nelson, Gerald C., Virginia Harris, and Steven W. Stone. 2001. Deforestation, land use, and property rights: empirical evidence from Darién, Panama. *Land Economics* 77, 2: 187-205.

Keywords: Darién, Panama. Deforestation. Empirical research. Land use controls. Property rights.

Economic conventional wisdom suggests that providing land users with more secure property rights will result in more sustainable land use and less deforestation. In this paper, the authors use spatial econometric techniques to evaluate quantitatively the effect on land use of designated property rights in three parts of Darien province, Panama—a national park where no human activity is supposed to occur and two reserves for indigenous peoples. Results suggest that legal property rights for an indigenous population can influence land use. Geography appears to be more important than legal protection for the national park.

16-0393

Owen, Daniel. 2001. The application of the Wild Birds Directive beyond the territorial sea of European community member states. *Journal of Environmental Law* 13, 1: 39-78.

Keywords: European Union. International law. National sovereignty. Wild Birds Directive.

Marine bird species using the offshore waters of the littoral European Community (EC) member states need protection from the effects of human activities. The EC Wild Birds Directive, through the mechanism of special protection areas (SPAS), potentially provides such protection. In their exclusive economic zones (EEZs) and on their continental shelves, littoral member states have a jurisdiction to protect and preserve the marine environment. In their EEZs, these states also have a sovereign right to conserve natural resources. Assuming that the Birds Directive has the necessary geographical scope, it could be used to require member states to implement these powers. Whether the sovereign right to conserve is a power on which the Birds Directive could act depends on the meaning of the term *natural resources*. This paper concludes that strong arguments can be mounted on one hand for an exploitation-based meaning of the term and on the other hand for a broader meaning encompassing species of fauna and flora that are not exploited. In contrast, the protection and preservation jurisdiction is clearly a power on which the directive could act. The scope of this jurisdiction is at first sight limited by Part XII of the UN Convention on the Law of the Sea; however, this limitation is alleviated by state practice. If SPAS were established beyond the territorial sea, the procedure for fisheries management would need clarification. Finally, the paper considers Annex V to the 1992 OSPAR Convention.

16-0394

Wilde, Mark L. 2001. The EC Commission's white paper on environmental liability: issues and implications. *Journal of Environmental Law* 13, 1: 21-37.

Keywords: Environmental liability. Environmental policy. European Commission.

The European Commission's white paper on environmental liability was finally published in February 2000, some seven years since the publication of its green paper on the subject. This article considers key aspects of the white paper in the light of developments in the field in recent years. The Commission's paper argues that environmental objectives are better reached by strict liability regimes, yet there is little in the way of empirical evidence to suggest that such a regime would lead to immediate results. A strict liability regime, may, however, have a more subtle effect of business behavior in the long term. A major limitation of tort regimes is that liability is contingent on personal loss of some sort, and the Commission argues for increased standing to be given to nongovernmental organizations, reflecting developments in jurisdictions such as the Netherlands. The proposals in general will facilitate the application of the polluters-pay principle. Most significant, they are consistent with the Commission's aim to use

civil liability as an additional means of underpinning and implementing Community environmental objectives.

13-2 LAND USE CONTROLS

16-0395

Beydoun, Mustapha, and Kenneth Pearlman. 2001. Takings and land use regulation: a review of recent law journal literature. *Journal of Planning Literature* 16, 1: 19-61.

Keywords: Eminent domain. Land use regulation. Law journals. Literature review. Research trends. Takings law.

No topic in land use regulation has been more important in recent years than the issue of takings: how far can land use regulation go before courts will find it illegal or require government to pay compensation to landowners whose property has been "taken" as a result of overregulation (unlike an actual taking of property through the exercise of the power of eminent domain)? This article examines the substantial recent literature of takings, emphasizing the role played by the U.S. Supreme Court, which has developed a fairly complex view on takings. The article, part of the Council of Planning Librarians (CPL) Bibliography section of this journal, contains an extended listing of sources regarding the Supreme Court's rulings. In addition to Supreme Court matters, the CPL Bibliography also reviews state taking issues, questions of policy, and legislative action.

16-0396

Daye, Charles E. 2001. Toward "One America": a proposed federal statute prohibiting exclusionary land-use practices and mandating inclusionary practices. *Land Use Law and Zoning Digest* 53, 5: 2-9.

Keywords: Exclusionary land use. Fair housing laws. Federal government. Inclusionary land use. Land use. Legislation.

Fair housing laws and court decisions, whether on constitutional or statutory grounds, have been ineffective in stopping municipalities from engaging in exclusionary land use practices. Neither federal legislation nor judicial decisions have addressed broadly inclusionary ends focused on race and class. This commentary sets forth a proposal for a federal statute designed to more effectively achieve twin policies prohibiting municipal actions that in fact exclude racial and lower economic groups and mandating inclusion of these groups. The rationale behind a sustained inclusionary undertaking at the national level is first presented, assumptions regarding congressional authority are explicated, and the reasons given that a One America statute might succeed where other legislation has failed. The full text of the One America statute is then reproduced.

16-0397

Forrest, Clyde M. 2001. *People ex rel Klaeren v. Village of Lisle*: cross-examination required in zoning map amendment case. *Land Use Law and Zoning Digest* 53, 7: 3-6.

Keywords: Citizen participation. Court decisions. Lisle, Illinois. Local government. Zoning.

At a series of combined hearings of the Lisle (Illinois) Plan Commission, Zoning Board of Appeals, and Village Board to consider the application of Meijer Inc. for a "big box" retail and grocery store, the mayor presiding over the hearing announced and enforced a two-minute rule against anyone speaking against Meijer's application and allowed no questioning of the applicant's representatives. The objectors, incensed and motivated by this and other procedures that impeded their participation in the process, filed suit and won injunctions that stopped the development and found the approval void on purely procedural grounds. By completely denying the right of neighbors to cross-examine witnesses, the appeals court held, the village did not conduct a proper hearing. From the reported facts of this case, the authors contend, there is little doubt that concepts of fairness guaranteed by both state and federal constitutions were violated by the village. The decision should serve as a warning to all states that have considered zoning hearings by elected officials as legislative and subject only to the ephemeral legislative due process standards.

16-0398

Jaffe, Martin. 2001. *Zoning, Chicago style: Hanna v. City of Chicago*. *Land Use Law and Zoning Digest* 53, 7: 6-8.

Keywords: City planning. *Hanna v. City of Chicago*. Lincoln Park. Zoning.

The circuit court's decision in *Hanna v. City of Chicago* provides a good illustration of the ways planning works, or does not work, in Chicago. The facts in *Hanna* are fairly straightforward. The city downzoned an area in the Lincoln Park area from R5 to R4, nearly halving the allowable floor area ratio and thus preventing the erection of any new multifamily midrise buildings in the area. The circuit court, employing a multifactor analysis based on eight decisional criteria set forth in *LaSalle National Bank v. County of Cook* and *Sinclair Pipeline v. Village of Richton Park*, evaluated the remapping according to the weight of the evidence to each criterion of the two decisions and invalidated remapping as violative of substantive due process. The decision is discussed in light of its legal and political context.

16-0399

Kayden, Jerold S. 2001. Using and misusing zoning laws to design cities: an empirical study of New York City's privately owned public spaces (part 1). *Land Use Law and Zoning Digest* 53, 3: 3-10.

Keywords: Incentive zoning. New York City. Urban design. Zoning laws.

In 1961, the city of New York, employing the device of law, inaugurated a new category of public space, "privately owned public space," for use by its residents, employees, and visitors. Through a legal innovation known as incentive zoning, the city granted floor area bonuses and other valuable regulatory concessions to office and residential developers who agree to provide plazas, arcades, atriums, and other outdoor and indoor spaces at their buildings that would be made accessible to the public (hence the term "privately owned public space"). This article is divided into two parts. Part 1 (this article) deals with the legal framework for this agreement. It first explains the legal framework responsible for creating privately owned public space in New York City. It then describes the principal findings of the empirical study with regard to the design of public space. Although law is an effective device for creating publicly desirable amenities, the degree of its effectiveness depends on its design, its due regard for adjacent sidewalks and for other important urban design values such as street wall and retail continuity, and enforceability of the law's provisions. Furthermore, the lack of a geographically equitable distribution of usable public space throughout all city neighborhoods demonstrates the necessity for considering nonincentive zoning strategies to procure public space. Part 2, the article appearing in the next issue of this newsletter, continues with a discussion of the study's findings as they apply to privatization and legal compliance.

16-0400

Kayden, Jerold S. 2001. Using and misusing zoning law to design cities: an empirical study of New York City's privately owned public spaces (part 2). *Land Use Law and Zoning Digest* 53, 3: 3-9.

Keywords: Incentive zoning. New York City. Policy evaluation. Urban design. Zoning laws.

This is the second part of a two-part article that discusses the results of a three-year comprehensive, empirical study conducted by the author in collaboration with the New York City Department of City Planning and the Municipal Art Society of New York, reported in full in the recently published book *Privately Owned Public Space: The New York City Experience* (John Wiley and Sons, 2000). Through a legal innovation known as incentive zoning, the city granted floor area bonuses and other valuable regulatory concessions to office and residential developers who agree to provide plazas, arcades, atriums, and other outdoor and indoor spaces at their buildings that would be made accessible to the public (hence the term "privately owned public space"). Part 1 deals with the legal framework for these agreements. Part 2, this article, continues with a discussion of the study's findings as they apply to privatization and legal compliance. The study examines the impact of New York City's Zoning Resolution on the provision and opera-

tion of 503 privately owned public spaces located at the base of 520 commercial and residential skyscrapers. Findings revealed that minimal design standards governing the program's first fourteen years resulted in marginalized outdoor spaces and that heightened design standards governing the next fifteen years significantly enhanced quality. The study also found several problems of enforcing legal obligations, and the author proposes a series of policy changes aimed at improving such enforcement. It concludes with proposals for legal and institutional changes likely to promote improvements in the quality of privately owned public space in New York City and elsewhere.

16-0401

Knaap, Gerrit J., and Lewis D. Hopkins. 2001. The inventory approach to urban growth boundaries. *Journal of the American Planning Association* 67, 3: 314-26.

Keywords: Inventory analysis. Research methodology. Urban growth boundaries. Urban growth control.

In this article, the authors contend that insights can be gained by analyzing the use of urban growth boundaries (UGBs) for urban growth management as an inventory. The analysis, in the authors' view, provides three useful insights. First, it shows that where UGBs are employed, too much emphasis is placed on whether UGBs contain enough land to accommodate twenty years of growth and too little is placed on how frequently, how much, or under what circumstances UGBs should be expanded. Second, it shows that where market factors are used, they have been used inappropriately to increase the size of UGBs immediately before expansion. Third, it shows that UGBs are likely to work better if expansions occur not after an arbitrary period of time but when the supply—or the price—of land reaches a critical threshold. The authors conclude by asserting that the use of UGBs should not be governed by arbitrary rules of thumb, because such rules do not stand up to critical examination, they preclude adaptation to local situations, and they prevent experimentation.

16-0402

Lynch, K., T. Binns, and E. Olofin. 2001. Urban agriculture under threat: the land security question in Kano, Nigeria. *Cities* 18, 3: 159-71.

Keywords: Food security. Kano, Nigeria. Land tenure. Land use controls. Nigeria. Urban agriculture.

This paper is concerned with the issue of providing food to the rapidly growing urban populations in poor countries of Sub-Saharan Africa. Much emphasis has been given in recent years to the growing of basic foodstuffs in urban and peri-urban areas. Although there is a considerable body of literature that views urban agriculture in a relatively positive light, other, less extensive literature raises concerns about its impact on environment and people. The literature shows that urban agriculture provides farmers with

important employment and food provisioning opportunities that would not otherwise be available. However, empirical evidence presented here from the city of Kano in northern Nigeria suggests that such activities and livelihoods are being threatened by acute problems of tenure insecurity and encroaching land development. It is suggested that local authorities have a key role to play in enabling and supporting urban cultivation because there are citywide benefits to be gained from such activities, including food supply, employment creation among low-income residents, and flood control. More research is needed to clarify certain issues, not in the least to answer the expressed concerns about the impact of urban agriculture on environment and health.

16-0403

Meck, Stuart. 2001. *Laketran Board of Trustees v. City of Mentor*: do public agencies have the right to preempt municipal zoning in Ohio? *Land Use Law and Zoning Digest* 53, 7: 8-9.

Keywords: *Laketran Board of Trustees v. City of Mentor*. Land use controls. Mentor, Ohio. Ohio. Transit systems. Zoning laws.

Laketran Board of Trustees v. City of Mentor, which was decided in 1999 by the Ohio Court of Appeal but not published until late 2000, after the Ohio Supreme Court dismissed an appeal, is puzzling. Laketran, a regional transit authority, apparently (from the author's standpoint) failed to assert its preemptive rights under Ohio statutory provisions concerning proposals for public functions or improvements located in municipal corporations. Also raised is the question of whether the city of Mentor (or any other Ohio municipality) has the authority to require, as opposed to request, that Laketran or any other similar agency obtain a conditional use permit for such projects. Based on the account in this case, the author contends that Laketran did not follow the straightforward statutory procedure to overrule the commission's decision, which would have eliminated the need for this litigation and the constitutional challenge that it involved.

16-0404

Natcher, David C. 2001. Land use research and the duty to consult: a misrepresentation of the aboriginal landscape. *Land Use Policy* 18, 2: 113-22.

Keywords: Canada. Consultation policy. Federal government. Land use. Native Indians. Research trends.

This paper addresses the means by which the government of Canada is fulfilling its fiduciary obligation to consult with Aboriginal communities whose traditionally used lands are subject to industrial development. Specifically, the use of Aboriginal land use studies, as a means of consultation, is called into question on the basis of methodological limitations and cultural misrepresentation. In closing, it is suggested that until the Canadian government

is prepared to take a proactive stance in mitigating land use conflicts through an effective and equitable consultative framework, one should expect an escalation of litigation and continued Aboriginal discord.

16-0405

Sullivan, Edward J. 2001. Measure 7 and the politics of land-use planning in Oregon. *Land Use Law and Zoning Digest* 53, 6: 3-8.

Keywords: Electoral politics. Land use policy. Measure 7 (Oregon). Oregon. Planning profession. Property values.

In November 2001, in an election with a relatively large turnout, Oregon voters approved (by a 53 percent yes vote) an initiated measure that appears to be inconsistent with that state's reputation as a leading planning state. Measure 7 would have subjected state or local governments to a ninety-day claims process for regulations that had the effect of reducing property values. If the regulation remained at the end of the ninety days and was found to reduce property values, the state or local government would be liable for compensation for that reduced value. The effects of the measure are unknown, and may be unknowable, because one day before the measure was to be certified as an amendment to the state constitution, a trial court issued a preliminary injunction against certification and, more recently, issued an opinion making the preliminary injunction permanent. This measure, the author contends, would have been one more example of regulations added to existing regulations without an appreciation for their cumulative effect or their workability. Reasons are discussed for this argument and implications, including the need for increased vigilance for such law, are drawn.

14. Planning and Society

14-1 POVERTY

16-0406

Fisher, Dana R. 2001. Resource dependency and rural poverty: rural areas in the United States and Japan. *Rural Sociology* 66, 2: 181-202.

Keywords: Cross-national comparison. Extractive industries. Japan. Poverty. Primary sectors. Resource extraction. Rural areas. United States.

Although rural residents often expect resource extraction to lead to local prosperity, much of the recent research finds that resource extraction is associated with poverty. This paper tests these results by examining whether the findings may be due to methodological factors such as the tendency to focus on extreme cases, particular extracting sectors, and certain periods of time. By comparing two localities that have followed very different developmental trajectories—the state of Wisconsin and Hokkaido Prefec-

ture in Japan—during the period from 1970 to 1990, this paper addresses these issues. The results do not clearly support either the expectation that resource extraction will lead to poverty or that it will lead to economic prosperity. Instead, like a handful of studies on resource dependency, the results indicate that the relationship between extraction and poverty is unique to location. Despite the many differences between the United States and Japan, the strongest correlates of poverty in each country involve the proportion of land in an area that is forested. Particularly because these results mirror the findings from the one previous study that included this variable, future research must give greater attention to this explicitly environmental variable and examine some of the possible reasons for the relationship.

16-0407

McCulloch, Andrew. 2001. Ward-level deprivation and individual social and economic outcomes in the British household panel study. *Environment and Planning A* 33, 4: 667-84.

Keywords: Economic conditions. Electoral politics. Great Britain. Poverty. Relative deprivation.

This paper is an investigation of the association between the level of social deprivation in electoral wards and various aspects of individuals' lives using data from the British Household Panel Study 1991 to 1998 and the 1991 census. The main finding is to establish that ecological associations of various indicators of individual adversity with a census-based indicator of area deprivation are largely, if not entirely, accounted for by individual and household characteristics. For some outcomes, there is evidence that social and economic inequalities between more and less disadvantaged individuals are especially marked in more affluent areas rather than in more deprived areas. This emerges in the form of significant interactions between residence in social housing and ward deprivation in models allowing such interdependence. At the same time, there is evidence of variation in the experience of adverse life events between wards not accounted for by individual and household factors and area deprivation. It is concluded that although individual characteristics are very important for the differences in social and economic outcomes observed between people, their geographical setting also has some significance. The results have implications for policies aiming to reduce social and economic inequalities.

16-0408

Navarro, Lía. 2001. Exploring the environmental and political dimensions of poverty: the cases of the cities of Mar del Plata and Necochea-Quequén. *Environment and Urbanization* 13, 1: 185-99.

Keywords: Argentina. Environmental conditions. Mar del Plata, Argentina. Necochea-Quequén, Argentina. Politics. Poverty.

This paper presents a framework to show how information drawn from different sources for any city allows the construction of poverty profiles and maps. These not only help local governments to act but provide a catalyst for more participatory and integrated approaches to poverty reduction. The paper also gives examples of how this framework was used in two cities in Argentina. This framework brings out the multidimensional nature of urban poverty, including environmental and political dimensions that are not made evident by conventional definitions of poverty. The framework also highlights the complex linkages between the different dimensions and shows how the environmental dimensions (including housing conditions) are not just visible features of poverty but also key "entry points" through which social, economic, and political dimensions can be understood and addressed. Mapping environmental conditions also brings out key social and spatial inequalities.

16-0409

Sikod, Fondo. 2001. Constraints to managing urban poverty in Cameroon. *Environment and Urbanization* 13, 1: 201-8.

Keywords: Cameroon. Poverty. Public policy. Urban areas.

This paper suggests that although there is a lot of public rhetoric in Cameroon about poverty reduction, the existing institutional and management structures constrain the management of poverty in urban areas. Although Cameroon is well endowed with natural resources, the institutional and management structures are poor and thus create new types of poverty that are more evident in the urban areas, for example, young, unemployed secondary school and university graduates; large numbers of underemployed, unskilled informal workers; and people suffering from political and human rights deprivation. This paper views poverty as a dynamic social relation reproduced by ongoing social, economic, and political processes that result in the concentration or deprivation of influence, wealth, and environmental assets that are requisites for social well-being. Poverty reduction in the urban (and rural) areas of Cameroon can only come about by restructuring the institutional and management setup so that it can be more responsive to the needs of poor people.

14-2 DISCRIMINATION/DESEGREGATION/INTEGRATION

16-0410

Andrews, Kenneth T. 2001. Social movements and policy implementation: the Mississippi civil rights movement and the war on poverty, 1965 to 1971. *American Sociological Review* 66, 1: 71-95.

Keywords: Civil rights movement. Mississippi. Policy implementation. Political movements. Public policy. War on poverty.

This study of the Mississippi civil rights movement and the War on Poverty examines the relationship between social

movements and policy implementation. A "movement infrastructure" model is developed that focuses on organizational structure, resources, and leadership to account for the impact of social movements on policy implementation. A two-tiered research design is employed that includes (1) a quantitative analysis of poverty programs in Mississippi counties from 1965 to 1971 and (2) case studies that show the complex interaction between the civil rights movement, resistance by whites, local power holders, and federal agencies. The quantitative analysis shows that counties with strong movement infrastructures generated greater funding for community action programs. The case studies show that movements were excluded from the initial formation of these programs as local whites attempted to preempt civil rights activists. However, in counties with strong movement infrastructures, activists were able to gain access to decision-making bodies and shape the content of poverty programs.

16-0411

Popke, E. Jeffrey. 2001. Modernity's abject space: the rise and fall of Durban's Cato Manor. *Environment and Planning A* 33, 4: 737-52.

Keywords: Apartheid. Cato Manor. Durban, South Africa. South Africa. Urbanization.

Recent work on the history of urbanization in South Africa suggests that the development of urban apartheid policy was influenced by the broader discourses of modernization and planning that guided the morphology of urban areas in the industrial West. Less attention, however, has been given to the ways these discourses of modernization served to define and control certain forms of subjectivity within the urban order. Accordingly, in this paper the author examines the relationship between urban policy and public discourses about race and space in the city of Durban in the 1940s. In the first part of the paper, it is argued that the development of urban apartheid was marked by a modernist impulse to define and control the subjects and spaces of the city. This control was fostered by new circuits of power designed to produce racialized working subjects and the orderly and efficient management of urban space. Despite these attempts, however, Indian and African residents created informal spaces on the outskirts of the city, spaces that posed a challenge to the political and economic hegemony of the white settler population. In the second part of the paper, the author draws on Julia Kristeva's notion of abjection to argue that one such space—an area known as Cato Manor—became a repository of larger fears about the changing nature of identity and alterity within the city. These abject fears burst into public consciousness in 1949, after an Indian-African riot in Cato Manor called into question the efficacy of the city's attempts to manage the social and spatial contours of urbanization. In response, the city set about enacting policies of formal residential segregation, policies that can be

read as attempts to manage the troubling presence of racialized others through spatial control.

16-0412

Rohe, William M., and Lance Freeman. 2001. Assisted housing and residential segregation: the role of race and ethnicity in the siting of assisted housing development. *Journal of the American Planning Association* 67, 3: 279-92.

Keywords: Assisted housing. Blacks. Residential segregation. Site selection. U.S. Housing and Urban Development Administration. Whites.

Historically, public and other federally assisted housing developments have contributed to urban racial segregation. In the 1970s, however, the Housing and Urban Development Administration (HUD) adopted regulations that discouraged the location of assisted housing developments in areas with high percentages of nonwhite, non-Anglo-American populations. This article examines the role of race, ethnicity, and poverty in the siting of five types of assisted housing during the 1980s. HUD data are combined with census data to identify the characteristics of the tracts that received public and assisted housing. Although the value of owner-occupied units in tracts was the strongest predictor of the placement of most types of assisted housing, the results indicated that race and ethnicity still played an important part in the siting of such housing. The percentage of Afro-Americans in a neighborhood was a relatively strong predictor of the siting of Low Income Housing Tax Credit developments, and the combination of Afro-American and Latino housing in tracts was a relatively strong predictor of the siting of both public family and other HUD family housing developments. In addition, four of the five types of housing considered were more likely to be placed in tracts with relatively high proportions of low-income households.

16-0413

Wu, X. Ben, and Daniel Z. Sui. 2001. An initial exploration of a lacunarity-based segregation measure. *Environment and Planning B: Planning and Design* 28, 3: 433-46.

Keywords: Research techniques. Residential segregation. Urban areas.

It has been recognized that urban residential segregation is a scale-dependent phenomenon, and yet all existing structural or spatial indices measure only certain dimensions of segregation at one single scale. Inspired by new metrics developed by landscape ecologists to measure landscape heterogeneity, in this paper we explore the feasibility of a multiscale, lacunarity-based segregation measure. We also develop a straightforward GIS-based procedure to calculate this new measure. Our initial simulation results show that lacunarity is an effective measure that can capture multiple dimensions of segregation patterns at multiple scales.

14-3 SPECIAL POPULATIONS/SOCIAL WELFARE

16-0414

Burt, Martha, Laudan Y. Aron, Edgar Lee, et al. 2001. *Helping America's homeless: emergency shelter or affordable housing?* Washington, DC: Urban Institute Press. xii + 366 pp.

Keywords: Emergency shelters. Homelessness. Low-income housing. Research Trends.

This volume represents a progress report—or more accurately a report on the lack of progress—in addressing the issue of homelessness. The issue of homelessness is complex, as are the answers explaining the persistence of this problem. In the opening chapter, the authors explore some of these complexities in terms of definition of homelessness, some of the historical fluctuations whereby homelessness becomes defined as a “social problem” in some moments of history and not so defined in others, and levels of homelessness in the past. Given that homelessness stems from an inability to afford housing, the authors next consider the structural conditions of the economy, housing markets, labor markets, and related factors that influence people’s ability to pay for housing. The authors also consider how people with different individual characteristics may be affected. Finally, the authors look at the ways in which the United States has chosen to address homelessness from the federal level. Subsequent chapters provide varying estimates on the number of homeless, the structures of homeless families, issues of mental disorders and substance abuse within homeless populations, issues of child and adolescent homelessness, patterns of homelessness, comparisons of homeless subgroups within community types, factors associated with homeless status, homeless assistance programs in 1996 as compared with those in the late 1980s, and program structures and continua of care. The conclusion addresses what societies may be willing to do to reduce the possibility that their members will become homeless.

16-0415

Meyers, Marcia K., Janet C. Gornick, and Laura R. Peck. 2001. Packaging support for low-income families: policy variation across the United States. *Journal of Policy Analysis and Management* 20, 3: 457-83.

Keywords: Low-income groups. Research trends. Social policy. Social services. State government.

This paper addresses a gap in state-level comparative social policy research by analyzing policies that support low-income families with children. Variation in state policy packages is measured by considering three characteristics of eleven social programs. Individual measures of policy are found to be weakly and inconsistently intercorrelated at the state level, but when cluster analysis is used to analyze multiple dimensions simultaneously, five clusters or regime types are identified that have distinctive policy

approaches. These ranges form the most minimal provisions to conservative approaches emphasizing private responsibility and to integrated approaches that combine generous direct assistance with employment support and policies that enforce family responsibility. A comparison of a subset of programs at two points in time (1994 and 1998) suggests that states made substantial changes in cash assistance and taxation policies after the 1996 federal welfare reforms. The magnitude and direction of these changes remained consistent with the state clusters identified in 1994.

16-0416

Spain, Daphne. 2001. Redemptive places, charitable choice, and welfare reform. *Journal of the American Planning Association* 67, 3: 249-62.

Keywords: Charitable organizations. Migration. Social welfare. Welfare reform.

A century ago, millions of Europeans, African Americans, and single women in search of work arrived in American cities. Religiously motivated volunteers met these newcomers with settlement houses, vocational schools, and boarding houses that served as temporary respite from harsh urban conditions. Such "redemptive places" saved cities from demographic chaos by delivering social services to the poor well before the emergence of New Deal programs. Today, the federal government is actively promoting religious solutions to urban poverty. The Charitable Choice provision included in the 1996 welfare reform legislation makes faith-based organizations eligible to provide services to the poor. Redemptive places, the author contends, are therefore as important now as they were in the past. Planners can facilitate the creation of redemptive places by communicating the details of the Charitable Choice provision to state and local agencies that outsource social services, identifying social services, and reducing legal barriers to their existence.

14-6 CRIME/DELINQUENCY

16-0417

Kuo, Frances E., and William C. Sullivan. 2001. Aggression and violence in the inner city: effects of environment via mental fatigue. *Environment and Behavior* 33, 4: 543-71.

Keywords: Aggressive behavior. Built environment. Inner cities. Mental fatigue. Natural settings. Public housing. Social policy. Violent crime.

S. Kaplan has suggested that one outcome of mental fatigue may be an increased propensity for outbursts of anger and even violence. If so, contact with nature, which seems to mitigate mental fatigue, may reduce aggression and violence. This study investigated that possibility in a setting and population with relatively high rates of aggression: inner-city public housing residents randomly assigned to buildings with varying levels of nearby natural

settings (trees and grass). Attentional functioning was assessed as an index of mental fatigue. Residents living in relatively barren buildings reported greater incidents of aggression and violence than their counterparts in greener villages. Moreover, levels of mental fatigue were higher in barren buildings, and aggression accompanied mental fatigue. Tests for the proposed mechanism and for alternative mechanisms indicated that the relationship between nearby natural settings and aggression was fully mediated through attentional functioning.

16-0418

Mixon, Franklin G. Jr., and M. Troy Gibson. 2001. The retention of state level concealed handgun laws: empirical evidence from interest group and legislative models. *Public Choice* 107, 1/2: 1-20.

Keywords: Concealed handgun laws. Gun control. Interest groups. State government.

The present research extends the work of Lott and Mustard (1997) by offering the first categorical examination (using an ordered logit model) of various types of right-to-carry handgun legislation across the fifty states for 1997. Such an examination is based on the "market for laws" construct built by Crain (1979) and Benson and Engin (1988), which points out that various interest group (demand side) and legislative (firm, supply side) considerations are important in modeling legislation activity at the state level. To that end, we include a number of property rights, demographic, and legislative institutional variables as explanatory factors in ordered logit models and tests for nonnested hypotheses. In general, we find that the property rights movement has significantly shaped these statewide laws as pointed out by variables that measure the amount of federal land present within each state, per capita income, and death row inmate executions. Population density, Republican representation, length of legislative sessions, and female legislative representation have also had significant impacts on the retention of various forms of right-to-carry legislation.

14-7 HEALTH/EDUCATION/SOCIAL SERVICES

16-0419

Chan, Freeman. 2001. Viewpoint: public school, public building: the role of the school in building the city. *Cities* 18, 3: 193-97.

Keywords: Economic development. Educational institutions. School construction.

Hong Kong faces mounting demand for public school classrooms and is building new schools at a rapid pace, mostly in the new towns. In the core urban areas, the shortage of land makes existing schools difficult to enlarge and improve. In response, authorities propose to build estates of a half dozen and more independent schools where land is available. However, this proposal does not take into

account the social costs to neighborhoods and to the city if older schools are closed and students are transported further from home. This article sees real estate development and government revenue as the real motivations behind the school estate idea. Rather than perceiving schools as contradictory to cities' other needs, they can be combined with other uses to make a new type of building and help replenish neighborhoods. This presentation indicates how this can work both conceptually and economically.

16-0420

Grosskopf, Shawna, Kathy J. Hayes, Lori L. Taylor, et al. 2001. On the determinants of school district efficiency: competition and monitoring. *Journal of Urban Economics* 49, 3: 453-78.

Keywords: Economic competition. Economic incentives. Educational administration. Efficiency measurements. Public schools. School districts. Voter monitoring.

A number of researchers have asserted that inefficiency in the U.S. school system arises from a lack of incentives for public schools to behave efficiently. This paper uses a Shephard input distance function to model educational production and a switching-regressions estimation to explore the relationship between school district efficiency and two existing incentive mechanisms—competition and voter monitoring. We find evidence that ease of monitoring enhances both technical and allocative efficiency of urban school districts and that increased competition reduces allocative inefficiency in communities above a competitive threshold. We find no evidence that competition is related to technical inefficiency.

16-0421

McGrath, Daniel J., Raymond R. Swisher, Glen H. Elder Jr., et al. 2001. Breaking new ground: diverse routes to college in rural America. *Rural Sociology* 66, 2: 244-67.

Keywords: Demographic characteristics. Educational attainment. Rural areas.

Rural communities pose a challenge to status attainment models that explain children's educational attainment primarily in terms of the parents' education and professional status. Alongside the rural professional class are farmers of similar social status but with less education and other families that lack the status and resources of both professional-class and farm families. The prolonged agricultural crisis in the American Midwest has turned rural youths toward college and has raised questions about the educational value of resources provided by farm parents and other rural parents. We classified youth from the Iowa Youth and Families Project into three SES groups: professional-managerial, farm, and lower status. We compared these groups on resource levels and on the extent to which the resources predicted enrollment in a four-year college one year after high school. Findings indicated three distinct routes to

four-year college. Professional-managerial youth tended to follow the traditional path from parents' educational and other resources and support to their own academic involvement and aspirations for higher education. Successful farm youth, in lieu of parental educational advantages, drew on parents' community ties. Resourceful lower status youth, in the absence of family background advantages, generated educational attainment through early educational ambition and varied community and school involvement. Even relatively low levels of involvement were valuable to these youths' educational attainment.

16-0422

Painter, Chris, and Emma Clarence. 2001. UK local action zones and changing urban governance. *Urban Studies* 38, 8: 1215-32.

Keywords: Education Action Zones. Educational partnerships. Great Britain. Health Action Zones. Labour Party. Local government

This article deals with U.K. Education and Health Action Zones, area-based partnership programs, taking into account New Labour's so-called modernizing government agenda and the academic partnership literature. Formative zone experiences again highlight major obstacles to effective, local partnership working, exacerbated by the essentially top-down structure of the initiatives, albeit accommodating realities on the ground. Despite at one level prioritizing changes in process, political pressures for rapid results were not easily compatible with policy innovation and longer term collaborative infrastructure. Whether relating to the broader macroscopic patterns of change affecting British urban local governance to which action zones are contributing or to the specific microscopic dynamics of these particular partnership initiatives, tensions inherent in these dilemmas are far from being resolved.

16-0423

Roscigno, Vincent J., and Martha L. Crowley. 2001. Rurality, institutional disadvantage, and achievement/attainment. *Rural Sociology* 66, 2: 268-92.

Keywords: Academic performance. Educational achievement. Longitudinal studies. Rural areas. School dropout rates.

Students living in rural areas of the United States exhibit lower levels of educational achievement and a higher likelihood of dropping out of high school than do their nonrural counterparts. In this paper, the authors extend the literature by offering a framework in which resources influencing achievement/attainment are viewed as embedded in, and varying across, rural and nonrural places because of differences in structures of local opportunity. The authors draw from the National Educational Longitudinal Survey and the Common Core of Data and employ hierarchical

linear and hierarchical logistic modeling techniques to test ideas. Rural adolescents are disadvantaged in regard to those family and school resources that are conducive to educational success. These resources translate into important educational investments at both family and school levels and explain rural deficits in both attainment and standardized achievement. The implications of the findings are discussed for analyses of rural deprivation and inequality specifically and for educational processes and the spatial patterning of stratification in general.

16-0424

Smith, Neale, Lori Baugh Littlejohns, and Donna Thompson. 2001. Shaking out the cobwebs: insights into community capacity and its relation to health outcomes. *Community Development Journal* 36, 1: 30-41.

Keywords: Alberta, Canada. Canada. Community development. Health promotion. Health status.

The authors are health promotion and community development practitioners in the David Thompson Health Region of rural central Alberta, Canada. Like their peers, the authors struggle to carry out their practice in a way that honors the underlying values and principles of health promotion. Experiences with two Regional health promotion programs over the past five years have led to the conclusion that an emphasis on community capacity building must be adopted and refined. In this paper, community capacity building is defined and its importance for the work of health promotion and community development practitioners is outlined. The authors provide an overview of the literature on this subject and on related concepts such as asset-based development, community competence, social capital, and civic infrastructure. Finally, some directions for future work are indicated. Ultimately, this work should provide guidance on how to deliver health promotion to more effectively strengthen and empower communities.

16-0425

Stein, Sandra J. 2001. "These are your Title I students": policy language in educational practice. *Policy Sciences* 34, 2: 135-56.

Keywords: Educational policy. Elementary and Secondary Education Act. Policy making. Urban areas.

Based on a qualitative study of the U.S. federal compensatory education policy, Title I of the Elementary and Secondary Education Act, this article uses interpretive policy analysis to investigate the ways in which policy language influences practitioners' understandings of students who are eligible for policy-funded services. Focusing on the situated interpretation of practitioners in nine urban elementary schools, the study shows how policy-generated categories shape practitioners' conceptualizations of students as they determine how to provide services. The article considers possible consequences of policy labels on teacher

expectations and ends with an appeal for the collective, reflective interrogation of policy language in educational practice.

15. Development Planning

15-1 COMMUNITY AND NEIGHBORHOOD DEVELOPMENT

16-0426

Babacan, Hurriyet, and Narayan Gopalkrishnan. 2001. Community work partnerships in a global context. *Community Development Journal* 36, 1: 3-17.

Keywords: Australia. Community development. Globalization. Social work.

This article discusses the mood of Australian community development workers and grassroots activists at the turn of the new century. Communities have struggled over centuries about the way to allocate resources within society and how to live in harmony with each other. Those who have resources have power over others. This power can be used often to exclude others and to set up structures that perpetuate oppression in society. Privileged positions in society and within communities are only sustained because significant sectors of society carry the burden or bear the damages. The current changes in society have had an enormous impact on communities and have caused a great level of social unease and restructuring. Community workers and activists have had to manage the impact of this crisis in many circumstances. This paper examines the impact of global changes on communities at a macro level and their implication for community organizing and community development.

16-0427

Killmer, Margaret Felton. 2001. Projecting the future for neo-traditional developments: lessons from growth machine impacts on the Chain-O-Hill neighborhood in New Jersey. Ph.D. diss., University of Louisville, KY.

Keywords: Chain-O-Hill District, NJ. Citizen participation. Neighborhoods. New Jersey. Urban growth. Woodbridge, NJ.

Several categories of suburbs were identified from a review of the literature: industrial, affluent (including borderland and railroad), streetcar, merchant builder, and sprawl. When these suburb categories were sorted by the time period in which they were built and by housing cost, it appeared that a suburb type which had developed in the mid-twentieth century at moderate cost had been overlooked. To better understand the characteristics of this kind of suburb, it was logical to take a close-up look at one such suburban neighborhood—the Chain-O-Hill neighborhood in Woodbridge Township, New Jersey. A case study considered its morphology, demographics, and development history. A survey of the vernacular architecture was used to confirm both the middle-class status and

the growth of this neighborhood over the time period from the 1920s through the post-World War II period. Unlike more affluent suburbanites who have the resources and expertise to become connected and involved in local politics, the lack of local political involvement in the Chain-O-Hill case due to both (1) "upwardly mobile" middle-class behavior and (2) its identification as a "place" within a larger local governing jurisdiction left the neighborhood vulnerable to the workings of the local growth machine. Flooding became a serious problem after an "edge city" was developed in the local stream's headwaters; the neighborhood school and the community library were closed to save tax dollars. Although New Urbanists purport to plan for a diversity of population, the Neo Traditional projects that have actually been built provide housing that is middle class. The participation of the residents of Neo Traditional places in local politics is further complicated by the issue of place identification when they are neighborhood places within a larger jurisdiction, in the same way as the Chain-O-Hill neighborhood is part of Woodbridge Township. If we are to successfully implement Smart Growth, not only do we need to look carefully at the physical plan of suburbs, but we need to take into account the social, economic, and political factors that determine the long-term sustainability of various suburban frames.

16-0428

Saleh, Mohammed Abdullah Eben. 2001. The evolution of planning and urban theory from the perspective of vernacular design: MOMRA initiatives in improving Saudi Arabian neighborhoods. *Land Use Policy* 18, 2: 179-90.

Keywords: Ministry of Municipal and Rural Affairs. Neighborhoods. Planning theory. Saudi Arabia. Urban design.

The vernacular form and physical pattern of settlements in Saudi Arabia evolved under the influence of visible and nonvisible forces. Climate, tradition, religion, economic base, and political stability are forces behind the overall underlying structure of the vernacular settlements. This article discusses the evolution of planning and urban theory from the perspectives of vernacular design in Saudi Arabia settlements. The evolution of the planning and urban theory of community design in Saudi Arabia is a very controversial theme. The vernacular architectural style can be distinguished easily from the contemporary style. Also, the organic grid pattern can be distinguished from the gridiron pattern used in planning modern neighborhoods. However, the success or failure of vernacular and contemporary styles and patterns has created recurring arguments among many scholars. On one side, it is quite apparent that the continuity of vernacular organic patterns and styles is evidence of success in creating secure and safe environments and establishing sense of place. On the other side, the inconsistency of contemporary styles and gridiron patterns is considered as evidence of failure in creating unsafe and unidentifiable environments. Such an imbalance may result in an influential role of planning

and urban theory in the evolution of new forms of urbanization in a country like Saudi Arabia. The planning and urban concepts implemented by Arriyadh Development Authority, the Royal Commission of Jubail and Yanbu, and the Ministry of Municipal and Rural Affairs (MOMRA) are tangible evidences for establishing a new approach in planning new neighborhood. The paper focuses on finding an appropriate urban and design approach for future neighborhood development. Its main objective is to achieve a balance between the social and physical aspects based on vernacular experiences. Finally, the paper concludes with the notion that a successful planning and urban theory must be based on imperatives based on culture, climate, religion, tradition, and technology.

16-0429

Vermaak, N. J. 2001. Rural financial schemes' contribution to community development. *Community Development Journal* 36, 1: 42-52.

Keywords: Community development. Financial support. Rural areas. Sustainability.

The objective of this paper is to explore indicators for sustainable financial schemes in rural areas and to evaluate such schemes in terms of their contribution to rural community development. During the 1970s, when economic development was recognized to be the dominant paradigm, scant attention was often given to noneconomic benefits of financial incentives in rural areas. This paper argues that rural financial schemes are often evaluated with quantitative criteria in spite of profound noneconomic benefits such schemes have for community development. Evidence is presented from success stories in the developing world and fieldwork done in South Africa that reveals that successful rural financing is often determined by indicators of a qualitative nature.

15-2 SMALL TOWN/RURAL DEVELOPMENT

16-0430

Hodge, Ian. 2001. Beyond agri-environmental policy: toward an alternative model of rural environmental governance. *Land Use Policy* 18, 2: 99-111.

Keywords: Agricultural policy. Environmental policy. Food security. Rural areas. Sustainability.

Following the Second World War there were clear priorities for the domestic production of food. Agriculture was viewed as playing a central role in the protection of the rural environment and the support of the rural economy. These assumptions have now been largely rejected and a new framework for the conservation of the countryside is needed. The development of agri-environmental policy signals a start, but there are a number of limitations to this approach. A wider framework is required that includes a variety of alternative linkage mechanisms between the

demand for countryside goods and the control of land. These include a range of alternative institutional arrangements among individuals and organizations, with significant roles for government, market, and nonprofit organizations. No single model can deliver the variety of environmental characteristics that is sought. The development of this new framework presents a challenge for the governance of the countryside.

16-0431

Lang, Michael H. 2001. Town planning and radicalism in the progressive era: the legacy of F. L. Ackerman. *Planning Perspectives* 16, 2: 143-67.

Keywords: Frederick L. Ackerman. Administrative reform. Architecture. Political ideology. Progressive era. Town planning.

Frederick L. Ackerman, the well-known American architect and town planner, was a pivotal figure in the progressive movement for housing and planning reform during the first half of the past century. Active at many levels of this movement, he worked with many of its major figures. This paper provides an overview of Ackerman's rich legacy of town planning and urban design but deals most directly with Ackerman's radical political views. In particular, it traces the formative influences on his views and analyzes how these views influenced his career. It makes the case that Ackerman stood in sharp contrast to the leading lights of modern American planning who supported the capitalist system.

16-0432

Laverack, Glenn. 2001. An identification and interpretation of the organizational aspects of community empowerment. *Community Development Journal* 36, 2: 134-45.

Keywords: Community development. Empowerment. Organizational structure.

Community empowerment is central to community development, and yet making this concept operational in a program context remains elusive. Based on doctoral work, this paper identifies and interprets nine organizational domains for community empowerment. These organizational domains are not absolutes; rather, they serve as a point of departure for further discussion about straightforward ways to define and measure community empowerment as a process. This paper is seen as a step toward clarifying and making this concept operational to guide practitioners who wish to apply and measure community empowerment in a program context. The implications for community development and research are discussed.

16-0433

MacAulay, Scott. 2001. The community economic development tradition in Eastern Nova Scotia, Canada: ideological continuities and discontinuities between the Antigonish

Movement and the family of community development corporation. *Community Development Journal* 36, 2: 111-21.

Keywords: Antigonish movement. Canada. Cape Breton. Community development. Cooperatives. Economic development. Nova Scotia.

The eastern part of Nova Scotia in Atlantic Canada is home to two well-known initiatives in community economic development (CED): the Antigonish Movement of cooperatives and a group of Cape Breton community development corporations, referred to here as the *Family*. The Antigonish Movement is the older of the two, originating as a response to economic crisis in the region in the years leading up to World War II. The Family of community development corporations began in the 1970s with the establishment of its flagship corporation, New Dawn Enterprises Limited, now the oldest community-development corporation in Canada. In the literature, the two are said to represent a common tradition in the region of trying to combat excessive external control of the economy through the creation of community-controlled businesses. The tradition, however, is also an ideological one with important continuities and discontinuities. The purpose of this article is to provide a critical assessment of these continuities and discontinuities by focusing on the activities and organizational forms adopted by each of the initiatives. The article identifies issues that arise out of democratic and nondemocratic forms of CED practice. It is concluded that the Family's community-development corporations represent, at best, a pale shadow of the promise for democratic and participatory CED contained in the cooperative and adult education program of the Antigonish Movement.

16-0434

Shortall, Sally, and Mark Shucksmith. 2001. Rural development in practice: issues arising in Scotland and Northern Ireland. *Community Development Journal* 36, 2: 122-33.

Keywords: Economic development. Local government. Northern Ireland. Rural areas. Scotland.

Following recent proposals from the EC Commission and U.K. ministers for a policy emphasis on integrated rural development, this article begins by noting some key elements within a model of endogenous rural development, including the role of partnerships, community involvement, animation, and capacity building. Drawing on recent practice in Scotland and Northern Ireland, the paper focuses on four key questions that the authors argue are central to attempts to operationalize integrated rural development. These are the legitimacy of rural development partnerships and local governance, the goals and processes of rural development, the time allocated for predevelopment, and the articulation of integrated rural development programs with other programs. Finally, the authors suggest some conclusions for future European and national rural development policy and practice.

16-0435

Wojan, Timothy R., and Anil Rupasingha. 2001. Crisis as opportunity: local context, adaptive agents and the possibilities of rural development. *Regional Studies* 35, 2: 141-52.

Keywords: Crisis management. Economic development. Rural areas.

The discussion outlines the ways in which crisis emasculates traditional methodology as used in economics by making the core assumptions of this type of analysis (temporarily) untenable. The critique of traditional methodology is limited by its inability to address this critical subset of social problems. It is important to note that the critique does not extend to realist deficiencies of the mainstream science. Rather, support for an instrumental-pragmatic methodology is derived from positive arguments found in the evolutionary synthesis, specifically, requirements of a worldview that sees social problems as inherently complex (an ontology of complexity) by virtue of being overdetermined.

15-3 REGIONAL PLANNING AND DEVELOPMENT

16-0436

Deepak, M. S., Carol Taylor West, and Thomas H. Spreen. 2001. Local government portfolios and regional growth: some combined dynamic CGE/optimal control results. *Journal of Regional Science* 41, 2: 219-54.

Keywords: Governmental expenditures. Local government. Policy making. Regional growth. Taxation.

A theoretical policy model is presented that combines regional dynamic CGE modeling and optimal control to explore the role of local government taxation and expenditure in enhancing regional growth. It contributes to the regional CGE literature by explicitly solving for an optimal policy and augments earlier regional optimal control models by adding endogenous optimization of producer and consumer agents in response to endogenously determined prices. Results of three policy regimes are analyzed in terms of gains in the objective function, impacts on income inequality, and sensitivity to model parametrization.

16-0437

Friedmann, John. 2001. Regional development and planning: the story of a collaboration. *International Regional Science Review* 24, 3: 386-95.

Keywords: Case studies. Cooperative development. Regional development. Regional planning.

This article takes a critical look at the collaboration between William Alonso and the author in compiling two early collections of regional development and planning. Important as these volumes were at the time they appeared (1964 and 1975) in helping to delineate a new field of study, the world has changed. Metropolitan regions have moved

into the foreground of interest, and there is a much greater concern with questions of environmental sustainability, technological innovations, and the consequences of spatial structuring in advanced economies. Nevertheless, pulling materials together on these new topics represents a formidable task.

16-0438

Pastor, Manuel Jr. 2001. Looking for regionalism in all the wrong places. *Urban Affairs Review* 36, 6: 747-82.

Keywords: Demographic characteristics. Economic development. Ethnic groups. Los Angeles County. Regional development. Suburbs.

The new regionalism tends to emphasize the commonalities of central cities and their suburbs. Los Angeles County has surprisingly minor differences between central city and suburb—leading one to wonder why municipal alliances across jurisdictional lines have not been more prominent. The author tackles this anomaly by breaking Los Angeles County into fifty-eight different areas and tracking demographic and economic change between 1970 and 1990. The analysis suggests that there are important differences in the ethnic and economic dynamics of various subregions. As a result, “smart-growth” policies may have less salience in Los Angeles than would an alternative regionalism rooted in community-based movements and organizations.

16. International Planning

16-1 DEVELOPING COUNTRIES

16-0439

Akbar, Roos. 2000. Modeling decision making process in land use conversion (case study: North Bandung area, Indonesia). Ph.D. diss., University of Queensland, Australia.

Keywords: Case studies. Decision making. Indonesia. Land use. Urban growth. Urbanization.

Indonesian population growth was 2.83 percent per year from 1971 to 1980 and 1.70 percent per year from 1990 to 1995; urban population growth was 6.46 percent and 5.20 percent over the same period. The proportion of population in urban areas increased from 17.75 percent in 1971 to 36.02 percent in 1995, which has transformed prime agricultural land and created environmental problems including flooding and landslides. The location permit system, a major tool for controlling urban development, was not working properly, either because of procedures or because information was not available or reliable. Of 74,375 hectares granted location permits for residential development, only 9 percent have been developed, although 61 percent have been acquired by developers. This excessive granting of location permits is intended to increase economic development. The first main objective of this research is to show

that the current land use conversion process is not consistent with spatial plans and planning standards. Knowing the characteristics of information used by current decisionmakers is also a part of this objective. The second main objective is to develop a flexible and transparent process of decision making in land use conversion in the context of spatial planning and management that uses Geographical Information System (GIS) as a main tool. This includes a recommendation on planning methodology, especially in data requirements and GIS applications in the Indonesian context. To achieve those objectives, there are three steps of analysis. The first step is to analyze the actual process and procedures of land use conversion regarding the planning standard and its consequences. The second step is to analyze the legal aspects of regulations pertaining to the decision-making process in land use conversion. The third step is to analyze the theoretical aspects of land use conversion, development control, and its relationship with spatial planning. These analyses use or consider GIS as a main tool for implementation stage when developing the conceptual model of the decision-making process in land use conversion. Analysis in this research used data from Indonesia. Two sources of data were used in this study. First, digital map data from the national agency derived from aerial photograph (new standard data); and second, digital map data from projects based on available paper maps. Two field surveys and various interviews have been conducted for data collecting, and the preliminary model has been tested to evaluate its applicability in the Indonesian context. Using North Bandung area as a case study, this research shows that only 15 percent (357 out of 2,422) of the hectares granted for residential development are compatible with planning standards, and none of them fit with the spatial plan. This finding shows that either the spatial plan is of low quality or the decision-making process was not working properly. The only data that were used were those available at the time of the decision-making process, and these were not the data that were required. The availability and reliability of data, and no supporting documentation or referencing, are the main concerns behind developing a new permitting system. To assist decisionmakers with complex land use conversion problems, a set of rules and procedures based on a temporal GIS concept could in the future support a transparent decision process, focusing on applications for location permits. Information is provided on a GIS framework to assist decisions. This thesis constructs and evaluates such a model for use in Indonesia. This research recommends types and content of spatial plans and the priorities for management of data. This is especially important since the planning paradigm is changing in Indonesia. This not only decides the information that is required and maintained, but also decides on sets of regulations for use as reference during the decision-making process, such as zoning codes, building codes, and so on. This research also provides a conceptual model that can be developed further using an expert system or other information technology applications.

16-0440

Alonso-Villar, Olga. 2001. Large metropolises in the Third World: an explanation. *Urban Studies* 38, 8: 1359-71.

Keywords: Developing countries. Manufacturing industries. Urban areas.

In this paper, the author develops a model that sets out to explain the existence of megacities in developing countries in the context of a Krugman-type core-periphery model. The paper also suggests that agglomeration can be fostered by manufacturers mainly serving the domestic market. Nevertheless, the analysis goes further by emphasizing that megacities are not only the result of protective trade policies but also the consequence of the relative position of a country in terms of industrialization with respect to the rest of the world.

16-0441

Benda, S., A. Yeoh, and T. C. Chang. 2001. Globalising Singapore: debating transnational flows in the city. *Urban Studies* 38, 7: 1025-44.

Keywords: Globalization. Singapore. Transnational corporations.

This paper examines debates in Singapore focused on four categories of transnational flows: the transnational business class made up of highly mobile, highly skilled professional, managerial, and entrepreneurial elites; a large group of low-wage immigrants filling unskilled and semi-skilled niches in the urban service economy; expressive specialists who enliven the cultural and artistic scene; and world tourists attracted by the cosmopolitan ambience. Specifically, the authors draw attention to the interdependence among those categories and assess the challenges that need to be addressed in Singapore's bid to develop best practices for a cosmopolitan and creative globalization that epitomizes the essence of transnationalism while also remaining a home distinguished by a strong sense of local identity and community.

16-0442

Henderson, Vernon, Todd Lee, and Yung Joon Lee. 2001. Scale externalities in Korea. *Journal of Urban Economics* 49, 3: 479-504.

Keywords: Economic decentralization. Economies of scale. Manufacturing industries. South Korea.

This paper estimates the nature and magnitude of scale externalities in a developing country, Korea, in the period from 1983 to 1993. This was a period of rapid industry deconcentration from Seoul to other metro areas, providing a context in which externalities are measured when local scale magnitudes are changing dramatically. The data allow us to examine the emerging degree of national

industrial concentration in different industries as related to their scale externality magnitudes. The authors also examine whether individual industries agglomerate in cities that have comparative advantages for that industry.

16-2 APPROPRIATE TECHNOLOGY

16-0443

Hinshelwood, Emily. 2001. Power to the people: community-led wind energy—obstacles and opportunities in a South Wales valley. *Community Development Journal* 36, 2: 95-110.

Keywords: Community development. Financial support. Great Britain. South Wales. Wind energy.

External community development practitioners often find themselves in a difficult negotiating position between beneficiary communities and donor agencies. Taking the role of analyzing and assessing community needs with residents can lead to constructive ideas and decisions. These, however, are not always met with cooperation from higher level decisionmakers. The power that a community has over its project is dependent to a large extent on the channel created between them and funding sources. Where a community group initiates an idea and leads a project, sourcing funding directly, there is greater potential for residents to maintain control of their ideas. Nevertheless, there are obstacles facing community-led projects that an established agency is well set up to deal with. Looking more closely at these issues in the context of planning a community-led wind farm, the paper suggests some recommendations as to how an external agency may help to support community ideas without importing its own agenda and control into the community.

16-3 DONOR AGENCIES

16-0444

Amis, Philip. 2001. Rethinking UK aid in urban India: reflections on an impact assessment study of slum improvement projects. *Environment and Urbanization* 13, 1: 101-14.

Keywords: Economic aid. Great Britain. India. Poverty reduction. Slum housing. Urban areas.

This paper reflects on the findings of an impact assessment of slum upgrading programs in three cities in India. The study was commissioned by the donor that had funded them, the U.K. government's Department for International Development, to consider their effectiveness in reducing poverty. The paper documents the approach taken, including formal survey work and extensive consultation with households in twelve slums, and presents the findings. These highlight the many dimensions of deprivation faced by slum dwellers. They also point to the relative success of upgrading projects in providing basic infrastructure (and its direct and indirect impacts). The paper also discusses the difficulties in drawing simple policy recommendations

and the often unexpected (and indirect) ways in which studies such as these influence international donors, including those that commission them.

16-0445

Cohen, Michael. 2001. Urban assistance and the material world: learning by doing at the World Bank. *Environment and Urbanization* 13, 1: 37-60.

Keywords: Economic aid. Local government. Urban areas. World Bank.

This paper explores the contradictions between the ambition to establish a more effective framework for the development and management of cities and some of the realities of urban life. It discusses this through the lens of the World Bank's evolving urban assistance program during the 1980s and 1990s as it shifted from urban projects to strengthening municipal and metropolitan capacity, and from supply to demand orientations. The first section sets out the as yet unresolved problems of metropolitan management. The second describes the difficulties and dilemmas that international agencies faced as they developed urban programs. The third describes the World Bank's efforts to strengthen urban institutions in different urban and country contexts. The paper concludes by emphasizing the need for more attention to the "material world"—the physical and spatial context of homes and neighborhoods where urban dwellers spend most of their lives and make most of their investments. To ignore this is to risk cities in the future having even less cohesion than the sprawling metropolises of today.

16-0446

Kamete, Amin Y. 2001. US AID's private sector housing programme in urban Zimbabwe: examining the terrain from the terraces. *Environment and Urbanization* 13, 1: 125-36.

Keywords: Economic aid. Housing programs. Low-income housing. U.S. Agency for International Development. Zimbabwe.

This paper discusses the role of the U.S. government's Agency for International Development (US AID) in housing provision in Zimbabwe. While emphasizing that much of the agency's support has helped expand and improve housing for low-income urban groups, it also describes how a US AID-funded project in Harare contradicted the agency's own principles of good governance since it was developed without the approval of the local authorities and used a steel frame technology that had not been approved. This technology subsequently proved to have many disadvantages, and the participants in the project find themselves with mortgage repayments that they have difficulty meeting and poor quality houses within a neighborhood that the city authorities will not recognize as a legal development.

16-0447

Kiyaga-Nsububa, John, Raphael Magyezi, Sarah O'Brien, et al. 2001. Hope for the urban poor: DFID city community challenge (C3) fund pilot in Kampala and Jinja, Uganda. *Environment and Urbanization* 13, 1: 115-24.

Keywords: Economic aid. Great Britain. Jinja, Uganda. Kampala, Uganda. Uganda.

This paper describes a new pilot fund to support community initiatives for urban poor groups in Uganda's two largest cities, Kampala and Jinja. Supported by the U.K. government's Department for International Development (DFID), it is called the C3 fund since it is city-based, set up to support community-initiated proposals, and includes a focus on capacity building. The approach is unusual in that external aid is supporting a local fund to which community groups can apply and where decisions about the projects that receive funds are being taken locally. The paper first describes the decentralization program in Uganda and the changes that have encouraged NGOs and foreign donors to work with local authorities. It then describes the C3 fund's design, how it has been set up, and its operational mechanisms and financial and managerial procedures.

16-0448

Satterthwaite, David. 2001. Reducing urban poverty: constraints on the effectiveness of aid agencies and development banks and some suggestions for change. *Environment and Urbanization* 13, 1: 137-57.

Keywords: Development banks. Economic aid. Economic development. Poverty.

This paper discusses the institutional constraints that aid agencies and development banks face in being able to address urban poverty. These include their limited capacity to support local institutions that respond to the needs and priorities of low-income groups and are accountable to them. It describes the distance between the decision-making processes of most international agencies and the urban poor and the very limited possibilities for the urban poor to influence what gets funded and by whom. It also discusses the political constraints that have inhibited more effective donor agencies and suggests how support for locally based funds for community initiatives could help overcome some of these. It ends by describing the low priority given by donor agencies to urban poverty reduction and suggests some changes that would help development assistance to meet its targets for reducing urban poverty.

16-0449

Taher, Nadia. 2001. In the shadow of politics: US AID-government of Egypt relations and urban housing intervention. *Environment and Urbanization* 13, 1: 61-76.

Keywords: Egypt. Housing. Local government. Politics. U.S. Agency for International Development.

This paper shows how international and local politics influence aid projects, using the example of the Helwan housing project in Cairo funded by the U.S. government's Agency for International Development (US AID). Most discussions on aid focus on its economic role, neglecting how politics within donor and recipient countries shape it and often limit its effectiveness. Many aid agencies also assume that they can impose conditions to make "their" project more effective without recognizing the resentment and opposition this generates (which then reduces effectiveness). In describing the implementation of this project, which included upgrading for two hundred thousand people and seventy-two hundred new, serviced sites, the paper also shows the dependency of international donors on recipient government agencies. These agencies have considerable power, both in what they do and in what they choose not to do or to delay. Most of the Helwan project's goals were not achieved. It did not change the government of Egypt's approach to low-income housing, and it did not even meet its goals within the project itself. At the outset, no consensus was built between the different international, national, and local agencies. The donor could not stop the funding to enforce project conditionality because it was under pressure to spend the money and because many vested interests would have suffered if the funding had been stopped.

16-4 NATIONAL/REGIONAL DEVELOPMENT

16-0450

Sun, Haishun. 2001. Foreign direct investment and regional export performance in China. *Journal of Regional Science* 41, 2: 317-36.

Keywords: China. Exports. Foreign direct investment. Provincial government. Regional exports.

This paper investigates the impact of foreign direct investment (FDI) on the export performance of China at the provincial level. It presents, first, a theoretical discussion of the impact of FDI on foreign trade, and then an empirical study of the impact of FDI on the export performance of regions in China. It has been found that the impact of FDI on exports differs across three macro regions in China. The effect is stronger in the coastal region than in the inland regions. Although FDI shows a positive and significant impact on exports from the central region, its impact on the western region is found to be insignificant.

**METHODOLOGY/QUALITATIVE/
QUANTITATIVE/ECONOMIC**

20. Methodology**20-2 INFORMATION AND TECHNOLOGY**

16-0451

Pérez-Maqueo, Octavio, Miguel Equihua, Arturo Hernández, et al. 2001. Visual programming languages as a tool to identify and communicate the effects of a development project evaluated by means of an environmental impact assessment. *Environmental Impact Assessment Review* 21, 3: 291-306.

Keywords: Environmental impact analysis. Information technology. Program evaluation. Visual programming languages.

One of the most important requisites in environmental impact assessments is that the evaluation and communication of impacts must be done with objectivity and transparency. Traditional methods such as checklists, matrices, geographic information systems, and cause-effect diagrams fail to reach this objective because, in general, it is difficult to follow the assumptions and rationale behind the evaluation process. In this paper, we show how the use of visual programming languages can enhance the quality of these studies. The pros and cons of this approach are evaluated based on a case study of a thermoelectric generation plant.

20-3 STATISTICS/ECONOMETRICS

16-0452

Gillespie, Gary, Peter G. McGregor, J. Kim Swales, et al. 2001. The displacement and multiplier effects of regional selective assistance: a computable general equilibrium analysis. *Regional Studies* 35, 2: 125-39.

Keywords: Multiplier effect. Regional economies. Regional selective assistance.

This paper uses a hybrid approach to simulate the effects of regional selective assistance (RSA) for Scotland. This combines industrial survey estimation of the direct impacts and computable general equilibrium (CGE) modeling of the systemwide effects. The results are compared to those derived using the method currently adopted in official evaluation studies of RSA and other regional regeneration policy instruments. The CGE approach captures capacity, labor market displacement, and migration effects ignored in existing studies. Simulation identifies the conditions under which these effects are likely to be quantitatively important.

16-0453

Triplett, Jack E. 2001. Should the cost-of-living index provide the conceptual framework for a consumer price index? *Economic Journal* 111, 472: F311-34.

Keywords: Consumer inflation. Consumer price index. Cost-of-living index. Research techniques.

In some countries, the cost of living (COL) index serves as the conceptual framework for the consumer price index (CPI), but it has been rejected in others. This paper reviews issues that have arisen in the statistical agency debate and in the economics literature on the COL index, including rhetorical matters that have influenced the debate. The author contends that COL theory is useful as a decision-making framework in estimating components of the CPI and that COL index theory provides appropriate guidance for measuring consumer inflation, contrary to the view that has been adopted for the European harmonized indexes of consumer prices and expressed by an advisory committee for the Royal Price Institute of the United Kingdom.

21. Population**21-1 DEMOGRAPHY**

16-0454

Lutz, James M. 2001. Determinants of population growth in urban centres in the Republic of Ireland. *Urban Studies* 38, 8: 1329-40.

Keywords: Dublin. Ireland. Population growth. Regional growth. Unsustainability. Ban areas.

Growth in urban places in Ireland from 1966 to 1991 has been greatly influenced by proximity to Dublin. In fact, the best predictor of growth has been such relative proximity. Governmental efforts to disperse growth in other areas of the republic, however, have had some effects. Centers in the northwest and west of the country have enjoyed greater growth than would otherwise have been expected. Although the growth in those areas may not be sustainable, the effects of previous government policies have been obvious.

16-0455

O'Leary, Eoin. 2001. Convergence of living standards among Irish regions: the roles of productivity, profit outflows and demography, 1960-1996. *Regional Studies* 35, 3: 197-205.

Keywords: Demographic characteristics. Ireland. Living standards convergence. Regional economies.

Using a consistent data set, this paper presents evidence, for the first time, on the degree of convergence of living standards among Irish planning regions between 1960 and 1996. The basic decomposition of living standards into productivity and demographic factors is extended to include the income/output ratio, which is significant in Ireland due to the presence of substantial profit outflows since the mid-1980s. Living standards converged strongly among regions between 1960 and 1979, but between 1979 and 1996 there was weak divergence. The chief proximate cause of this reversal was the slowdown in the effect of productivity on the degree of convergence of living standards. The emergence of profit outflows exerted a negative effect on living standards growth, whereas the Irish demographic dividend boosted growth but had a divergent effect on living standards growth during the 1980s and 1990s. A renewed future role for regional policy focused on the major urban centers is proposed.

21-2 POPULATION PLANNING

16-0456

Overman, Henry G., and Yannis M. Ioannides. 2001. Cross-sectional evolution of the U.S. city size distribution. *Journal of Urban Economics* 49, 3: 543-66.

Keywords: Cross-sectional analysis. Social mobility. Stochastic analysis. Urban areas. Urban size.

We report nonparametrically estimated stochastic transition kernels for the evolution of the distribution of U.S. metropolitan area populations for the period from 1900 to 1990. These suggest a fair amount of uniformity in the patterns of mobility during the study period. The distribution of city size is predominantly characterized by persistence. Additional kernel estimates do not reveal any stark differences in intraregion mobility patterns. We characterize the nature of intrasize distribution dynamics by means of measures that do not require discretization of the city size distribution. We employ these measures to study the degree of mobility within the U.S. city size distribution and, separately, within regional and urban subsystems. We find that different regions show different degrees of intradistribution mobility. Second-tier cities show more mobility than top-tier cities.

16-0457

Sutton, Keith, and Wael Fahmi. 2001. Cairo's urban growth and strategic master plans in the light of Egypt's 1996 population census results. *Cities* 18, 3: 135-49.

Keywords: Cairo. City planning. Egypt. Urban growth.

Cairo, Egypt's annual growth rate of 2.74 percent from 1976 to 1986 concerned planners and politicians. The 1996 census revealed a slowing down to 1.6 percent and a total population of 10.17 million. This regression in Cairo's primacy might suggest some success for the 1970 and 1983 master plans in their aim to divert population growth

away from the "green land" to the north and south of the city and toward the desert fringes to the east and west, where new towns and new settlements were located. 1996 census data for Greater Cairo shows strong inner-city population decline and continued suburban growth, including areas to both the north and south of the city. Only limited growth occurred in the new towns, however. Several factors are suggested as being behind the relative failure of Cairo's master plans. These include much unplanned spontaneous urbanization, the inability of the new towns to attract people, the IMF constraints on public spending, and the boost to private housing development imparted by Cairo's ring road. Suggested future scenarios include a Cairo-Alexandria urban corridor and a ruralization of Cairo brought about by informal settlements and a proliferation of peripheral urban villages. Exclusive suburbs, such as New Cairo City, have contributed as private dynamism has replaced public planning. Greater Cairo has not been mastered or planned.

21-3 PROJECTIONS/FORECASTS

16-0458

Blien, Uwe, and Alexandros Tassinopoulos. 2001. Forecasting regional employment with the ENTROP Method. *Regional Studies* 35, 2: 113-24.

Keywords: Employment rates. Forecasting. Regional economies.

The paper provides an outline of a method useful for forecasting problems. The approach is based on a combination of top-down and bottom-up techniques. It is applied to project employment in all 327 (western) German districts for a time span of two years. The most important step in the preparation of the forecast uses the ENTROP method, which is an entropy optimizing procedure, a generalization of common RAS techniques newly developed for the estimation of matrices from heterogeneous information. In a defined sense, the estimated matrix is the most probable one. The method chosen is very flexible and uses any available information extensively. Therefore, the estimates are reliable, as is shown in an ex post forecast. There is a double purpose for the forecast of employment. First, it helps to gain insights in the causal processes generating regional developments and spatial disparities on labor markets. Second, it is useful for regional labor market policies, for example, the budgetary planning of the Federal Employment Services.

21-4 MIGRATION

16-0459

Davies, Paul S., Michael J. Greenwood, and Haizheng Li. 2001. A conditional logit approach to U.S. state-to-state migration. *Journal of Regional Science* 41, 2: 337-60.

Keywords: Conditional logit analysis. Interstate migration. Migration.

This paper uses a conditional logit approach to study interstate migration in the United States for each of eleven years: 1986-87 to 1996-97. The authors test substantive hypotheses regarding migration in the United States and demonstrate the richness of the conditional logit approach in studies of place-to-place migration. The authors investigate migration responses to relative economic opportunities (unemployment rate, per capita income) and the associated costs of moving (distance between origin and destination and its square). The authors also investigate how noneconomic factors, such as amenities, affect migration between states through a state fixed effect. Finally, we study the magnitude of unmeasured costs associated with a particular migration. The conditional logit model also allows us to compute various trade-off and other values that are of interest in migration analysis.

16-0460

Hansen, Niles. 2001. Are very large cities successful? Searching for dynamic externalities versus evidence from population movements. *International Regional Science Review* 24, 3: 344-59.

Keywords: City size. Migration. Performance evaluation. Urban areas.

This article considers two ways of viewing the success of large U.S. cities. The first way, which has been very prominent in the past decade, emphasizes that large cities are successful because the advantages of proximity create dynamic knowledge externalities that, in turn, are a source of increasing returns and higher per capita income. The author contends here that empirical evidence concerning the characteristics and magnitude of the externalities is often conflicting, and, in any case, they have not been measured directly. An alternative approach is to consider international and domestic population movements, which suggest that large cities have not been successful in the view of many domestic residents. Domestic migration patterns favor intermediate-sized cities. Some reasons are provided for domestic population deconcentration in those cities.

16-0461

Jones, Richard C. 2001. Maquiladoras and U.S.-bound migration in Central Mexico. *Growth and Change* 32, 2: 193-216.

Keywords: International migration. Interregional migration. *Maquiladoras*. Mexico. Rural-to-urban migration. United States.

Over the past one and a half decades, smaller cities and nonmetropolitan areas in Mexico have attracted manufacturing plants, led by the export manufacturing sector. *Maquiladoras* in particular are increasingly locating their plants in such places in the "deep interior"—Mexico outside of the border states. Using 1980 and 1990 Mexican census data for nineteen growth centers and twenty-seven high emigration *municipios* (counties) in Central Mexico, this paper suggests that foreign-owned assembly (maquila-

dora) jobs decentralized significantly over the 1980s, locating closer to emigrant *municipios*. An examination of seventeen emigrant *municipios* in the industrialized states of Jalisco and Guanajuato found that an emigrant *municipio's* accessibility to maquiladora jobs and jobs indirectly related to maquiladora growth were positively related to its overall employment growth, which was, in turn, negatively related to U.S. migration rate over the decade. Although the migration reduction inherent in these relationships is relatively small, it could be accelerated by U.S. and Mexican policies giving incentives for more peripheral locations of export-oriented and other manufacturing.

22. Economics

22-1 ECONOMIC DEVELOPMENT AND GROWTH

16-0462

Bianco, Martha J. 2001. Robert Moses and Lewis Mumford: competing paradigms of growth in Portland, Oregon. *Planning Perspectives* 16, 2: 95-114.

Keywords: Infrastructure. Robert Moses. Lewis Mumford. Portland, Oregon. Post-World War II era. Urban development.

Portland boosters invited Lewis Mumford and Robert Moses to Portland, Oregon, to comment on the growth of the city and the region in the years surrounding World War II. Mumford emphasized regionalism and a dispersal of the population to new towns, which would be satellites to the central city, strengthened as a regional center. Moses, coming to Portland just five years later than Mumford, stressed freeway, bridge, and park development, with a mind toward girding the city for postwar growth. In the mid-century, Portlanders were more inclined to adopt Moses's suggestions, almost all of which were eventually implemented. A shift in political culture in the 1960s and 1970s, however, brought a renewed commitment to the ideals Mumford had espoused and, today, the Portland area's regional planning agency, Metro, has adopted a Regional Framework Plan that embraces the Mumfordian vision, with an almost blatant rejection of Moses's commitment to freeways, bridges, and other types of massive investment in automobile-accommodating infrastructure. This paper discusses the difference between the two paradigms of planning and provides some explanations for the shift in the Portland region from a Mosesian to a Mumfordian ideal.

16-0463

Fotopoulos, Georgios, and Nigel Spence. 2001. Regional variations of firm births, deaths and growth patterns in the UK, 1980-1991. *Growth and Change* 32, 2: 151-73.

Keywords: Corporate life cycle. Growth patterns. Regional economies.

One of the debates around new firm formation across subnational territories focuses on whether regional differences in industrial structure are more important influences than regional differences in individual industry performance. The present research, using Value Added Tax registration data, attempts to make a contribution to this debate in the United Kingdom context using a shift-share covariance model. Firm deregistrations and, as a consequence, net changes in firm stocks are also analyzed with similar questions in mind. The findings show that although the effects of industrial mix are significant across most regions, in several key regional contexts the industrial competitive effect dominates. The issue of the role of regional industrial concentration forms a second major theme of this paper. This basically involves a questioning as to whether concentration is a positive or negative force for new firm formation. The results of this research indicate that industrial concentration, measured through localization, is more important for firm deaths than for firm births (although it is significant for both) but is not particularly relevant to the understanding of the net outcome of entry and exit processes. In the United Kingdom, regions with higher levels of industry concentration seem to be associated overall with relatively lower levels both of firm births and deaths.

16-0464

Hamilton, F. E. Ian, and Andrés Rodríguez-Pose. 2001. European integration and local capacities for manufacturing adjustment and change: the case of Spain. *Urban Studies* 38, 7: 1103-20.

Keywords: European Community. European Union. Export economies. Local economies. Manufacturing industries. Medium-sized businesses. Small businesses.

The southward enlargement of the European Community with the full accession of Spain and Portugal in 1986 and the creation of the Single Market in 1993 have opened up new opportunities for exports to the European Union (EU) and intensified competition with Spanish-made products in the rest of the EU. This paper hypothesizes that local adjustment to European integration is conditioned by the comparative local advantages (or disadvantages) in human resources, nodality, and external economies that can shape local capacity for the achievement of economies of scale in production, technological modernization, the development of small and medium enterprises, and business services. The capacities for these four dynamic processes are articulated through the interaction between the investment decisions of Spanish- and foreign-owned firms and the local comparative advantages and hence influence the capacity of localities to respond to European integration through trade creation and trade diversion.

16-0465

Han, Sun Sheng, and Yong Wang. 2001. City profile: Chongqing. *Cities* 18, 2: 115-25.

Keywords: Economic development. China. Chongqing, China. Regional economies.

Chongqing, the largest city in southwest China, was the nation's wartime capital in the 1940s. For the past fifty years or so, Chongqing has deteriorated because of the low priority assigned it by both central and provincial governments in their development plans. In 1997, Chongqing was designated as the fourth Municipality directly under the Central Government. By so doing, the central government hoped that Chongqing would become an economic center serving the needs of southwest China and an engine driving the growth of China's vast western region. The revitalization of Chongqing depends on the economic development of China's western region, whereas the prosperity of China's western region relies heavily on the proper functioning of Chongqing as a growth center.

16-0466

Hassink, Robert. 2001. Towards regionally embedded innovation support systems in South Korea? Case studies from Kyongbuk-Taegu and Kyonggi. *Urban Studies* 38, 8: 1373-95.

Keywords: Economic competition. Regional economies. South Korea. Technological innovation.

Since the beginning of the 1990s, systems of innovation have been used as a framework to explain differences in innovativeness between firms, industries, and economies at local, regional, national, and supranational levels. The main argument behind the discussion around systems of innovation is that firms are increasingly dependent on institutions in their direct environment for their innovativeness and thus competitiveness. In regional innovation systems, firms and other organizations are systematically engaged in interactive learning through an institutional milieu characterized by embeddedness. On the basis of these systems' governance infrastructure, a typology can be developed consisting of grassroots systems (with the highest level of regional embeddedness), integrated systems, and *dirigiste* systems (with the lowest level of regional embeddedness). Based on empirical research on innovation support agencies in Kyongbuk-Taegu and Kyonggi, this paper shows that South Korea is characterized by dirigiste regional innovation support systems with a relatively low level of regional embeddedness. This dirigiste kind of system generates both excessively homogeneous innovation support agencies, which are not sufficiently focused on specific regional economic demand, and horizontal policy coordination problems because of the strong vertical dependencies of agencies in the regions to their sponsors in the central government.

16-0467

Nel, Etienne. 2001. Local economic development: a review and assessment of its current status in South Africa. *Urban Studies* 38, 7: 1003-24.

Keywords: Developed countries. Developing countries. Economic development. Local economies. Research trends. South Africa.

In recent years, local economic development (LED) has become a widely practiced development strategy in the countries of the North (i.e., developed countries) at both the local government and community levels. LED is less widely implemented in the South (i.e., developing countries), where, in most instances, it appears to be still in an incipient phase. This paper investigates the current status of LED in South Africa, where, over the past decade, local governments, community groups, and nongovernmental organizations (NGOs) have become significantly more active in economic development programs at those levels. Several local governments have established comprehensive LED programs, including the establishment of LED units and the pursuit of a range of development strategies, whereas, in parallel, an array of community and NGO initiatives are in place. In almost all cases, however, results are still limited, and this paper assesses some of the reasons for this situation.

16-0468

Phelps, Nicholas A., and Mark Tewdwr-Jones. 2001. Globalisation, regions, and the state: exploring the limitations of economic modernisation through inward investment. *Urban Studies* 38, 8: 1253-72.

Keywords: East Asia. Economic development. Financial crisis. Foreign direct investment. Globalization. Great Britain.

By relying on foreign direct investment (FDI) from far east Asia, local- and regional-level institutions within the United Kingdom have sought to reduce or eliminate those uncertainties with local governance and the planning system that would otherwise face potential investors. The authors discuss these issues with reference to three case-study FDI examples: LG in South Wales, Samsung in the northeast of England, and Hyundai in Scotland. These projects provide good examples of the prestige attached to large FDI projects by regional and local agencies: bypassing normal local democratic processes, instigating streamlined institutional processes, and ignoring environmental protection policies to attract the projects to particular regions. Nevertheless, the collapse of southeast Asian economies and the recent mothballing of both the Hyundai and LG plants illustrate some immediate problems regarding the unsustainability of the nation-state both relying on the global market and subordinating local interstices to resolve regional economic problems. Overall, the paper examines the ways by which particular state forms and practices operate to privilege certain types of interest and activities at certain scales and how particular state entities are attempting to capture agendas and decisions at particular scales of governance.

16-0469

Sun, Haishun, and Ashok Parikh. 2001. Exports, inward foreign direct investment (FDI) and regional economic growth in China. *Regional Studies* 35, 3: 187-96.

Keywords: China. Economic growth. Export economies. Foreign direct investment.

The relationship between exports and economic growth is strong in developing economies. Both externality effects of exports on the nonexports sector and higher marginal productivity in the exports sector in relation to the nonexports sector play an important role in promoting exports and GDP growth. The underlying theoretical model of FEDER, 1982, is used with the data on the Chinese provinces, and it is shown that the economic structure, degree of openness, and policy environment have a significant role in the relationship between exports and economic growth.

16-0470

Tammaru, Tiit. 2001. Suburban growth and suburbanization under central planning: the case of Soviet Estonia. *Urban Studies* 38, 8: 1341-57.

Keywords: Economic development. Estonia. Former Soviet republics. Suburbanization. Suburbs.

It may be something of a paradox, the author suggests, but the demise of central planning has been paralleled by a surge of work on urbanization in socialist countries. This paper focuses on the topic of suburbanization, taking Estonia as a case study. To understand more neatly the processes at work, a conceptual distinction between the terms for suburban growth, suburbanization in a narrow (statistical) and wide (including mechanisms of population change) sense is proposed. As part of the wider definition, the following characteristics of suburbanization in Western countries are brought out: the inner decentralization of populations within agglomerations for environmental reasons; the spread of low-density, detached housing, together with blurring of borders between urban and rural areas; and the relations to people's life course. These form a baseline for comparative research, which reveals both similarities and differences in suburban population developments in Estonia.

22-2 ECONOMIC DECLINE/RESTRUCTURING

16-0471

Bardhan, Ashok Deo, and David K. Howe. 2001. Globalization and restructuring during downturns: a case study of California. *Growth and Change* 32, 2: 217-35.

Keywords: California. Economic decline. Economic restructuring. Foreign outsourcing. Globalization.

Restructuring through foreign outsourcing, whereby greater imports of manufactured inputs substitute for blue-collar labor, is shown to intensify when industries experience declines in sales. The magnitude of this effect was four to seven times greater in California industries experiencing a 20 percent sales decline from 1987 to 1992 relative to those industries whose sales dropped by 5 percent. Foreign outsourcing explains one-quarter to two-fifths of the rise in payroll inequality between blue and white collar workers in California and perhaps 5 to 10 percent of the rise in the remainder of the United States. Past work linked growing inequality with foreign outsourcing and restructuring with economic downturns. Here, foreign outsourcing is used as an example of a particular efficiency augmenting measure, which occurs predominantly, although not exclusively, in troubled industries.

16-0472

Beauregard, Robert A. 2001. Federal policy and postwar urban decline: a case of government complicity? *Housing Policy Debate* 12, 1: 129-51.

Keywords: Federal government. Federal urban policy. Urban decline.

Many urban commentators have implicated the federal government in the decline of central cities in the decades following World War II. They claim that federal policies disproportionately favored suburban development over much-needed urban redevelopment and exacerbated the deconcentration and decentralization of people and capital. Close scrutiny reveals flaws in this argument, and four of them are examined in this article: the core premise that suburban growth and population loss in the central cities are inversely related, the lack of attention to the actual chronology of events, the failure to address the geographical incidence of population loss from the central cities, and the de-emphasizing of the role of the private sector, often acting with government support. The article concludes with a brief reflection on the tenacity of the complicity claim.

16-0473

Brown, David L., and Laszlo Kulcsar. 2001. Household economic behavior in post-socialist rural Hungary. *Rural Sociology* 66, 2: 157-80.

Keywords: Economic conditions. Economic restructuring. Former socialist countries. Hungary. Rural areas. Social welfare.

This paper investigates the organization of household economic behavior in postsocialist rural Hungary. Data from 751 randomly selected households in three rural regions of the country showed weak labor force attachment and heavy reliance on social welfare programs among these households. Self-provisioning and interhousehold exchange were also prevalent. The data showed that inter-

household exchange is motivated by both economic and social logics. Interhousehold exchange appears to be more likely among better-off households with more economic and social resources.

16-0474

Jensen, J. Bradford, and Amy K. Glasmeier. 2001. Restructuring Appalachian manufacturing in 1963-1992: the role of branch plants. *Growth and Change* 32, 2: 251-82.

Keywords: Appalachian region. Branch plants. Economic restructuring. Longitudinal studies. Manufacturing industries.

This paper uses the Longitudinal Research Database (LRD), a unique, detailed, plant-level database that covers the entire U.S. manufacturing sector in five-year intervals to examine how the manufacturing sector in Appalachia has evolved over the past thirty years (from 1963 to 1992). The research focuses on three questions: (1) Is the Appalachian region attracting new manufacturing plants at the same rate as the rest of the country? (2) Does Appalachian manufacturing employment exhibit low-wage, low-productivity characteristics compared with the rest of the country? (3) Is Appalachia still heavily reliant on branch plants? The results show the manufacturing base of Appalachia in 1992 looks very much the same as it did in 1967. Compared to the rest of the country, Appalachian manufacturing is still more reliant on branch plants and is characterized by lower wage and lower productivity establishments. This result is not due to a lack of entry-level manufacturing plant jobs, and manufacturing job formations associated with entrants in Appalachia are only slightly lower than for the United States as a whole. Job destruction rates caused by exits are actually lower than in the United States as a whole.

22-3 EMPLOYMENT

16-0475

Chen, Guang-Xiang, and Kitty J. Hendricks. 2001. Nonfatal occupational injuries among African American women by industrial group. *Journal of Safety Research* 32, 1: 75-84.

Keywords: Blacks. Manufacturing industries. Occupational injuries. Occupational safety and health. Women.

This study examined characteristics of nonfatal, work-related injuries treated in emergency departments (EDs) among African American women by industry in the United States in 1996. Method: injury data were from the National Electronic Injury Surveillance System. Employment data were from the Current Population Survey. Results: in 1996, African American women aged 16 or older were treated in EDs for an estimated 158,335 nonfatal, work-related injuries (2.6/100 full-time equivalents [FTEs]). Of these injuries, 39 percent occurred in health care, 14 percent in retail trade, and 12 percent in manufacturing. Health care experienced the highest injury rate of 5.1/100 FTEs, followed by a rate of 2.6/100 FTEs in retail trade. Summary:

this study is the first report on work-related injuries treated in EDs among African American women by industry on a national level. Injury patterns varied by industry in terms of source, event, diagnosis, and body part. For example, in health care, the leading source involved interactions with patients and the leading event was physical exertion; whereas in retail trade, the leading source was structures and surfaces and the leading event was contact with objects. Impact on industry: these findings demonstrate that nonfatal, work-related injuries are often concentrated in certain high-risk industries such as health care, manufacturing, and retail trade. To improve occupational safety and health for African American women, future research activities and prevention strategies should address the high-risk industries identified in this analysis.

16-0476

Dixon, Robert, David Shepherd, and James Thomson. 2001. Regional unemployment disparities in Australia. *Regional Studies* 35, 2: 93-102.

Keywords: Australia. Regional economies. Regional disparities. Unemployment rates.

In this paper, the authors examine the nature of disparities in regional (state) unemployment rates in Australia over the period from 1978 to 1999 and their relationship to the national unemployment rate. Using cointegration analysis, the authors find that there is a negative relationship between the two, implying that as the national unemployment rate falls, micro and/or differentiated labor market policies need to bite harder (and affect proportionately more people) if equity in unemployment across regions is to be maintained. The authors also find that the trade-off between dispersion and unemployment has become steeper in the period following significant deregulation of the Australian economy in the early 1980s. It would appear likely that this reflects an increase in differences in the natural rate of unemployment between the regions since that time.

16-0477

Fothergill, Stephen. 2001. The true scale of the regional problem in the UK. *Regional Studies* 35, 3: 241-46.

Keywords: Great Britain. Regional disparities. Regional economies. Unemployment rates.

This article argues that the scale of unemployment in the United Kingdom and the differences between regions are severely understated by claimant unemployment data. It explains how unemployment becomes hidden, in particular by a major diversion of older and less healthy workers from unemployment-related benefits, and how this process is especially marked in the traditional industrial parts of northern Britain. The true scale of regional differences in joblessness is also underlined by employment rates in different parts of the country.

16-0478

Mills, Bradford F. 2001. Unemployment duration in non-metropolitan labor markets. *Growth and Change* 32, 2: 174-92.

Keywords: Economic decline. Economic restructuring. Labor markets. Rural areas. Unemployment duration. Unemployment rates.

Nonmetropolitan areas of the United States have experienced significant structural economic changes in recent decades. These changes have raised concerns that some nonmetropolitan workers may face significant costs to employment displacements associated with economic adjustments. This paper explores the roles that linkages to metropolitan labor markets, area labor market conditions, and individual attributes play in determining the rates of exit from unemployment to employment among nonmetropolitan area residents. Adjacency to a metropolitan area is found to significantly increase transition rates from unemployment to employment among displaced nonmetropolitan workers, but local economic conditions are found to have relatively weak or insignificant effects on transition rates. Also, lack of post-high school education and minority status both significantly reduce rates of exit from unemployment in nonmetropolitan areas following employment displacement.

16-0479

Staddon, Caedmon. 2001. Restructuring the Bulgarian wood-processing sector: linkages between resource exploitation, capital accumulation, and redevelopment in a postcommunist locality. *Environment and Planning A* 33, 4: 607-28.

Keywords: Bulgaria. Economic restructuring. Former socialist countries. Woodworking industry.

Based on recent primary research, the author explores the emerging contours of the postcommunist forest-products sector in Bulgaria and, in particular, the ramifications for community-level restructuring in a small, mountainous region located in the southwestern part of the country. After ten years of postcommunist transformation, the current government has only very recently initiated the task of wholesale reform of communist-era structures extant within the forestry and forest-products sectors. This is an unavoidably complex process, involving reorganizing tenure over forest resources (with some measure of restitution of formerly private forest resources to pre-communist-era owners); privatizing and decentralizing logging and related activities in the woods; redefining the role of the state in oversight, management, and planning; and developing a supportive institutional context for the growth of, in particular, small and medium-sized private enterprises throughout the forest-products chain. Restructuring of the wood-products sector in one Bulgarian mountain locality is the primary focus of the paper, with a five-fold descriptive typology of wood-processing enterprises proposed.

Based in part on manifest differentiations in corporate governance and institutional network orientation (including markets), this typology assists with the analysis of challenges to sustainable local restructuring in resource-dependent communities. These models are discussed in turn in terms of both the theoretical implications for Bulgaria's transition model of development and the empirical ramifications for regional development and well-being.

16-0480

Werna, Edmundo. 2001. Shelter, employment and the informal city in the context of the present economic scene: implications for participatory governance. *Habitat International* 25, 2: 209-27.

Keywords: Citizen participation. Economic development. Employment policy. Informal sector. Poverty. Squatter settlements. Urban areas.

This paper analyzes the scope of policies related to both shelter and employment for reducing urban poverty. It puts forward suggestions on how to strengthen such policies through local governance processes. Yet, the paper states that such local processes and associated shelter-employment policies are constrained by the broad economic context: although valuable local actions to combat poverty have indeed succeeded to some extent (e.g. support to small-scale, labor intensive, informal production), counteracting global trends have in many circumstances strengthened conditions such as capital-intensive production, unstable employment, unemployment, and/or intraurban differentials. The paper challenges the possibility of a comprehensive and sustainable development without significant changes in the current global context. It elaborates on the links between the shelter-employment policies at the local level and the overall economic trends and makes recommendations for action.

16-0481

Younts, C. Wesley, and Charles W. Mueller. 2001. Justice processes: specifying the mediating role of perceptions of distributive justice. *American Sociological Review* 66, 1: 125-45.

Keywords: Distributive justice. Economic decline. Pay differentials.

Extant theories suggest that individuals' perceptions of the fairness of their pay causally intervene between the salary/wages they receive and their emotional responses (e.g., satisfaction) to that level of pay. In addition, it has been argued that the impact of an event evaluated by an individual as unfair depends on the importance of fairness to that individual—an unfair event has a greater effect for those who place greater importance on distributive justice. Despite the centrality of these arguments in the justice literature, current research has not adequately tested them. In this article, the authors propose a general theoretical

model based on these arguments. A structural equation model is then estimated using data from a national sample of Protestant clergy. The findings support both the mediating role of ministers' perceptions of distributive justice and the moderating role of the importance of justice in explaining their level of pay satisfaction.

22-4 PUBLIC FINANCE AND TAXATION

16-0482

Bowen, Terry, and Matthew Corrigan. 2001. Exit surveys as a tool for local officials who are considering bond issues for infrastructure improvements. *Public Works Management and Policy* 6, 1: 70-80.

Keywords: Bond issues. Citizen participation. Exit surveys. Fiscal policy. Infrastructural improvements. Taxation.

This study presents a framework for using exit surveys as a way to identify and explain citizen support for property tax increases for local infrastructure improvements. When local policymakers are interested in surveying their citizens about potential policy options, great care must be taken in choosing the population to be surveyed. Because voter turnout tends to be much lower in local elections, individual phone and mail techniques may overestimate the willingness of citizens to vote. The alternative presented here is an exit survey of those persons who have participated in a specific local election. Findings from this case study show that negative attitudes about government and perceived tax liabilities appear to be more consistently related to attitudes toward raising taxes than are demographic variables. On the other hand, demographic variables may be mitigating factors not only with regard to perceived tax burdens but also in regard to defining one's use or intended use of projects.

16-0483

Congleton, Roger D. 2001. Rational ignorance, rational voter expectations, and public policy: a discrete informational foundation for fiscal illusion. *Public Choice* 107, 1/2: 35-64.

Keywords: Electoral politics. Fiscal illusion. Public policy. Rational ignorance.

This paper demonstrates that rational ignorance, properly defined, allows the possibility that fiscal illusion affects policies in a democracy. The implications of rational ignorance are examined in a setting where voters are assumed to completely understand the fiscal environment and make perfect use of any information that they possess. In this setting, it is demonstrated that ignorance may be rational, manipulated, and generate biased expectations over fiscal parameters. The analysis suggests that the electoral impact of voter ignorance is reduced but not eliminated by electoral competition. Candidate positions only affect the electoral choices of individuals who are at least partially informed about those positions. Consequently, electoral competition tends to generate policies that advance the

interests of relatively informed voters. This implies that election-based public policies are based on better information than one would expect based on the widespread fiscal ignorance reported in surveys. However, even in this setting, the votes cast and the policies adopted are affected by the estimated marginal rates of substitution between private and governmental services, which cannot be unbiased if areas of ignorance remain—even if voters make the very best use of information in their possession. The existence of rational ignorance, once carefully defined, is sufficient to generate policy-relevant fiscal illusion.

16-0484

Fredriksson, Per G. 2001. How pollution taxes may increase pollution and reduce net revenues. *Public Choice* 107, 1/2: 65-85.

Keywords: Environmental policy. Environmental pollution. Fiscal policy. Local government. Pollution taxes. Revenue generation.

This paper develops a positive theory of pollution taxation by a federal authority when pollution abatement subsidies are used by local governments. Environmental and industry lobby groups influence governments with campaign contributions. First, pollution may increase under a pollution tax because the abatement subsidy increases (decreases) with the tax, and pollution increases (decreases) in the abatement subsidy. This occurs because the lobbying incentives change at a pollution tax reform. Second, pollution taxes may reduce net revenues because subsidy expenditures rise. Third, pollution may increase simultaneously as net revenues fall. Finally, the welfare effect of a pollution tax may be negative.

16-0485

Fuest, Clemens, and Bernd Huber. 2001. Tax competition and tax coordination in a median voter model. *Public Choice* 107, 1/2: 97-113.

Keywords: Economic competition. Electoral politics. Fiscal policy. Tax competition. Voting behavior.

This paper analyzes the welfare effects of capital tax coordination in a simple model of fiscal competition in which fiscal policy is subject to majority voting and households differ with respect to their labor and capital income. It turns out that a coordinated capital tax increase may raise or reduce welfare depending on the relative magnitude of (1) economic distortions induced by a labor tax and (2) political distortions resulting from the influence of the median voter on fiscal policy decisions. A negative welfare effect is more likely the smaller the marginal excess burden of the labor tax and the smaller the ratio of the median voter's labor income to average labor income. We also use empirical estimates of the marginal excess burden of taxation to determine the welfare effects of tax coordination; it turns out that a negative welfare effect of coordinated tax

increases may emerge in our model for empirically reasonable parameters.

16-0486

Goss, Ernest P., and Joseph M. Phillips. 2001. The impact of tax incentives: do initial economic conditions matter? *Growth and Change* 32, 2: 236-50.

Keywords: Economic conditions. Economic policy. Income levels. Socioeconomic status. Tax incentives. Unemployment rates.

Do the returns to business tax incentives differ according to the initial economic conditions of the area providing tax relief? Past research studies have provided conflicting answers to this question. Bartik (1991) concluded that rates of return to business tax incentives are likely to be greater for less affluent areas than for wealthier areas offering equivalent incentives. In contrast, Fisher and Peters (1998) determined that tax incentives tend only to offset higher taxes on businesses located in low-income areas. This study examines this issue using a unique data set that allows for a fresh look at this issue. We find that the returns to subsidized investment are greater in lower unemployment and higher income areas. This suggests that tax incentives reinforce preexisting economic differences across areas.

16-0487

Hatzipanayotou, Panos, and Michael S. Michael. 2001. Public goods, tax policies, and unemployment in LDCs. *South-ern Economic Journal* 68, 1: 107-19.

Keywords: Developing countries. Fiscal policy. Public goods. Taxation. Unemployment.

The authors build a general equilibrium model of a small open community characterized by unemployment and producing two privately traded goods and one untraded public consumption good. The provision of the public good is financed with an income tax or excise tax on the manufactured good or an import tariff. Within this framework, the paper examines the effects of such policies on the country's unemployment ratio and welfare, and it derives the efficiency rules for public good provision for each policy instrument. It shows, among other things, that the private marginal cost of the public good always overstates its social marginal cost in the case of income taxes and may overstate it in the case of an excise tax on the manufactured good or a tariff, even if the taxed good and the public good are substitutes in consumption.

22-6 SPATIAL ANALYSIS/MODELS

16-0488

Braid, Ralph M. 2001. Spatial growth and redevelopment with perfect foresight and durable housing. *Journal of Urban Economics* 49, 3: 425-52.

Keywords: Economic development. Forecasting. Housing. Spatial analysis. Urban areas.

In this paper, I present a theoretical model of the spatial growth of an urban area with durable housing. I combine several assumptions that typically complicate the analysis: (1) housing developers have perfect foresight, (2) the initial development and many waves of redevelopment are considered in each developer's plan, and (3) the closed-city assumption is made so that the time path of population is exogenous and that of consumer utility is endogenous. I still obtain explicit solutions for the spatial pattern of urban growth and for the timing of the initial residential development and each successive redevelopment at each distance from the urban center. I compare perfect foresight growth to growth with static expectations, and I examine the comparative statics of both.

16-0489

De Graaff, Thomas, Raymond J.G.M. Florax, Peter Nijkamp, et al. 2001. A general misspecification test for spatial regression models: dependence, heterogeneity, and nonlinearity. *Journal of Regional Science* 41, 2: 255-76.

Keywords: Socio-spatial analysis. Spatial analysis. Spatial regression models. Urban design. Urban models.

There is an increasing awareness of the potentials of nonlinear modeling in regional science. This can be explained partly by the recognition of the limitations of conventional equilibrium models in complex situations and partly by the easy availability and accessibility of sophisticated computational techniques. Among the class of nonlinear models, dynamic variants based on, for example, chaos theory stand out as an interesting approach. However, the operational significance of such approaches is still rather limited, and a rigorous statistical-econometric treatment of nonlinear dynamic modeling experiments is lacking. Against this background, this paper is concerned with a methodological and empirical analysis of a general misspecification test for spatial regression models that is expected to have power against nonlinearity, spatial dependence, and heteroskedasticity. The paper seeks to break new research ground by linking the classical diagnostic tools developed in spatial econometrics to a misspecification test derived directly from chaos theory—the BDS test, developed by Brock, Dechert, and Scheinkman (1987). A spatial variant of the BDS test is introduced and applied in the context of two examples of spatial process models, one of which is concerned with the spatial distribution of regional investments in the Netherlands, the other with spatial crime patterns in Columbus, Ohio.

16-0490

Frenkel, Amnon. 2001. Why high-technology firms choose to locate in or near metropolitan areas. *Urban Studies* 38, 7: 1083-101.

Keywords: High-technology industries. Location decisions. Spatial analysis. Urban areas.

Various studies have provided evidence of the advantages of the ability of metropolitan areas to attract high-technology industries, which employ advanced technology and are strongly involved in the process of innovation. This paper presents the results of an empirical study of the location choice of Israeli high-technology industries within a metropolitan area, carried out in the northern regions of Israel (which encompass the Haifa metropolitan area and its surrounding localities) and based on field survey data obtained from plants in that sector. The study investigates the effect of different factors on location choice and also identifies the direct contribution of each factor in the probability of choosing the metropolitan area as a preferred location. Implications of these findings for industrial policy are also discussed.

16-0491

Hewings, Geoffrey J. D., Yasuhide Okuyama, and Michael Sonis. 2001. Economic interdependence within the Chicago metropolitan area: a Miyazawa analysis. *Journal of Regional Science* 41, 2: 195-217.

Keywords: Chicago. Economic structure. Input-output analysis. Local economies. Urban areas.

The present study explores the nature and strength of economic interdependence between inner-city communities and suburbs within the Chicago metropolitan area. Employing Miyazawa's extended input-output framework, a multiregional model is used to investigate the interdependence of income formation and output generation. The metropolitan area is divided into four regions, and particular attention is directed to predominantly minority areas on the south and west sides of the city of Chicago. The region-to-region impacts of trade flows and their associated multipliers proved to be far less important in determining the strength of interregional interdependence in contrast to income flows derived from journey-to-work movements. The interregional income multiplier revealed considerable interdependence between regions although the strength of this interdependence was asymmetric.

16-0492

Hsu, Song-Ken, and Lin-Ti Tan. 2001. Production location choice and risk aversion. *Annals of Regional Science* 35, 2: 239-48.

Keywords: Economic analysis. Location decisions. Risk analysis. Site selection. Spatial analysis.

This paper attempts to provide a general comparative static analysis on a firm's choice of production location with respect to variations in the degree of risk aversion under demand price, input price, and technology uncer-

tainties. The analysis shows that whether and how the plant location varies with a change in the firm's degree of risk aversion depends on the characteristics of its production technology and the ways input and location choices affect risk. It also demonstrates that some of the authors' results are new, whereas some are generalizations of those obtained by Martinich and Hurter.

16-0493

Lai, Fu-Chuan. 2001. Sequential locations in directional markets. *Regional Science and Urban Economics* 31, 5: 535-46.

Keywords: Directional markets. Location decisions. Market analysis.

Some natural resources (water, sunlight, and wind) as well as some markets (a one-way street, a bus schedule, and television broadcasting times) have directional characters and display special competition behaviors that are very different from that in ordinary (nondirectional) markets. This paper analyzes the strategic location competition in a game of directional markets with sequential and non-cooperation constraints. A directional market with continuous locations in a game of direction continuous locations shows that there is no subgame perfect equilibrium, whereas subgame perfect equilibria exist in the case of discrete spaces. These results are distinct from that of Cancian and others (1995) and other duopoly location models.

16-0494

Lambertini, Luca. 2001. Vertical differentiation in a generalized model of spatial competition. *Annals of Regional Science* 35, 2: 227-38.

Keywords: Duopoly. Economic analysis. Spatial analysis. Spatial competition.

In a duopoly model of spatial competition in which consumers' surplus function contains both a linear and a quadratic disutility component, the author seeks to show that the differentiation at equilibrium depends on the distribution of roles across firms and the relative weight of linear and quadratic components in the transportation cost function. Vertical differentiation is more likely to be obtained the lower the weight attached to the linear component and the higher the advantage enjoyed by one firm over the rival.

16-0495

Li, Feng, Jason Whalley, and Howard Williams. 2001. Between physical and electronic spaces: the implications for organisations in the networked economy. *Environment and Planning A* 33, 4: 699-716.

Keywords: Cybernetic space. Economic structure. Organizational structure. Physical space. Spatial analysis. Telecommunications.

With the rapid development of computing and telecommunications infrastructure, a new electronic space has emerged that coexists and sometimes intertwines with the physical space and place of our world. This has greatly increased the complexity and flexibility of the new space economy for organizations and individuals, and increasingly we have to live in two spaces. Since the late 1980s, researchers have successfully dismissed the misconception about the death of distance in the information economy. However, the dissemination of this progress has been slow and fragmented. Utopian views about the end of geography remain very influential in current business thinking and in research on information systems and organizational innovations. Numerous failed business applications of information systems have resulted from a lack of geographical considerations. This situation has been significantly exacerbated in the past few years by the rapid developments of the Internet and new applications based on it such as electronic commerce (e-commerce) and electronic business (e-business). Researchers have a duty not only to understand the new geography of the information economy but also to inform the public about the key features of the two spaces that all organizations and individuals have to live in. In this paper, some case studies and emerging business phenomena are used to illustrate the importance of introducing a geographical dimension into research on information systems and organizational innovations. Several new themes for further research are also highlighted.

16-0496

Nijkamp, Peter, and Gabriella Vindigni. 2000/2001. Spatial environmental evaluation of alternative EU agricultural scenarios for Mediterranean countries. *Journal of Environmental Systems* 28, 1: 71-90.

Keywords: Agricultural policy. European Union. General Agreement on Tariffs and Trade. Spatial analysis.

In this article, the authors investigate the impact of different European Union (EU) policies that aim to meet the target specified in the Uruguay Round Agreement on Agriculture of 1994. In particular, the authors analyze which possible additional reforms are needed to make the EU Common Agricultural Policy compatible with the General Agreement on Trade and Tariffs-World Trade Organization agreement, seen from the perspective of a possible operation of a Free Trade Area between the EU and Mediterranean countries. It is at present expected that under this pressure, the EU will set new policies through which the removal of barriers to trade in agricultural products should be achieved. The question raised in the article concerns the consequences of the reform brought about in the EU document Agenda 2000 on economic, social, and environmental conditions among different regions or countries of the Mediterranean area. It should be noted that the current interests in proper land use analysis have arisen from

the general awareness of the specific geographic features of sustainable development. Particularly in land use planning, much emphasis is at present placed on designing plans that are more favorable to goals of multifunctional use rather than merely agricultural use as in the past. Consequently, the choice of methodological tools based on a multiassessment approach can be critical in developing new policy initiatives that are to be implemented from a sustainability perspective. In this article on an assessment of the Free Trade impact at the spatial level of Mediterranean countries, the authors deploy a methodological framework that involves the use of modern multicriteria analysis, in particular the Generalized Regime Method. The article explores the usefulness of this method by applying it to clusters of countries in the Mediterranean area with a view to support proper land use management on the basis of different policy scenarios. The article ends with a discussion of the changing scene of policy analysis for spatial sustainable development.

16-0497

Roper, Stephen. 2001. Innovation, networks and plant location: some evidence for Ireland. *Regional Studies* 35, 3: 215-28.

Keywords: Economic networks. Location decisions. Manufacturing industries. Manufacturing plants. Site selection. Spatial analysis. Technological innovation.

The influence of networks and location on plants' innovation activities has received considerable attention over the past decade. Most empirical work has centered on the hypotheses suggested by the urban hierarchy model. That is, that resource-rich, urban areas may be more conducive to product innovation, whereas more rural areas are better suited to process change. This paper differentiates among four types of areas in Ireland (urban, urban-periphery, rural, and second center) and uses survey evidence to examine the impact of these different environments on plants' innovation activity. There are two main empirical conclusions. First, networks play an important part in determining the probability that plants will be innovative and, to a lesser extent, the success of that innovation. This provides some conditional support for recent calls for network-based regional development strategies. Second, there is no evidence of any urban hierarchy of innovation in Ireland, which suggests that regional policy initiatives to disperse economic activity throughout Ireland are likely to have had little effect on innovation.

16-0498

Tan, Lin-Ti. 2001. Transport rate uncertainty and the optimal location of the firm: some new conclusions. *Journal of Regional Science* 41, 2: 301-15.

Keywords: Location decisions. Risk analysis. Site selection. Spatial analysis. Transportation rates.

This paper provides a systematic analysis of a risk-averse firm's choice of plant location under transport rate uncertainty in an n -input planar space. The analysis shows that the presence of transport rate uncertainty significantly influences a firm's location choice. I provide comparative static results regarding the spatial consequences of changes in the firm's degree of risk aversion and the level of transport rate uncertainty. In addition, I establish some unambiguous locational effects of various forms of business taxes under the usually assumed conditions, namely, that the absolute risk aversion index is decreasing and the relative risk aversion index is increasing.

16-0499

Wong, S. C., and S. H. Sun. 2001. A combined distribution and assignment model for continuous facility location problem. *Annals of Regional Science* 35, 2: 267-81.

Keywords: Econometric models. Economic analysis. Location decisions. Spatial analysis.

The authors consider a general, heterogeneous geographical space with a set of competitive facilities where the customers' demand locations from each of the facilities are continuously dispersed over the areas. The total demand generated from a particular location in the space is fixed, but the demands from this location to the set of competitive facilities are subject to a distribution function with respect to the relative transportation costs to these facilities. Furthermore, the authors take into account congested transportation cost in characterizing customer choices. The congestion effect is explicitly built into their model by using a flow-dependent and location-dependent transportation cost function. The routing behavior of customers over the space and the user equilibrium choices of facilities are modeled by constructing a spatial user equilibrium flow pattern. The problem is formulated as a combined distribution and assignment model. An iterative algorithm between the distribution function for the choice of facilities and a mixed finite element method for route choices is proposed to solve the resulting continuous facility location problem. A numerical example is given to demonstrate the effectiveness of the proposed methodology.

16-0500

Zhou, Dongsheng, and Ilan Wertinsky. 2001. Strategic location decisions in a growing market. *Regional Science and Urban Economics* 31, 5: 523-33.

Keywords: Economic growth. Location decisions. Market analysis. Spatial analysis.

The optimal location and time of entry are examined in a horizontally differentiated market using a simple duopoly model with sequential entry. Assuming high entry and relocation costs, the authors find that (1) the late entrance always locates in the periphery (maximum differentiation),

(2) the first entrant will choose either a peripheral location or a central location (minimum differentiation) but not an intermediate location, (3) the choice of a central location is optimal when the effectiveness of entry deterrence is enhanced by low transportation costs, high interest rates, high fixed costs, and a low market growth rate.

PHYSICAL/ENVIRONMENTAL

30. Housing and Real Estate

30-1 HOUSING/REAL ESTATE POLICY

16-0501

de Souza, Flávio A. M. 2001. Perceived security of land tenure in Recife, Brazil. *Habitat International* 25, 2: 175-90.

Keywords: Brazil. Investment decisions. Land tenure. Land tenure security. Recife, Brazil.

This paper is about changes in people's perceptions relating to security of land tenure in Recife, Brazil. This paper investigates why people living in contested settlements invest and consolidate their houses despite the apparent lack of land tenure security. The question is very simple, but the answer is highly complex. Although the topic has been widely researched, there is still insufficient understanding of what security means to individual households and how security influences the consolidation and improvements of houses. Households invest in all kinds of processes and commodities to improve their plots and their houses, and inevitably this changes their perceptions of security. Data were mainly gathered from in-depth interviews held with a total of 63 households living in five different informal settlements in Recife. The paper focuses on the informal claims made by households about their perceived rights over their property, since for the great majority of the households living in these settlements, property rights in the form of title deeds are not available. The key contentions of this paper are that (1) the lack of a better understanding about what tenure really means to low-income households can pose threats to the survival of low-income housing markets and (2) contrary to orthodox knowledge, perceptions of tenure security increase as a result of housing consolidation.

16-0502

Keivani, Ramin, and Edmundo Werna. 2001. Refocusing the housing debate in developing countries from a pluralist perspective. *Habitat International* 25, 2: 191-208.

Keywords: Developing countries. Housing decisions. Pluralism. World Bank.

The debate on housing policy in developing countries since the late 1980s has been dominated by the World Bank-led

strategy of developing the housing sector as a whole by enabling primarily formal private markets to work more efficiently. Yet, the emphasis on private markets has led to the exclusion of complementary and alternative public, cooperative/community-based, and informal modes of housing provision from serious policy consideration. This paper argues for the adoption of a more integrated housing policy that is based on the recognition and better coordination of plurality of provision. By allowing further development of specific modes in appropriate socioeconomic settings and enabling the creation of synergies through combining complementary modes to overcome their relative weaknesses, we can boost supply to specific target groups.

30-2 CONSTRUCTION/MAINTENANCE/HOUSING AND BUILDING CODES

16-0503

Adamson, Paul. 2001. California modernism and the Eichler homes. *Journal of Architecture* 6, 1: 1-25.

Keywords: Architectural modernism. Architecture. California Eichler homes. House construction. House design. Modernism.

This paper describes how the Eichler homes were one of a very few, and probably the most successful, examples of modern movement architecture in the American commercial housing market. There were many efforts particularly by architects during the postwar period to open up the merchant builder industry to architectural design, but after prying open a narrow slice of the market for a few years, the developers took over once again, and the Eichlers were sealed in time, leaving us with a tantalizing image of modern architecture's potential to improve the quality of everyday life.

16-0504

Pekala, Nancy. 2001. Getting lean and green: taking the eco-challenge. *Journal of Property Management* 66, 4: 16-17.

Keywords: Building codes. Building design. Environmental protection.

Real estate professionals are taking the idea of environmental sustainability of buildings seriously. Escalating costs and decreasing availability of natural resources, growing public awareness of environmental issues, new building code standards, more stringent land development, and the high cost of waste disposal are all factors motivating the real estate industry to become more knowledgeable about so-called green buildings. A green building is one that possesses energy efficiency, good indoor air quality, resource efficiency, building durability, and recyclability of the structure and its components. Some green building elements include building materials, construction waste management energy, landscaping, recycling, water

conservation, and wastewater control. Efforts by real estate managers to realize these goals are described.

16-0505

Saleh, Mohammed Eben Abdullah Eben. 2001. Planning and designing for defense, security and safety in Saudi Arabian residential environments. *Journal of Architectural and Planning Research* 18, 1: 39-58.

Keywords: Building design. House construction. House design. Military policy. Residential districts.

Historically, security and the defense of space in residential neighborhoods in the Arabian Peninsula have been strictly maintained by social rules resulting from the influence of Islam and the tribal system. However, in newer neighborhoods, where the design changes from one that is organic and pedestrian oriented to one that is geometric and vehicle oriented, there are significant security issues. The study of several communities in Saudi Arabia indicates the interplay of design with the cultural, privacy, and security imperatives of the population at the neighborhood scale. The author traces the difficulties and challenges of applying traditional security criteria to the diverse population mixture in modern-day Saudi Arabia. The study highlights the importance of how tradition can be integrated with contemporary neighborhood demands to provide secured environment. The author then looks at more recent neighborhood site plans to suggest ways in which conflicts between tradition and modernity could be bridged to achieve secure and safe residential environments. Using research results written in the past three decades on crime prevention through environmental design, the paper describes how traditional design methods work for security and defense and calls for the documentation of traditional and transitional neighborhoods to secure a historic resource for planners and designers.

16-0506

Sentosa, L. S. 2001. Genius loci within Balinese dwellings environments: the unlikely scenarios of urban development in Bali. *Habitat International* 25, 2: 255-72.

Keywords: Bali. House construction. House design. Religious beliefs. Urban development. Village design.

Believing that an individual must arrange his or her life in perfect harmony with cosmic order, the Balinese create their indigenous dwellings according to a centuries-old tradition generated by their idea of cosmic harmony. As the Balinese are becoming socially more integrated with the outside world, however, Balinese rural settlements have been slowly changing. Utilizing among others the space syntax method and structuralist and direct observation techniques, the paper points out the changing spatial/formal pattern of the dwellings and the underlying forces

affecting continuity and change in dwelling environments and highlights the unlikely scenarios of expanding settlements into somewhat larger urban settlements. An investigation into the global village patterns of Tihingan, an *adat* (customary laws) village characterized by high kinship differentiation, reveals that the weakening village boundaries and the changing spatial connectivity between houseyards are directly related to the weakening social differentiation between rival kin groups and between different castes. An investigation into the houseyard patterns reveals how the inhabitants begin to change the way they generate and control encounters, signaling their changing threshold of universe. Yet, the inhabitants' desire to constantly maintain the ideal cosmic pattern of their settlements prompted them to initiate a new settlement elsewhere once the village had fully grown.

16-0507

Tiwari, Piyush. 2001. Housing and development objectives in India. *Habitat International* 25, 2: 229-53.

Keywords: Construction industry. Economic development. House construction. House design. India.

India faced the challenge of providing adequate shelter to 18.5 million households in 1991 and employment for its citizens. The construction sector represents the most pressing need: shelter. This sector has great potential to generate employment through its forward and backward linkages. Earlier researchers have indicated that construction activity contributes 17 percent to the carbon dioxide emission in India. In this paper, the authors interweave these three issues and propose a construction strategy for the Indian housing sector. Affordability of a house and availability of building materials for its construction are the main determinants of access to shelter. This demands efficient use of resources at low cost. The authors analyze whether it is possible to reduce cost, reduce emissions, and generate employment in house construction. A model is developed for technology evaluation in house construction based on design codes for India. Recent government policy statements have indicated that an annual supply of 2 million new houses would be required to meet the current shortage of housing in India. This model is applied to the construction of 2 million houses. The construction technologies evaluated are the *puccal* construction technologies as well as low-cost techniques. It is asserted that by a proper selection of such techniques and material, costs and emissions can be reduced substantially and at the same time employment can be generated.

30-3 HOUSING/REAL ESTATE FINANCE AND VALUE

16-0508

Chan, Sewin. 2001. Spatial lock-in: do falling house prices constrain residential mobility? *Journal of Urban Economics* 49, 3: 567-86.

Keywords: House prices. Mortgages. Residential mobility.

Falling house prices have caused numerous homeowners to suffer capital losses. Those with little home equity may be prevented from moving because of imperfections in housing finance markets: the proceeds from the sale of their home may be insufficient to repay their mortgage and provide a down payment on a new home. A data set of mortgages is used to examine the magnitude of these constraints. Estimates show that average mobility would have been 24 percent higher after three years had house prices not declined, and after four years it would have been 33 percent higher. Among those with high initial loan-to-value ratios, the differences are even greater.

16-0509

Struyk, Raymond J., Alexander S. Puzanov, and Anastasia Kolodeznikova. 2001. Administrative practices in Russia's housing allowance program. *Urban Studies* 38, 7: 1045-67.

Keywords: Housing allowance. Housing finance. Housing policy. Russia.

Reported here are the results of a first-time assessment of the practices of local housing allowance offices (HAOs) that administer an income-tested housing program in Russia. Fieldwork included on-site reviews of seventeen HAOs and analysis of about twelve hundred files of program beneficiaries. For administrative practices covering such areas as the presence of written job descriptions, written guidelines for intake workers, generation of reports for higher level authorities, and setting standards for the routine review of files of applicants determined to be eligible for benefits, applicants rejected, and time during which processing of approved cases should be completed, HAOs had a fair record. Generally, two to four of the studied offices failed the standards set out in the paper. Nevertheless, frequent instances of incomplete record keeping about HAO operations limit these conclusions and highlight an area definitely needing improvement. On the other hand, and important for program credibility, errors in computing subsidies paid to beneficiaries were found to be universally very low. Overall, HAO performance is adequate, but improvements are clearly needed. The results can be interpreted as being consistent with HAO staff acceptance of housing allowances as a legitimate replacement for the previous broad entitlements to benefits that worked through controlled rents in state housing. The adequate operations of HAOs should work to strengthen popular support of broader economic and political reforms.

30-4 HOME OWNERSHIP/RENTAL HOUSING

16-0510

Shroder, Mark. 2001. What makes a landlord? Ownership of real estate by U.S. households. *Urban Studies* 38, 7: 1069-81.

Keywords: Definitions. Home ownership. Landlords. Rental housing.

About three-quarters of U.S. rental housing is owned by householders. This paper examines the real estate investment decision and the proportion of wealth invested in real estate. Hypotheses drawn primarily from the real estate finance literature about the role of health, expected inflation, human capital, income tax rates, race, health, risk aversion, and inheritance are tested against data from the Health and Retirement Study. Wealth has a powerful non-linear effect on ownership of real estate, but ownership is negatively associated with human capital. Marginal tax rates, race, and property gifts affect real estate investment; poor health, risk aversion, and expected inflation do not seem to have any effect on investment.

16-0511

Varady, David P., Carole C. Walker, and Xinhao Wang. 2001. Voucher recipient achievement of improved housing conditions in the U.S.: do moving distance and relocation services matter? *Urban Studies* 38, 8: 1273-304.

Keywords: Housing counseling. Housing improvement. Housing vouchers. Residential mobility. U.S. Housing and Urban Development.

When householders are granted vouchers by the U.S. Department of Housing and Urban Development (HUD) enabling them to leave distressed, federally subsidized developments in the United States and receive moderate relocation counseling, does such counseling lead to a more intensive housing search than might otherwise be the case? To address this question, multiple regression analysis was applied to a data set containing survey and geographical information (for example, distance moved, median neighborhood income level) for 201 voucher recipients in four cities. The analysis was used to determine whether the use of relocation counseling services (as well as the type of service used) and distance moved helped to explain variations in housing satisfaction. Those who used counseling services were in fact more likely to be satisfied with their new homes than were those who were unaware of these services. Nevertheless, those who were aware of the services but did not use them fared as well as householders who used them. Counseling to help in dealings with landlords was the most influential type of relocation assistance vis-à-vis house satisfaction. The distance the householder moved played an insignificant role in the analysis. This finding undoubtedly reflects the fact that voucher recipients choose to remain in or close to their original neighborhoods to be near friends and relatives, to continue using familiar bus lines, and to take advantage of the fact that better housing units offering a greater sense of safety were available in or near the same neighborhood. Implications for HUD's voucher policy are discussed.

30-5 HOUSING REHABILITATION

16-0512

Heath, Tim. 2001. Adaptive re-use of offices for residential use: the experiences of London and Toronto. *Cities* 18, 3: 173-84.

Keywords: Apartment renovation. Canada. Cross-national comparison. Great Britain. Interurban comparison. London. Office-to-apartment conversion. Toronto.

Planners and politicians increasingly have to find solutions for development pressures that consume less land, generate fewer private car miles, use existing urban resources, and conserve energy. One solution advocated by policymakers is to increase the number of homes within city centers as an integral tool of regeneration and sustainability policies. Equally, dealing appropriately with the physical legacy of the recent past is a challenging problem. Changes to existing towns and cities, however, open up the opportunities for entrepreneurs to exploit obsolete buildings to meet the needs and aspirations of the present. Indeed, Jacobs identified that "time makes the high building costs of one generation the bargains of a following generation . . . time makes certain structures obsolete for some enterprises, and they become available to others." This paper examines the background and process of the conversion of obsolete post-World War II office buildings to residential use. A comparative study of North America (Toronto) and Europe (London) will focus on the experiences of two cities where conversions have registered a significant impact in terms of new homes created and had a positive impact on the respective city center.

30-6 HOUSING FOR SPECIAL POPULATIONS

16-0513

Cabanas Díaz, Emma Grand, Paula Irene del Cid Vargas, et al. 2001. The role of external agencies in the development of El Mezquital in Guatemala City. *Environment and Urbanization* 13, 1: 91-100.

Keywords: El Mezquital, Guatemala. Guatemala. International organizations. Low-income housing. Nongovernmental organizations. Squatter settlements.

This paper describes and discusses the role of different international agencies, including the United Nations International Children's Emergency Fund and the World Bank, and nongovernmental organizations (NGOs) in supporting development in El Mezquital, a settlement formed from a land invasion in Guatemala City during the mid-1980s. It draws on interviews with the inhabitants and with staff from supporting agencies. The support from these international agencies and NGOs allowed considerable improvements in infrastructure and service provision and supported important processes of community empowerment and greater status and possibilities for women. The

paper also describes, however, the limitations of this support, including the limited scope for participation, the projects that were planned but never implemented, and the problems that the international support failed to resolve. It also describes the resentment from groups within the community with regard to what was achieved.

16-0514

Kahn, Matthew E. 2001. Does sprawl reduce the black/white housing consumption gap? *Housing Policy Debate* 12, 1: 77-86.

Keywords: Blacks. Environmental pollution. Housing. Racial differences. Suburbanization. Suburbs. Whites.

Because unplanned suburban growth imposes social costs such as congestion, pollution, and reduction of open space, antisprawl policies are being adopted in fast-growing metropolitan areas. This article explores one potential benefit of sprawl: it increases housing affordability, which may contribute to reducing the black/white housing consumption gap. This article uses 1997 American Housing Survey data to measure housing consumption for blacks and whites in metropolitan areas characterized by more and less sprawl. In sprawled areas, black households consume larger units and are more likely to own their homes than black households living in less sprawled area.

16-0515

Listokin, David, and Barbara Listokin. 2001. Asian Americans for Equality: a case study of strategies for expanding immigrant homeownership. *Housing Policy Debate* 12, 1: 47-75.

Keywords: Asian Americans. Asian Americans for Equality. Home Ownership. Housing policy. Immigrants. Low-income housing. Nonprofit organizations.

At a time when the overall home ownership rate in the United States is at a historic high, many groups still face severe hurdles in realizing this American dream. The public, private, and nonprofit sectors are working to address these barriers, and this article examines one nonprofit organization's activities. Asian Americans for Equality (AAFE) is a civil rights and housing organization providing home ownership and other services to Asian Americans, a group that often faces language, cultural, credit, and financial difficulties in achieving home ownership. AAFE addresses these challenges by providing aggressive outreach through housing fairs and neighborhood publications; it offers home ownership education and counseling in a variety of languages and settings, secures multiple housing subsidies and develops affordable housing, and educates lenders on the employment and credit practices of the Asian community. AAFE thus helps tailor the complex web of activities required to expand home ownership to traditionally underserved—especially immigrant—populations.

16-0516

Reingold, David A., Gregg G. Van Ryzin, and Michelle Ronda. 2001. Does urban public housing diminish the social capital and labor force activity of its tenants? *Journal of Policy Analysis and Management* 20, 3: 485-504.

Keywords: Labor force participation. Labor markets. Low-income groups. Neighborhoods. Public housing. Social policy.

This paper investigates the effect of urban public housing on the social capital and labor force activity of its tenants using cross-sectional survey data from the Multi-City Study of Urban Inequality (MCSUI). A structural equation model of the hypothesized direct and indirect effects of public housing and neighborhood disadvantage on social capital and labor force activity is specified and fitted to these data. The modeling results suggest that urban public housing is strongly associated with neighborhood disadvantage but has little or no direct effect on either social capital or labor force activity. In addition, although public housing may have indirect effects on social capital and labor force activity through neighborhood poverty, these indirect effects appear to be small. These findings have implications for the current emphasis in urban public housing policy on moving residents into the private housing market and reducing poverty concentration.

30-7 LOW- AND MODERATE-INCOME HOUSING

16-0517

Erman, Tahire. 2001. The politics of squatter (*gecekondu*) studies in Turkey: the changing representation of rural migrants in the academic discourse. *Urban Studies* 38, 7: 983-1002.

Keywords: *Gecekondu*. Rural-to-urban migration. Squatter settlements. Turkey.

This article seeks to develop a critical approach to squatter (*gecekondu*) studies in Turkey and investigates the various representations of the *gecekondu* people in these studies in different periods by placing them in their social, political, and economic contexts. It describes changes in the representation of the *gecekondu* population from the "rural Other" in the 1950s and 1960s to the "disadvantaged Other" in the 1970s and early 1980s to the "urban poor Other," the "undeserving rich Other," and the "culturally inferior Other" as subculture between the mid-1980s and mid-1990s and finally to the "threatening" (*varoglu*) Other" in the late 1990s. It asserts that although the approach to the *gecekondu* people varies from an elitist one to one that is sympathetic to the *gecekondu* population, this group, nevertheless, has been consistently the "inferior Other" for Turkish *gecekondu* researchers.

16-0518

Sukumar, G. 2001. Institutional potential of housing cooperatives for low-income households: the case of India. *Habitat International* 25, 2: 147-74.

Keywords: Housing cooperatives. India. Low-income groups. Low-income housing.

The author analyzes the institutional potential of housing cooperatives to fulfill housing objectives of low-income households, using three Indian cities (Mumbai, Chennai, and New Delhi) as empirical basis. It is proposed that there are two dimensions affecting the potential: (1) internal organizational features of the cooperative and (2) external institutional context. At the organizational level, although cooperatives have certain inherent benefits for low-income households, they face collective action problems that need to be overcome. Potential benefits vary with the form of cooperatives. At the institutional level, evolution of cooperatives is set in both the local housing market and the local institutional framework. The institutional framework could help or hinder in realizing the potential benefits in a given housing market by lowering or raising transaction costs of formation and functioning of cooperatives. In India, the national institutional context promoted cooperatives as a means for low-income households. However, these households have benefited to different degrees in the three cities. Cooperatives have been most effective in Mumbai and less effective in Chennai and New Delhi. The comparative examination holds three lessons for housing policy. The first lesson is that both local housing market and institutional framework have influenced the form and functioning of housing cooperatives. The second lesson is that minimal state controls aid cooperatives in performing multifarious functions. The third lesson is that development of an institutional structure supporting cooperatives lowers the transaction costs of their formation and functioning, which is to the benefit of low-income households.

16-0519

Ward, Peter M., and Jeremiah Carew. 2001. Tracking land ownership in self-help homestead subdivisions in the United States: the case of Texas "colonias." *Land Use Policy* 18, 2: 165-78.

Keywords: *Colonias*. Informal sector. Land ownership. Low-income housing. Self-help programs. Texas.

In Texas, there are some fifteen hundred so-called *colonias* housing an estimated four hundred thousand people mostly in peri-urban areas of the border region with Mexico. At the outset, *colonias* are unserved or poorly served low-income housing settlements divided into lots, sold by developers, upon which residents place trailers, construct manufactured homes, or engage in self-build. Recent research is beginning to identify similar types of

semiformal homestead subdivisions elsewhere in the United States, suggesting that this is a widespread and growing phenomenon. However, whereas many such subdivisions are sold out, the proportion of lots actually occupied varies greatly, with anywhere between 15 and 80 percent of lots being left vacant. This creates multiplex problems for effective provision and cost recovery of physical and social infrastructure as well as for effective formation of social capital necessary for active community participation and mutual aid in local development projects. Sometimes, the land allocation process also has led to confused occupancy and to conflict about rightful lot ownership. Although recent research has led to a better understanding about the nature of these subdivisions, it is often difficult to trace the ownership of individual lots. This is especially the case with absentee owners. As the first step toward data collection about nonowners and about "clouded" land titles, this paper identifies and tests the effectiveness of various methods that can be used to trace this "invisible" population. Working in twenty such colonias in Texas, the authors show that property tax records offer the most complete and effective method of tracing absentee owners to their current address. The paper also offers suggestions about the possible effectiveness of different types of survey methods to gather data about lot ownership and land market performance in homestead subdivisions. As an example of the application of this methodology, survey data are presented comparing colonia residents with absentee owners. The broader application of the methodology elsewhere in the United States as well as in some less developed county contexts is discussed.

16-0520

Wyly, Elvin, Thomas J. Cook, Daniel J. Hammel, et al. 2001. Low- to moderate-income lending in context: progress report on the neighborhood impacts of homeownership policy. *Housing Policy Debate* 12, 1: 87-127.

Keywords: Home ownership. Housing finance. Housing loans. Housing policy. Low-income housing. Moderate-income housing. Neighborhood impact analysis. Neighborhoods.

This article presents an interpretive progress report on the neighborhood-level effects of home ownership policy. The expansion of targeted lending initiatives has created unprecedented opportunities for ownership among low- to moderate-income (LMI) families, racial and ethnic minorities, and other populations once excluded from the nation's mainstream housing finance system. The article uses a two-stage strategy to provide a more accurate progress report on efforts to expand LMI home ownership. First, it uses home-purchase data for the forty largest metropolitan regions to identify a set of "best-case" neighborhoods that experienced the greatest quantitative increase in LMI lending during the middle 1990s. Second, it assesses the

nature of these places qualitatively. The approach allows one to evaluate the degree to which increased LMI lending provides genuine opportunities for affordable home ownership or unleashes other processes that conflict with the goals of affordability and sustainable neighborhood development.

31. Energy

31-2 ENERGY MODELING

16-0521

Brown, Mark T. 2001. Energy measures of carrying capacity to evaluate economic investment. *Population and Environment* 22, 5: 471-501.

Keywords: Carrying capacity. Energy. Investment evaluation. Research techniques.

This paper outlines a method for determining carrying capacity for economic investments based on an energy evaluation of the environmental resources of a region. Using data from tourism development in Mexico and Papua New Guinea, the concept of carrying capacity is related to intensity of development, environmental support areas, and the fit of economic development in local environments and economies. Energy, a unit of resource use and work potential, is used to quantitatively evaluate intensity of development. Energy evaluation is briefly described and the evaluations of tourism used to further explain the methodology. The total annual resource use for the tourist resorts and the economies in which they are embedded (including inputs of renewable and nonrenewable resources and purchase goods and services) was calculated and converted to energy units. The renewable resource base and an environmental loading ratio are proposed as a means for determining both long-term and short-term carrying capacity. The concept of sustainable development is related to the net energy benefits that result from development. Expressed as a ratio of the amount of energy received by the local economy to the amount that is reported (embodied in tourists), sustainability is suggested to result from a positive energy trade balance.

16-0522

Duncan, Richard C. 2001. World energy production, population growth, and the road to the Olduvai Gorge. *Population and Environment* 22, 5: 503-22.

Keywords: Deindustrialization. Electric blackouts. Energy consumption. Energy generation. Energy policy. Olduvai Gorge metaphor. Population growth. Resource depletion.

The Olduvai theory is defined by the ratio of world energy production and population. It states that the expectancy of industrial civilization is less than or equal to one hundred years: 1930-2030. After more than a century of strong

growth, energy production per capita peaked in 1979. The Olduvai theory explains the 1979 peak and the subsequent decline. Moreover, it states that energy production per capital will fall to its 1930 value by 2030, thus giving industrial civilization a lifetime of less than or equal to one hundred years. This analysis predicts that the collapse will be strongly correlated with an epidemic of permanent black-out of high-voltage electric power networks worldwide.

31-5 ENERGY IMPACTS

16-0523

van der Voort, Mascha, Mark S. Dougherty, and Martin van Maarseveen. 2001. A prototype fuel-efficiency support tool. *Transportation Research Part C: Emerging Technologies* 9C, 4: 279-96.

Keywords: Automobile driving behavior. Automobiles. Energy consumption. Energy models. Fuel efficiency. Resource conservation.

An effective way to reduce fuel consumption in the short run is to induce a change in driver behavior. If drivers are prepared to change their driving habits, they can complete the same journeys within similar travel times but use significantly less fuel. In this paper, a prototype fuel-efficiency support tool is presented that helps drivers make the necessary behavioral adjustments. The support tool includes a normative model that back-calculates the minimal fuel consumption for maneuvers carried out. If actual fuel consumption deviates from this optimum, the support tool presents advice to the driver on how to change his or her behavior. To take account of the temporal nature of the driving task, advice is generated at two levels: tactical and strategic. Evaluation of the new support tool by means of a driving simulator experiment revealed that drivers were able to reduce overall fuel consumption by 16 percent compared with normal driving. The same drivers were only able to achieve a reduction of 9 percent when asked to drive efficiently without support; thus, the tool gave an additional reduction of 7 percent. Within a simulated urban environment, the additional reduction yielded by the support tool rose to 14 percent. The new support tool was also evaluated with regard to secondary effects.

32. Environment

32-1 ENVIRONMENTAL POLICY

16-0524

Amacher, Gregory S., Richard J. Brazee, and Meindert Witvliet. 2001. Royalty systems, government revenues, and forest condition: an application from Malaysia. *Land Economics* 77, 2: 300-13.

Keywords: Deforestation. Environmental conditions. Resource depletion. Revenue generation. Timber industry. Timber royalties.

Royalty structure has been linked to deforestation through unsustainable harvesting and high grading. Nevertheless, royalties are an important rent generation mechanism for governments. In this paper, a dynamic model of government policy choice is used to compare different royalty systems with respect to government revenue generation and high grading. Empirical analyses of the various royalty systems is then undertaken for forest concessions in Malaysia. One unique aspect of this study is an examination of the ways by which different royalty systems affect harvesting of high-valued and low-valued timber species, rent capture, and concessionaire profits.

16-0525

Fagin, Adam. 2001. Environmental capacity building in the Czech Republic. *Environment and Planning A* 33, 4: 589-606.

Keywords: Czech Republic. Environmental policy. Environmental restoration.

The damaged state of the environment in what was Czechoslovakia seemed to symbolize all that was at fault with the Soviet political, social, and economic model. In response to increased domestic and international concern about levels of pollution, plus the fact that the new government included former dissidents who had been involved in the clandestine environmental movement prior to the revolution, the environment was identified as a key priority in 1990. The tenth anniversary of the collapse of Communist rule provided an appropriate point at which to assess the progress made and to consider the development of environmental capacity in the Czech Republic. Although I broadly adopt the conceptual framework of environmental capacity building in this paper, I also argue that any assessment of environmental policy must focus primarily on the underlying processes of political, social, and economic reform that, in conjunction, continue to shape environmental policy and strategies. Thus, the objective here is to consider the impact of economic reform on the environment, how a decade of political reform has affected environmental nongovernmental organizations, and what has been the actual result of external aid and assistance. Two overriding points emerge from the discussion. First, much of the improvement in levels of pollution is in fact attributable to the decline in manufacturing output rather than conservation measures or large-scale restructuring. Second, the strengthening of environmental capacity is inextricably linked to the complex process of democratic consolidation and is thus constrained not just by the legacies of communist rule but by the evolving relationship between society, the global economy, and the state.

16-0526

Fairfax, Sally K., and Darla Guenzler. 2001. *Conservation trusts*. Lawrence: University Press of Kansas. xii + 255 pp. \$19.95. ISBN 0-7006-1079-0.

Keywords: Case studies. Conservation trusts. Nonprofit organizations. Private sector. Property law. Public sector. Resource conservation.

This book describes and analyzes trusts and the ways they have been used to shape land and resource conservation organizations. Although the term *conservation trust* is not a standard term—the authors coined it to describe conservation organizations built on or akin to trust principles—the principles themselves are widely familiar in law. A trust involves a fiduciary relationship in which one person or organization holds or manages property for the exclusive benefit of another. The fiduciary relationship of trusts is further explicated (“with merciful brevity” the authors state) in chapter 2, and chapter 3 fleshes out the principles in a description of what the authors call a classic trust. Following the introductory part 1, part 2 looks at three governmental trusts (Dade County Wetlands Trust, *Exxon Valdez* Oil Spill Trustee Council, and Hawaiian Home Lands) wherein governmental agencies have used trust principles to blend federal, state, or local agencies into a single entity or to create a governmental organization whose funding and purposes are defined outside the normal legislative and executive arena. In part 3, the authors examine instances in which government and private groups working together have used trusts to structure institutions that share responsibility for jointly held and managed resources. Examples are drawn from the North Dakota Wetlands Trust and the Great Lakes Fishery Trust. Part 4 describes a variety of formats in which families use trusts to facilitate decision making for resources owned by several generations of proliferating siblings and cousins, focusing on the intersection between family trusts and land trusts. Private organizations’ use of trust principles to manage funds dedicated to specified organizational goals, to solicit contributions in the form of planned donations, and to hold the land for the benefit of future generations are also discussed in part 4. Examples cited include the Society for the Protection of New Hampshire Forests and the Napa County Land Trust.

32-2 ENVIRONMENTAL MODELING

16-0527

Cropper, Maureen, Jyotsna Puri, and Charles Griffiths. 2001. Predicting the location of deforestation: the role of roads and protected areas in North Thailand. *Land Economics* 77, 2: 172-86.

Keywords: Deforestation. Forecasting. North Thailand. Predictive validity. Resource conservation. Road construction. Wildlife sanctuaries.

Using plot-level data, the authors estimate a bivariate probit model to explain land clearing and the siting or protected areas in North Thailand in 1996. The model suggests that protected areas (national parks and wildlife sanctuaries together) did not reduce the likelihood of forest clear-

ing. Nevertheless, wildlife sanctuaries may have reduced the probability of deforestation. Road building, by reducing impedance-weighted distance to market, has promoted clearing, especially near the forest fringe. The authors simulate the impact of further road construction to show where such construction is likely to have the greatest impact and where it is likely to threaten protected areas.

16-0528

Palmer, Mervin D. 2001. *Water quality modeling: a guide to effective service*. Washington, DC: World Bank. xv + 157 pp. Tables, figs., appendices. \$45.00. ISBN 0-8213-4863-9.

Keywords: Environmental models. Environmental pollution. Water pollution. Water quality.

Surface water quality is a key to life; in many developing countries, nevertheless, municipal and industrial pollution continue to pervade rivers, lakes, estuaries, and coastal areas because of competing demands for this resource. This volume provides an introduction to the more recent analytical tools available for water quality modeling. Recognizing that not all models of water quality are appropriate under all conditions, the volume shows that the utility of models must be carefully examined in the light of important constraints prevalent in developing countries, such as lack of experienced staff, low-quality data sets, and lack of or poorly enforced quality-control protocols. Therefore, the book is intended to serve as a guide to the utility and relevance of water quality prediction modeling. It draws on examples from recent World Bank water resources and wastewater management projects. The first chapter provides a general overview of the use of water quality models. Chapter 2 discusses the most common water quality parameters that are modeled, the receiving water processes, quality assurance and control for the water quality data and model predictions, and the required model resources. Chapter 3 describes generic components of water quality models, presents a series of equations to demonstrate the complexity of the model predictions and the requirements for site-specific data, and discusses some of the prediction models. Chapter 4 summarizes the present uses of water quality models and provides summaries of some recent World Bank development projects that used water quality models. Chapter 5 discusses the model data requirements and prediction issues, such as limited site-specific data, challenges of nonpoint sources, designs for a water quality monitoring program to support the model, and spill monitoring.

16-0529

Witzke, H. Peter, and Guido Urfei. 2001. Willingness to pay for environmental protection in Germany: coping with the regional dimension. *Regional Studies* 35, 3: 207-14.

Keywords: Environmental models. Environmental policy. Environmental protection. Germany. Research trends. Willingness-to-pay models.

In this paper, a two-step procedure is applied to estimate an indicator of environmental willingness to pay for Germany in considerable regional disaggregation. The first step is the estimation of an ordered probit model based on individual data from a representative survey. In the second step, this model is applied to aggregate NUTS III-level data to produce an indicator of regional willingness to pay that is useful for the design of an efficient environmental policy. It turns out that the regional distribution of willingness to pay is dominated by the distribution of income in this data set.

32-3 ENVIRONMENTAL PLANNING

16-0530

Briassoulis, Helen. 2001. Policy and practice. *Journal of Environmental Planning and Management* 44, 3: 409-27.

Keywords: Decision support systems. Environmental indicators. Environmental planning. Sustainable development.

The paper evaluates the usefulness of indicators as decision support instruments in planning for sustainable development. It examines key concepts and critical issues in planning for sustainable development and reviews the development of indicators in the past two decades. It evaluates their relevance in four planning functions by means of planning-related criteria. It concludes that indicators are still a long way from making a substantial contribution to planning and proposes broad research directions to improve their contribution. The need for integrated, context-specific theories of planning situations to frame the conceptualization, operationalization, and use of indicators is emphasized.

16-0531

Buchy, Marlène, and Digby Race. 2001. The twists and turns of community participation in natural resource management in Australia: what is missing? *Journal of Environmental Planning and Management* 44, 3: 293-308.

Keywords: Australia. Citizen participation. Deforestation. Forestry. Local government. Natural resource management. Resource conservation.

Aspects of Australian natural resource management, particularly forestry, such as harvesting from public native forests and establishing large-scale plantations on farmland, have been contentious for many years. In response to such contention with forestry development, local communities are increasingly seeking a role in determining the use and management of forest resources. Despite a growing acceptance of the need for community participation, there has been little analysis of the type and extent of participation that is most effective and of the costs and benefits of participation in natural resource management. This paper draws on international and Australian experiences to provide a conceptual framework for analyzing the role of participation in natural resource management, especially for

forestry. The authors provide three examples of how community participation has been developed in Australia and aim to stimulate discussion on the wider role of participation in natural resource management.

16-0532

Burke, B. Meredith. 2001. "Projecting the future by looking over one's shoulder at the past": the Milken Institute's one-sided look of California's future. *Population and Environment* 22, 4: 439-64.

Keywords: Boosterism. California. Economic growth. Forecasting. Housing prices. Michael Milken Institute. Natural disasters. Population growth. Predictive validity. Resource depletion.

The First Michael Milken Institute conference, the State of California, held on 5 November 1999, identified twenty-first century opportunities and challenges in light of recent economic and demographic trends. The panelists came from the banking/venture capital, industrial, real estate development, think tank, and political spheres. Notably absent were delegates from the environmental community. Optimism reigned: the presenters considered that the shortage and soaring price of housing are major concerns, yet they could not view this as a contraindication to future population increase. Possibilities of major ethnic clashes in a state where no ethnic group commands a majority went unaddressed. Both the conference materials and those present subscribed to the view that growth is good and bigger is better. No other indicators of quality of life were mentioned. Ecological overload and threats of collapsing ecosystems, the permanent water shortage foreseen by state planners beginning as early as 2015, and the increasing vulnerability to inevitable natural disasters such as major earthquakes and droughts should population projections be fulfilled (today's 35 million will grow to 50 million; carrying capacity level is about 10 million)—all went unnoticed. Those present left falsely reassured that for California, the twenty-first century will be largely a replay of the twentieth century.

16-0533

Griffith, Jerry A., Kevin P. Price, and Edward A. Martinko. 2001. A multivariate analysis of biophysical parameters of tallgrass prairie among land management practices and years. *Environmental Monitoring and Assessment* 68, 3: 249-71.

Keywords: Environmental indicators. Grasslands. Land management. Multivariate analysis.

Six treatments of eastern Kansas tallgrass prairie—native prairie, hayed, mowed, grazed, burned, and untreated—were studied to examine the biophysical effects of land management practices on grasslands. On each treatment, measurements of plant biomass, leaf area index, plant cover, leaf moisture, and soil moisture were collected. In

addition, measurements were taken of the Normalized Difference Vegetation Index (NDVI), which is derived from spectral reflectance measurements. Measurements were taken in mid-June, mid-July, and late summer of 1990 and 1991. Multivariate analysis of variance was used to determine whether there were differences in the set of variables among treatments and years. Follow-up tests included univariate *t*-tests to determine which variables were contributing to any significant difference. Results showed a significant difference ($p < .0005$) among treatments in the composite of parameters during each of the months sampled. In most treatment types, there was a significant difference between years within each month. The univariate tests showed, however, that only some variables, primarily soil moisture, were contributing to this difference. We conclude that biomass and percentage of plant cover show the best potential to serve as long-term indicators of grassland condition as they generally were sensitive to effects of different land management practices but not to yearly change in weather conditions. NDVI was insensitive to precipitation differences between years in July for most treatments but not in the native prairie. Choice of sampling time is important for these parameters to serve effectively as indicators.

16-0534

Hansen, André J. M., Fons T. W. Eysink, and Cees Maas. 2001. Hydrological processes in a Cirsio-Molinietum fen meadow: implications for restoration. *Ecological Engineering* 17, 1: 3-20.

Keywords: Acidification. Desiccation. Eutrophication. Hydrology. Water pollution. Wetlands.

Cirsio-Molinietum fen meadows are seriously threatened by desiccation, acidification, and eutrophication. In a nature reserve with well-developed fen meadow stands, groundwater tables and the chemical composition of groundwater and top soil were measured along a gradient during several years in the 1990s. The reserve consists of a depression, which is surrounded by ridges on all sides. Summer groundwater tables, which are being determined by regional features outside the reserve, drop down at least one meter below the soil surface, whereas during the winter season a pool is formed. A concentrated flux of base-rich groundwater is brought up at the margin of the (eastern) exfiltration part of the pool, where downstream infiltration takes place. These processes, which cause a whole variety in site conditions and consequently also in plant communities, are phenomena of a local groundwater system. An essential prerequisite for the functioning of such a groundwater system is the presence of pools during the winter season. When summer groundwater tables, which determine the origin and the extension of pools, are too low, measures outside nature reserves have to be taken to restore high summer water tables. Successful restoration of fen meadows requires sod cutting along the entire gradient. Since relatively small height differences can result in groundwater flow, restoring this type of hydrological sys-

tems on former agricultural areas requires, first of all, restoration of the relief.

16-0535

Köhlin, Gunnar, and Peter J. Parks. 2001. Spatial variability and disincentives to harvest: deforestation and fuelwood collection in South Asia. *Land Economics* 77, 2: 206-18.

Keywords: Deforestation. Environmental protection. Firewood collection. Plantations. Privatization. Resource conservation. South Asia.

A major strategy to combat deforestation caused by household fuel collection has been the establishment of plantations, especially in India. A household model is specified with several collection possibilities and analyzed empirically using house, vegetation, and geographic information system data. The potential decrease in collection from the natural forest is estimated. The results show reduced pressure on the natural because of the establishment of plantations. It also questions buffer zone plantations very close to natural forests.

16-0536

Koku, John Ernest. 2001. Socio-cultural factors and land degradation in the South Tongu district of Ghana: some implications for resource protection and environmental health in the lower Volta Catchment. *Journal of Environmental Planning and Management* 44, 3: 309-30.

Keywords: Afforestation. Cross-cultural comparison. Deforestation. Food supply. Ghana. Land erosion. Savanna grasslands.

South Tongu District, like most districts in the savanna ecological zone of Ghana, is planning to counteract its rapidly deteriorating catchment, on which it depends as a resource base for food supply, through the establishment of afforestation and other conservation programs. This paper argues that a good understanding of sociocultural factors would help shape the formulation and subsequent implementation of conservation programs. It identifies and sheds light on how some key sociocultural factors (notably tenure) promote deforestation and land degradation in South Tongu District. It further points out some implications of degradation for resource protection and environmental health, which need to be considered when formulating a catchment management plan. It concludes by identifying some possible policy measures as a way forward in promoting sustainable catchment management in the district.

16-0537

Skogen, Ketil. 2001. Who's afraid of the big, bad wolf? Young people's responses to the conflicts over large carnivores in eastern Norway. *Rural Sociology* 66, 2: 203-26.

Keywords: Carnivores. Conservation attitudes. Endangered species. Norway. Rural areas. Socioeconomic status. Wildlife preservation. Wolves.

Controversies over large carnivores are often interpreted as clashes between rural traditionalism and urban modernity. Rural communities, however, have never been culturally monolithic, and modernization will increase the diversity. To probe such diverse and changing attitudes toward nature, the author conducted a qualitative study of young people in a rural community in eastern Norway. Contrary to popular images of such communities as unified against "pests," all typical views of the carnivore issue were present. Those in favor of the large carnivores were typically middle-class youth with a strong "outward" orientation, whereas those who wanted to shoot the predators were mostly working-class boys with strong ties to the local hunting culture. This pattern was interpreted as a conflict between dominant and subordinate forms of knowledge and between abstraction-oriented and production-oriented cultural forms. Aside from the growth of the procarnivore middle-class segments, the most significant effect of modernization appeared to be the removal of many young people from the subject matter of the conflict. A "subculturalization" of the working-class hunting culture also could be discerned, however.

16-0538

Wernstedt, Kris. 2001. Devolving Superfund to main street: avenues for local community development. *Journal of the American Planning Association* 67, 3: 293-313.

Keywords: Comprehensive Environmental Response, Compensation, and Liability Act. Contaminated property. Environmental cleanup. Hazardous substances.

The Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or Superfund program, which cleans up properties contaminated with hazardous substances, has received relatively little attention in the planning literature. Nevertheless, with ongoing congressional efforts to tie site cleanups to expected land uses, high interest in promoting redevelopment of contaminated properties, and broader legislative and regulatory reform efforts to boost decentralization, decisionmakers, planners, other local stakeholders are increasingly becoming important players in Superfund and other federal environmental programs. In this article, the author examines the experiences of three Superfund sites in the context of a devolutionary sharing of federal responsibilities with local level stakeholders. The author's objectives are to highlight the local dynamics of the cleaning-up process and redevelopment and to demonstrate the importance of enforcement, incentives, and information in shaping these dynamics in Superfund and other environmental programs that rely increasingly on community involvement and intergovernmental cooperation. The author concludes with a discussion of implications for the planning community.

32-4 RISK MANAGEMENT/IMPACT ASSESSMENT

16-0539

Berglund, O., P. Larsson, G. Ewald, et al. 2001. Influence of trophic status on PCB distribution in lake sediments and biota. *Environmental Pollution* 113, 2: 199-210.

Keywords: Environmental impact analysis. Environmental indicators. Lakes. Polychlorinated biphenyl. Sweden. Water pollution.

We investigated the relationship between trophic status and polychlorinated biphenyl (PCB) distribution in nineteen Swedish lakes. We analyzed PCB in water, phytoplankton, zooplankton, fish, and sediment during two sampling periods in spring and summer. The mass of PCB in the lake sediments was positively related to lake trophy, that is, more PCBs were accumulated and buried in the sediment of eutrophic lakes than in oligotrophic lakes. In the oligotrophic lakes, a greater fraction of the total PCB load was dissolved in water. We conclude that this is a result of higher sedimentation rates in eutrophic lakes and relatively lower turnover of organic carbon in the water column of the shallow eutrophic lakes. In the stratified lakes, the amount of PCB per cubic meter in the epilimnion decreased from spring to summer. We suggest that sedimentation of plankton beneath the thermocline during stratification act as a sink process of PCBs from the epilimnion.

16-0540

Blatner, Keith A., Matthew S. Carroll, Steven E. Daniels, et al. 2001. EIA procedure: evaluating the application of collaborative learning to the Wenatchee fire recovery planning effort. *Environmental Impact Assessment Review* 21, 3: 241-70.

Keywords: Disaster recovery. Emergency management. Environmental impact analysis. Forest fires. Washington State. Wenatchee National Forest.

As a follow-up to an article published in this journal, the authors examine a case study application of the collaborative learning (CL) model to public participation in federal land decision making. As an innovation in public participation, CL combines elements of soft systems, alternative dispute resolution, and experiential learning theory in an effort to foster meaningful public dialogue within public participation. The particular case examined was a forest fire recovery effort in the Wenatchee National Forest in Washington State. Participants responded to questionnaires before and after meetings. The questionnaires measured changes in perception of the Forest Service decision-making process as well as responses to CL itself. The results indicate a positive response to the CL process and

an increased expectation of quality in the resulting decisions. Respondents did not generally perceive a reduced probability of appeals and litigation relative to the decisions themselves, but their expectations of the "survivability" of the decisions in the face of appeals and/or litigation generally increased.

16-0541

Cattaneo, Andrea. 2001. Deforestation in the Brazilian Amazon: comparing the impacts of macroeconomic shocks, land tenure, and technological change. *Land Economics* 77, 2: 219-40.

Keywords: Amazonia. Brazil. Deforestation. Environmental impact analysis. Land tenure. Tropical rainforest.

This paper examines the current relevance of the set of variables reported in the literature as driving deforestation in the Brazilian Amazon. The analysis uses a computable general equilibrium (CGE) model adapted to capture regional economic structures and the environmental processes specific to tropical areas. The paper compares the impact in the Brazilian Amazon of the following: exchanges in real exchange rate, modifications in agricultural tax and support policies, reductions in transportation costs arising from investment in infrastructure in the Amazon, changes in land tenure regimes, and technological change in agriculture affecting productivity and agronomic sustainability. Implications for the further use of CGE for comparison are considered.

16-0542

Czaja, Stanislaw. 2001. Mining and hydrological transformations in Upper Silesia from the fifteenth to the nineteenth century. *Geographical Journal* 167, 1: 57-71.

Keywords: Environmental history. Environmental Impact. Hydrology. Mining industry. Upper Silesia.

This paper analyzes the influence of mining on hydrological conditions in Upper Silesia from the fifteenth to the nineteenth centuries. The perturbation of local hydrological conditions began in the fifteenth century as a result of widespread mining of iron, silver, and lead ores. Further changes took place during the sixteenth and seventeenth centuries following the application of gravitational mine drainage. As a result, a compact cone of depression covering an area of about three square kilometers was created. In the eighteenth century, the activities of mills, sawmills, and smelters caused considerable changes in the surface river network and created the so-called anthropogenic Upper Silesian Lakeland. At the end of the eighteenth century, underground mining activity was renewed, and as a result the area of the compact cone of depression increased to ten square kilometers and its depth reached fifty meters.

16-0543

García-Romero, Arturo. 2001. Evolution of disturbed oak woodlands: the case of Mexico City's western forest reserve. *Geographical Journal* 167, 1: 72-82.

Keywords: Deforestation. Forest reserves. Mexico City. Oak trees.

Mexico City is the largest city in population and area in the world. In the past thirty years, it has expanded its area westward to include the mountains of the Sierra de las Cruces. These mountains contain the nearest forest reserve for the citizens of Mexico City. Deforestation and severe ecological degradation resulting from the destruction of the natural environment; air, water, and soil pollution; and hydrological and geomorphological imbalances limit the capacity of these areas to support forest regeneration. This study focuses on the geoecology of the climax oak woodlands found in the Sierra de las Cruces. Based on morphostructural evidence, bioclimatic type, degree of human intervention, and general geoecological considerations, three territorial systems have been differentiated in which the oak woodlands exist in different climax facies: (1) oak woodlands developed in very humid and cool environments located on low mountain slopes, (2) disturbed oak woodlands developed in humid and cool environments located on high piedmonts, and (3) highly disturbed oak woodlands developed in subhumid and temperate environments located on low piedmonts. A comparative study of the content, structure, and functional relationships of the secondary facies associated with these climax communities allowed conclusions to be drawn on the way oak woodlands respond to human intervention and the risky situations to which these communities are subjected, particularly the most sensitive facies that deserve immediate protection.

16-0544

Greenberg, Michael, David Lewis, and Michael Frisch. 2001. Regional economic impacts of environmental management of radiological hazards: an initial analysis of a complex problem. *Journal of Environmental Planning and Management* 44, 3: 377-90.

Keywords: Environmental impact analysis. Nuclear reactors. Nuclear waste. Radioactivity. Waste disposal.

We conducted an economic analysis of four different billion-plus dollar technological options for managing the salt wastes in the high-level waste tanks at the Savannah River Nuclear Weapons Site (SRS) in South Carolina. Although U.S. Department of Energy leadership is appropriately most concerned with health, safety, and the environment, the economic implications of the choice cannot be dismissed. Combinations of technologies, where the technol-

ogy is to be designed and tested, and who pays for it were considered. With the caveat that the engineering designs are not the final versions and are therefore subject to change, we found that the most expensive technologies to design and build may not produce the most jobs or the greatest gross regional product in the SRS region because a great deal of the design and engineering from prototype to testing will not be done in the host region. Furthermore, in terms of the local economic impacts in the SRS region, this analysis shows that the policy choice regarding the method of funding the project (which budget the money comes from) matters as much as the selection of the remediation technology.

16-0545

Huang, Wen-Yuan, Richard G. Heifner, Harold Taylor, et al. 2001. Using insurance to enhance nitrogen fertilizer application to reduce nitrogen losses to the environment. *Environmental Monitoring and Assessment* 68, 3: 209-33.

Keywords: Agriculture. Insurance. Nitrogen fertilizer. Nitrogen loss.

The advantage of using insurance to help a farmer adopt a best nitrogen management plan (BNMP) that reduces the impact of agricultural production on the environment is analytically and empirically demonstrated. Using an expected value analysis, it is shown that an insurance program can be structured to reduce a farmer's cost of bearing the adoption risk associated with changing production practices and, thus, to improve the farmer's certainty equivalent net return, thereby promoting the adoption of a BNMP. Using the adoption of growing-season, only nitrogen fertilizer application in Iowa as a case study, it is illustrated how insurance may be used to promote the adoption of this practice to reduce nitrogen fertilizer use. It is shown that it is possible for a farmer and an insurance company both to have an incentive to develop an insurance adoption program that will benefit both the farmer and the insurance company, increasing net social welfare and improving environmental quality in Iowa.

16-0546

Johnson, Michael P. 2001. Environmental impacts of urban sprawl: a survey of the literature and proposed research agenda. *Environment and Planning A* 33, 4: 717-35.

Keywords: Environmental impact analysis. Literature review. Urban sprawl.

Urban sprawl has recently become a subject of popular debate and policy initiatives from governmental bodies and nonprofit organizations. However, there is little agreement on many aspects of this phenomenon: its definition, its impacts—both nonmonetary and monetary—economic and policy models that predict the presence of sprawl, and decision-support models that could assist policymakers in evaluating alternative development schemes that may

have characteristics of sprawl. In particular, there is relatively little research on urban sprawl that focuses specifically on measurement and modeling of environmental impacts. The purpose of this paper is twofold: to survey the literature on urban sprawl, with a focus on environmental aspects, and to identify a research agenda that might result in a greater number of analytical tools with which academics and practitioners can characterize, monetize, model, and make planning decisions about sprawl.

16-0547

Lee, Mark. 2001. Coastal defence and the habitats directive: predictions of habitat change in England and Wales. *Geographical Journal* 167, 1: 39-56.

Keywords: Coastal areas. Coastal defense. Conservation areas. Military policy. Special protection areas. Wildlife preserves.

Future coastal defense policies and natural processes will have an impact on habitats within Special Areas of Conservation, Special Protection Areas, and Ramsar sites. An overview of the potential nature and extent of these changes (losses or gains over the next fifty years) around the coast of England and Wales was carried out to inform policy decisions on the legal and funding aspects of coastal defense options and possible habitat replacement. It is predicted that there could be a net loss of freshwater and brackish habitat of around 4,000 hectares (ha) together with a net gain of intertidal (saltmarsh and mudflat/sandflat) habitats of around 770 ha, with the gains associated with managed retreat (c. 12,500 ha) balancing the expected losses due to coastal squeeze and erosion on the unprotected coast. The likely costs of freshwater and brackish habitat replacement, on a hectare-for-hectare basis, is estimated to be in the order of £50 to 60 million, including site purchase, set-up, and ongoing management costs.

16-0548

Mansoura, Ameer Ben, Salah Garchi, and Hamed Daly. 2001. Analyzing forest users' destructive behavior in Northern Tunisia. *Land Use Policy* 18, 2: 153-63.

Keywords: Deforestation. Environmental impact analysis. Environmental law. Tunisia. Resource depletion. Rural areas.

An analysis of forest offense statistics in Northern Tunisia, where most of the country's woodlands are located, showed rising trends for all types of offenses, in addition to illegal hunting and clearing, between 1989 and 1996. Major offenses included clearing, logging, and plowing, whereas minor offenses were primarily unlawful stocking, hunting, and handling of forest products. Users with the greatest destructive behavior belonged to the districts of Jendouba, Kasserine, Le Kef, and Bizerte, whereas the lowest offense frequency occurred in Tunis and its neighboring districts. The ratio of forest offenses per capita was positively corre-

lated with ruralism and the proportion of forest cover in the region's districts. However, forest availability and its implied open-access policy were overriding in promoting users' destructive behavior. The positive correlation between forest offenses and eroded soils also demonstrated the detrimental impact of open access on the sustainability of forest resources.

16-0549

Piper, Jake M. 2001. Assessing the cumulative effects of project clusters: a comparison of process and methods in four UK cases. *Journal of Environmental Planning and Management* 44, 3: 357-75.

Keywords: Economic development. Environmental impact analysis. Environmental law. European Union. Great Britain.

Changes to the European Union's environmental impact legislation, and growing awareness of the need for full assessment of environmental effects where two or more projects come together, will lead to increasing activity in cumulative effects assessment. However, various issues arise that are not currently covered by guidance in the European Union. Four cases of cumulative effects assessment carried out in the United Kingdom during the 1990s are explored; these involve wind farms and mixed industrial developments in both densely populated and remote rural areas. Guidance appears to be needed on issues such as setting study boundaries in time and space, characterizing cumulative impacts, assessing impact significance, and instituting and ensuring subsequent monitoring, evaluation, and management. The paper examines the process followed in each of these cases, in comparison with a best practice process recommended by the U.S. Council on Environmental Quality. Three stages are considered: scoping, setting the environmental baseline, and determining the environmental consequences. The methods used in impact identification and assessment in the four cases are also outlined.

16-0550

Sánchez-Triana, Ernesto, and Leonard Ortolano. 2001. Organizational learning and environmental impact assessment at Colombia's Cauca Valley Corporation. *Environmental Impact Assessment Review* 21, 3: 223-39.

Keywords: Cauca Valley Corporation. Colombia. Environmental impact analysis. Learning processes. Organizational culture.

During the 1976 to 1993 period, the design and implementation of the environmental impact assessment (EIA) program of the Corporación Autónoma Regional del Valle del Cauca (Cauca Valley Corporation [CVC]) were affected by "learning by imitating" and "learning by doing." Learning by imitating took place when CVC copied the use of the Leopold Matrix, an EIA procedure popular in the United

States during the 1970s. Learning by doing occurred in 1979 when CVC held public hearings to discuss the site for a controversial factory in Caloto. CVC's experience demonstrates that organizational learning with respect to EIA can help an organization meet its own goals but that learning does not necessarily lead to environmental improvements. The use of the Leopold Matrix summarized the judgments of technical experts, but it frequently did not inform decision making. For thirteen years after the public meetings for the factory in Caloto, CVC avoided involving the public in its EIA work.

16-0551

Zhang, J., J. A. Ferdinand, D. J. Vanderheyden, et al. 2001. Variation of gas exchange within native plant species of Switzerland and relationships with ozone injury: an open-top experiment. *Environmental Pollution* 113, 2: 177-85.

Keywords: Air pollution. Environmental impact analysis. Environmental indicators. Experimental research. Native plants. Ozone injury. Switzerland.

Gas exchange and ozone-induced foliar injury were intensively measured during a six-day period in mid-August 1998 on leaves of *Acer pseudoplatanus*, *Betula pendula*, *Corylus avellana*, *Fagus sylvatica*, *Fraxinus excelsior*, *Morus nigra*, *Prunus avium*, *Prunus serotina*, *Rhamnus cathartica*, and *Viburnum lantana* at a forest nursery site in Canton Ticino, Switzerland. Plants were grown in four open plots (AA), four open-top chambers receiving carbon-filtered (CF) air, and four receiving nonfiltered (NF) air. Significant variation in gas exchange ($F > 12.7$, $p < .001$) was detected among species with average net photosynthesis and average stomatal conductance differing by a factor of two. Species also varied significantly in foliar injury for those leaves for which we measured gas exchange ($F = 39.6$, $p < .001$). *Fraxinus excelsior*, *M. nigra*, *P. avium*, *P. serotina*, *R. cathartica*, and *V. lantana* showed more injury than *A. pseudoplatanus*, *B. pendula*, *C. avellana*, and *Fagus sylvatica*. Plants grown in CF chambers had significantly higher net photosynthesis (A) and stomatal conductance to water vapor ($g_{w,}$), and lower foliar injury than plants grown in NF chambers and AA plots; interactions between species and ozone treatments were significant for all variables ($F \geq 2.2$, $p < .05$) except $g_{w,}$ ($F = 0.7$, $p > .1$). Although A and $g_{w,}$ decreased and foliar injury increased with leaf age, the magnitude of these changes was lower for plants grown in CF chambers than for plants grown in NF chambers and AA plots. Neither ozone uptake threshold ($r = .26$, $p > .20$) nor whole-plant injury ($r = -.15$, $p > .41$) was significantly correlated with stomatal conductance across these species. It appears that the relationships between stomatal conductance and foliar injury are species-specific, and interactions between physiology and environments and leaf biochemical processes must be considered in determining species sensitivity to ambient ozone exposures.

32-5 ENVIRONMENTAL QUALITY/POLLUTION

16-0552

Aloupi, M., and M. O. Angelidis. 2001. Geochemistry of natural and anthropogenic metals in the coastal sediments of the island of Lesbos, Aegean Sea. *Environmental Pollution* 113, 2: 211-19.

Keywords: Aegean Sea. Environmental pollution. Greece. Isle of Lesbos. Metal contamination. Water pollution.

The geochemistry of metals in the harbor and coastal zone of the town of Mytilene (island of Lesbos [Lesbos], Aegean Sea, Greece) was studied after normalization of the metal data to a conservative element. In the study area, Li was proven to be better suited than Al for such normalization and it was able to describe successfully the natural metal variability of the coastal sediments. Metal contamination (cadmium, copper, lead, and zinc) was recorded in the harbor sediments, whereas no pollution signs were detected in the wider coastal zone or the sediments of the ancient harbor, at the northern part of the town. The geochemical normalization of metal data to lithium is a method that can detect the degree of metal contamination taking into consideration the natural metal variability in the sediments of a study area.

16-0553

Badami, Madhav G. 2001. A multiple-objectives approach to address motorized two-wheeled vehicle emissions in Delhi, India. Ph.D. diss., University of British Columbia.

Keywords: Air quality. Developing countries. Motorcycles. Policy implementation. Policy making. Urban transportation.

Motor vehicle activity is growing and air quality is deteriorating rapidly in Indian and other less industrialized country cities. The contribution of transport to air pollution is increasing. Motorized two-wheeled (M2W) vehicles, mainly powered by two-stroke engines, account for a significant proportion of motor vehicle activity and emissions. These issues are important because, in addition to local health and welfare impacts, they have important implications for energy security, acidification, and climate change. The challenge in terms of M2W vehicles is to address their emissions while minimizing adverse policy impacts for vehicle users, because these vehicles provide mobility to millions. The dissertation illuminates key aspects of the M2W vehicle air pollution problem and reports on policy-relevant research related to M2W vehicle emissions in Delhi. It investigates contributory factors and the institutional setting and explores the policy implications of critical vehicle user choices and perspectives. The dissertation proposes an analytic framework for effective policy making and implementation and multiple objectives and measures to characterize the impacts of policy alternatives. Information sources include published and unpublished literature on various aspects of the problem;

discussions with decisionmakers, industry representatives, and researchers; and a questionnaire survey of, and in-depth interviews with, M2W vehicle users. The dissertation demonstrates the importance of considering systemwide emissions due to vehicle activity, technology-human behavior-political institution interactions, in-use realities and institutional constraints, and implementation issues including how vehicle users are affected by and respond to policies. In addition to these issues, the policy-analytic framework incorporates a wide range of policy impacts and the concerns of various actors and affected groups to address transport air pollution effectively and equitably over the long term. It is argued that policy making and implementation should be adaptive and flexible and promote continual learning for policy effectiveness. Although considering implementation issues will lead to robust policies, policies that minimize reliance on expensive technologies and institutional mechanisms and that are impervious to in-use realities and constraints should be implemented. Because technological measures can be neutralized over time and given multiple transport impacts and constrained resources, the aim should be to achieve transport synergies in addition to improving air quality.

16-0554

Beltman, B., T. Van den Broek, A. Barendregt, et al. 2001. Rehabilitation of acidified and eutrophied fens in the Netherlands: effects of hydrologic manipulation and liming. *Ecological Engineering* 17, 1: 21-31.

Keywords: Acidification. Eutrophication. The Netherlands. Wetland rehabilitation. Wetlands.

Mosaic fen communities with many rare plant species were outcompeted by fast-growing bryophyte stands (*Sphagnum flexuosum/Sphagnum fallax* and *Polytrichum commune*). Eutrophication and acidification were the main causes. Management experiments were carried out to set back this succession by restoring the former abiotic conditions (high pH, low nutrients). The management options investigated were sod removal, lime application, drainage improvements (digging ditches and trenches), and combinations of sod cutting and liming with drainage improvements. Four pilot projects are discussed, one in the brackish (oligohaline) peat area, one freshwater site with floating Carex-dominated fens, and two freshwater sites with purple-moor grassland (*Cirsio dissecti-Molinietum*) in the holocenic peatlands of the Netherlands. Plant species, soil, and water chemistry were monitored. The evaluation after five years showed that some of the desired plant species had returned, for example, *Viola palustris* and *Hydrocotyle vulgaris*, whereas others had increased in cover, for example, *Scirpus lacustris* spp, *tabernaemontani* (brackish site), *Pedicularis palustris*, *Calliergonella cuspidata* (fen site), and *Gentiana pneumonante* and *Carex panicea* (*Cirsio dissecti-Molinietum* peatland). This happened, however, only in restricted strips along trenches and ditches. In the combined measure of drainage improve-

ment and sod cutting, the Sphagnum species declined permanently, but after sod cutting only, they recovered within three years to the previous cover at around 80 percent. The sod-cutting measure and the control treatment showed no differences in the presence of a rain water lens, whereas drainage and combination treatments showed narrow (0.5 to 2 m wide) zones with intrusion of surface water. Soil and water pH and electric conductivity showed a sharp decrease within 0.5 m from the trenches (pH from ca. 6 to ca. 4). Also the cations Cat^+ and Mg^{2+} and the anions Cl^- and SO_4^{2-} showed this sharp decline.

16-0555

Fisk, A. T., J. Moisey, K. A. Hobson, et al. 2001. Chlordane components and metabolites in seven species of Arctic seabirds from the Northwater Polynya: relationships with stable isotopes of nitrogen and enantiomeric fractions of chiral components. *Environmental Pollution* 113, 2: 225-38.

Keywords: Arctic region. Chlordane. Environmental indicators. Seabirds. Water pollution.

The Northwater Polynya (NOW) is a large area of year-round open water found in the high Arctic between Ellesmere Island and Greenland. NOW has high biological productivity compared with other arctic marine areas and supports large populations of several seabird species. Seven species of seabirds, dovekie (*Alle alle*, DOVE), thick-billed murre (*Uria lomvia*, TBMU), black guillemot (*Cepphus grylle*, BLGU), black-legged kittiwake (*Rissa tridactyla*, BLKI), ivory gull (*Pagophila eburnea*, IVGU), glaucous gull (*Larus hyperboreus*, GLGU), and northern fulmar (*Fulmaris glacialis*, NOFU) were collected in May and June 1998 to determine chlordane concentrations in liver and fat and to examine species differences, relationships with stable isotopes of nitrogen, and enantiomeric fractions (EFs) of chiral components. ECHLOR concentrations varied over an order of magnitude among species, from a low of 176 ± 19 ng/g (lipid corrected) in TBMU liver to a high of 3190 ± 656 ng/g (lipid corrected) in NOFU liver. Lipidcorrected concentrations of chlordane did not vary between sex for any species or between fat and liver except for the DOVE, which had fat concentrations that were significantly greater than the liver. $\delta^{15}\text{N}$ values described a significant percentage of the variability of concentrations for most chlordane components, although less than what has been reported for whole food chains. Slopes of $\delta^{15}\text{N}$ versus concentration of chlordane components and ECHLOR were similar with the exception of those that were metabolized (traps-chlordane) or formed through biotransformation (oxychlordane). The relative proportions of chlordane components in seabirds were related to phylogeny; the procellariid (NOFU) had the greatest percentage of oxychlordane (>70 percent), followed by the larids (BLKI, IVGU and GLGU; 40 to 50 percent) and the alcids (DOVE and BLGU; 10 to 20 percent). The exception was TBMU, an alcid, where oxychlordane made up >40 percent of its chlordane. EFs of chiral components failed to predict concentration or trophic level but did identify

biotransformation differences between species and chlordane components. TBMU appeared to have a greater capacity to metabolize and eliminate chlordane, based on high proportions of oxychlordane, the highest EFs for oxychlordane and heptachlor epoxide, and a $\delta^{15}\text{N}$ -ECHLOR value that was well below the relationships developed for all seabird species.

16-0556

Howsam, M., K. C. Jones, and P. Ineson. 2001. Dynamics of PAH deposition, cycling and storage in a mixed-deciduous (*Quercus-Fraxinus*) woodland ecosystem. *Environmental Pollution* 113, 2: 163-76.

Keywords: Air pollution. Environmental impact analysis. Environmental indicators. Forests. Polycyclic aromatic hydrocarbons. Trees.

Estimates of standing biomass and fluxes of biomass in a mixed-deciduous woodland were derived and used with results for concentrations of seven polycyclic aromatic hydrocarbons (PAHs) in different compartments of the woodland system to quantitatively assess some of the key fluxes and burdens of PAHs in this complex system. We quantified PAH burdens in air, in leaves of three deciduous tree species, in leaf litter, and in soil; and uptake of PAHs by the tree leaves, PAH fluxes in litterfall, and deposition to the litter layer on the woodland floor during winter were calculated from these data. Air burdens exhibited marked seasonal variations for all compounds, with lowest values in summer when combustion-related emissions were low. Leaves did not accumulate large burdens of PAHs while on the trees and, consequently, litterfall-associated fluxes of PAHs were small, representing only a fraction of the burdens in the litter layer to which they were deposited. Higher PAH burdens in air in winter, combined with the organic-matter-rich nature of the litter layer, are thought to be responsible for fluxes of PAHs to the litter layer in winter being 20 to 170 times the peak litterfall fluxes. The soil compartment was calculated to contain twenty-five years' worth of deposition of benzo[ghi]perylene, the most recalcitrant PAH in this study. Storage quotients for fluoranthene, pyrene, benzo[k]fluoranthene and benzo[a]pyrene burdens in soil represented seven to ten years' worth of deposition, whereas fluorene and phenanthrene storage in soil approached unity with inputs (one and three years' worth of deposition, respectively). The relative importance of storage and loss processes was therefore closely related to the physico-chemical properties of the PAH and is discussed in relation to the cycling of carbon in the woodland.

16-0557

Kim, Hong Bae, Sang Youp Jin, and Kap Sik Yun. 2001. Impact analysis of a water quality enhancing policy: a simple input-output approach. *Regional Studies* 35, 2: 103-11.

Keywords: Economic development. Environmental degradation. Environmental rehabilitation. Water quality.

It is generally believed that there exists a trade-off between economic activity and environmental quality since pollutants are generated in the process of production and consumption of commodities. The literature shows, however, that there have been relatively few empirical attempts to analyze this trade-off relationship. This tendency may stem from the fact that there is insufficient data to represent the environmental sector. This paper has constructed the environmental sector endogenized multiregion input-output (ESEMRIO) model to measure the impacts of water quality enhancing policy on the Korean economy of two regions, recognizing the environmental sector as a resource-using sector. The ESEMRIO model specifically estimates the impacts of the policy on the economy in terms of the policy costs, industrial output, and employment.

16-0558

Kitsiou, Dimitra, and Michael Karydis. 2001. Marine eutrophication: a proposed data analysis procedure for assessing spatial trends. *Environmental Monitoring and Assessment* 68, 3: 297-312.

Keywords: Environmental indicators. Eutrophication. Greece. Marine environment. Saronicos Gulf, Greece. Spatial analysis. Water pollution.

A methodology for the discrimination of the different trophic levels at a spatial scale in the marine environment is proposed using spatial analysis methods and nonparametric statistics. Phytoplankton cell number, being a representative parameter to express trophic trends in the marine ecosystem, is selected for the methodology development; Saronicos Gulf, Greece, is used for the case study. The proposed stepwise methodology includes interpolation for assessing the spatial distribution of phytoplankton cell number, division of the Gulf into a number of quadrates, development of a scale characterizing trophic levels, and finally characterization of the trophic state of each quadrate using nonparametric statistics. The advantages of this methodology and the potential applications in coastal management studies are also discussed.

16-0559

Lammerts, E. J., C. Maas, and A. P. Grootjans. 2001. Groundwater variables and vegetation in dune slacks. *Ecological Engineering* 17, 1: 33-47.

Keywords: Groundwater. The Netherlands. Sand dunes. Vegetation.

Basiphilous pioneer plant communities, influenced by phreatic groundwater, are endangered in the Netherlands. In dune slacks of the Dutch Wadden Sea islands, their area has also declined, although they still occur fairly frequently. For purposes of nature conservancy, it is important to know how to maintain or restore suitable habitats. The aim of this investigation is to identify variables that describe the hydrological conditions required by these

dune slack communities adequately without being easily disturbed by climatological fluctuations. Data sets of groundwater table depths from thirty-eight sites in sixteen dune slacks were analyzed. Plots of site-specific seepage fluxes versus groundwater table depths were inferred which served well in modeling the hydrological regimes of all sites on the basis of a given start value for table depths and subsequent precipitation surplus data. Three groundwater variables describing the plots to a large extent were derived. To infer the physical meaning of these new variables, they were related to three conventional hydrological variables (mean lowest groundwater level, inundation percentage, and daily fluctuation) by applying a principal component analysis. The new variables could easily be interpreted in terms of known hydrological features, and two of them could describe the hydrological variation adequately. The relationships of these two site-specific groundwater variables to abiotic habitat features and vegetation composition were assessed. Together, they very well indicated the presence of basiphilous pioneer vegetation. Also, they related clearly to favorable abiotic conditions for this vegetation.

16-0560

Prach, Karel, and Petr Pyšek. 2001. Using spontaneous succession for restoration of human-disturbed habitats: experience from Central Europe. *Ecological Engineering* 17, 1: 55-62.

Keywords: Central Europe. Environmental restoration. Spontaneous plant succession.

Total vegetation cover, cover of woody species, and participation of dominants in later (preforest) successional stages of sixteen successional seres starting on bare ground in various human-disturbed habitats (Czech Republic, Central Europe) were compared and evaluated from the viewpoint of restoration ecology. Continuous vegetation was formed before the fifteenth year of succession in all the seres studied. The establishment and expansion of woody species tended to be easier under moderate environmental conditions and was retarded in rather extreme habitats (dry, wet, nutrient poor, acid). The later-successional dominants were all native species, and some rare and endangered species were recorded in these stages. The main conclusion is that spontaneous succession can be relied on in restoration projects except in the case of extreme, especially toxic, substrata. To leave a site to allow spontaneous processes to revegetate it is especially advantageous if the disturbed site is small, surrounded by natural vegetation, and if site conditions were not principally altered by the disturbance. Spontaneous succession is cheap, and spontaneously revegetated sites usually exhibit higher natural value.

16-0561

Stone, D., P. Jepson, P. Kramarz, et al. 2001. Time to death response in carabid beetles exposed to multiple stressors

along a gradient of heavy metal pollution. *Environmental Pollution* 113, 2: 239-44.

Keywords: Carabid beetles. Environmental indicators. Heavy metal contamination. Soil contamination. Time-to-death response.

We investigated the responses of invertebrates inhabiting polluted environments to multiple stressors. Carabid beetles (*Pterostichus oblongopunctatus* F.) were subjected to food deprivation and insecticide treatment (dimethoate) to resolve trends associated with a gradient of heavy metal pollution. Metal concentrations along the gradient of five sites ranged from approximately 150 to 10,500 mg/kg zinc (Zn), 136 to 2600 mg/kg lead (Pb), and 0.84 to 81.9 mg/kg cadmium (Cd). There was no difference in body mass along the pollution gradient. However, the beetles originating from the most contaminated sites were significantly less tolerant to food deprivation than beetles from the reference site. Median survival time was 120 h for the two most polluted sites, compared with 168 h at the reference site. Beetles from the two most polluted sites were also significantly more susceptible to dimethoate at 0.1 lg active ingredient/beetle. Median survival times were 12 and 123 h for beetles from the two most polluted sites and 359 h for the reference site. Carabid beetles exposed to chronic pollution, therefore, exhibit elevated susceptibility to additional stressors.

16-0562

Sun, B., F. J. Zhao, E. Lombi, et al. 2001. Leaching of heavy metals from contaminated soils using EDTA. *Environmental Pollution* 113, 2: 111-20.

Keywords: Environmental restoration. Ethylenediaminetetraacetic acid. Heavy metal contamination. Heavy metal extraction.

Ethylenediaminetetraacetic acid (EDTA) extraction of Zn, Cd, Cu, and Pb from four contaminated soils was studied using batch and column leaching experiments. In the batch experiment, the heavy metals extracted were virtually all 1:1 metal-EDTA complexes. The ratios of zinc (Zn), cadmium (Cd), copper (Cu), and lead (Pb) of the extracted were similar to those in the soils, suggesting that EDTA extracted the four heavy metals with similar efficiency. In contrast, different elution patterns were obtained for Zn, Cd, Cu, and Pb in the column leaching experiment using 0.01 M EDTA. Cu was either the most mobile or among the most mobile of the four heavy metals, and its peak concentration corresponded with the arrival of full-strength EDTA in the leachate. The mobility of Zn and Cd was usually slightly lower than that of Cu. Pb was the least mobile, and its elution increased after the peaks of Cu and Zn. Sequential fractionations of leached and unleached soils showed that heavy metals in various operationally defined fractions contributed to the removal by EDTA. Considerable mobilization of iron (Fe) occurred in two of the four

soils during EDTA leaching. Decreases in the Fe and manganese (Mn) oxide fraction of heavy metals after EDTA leaching occurred in both soils, as well as in a third soil that showed little Fe mobilization. The results suggest that the lability of metals in soil, the kinetics of metal desorption/dissolution, and the mode of EDTA addition were the main factors controlling the behavior of metal leaching with EDTA.

16-0563

Tarnay, L., A. W. Gertler, R. R. Blank, et al. 2001. Preliminary measurements of summer nitric acid and ammonia concentrations in the Lake Tahoe Basin air-shed: implications for dry deposition of atmospheric nitrogen. *Environmental Pollution* 113, 2: 145-53.

Keywords: Air pollution. Ammonia. Environmental impact analysis. Lake Tahoe. Nitrogen. Water pollution.

Over the past fifty years, Lake Tahoe, an alpine lake located in the Sierra Nevada mountains on the border between California and Nevada, has seen a decline in water clarity. With significant urbanization within its borders and major urban areas 130 kilometers (km) upwind of the prevailing synoptic airflow, it is believed the Lake Tahoe Basin is receiving substantial nitrogen (N) input via atmospheric deposition during summer and fall. We present preliminary inferential flux estimates to both lake surface and forest canopy based on empirical measurements of ambient nitric acid (HN03), ammonia (NH3), and ammonium nitrate (NH4N03) concentrations in an effort to identify the major contributors to and ranges of atmospheric dry N deposition to the Lake Tahoe Basin. Total flux from dry deposition ranges from 1.2 to 8.6 kg N ha⁻¹ for the summer and fall dry season and is significantly higher than wet deposition, which ranges from 1.7 to 2.9 kg N ha⁻¹ year. These preliminary results suggest that dry deposition of HN03 is the major source of atmospheric N deposition for the Lake Tahoe Basin and that overall N deposition is similar in magnitude to deposition reported for sites exposed to moderate N pollution in the southern California mountains.

32-6 CATASTROPHES/DISASTERS/EMERGENCIES

16-0564

Brown, Vincent, Denis Coulombier, François Belanger, et al. 2001. Rapid assessment of population size by area sampling in disaster situations. *Disasters* 25, 2: 164-71.

Keywords: Emergency management. Population estimates. Refugee camps.

In the initial phase of a complex emergency, an immediate population size assessment method, based on area sampling, is vital to provide relief workers with a rapid population estimate in refugee camps. In the past decade, the method has been progressively improved; six examples are presented in this paper and questions raised about its

statistical validity and about important issues for further research. There are two stages. The first is to map the camp by registering all of its coordinates. In the second stage, the total camp population is estimated by counting the population living in a limited number of square blocks of known surface area and by extrapolating average population calculated per block to the total camp surface. In six camps selected in Asia and Africa, between 1992 and 1994, population figures were estimated within one to two days. After measuring all external limits, surfaces were calculated and ranged between 121,300 and 2,770,000 square meters. In five camps, the mean average population per square was obtained using blocks 25 by 25 meters (625 square meters) and for another camp with blocks 100 by 100 meters. In three camps, different population densities were defined. Total camp populations obtained were 16,800 to 113,600. Although this method is a valuable public health tool in emergency situations, it has several limitations. Issues related to population density and number and size of blocks to be selected require further research for the method to be better validated.

16-0565

Goodwin-Gill, Guy S. 2001. Refugees: challenges to protection. *International Migration Review* 35, 1: 130-42.

Keywords: Emergency management. Refugees. UN High Commissioner for Refugees.

By the end of the year 2000, the Office of the United Nations High Commissioner for Refugees (UNHCR) will have been in existence for fifty years—probably some sort of record for an organization originally set up with only a three-year mandate. There were many reasons for so limiting the successor agency to the International Refugee Organization, but it is doubtful whether anyone seriously thought that refugee problems would be resolved so quickly or, indeed, that the UNHCR would develop into the highly operational, visible, and extensively funded agency that one sees today. Fifty years of experience, nevertheless, suggests that it is high time for an audit; for an evaluation of strengths, weaknesses, and achievements; and for some strategic thought about the future of the UNHCR.

16-0566

O'Hare, Greg. 2001. Hurricane 07B in the Godavari Delta, Andhra Pradesh, India: vulnerability, mitigation and the spatial impact. *Geographical Journal* 167, 1: 23-38.

Keywords: Hurricane impact analysis. Hurricanes. Godavari Delta. India. Spatial analysis.

Few hurricane impact studies provide robust spatial parameters of damage or relate geographical patterns of destruction accurately to storm trajectories or agencies. A detailed spatial analysis is, therefore, presented of the destruction caused by tropical hurricane 07B, which made

landfall on November 6-7, 1996, over the Godavari Delta region, Andhra Pradesh, eastern India. Patterns of destruction by storm surge, wind, and flood water are quantitatively mapped for death tolls, house destruction, and agricultural damage using local administrative (mandal) databases. Results show that most impact occurred near the coast, but a well-defined path of destruction across the central part of the delta can be identified. Such mapping studies fail to indicate the types of individuals and social groups most affected by the storm hazard and their response to it. An investigation of landowning farmers, female migrant rural laborers, and fishing communities in the delta shows that poverty and social ordering in Indian society puts differential limits on the risk reduction abilities of individuals and social groups in the face of the cyclone hazard. The paper also demonstrates that top-down institutional measures to reduce the effects of storm damage such as those introduced in the aftermath of hurricane 07B, including early storm warning and evacuation procedures and rehabilitation programs, remain largely ineffective. It is suggested that the introduction of more bottom-up community-based programs that seek to improve the risk awareness and risk avoiding abilities of affected individuals and groups would be much more beneficial. The case material on hurricane 07B and its effects are placed in context by reviewing and updating long- and medium-term time series records of storm frequencies and impacts in the Bay of Bengal and particularly along the eastern coastline of India.

16-0567

Olshansky, Robert B., and Yueming Wu. 2001. Earthquake risk analysis for Los Angeles County under present and planned land uses. *Environment and Planning B: Planning and Design* 28, 3: 419-32.

Keywords: Earthquakes. Land use. Local government. Los Angeles. Risk analysis.

Local governments rarely use risk analysis, the most sophisticated level of hazard assessment, to inform their planning and development decisions. But new tools are rapidly becoming available to accomplish such analysis. In this paper, the authors present an example of an earthquake risk analysis for Los Angeles County, using available land-use maps, a probabilistic earthquake hazard model developed by the Southern California Earthquake Center, and the Federal Emergency Management Agency's new HAZUS earthquake loss estimation software. The authors computed the annual expected loss owing to earthquakes and the spatial variation of this risk. The analysis shows that the annual long-term earthquake risk in Los Angeles County, as a result of direct structural and nonstructural damage, is \$388 million per year. The extent to which planned future land-use growth would affect this risk estimate was also investigated. It was found that planned growth of 14.2 percent would result in an increase in annual risk to \$449.5 million, a 15.8 percent increase over

the risk to current land uses. Because of ever-increasing disaster costs, planners need to be able to evaluate the risks that their communities face, both in the present and in the future. It is particularly important for planners to be sure that they are not disproportionately planning future growth for hazardous locations. The authors describe some ways to perform such evaluations using tools that have only recently become available.

16-0568

Stephen, Linda, and Thomas E. Downing. 2001. Getting the scale right: a comparison of analytical methods for vulnerability assessment and household-level targeting. *Disasters* 25, 2: 113-35.

Keywords: Emergency management. Ethiopia. Famines. Research techniques. Vulnerability assessment.

This paper introduces broad concepts of vulnerability, food security, and famine. It argues that the concepts and theories driving development and implementation of vulnerability assessment tools are related to their utility. The review concludes that sociogeographic scale is a key issue and challenge. The article analyzes three vulnerability assessment methods using Ethiopia as a case study. Facing the challenges of vulnerability assessment and early warning requires providing accurate information at the required scale, useful for multiple decisionmakers within realistic institutional capacities.

32-7 SUSTAINABILITY

16-0569

Cooper, J., T. Ryler, and A. Smyth. 2001. Contemporary lifestyles and the implications for sustainable development policy: lessons from the UK's most car dependent city, Belfast. *Cities* 18, 2: 103-13.

Keywords: Air pollution. Automobiles. Belfast. Commuting. Spatial analysis. Sustainability.

The rise in demand for car travel is fuelled more by the increased spatial separation of homes and workplaces, shops and schools than by any rise in trip making. Belfast is one of the most car-dependent cities in the United Kingdom. A major household survey was intended to inform an understanding of the likely behavioral response to sustainable development policy initiatives. The survey was one of a series of linked tools within a wider EPSRC Sustainable Cities Project research project. Insights into consumer responses to the various policy measures considered in the overall project were drawn in part from the stated preference experiments included in the household survey. Initiatives included improved domestic energy efficiency, increased densification of housing, improved public transport, and the introduction of traffic restraint measures such as road user charges. There were signs of some willingness to accept moderately higher densities on the basis that residents would be compensated by a lower than otherwise

purchase price. The typical effect of introducing road pricing, say, at £1.00 per day equated to a reduction in property values of some 2.5 percent, whereas the absence of any apparent statistical significance generated by the public transport variable reflects its current lack of credibility as an alternative to the car. Although Belfast may not be wholly typical, it does offer a warning of the extent of the challenge faced by policymakers in more car-dominated cities in the United Kingdom and beyond.

16-0570

Feldmann, Lieselotte, Marc Vanderhaegen, and Charles Pirotte. 2001. The EU's SEA directive: status and links to integration and sustainable development. *Environmental Impact Assessment Review* 21, 3: 203-22.

Keywords: Environmental policy. European Union. Strategic environmental assessment. Sustainability.

Strategic Environmental Assessment has been discussed and its principles successfully tested over a long period within the European Union (EU) and beyond. Whereas a legal framework exists that obliges the fifteen EU member states to carry out environmental impact assessments for a number of economic activities since 1985, the resistance to adopt another piece of environmental legislation covering the planning and programming level was quite high. The reasons for this are manifold and include national fears of being overregulated and an ever-increasing influence of economic power where environmental concerns are often regarded as obstacles. Nevertheless, the member states acknowledged the need and urge to strive for a balanced recognition of environmental matters at early stages of decision making to achieve a meaningful preventive approach. The principles of early environmental assessment are clearly very convincing since other pieces of environmental legislation started including key elements of SEA. The future SEA directive will ensure that important gaps are closed and useful linkages established to allow for efficient results. The SEA directive will significantly help to make environmental integration happen in reality with a view to contributing to sustainable development since it is a valuable tool among the different approaches that are being tried out and developed for this purpose.

16-0571

Geng, Shu, Yixing Zhou, Minghua Zhang, et al. 2001. A sustainable agro-ecological solution to water shortage in the North China Plain (Huabei Plain). *Journal of Environmental Planning and Management* 44, 3: 345-55.

Keywords: Agricultural policy. China. Huabei Plain. Rainfall. Sustainability. Water shortage. Water supply.

A highly seasonal rainfall pattern in the agriculturally productive region of Huabei Plain has been widely considered in China as a handicap to maximizing agricultural production. Enhancing this perception is the traditional policy of

achieving provincial or regional self-sufficiency in grain production, which underlies China's production quotas. The Chinese government has decided to overcome this perceived handicap to meet the increasing water demands of urban populations and to achieve its grain quotas by constructing aqueducts to transport about $14 \times 10^9 \text{ m}^3$ of water from the Dan Jiang Reservoir into the Huabei Plain. However, this engineering construction solution threatens the long-term market competitiveness of the region by driving up the cost of water relative to the value of the product, by taking too long to complete, and by being unproven in its effectiveness. This solution also threatens the existing ecosystem by interfering with the natural hydrology, and it risks exacerbating the ongoing ground-water overdrafts that are contributing to the formation of numerous sinkholes and ground surface cracks in the region as well as to the intrusion of sea water. A more certain, ecologically sound solution can be found in alternative agricultural practices and cropping systems. Reducing the winter wheat production by a relatively small acreage, combined with the increased use of water-saving irrigation systems, can more than replace the effectively usable $10 \times 10^9 \text{ m}^3$ of water that the engineering construction project would transport via aqueducts. The recommended alternative cropping system would solve the water shortage problem immediately. This alternative would enable the government to allocate funds where they are more needed, such as to the cleanup of extensively polluted rivers and to ecological restoration, which bears on the sustainability of agriculture and food supply in China.

16-0572

Lyons, Michal, Carin Smuts, and Anthea Stephens. 2001. Participation, empowerment, and sustainability: (how) do the links work? *Urban Studies* 38, 8: 1233-51.

Keywords: Apartheid. Citizen participation. Empowerment. Postapartheid era. South Africa. Sustainability.

This paper investigates the relationship between participation, empowerment, and sustainability. Using the multisectoral and multicontextual experience of participation amassed in South Africa, both before apartheid and after, the authors address two questions: Does participation lead to empowerment? and Does empowerment, in turn, lead to sustainability? Furthermore, what external factors mediate and influence that relationship? Analysis shows that a relationship does exist and relies on several contextual factors that are crucial to its success. Findings are discussed in terms of the international literature on community participation and local democracy, and policy implications are identified.

16-0573

Noss, Petter. 2001. Urban planning and sustainable development. *European Planning Studies* 9, 4: 503-24.

Keywords: Brundtland Commission. Built environment. City planning. Environmental policy. Sustainable development.

Following the discourse about sustainable development based on the Brundtland Commission's report and the processes in the UN Committee on Environment and Development, a sustainable urban development would require considerably more ambitious policies than today's to limit energy consumption, reduce pollution, and protect natural areas and arable land. Reuse of urban areas and more effective utilization of building sites is a possible strategy to this end. However, continuous growth in the building stock will make it increasingly difficult to bring urban development in wealthy countries within the frames of what is ecologically sustainable and equitable in a global perspective. Planning for a sustainable urban development must be oriented toward long-term goals and utilize knowledge about the environmental consequences of different solutions but should not be based solely on means-ends rationality. Rather than aiming at consensus including all stakeholder groups, planning for sustainability should facilitate alliance building among those population groups that can support the basic equity and environmental values of a sustainable development.

16-0574

Stein, Alfredo. 2001. Participation and sustainability in social projects: the experience of the Local Development Programme (PRODEL) in Nicaragua. *Environment and Urbanization* 13, 1: 11-36.

Keywords: Economic development. Local economies. Low-income groups. Nicaragua. Sustainability.

This paper describes the work of the Local Development Programme (PRODEL) in eight cities in Nicaragua where it provided small grants for infrastructure and community-works projects and loans for housing improvement and microenterprises targeted at low-income groups. The external funds provided by the Swedish International Development Cooperation Agency were matched by municipal, community, and household contributions. Between 1994 and 1998, more than thirty-eight thousand households benefited, and both loan programs achieved good levels of cost recovery. The paper describes the micro-planning workshops and other methodologies through which households and communities were given more scope for participation. It explains how local governments and the bank responsible for managing the loans learned to work in a more participatory way, and it outlines the measures taken to ensure that the needs and priorities of women and children were addressed. The paper ends by considering some of the lessons learned in terms of sustaining the initiatives after projects are completed and institutionalizing citizen participation in social programs.

It also describes how PRODEL's methods have come to be used by central and local governments in other programs.

33. Physical Elements of Planning

33-1 INFRASTRUCTURE/COMMUNITY FACILITIES

16-0575

Dowall, David E. 2001. Rethinking statewide infrastructure policies: lessons from California and beyond. *Public Works Management and Policy* 6, 1: 5-17.

Keywords: California. Cost analysis. Infrastructural repair. Infrastructure.

Over the next ten years, California faces a daunting infrastructural challenge. According to the California State Treasurer's Office, the state needs to invest \$82 billion to repair and maintain current structures and build new ones. Projected state and local revenue sources will meet only about 50 percent of this need. Unfortunately, California's infrastructure planning and financing process seems to be broken as well. According to the Legislative Analyst's Office, the state government (1) lacks a stable funding source for infrastructure investment programs, (2) reviews these programs on an ad hoc basis, and (3) does not have an administrative or legislative evaluation of infrastructure investment requirements. This commentary argues that many states, including California, need to rethink their approach toward infrastructure planning and finance.

16-0576

Knaap, Gerrit, Chengri Ding, and Lewis D. Hopkins. 2001. Managing urban growth for the efficient use of public infrastructure: toward a theory of concurrency. *International Regional Science Review* 24, 3: 328-43.

Keywords: Concurrency theory. Infrastructure. Urban growth management.

In this article, the authors develop three dynamic models of urban growth with a focus on the efficient use of lumpy urban infrastructure. First, the authors show that the optimal growth rate depends on the rate at which infrastructure capacity is consumed when public service levels are variable and produced with a fixed stock of public infrastructure. Second, they seek to demonstrate that the optimal growth rate depends on the rate of increase in marginal public service costs when public service levels are fixed and provided with variable inputs and a fixed stock of infrastructure. Third, the authors examine the optimal growth path when service levels are fixed and infrastructure is expanded in lump-sum increments. Under these conditions, the authors show that the optimum urban growth path depends on the level and timing of investments in urban infrastructure and that efficiencies can be gained by coordinating public and private investments in urban development.

33-2 LAND USE/SITE PLANNING STANDARDS

16-0577

Adams, David, Alan Disberry, Norman Hutchison, et al. 2001. Managing urban land: the case for urban partnership zones. *Regional Studies* 35, 2: 153-62.

Keywords: Joint ventures. Land use. Urban partnership zones.

Multiple ownership of land can act as a significant barrier to brownfield redevelopment. Despite renewed interest in compulsory purchase, it is unlikely to become the normal remedy for multiple ownership, owing to its cost and complexity. Drawing on international experience and recent research, this article proposes the concept of an Urban Partnership Zone in which existing landowners would be entitled to participate alongside the local authority and a chosen development partner in a joint-venture redevelopment company. Combined with greater planning certainty and other benefits, this innovation would enable the development process to operate more rapidly without immediate compulsory purchase.

16-0578

Ben-Zadok, Efraim, and Dennis E. Gale. 2001. Innovation and reform, intentional inaction, and tactical breakdown. *Urban Affairs Review* 36, 6: 836-87.

Keywords: Florida. Florida Growth Management Act. Policy failure. Policy implementation. Urban growth control.

This study evaluates the regulatory implementation process of the concurrency policy between 1985 and 2000. One of the main pillars of the 1985 Florida Growth Management Act, this policy is also a significant innovation in the growth management in movement in the United States. Concurrency is a Florida statewide policy that requires local governments to provide public facilities to support development "concurrent" with the impact of such programs. The study seeks to shed light on different decision-making styles of state and local planning bureaucracies, including their relationships to legislative intentions. Concurrency began as a significant innovation and quickly lapsed into nondecision that was followed by both technical failures and adaptation efforts. In its most critical area, transportation concurrency, a tactical breakdown became evident. The implementation record of the policy shows mixed results.

16-0579

Farris, J. Terrence. 2001. The barriers to using urban infill development to achieve smart growth. *Housing Policy Debate* 12, 1: 1-30.

Keywords: Infill development. Policy failure. Policy implementation. Urban growth control. Urban sprawl.

The smart growth movement of the 1990s has seen many development and planning associations, state and local governments, and the Clinton administration encourage infill development to control sprawl and promote revitalization. Will the projected increase in population in the next fifty years be attracted to infill development or to outlying growth areas? A review of twenty-two major central cities shows that they captured only 5.2 percent of total new metropolitan housing permits over the decade: 2.2 percent of single-family permits and 14.9 percent of multifamily permits. This analysis identifies the practical barriers to urban infill development, including land assembly and infrastructural cost, unwillingness to condemn, municipal social goal and regulatory policies, difficulties of finding developers, complexities of public-private partnerships, excessive risks, resistance from local residents, and stakeholder conflicts and political constraints. Although supporting infill, smart growth advocates should focus primarily on encouraging higher density, quality suburban, and outlying growth.

16-0580

Feitelstein, Eran. 2001. Malicious siting or unrecognized processes? A spatio-temporal analysis of environmental conflicts in Tel-Aviv. *Urban Studies* 38, 7: 1143-59.

Keywords: Environmental conflict. Environmental justice. Israel. Site selection. Spatial analysis. Tel-Aviv, Israel.

Environmental inequities discerned on the basis of cross-sectional analysis are often portrayed as an outcome of inconsiderate or outright malicious facility siting. Nevertheless, a discussion of the evolution of spatial proximity between noxious facilities and residential areas suggest that such proximity is an outcome of more complex processes—although often unrecognized in time. By analyzing the pattern of environmental conflicts in Israel's Tel-Aviv metropolitan region and following the evolution of five of them, it is shown that many conflicts arise from encroachment of residential development on facilities originally sited in remote areas. In the past, this has led to the exit of some of the more noxious facilities. Even so, this option is becoming obsolete as a result of changes in social and political arrays. Thus, the real concerns are over future siting decisions rather than past practices.

16-0581

McDonald, John F. 2001. Cost-benefit analysis of local land use allocation decisions. *Journal of Regional Science* 41, 2: 277-99.

Keywords: Cost-benefit analysis. Decision making. Labor markets. Land use. Unemployment.

This paper presents standard microeconomic models that are designed to be used in the cost-benefit analysis of local land use decisions. The models connect these allocation decisions to outcomes in the urban land and labor markets so that costs and benefits can be measured. Benefits to the

local jurisdiction of allocating land to industrial use exist if unemployed workers are employed, land values increase, or local tax revenues increase beyond the amount needed to provide the additional public services required.

33-3 PHYSICAL ENVIRONMENTAL SYSTEMS ANALYSIS

16-0582

Chengrui, Mei, and Harold E. Dregne. 2001. Review article: silt and the future development of China's Yellow River. *Geographical Journal* 167, 1: 7-22.

Keywords: China. Economic development. Literature review. Riverine silt. Water supply. Yangtze River.

Silt loading is a critical problem in the use of the Yellow River for irrigation, domestic, and industrial water supplies. Nearly all of the silt comes in runoff from the immense and highly erodable Loess Plateau. Salinity has a secondary but widespread effect on irrigation development and groundwater quality. Engineering structures and expanded irrigation have reduced the silt load in the lower reach of the river by half over the past fifty years. Still, the level of the riverbed continues to rise higher above the surrounding North China Plain. Millions of rural and urban lives are threatened by the possibility that an embankment will break and unleash a horrendous flood, as happened numerous times prior to 1949. Earthquakes could cause similar catastrophes. Increased populations in cities, expansion of irrigated land, and rapid industrialization have brought about locally severe water shortages. This, in turn, has led to surface and groundwater pollution by salt and heavy metals, lowering of groundwater levels, land subsidence, and salt water intrusion from the Bo Sea. Interbasin water transfers from the Yangtze River in the south to relieve water shortages in the north have been proposed for decades but remain controversial. The high cost of dams, canals, tunnels, pumping, and water control systems needed for the transfer has been a major objection. Other factors have been the adverse environmental impact in both the Yellow and Yangtze river watersheds of transfers and, importantly, the questionable need of the transfers if water conservation practices were used widely and effectively.

16-0583

Cherrill, Andrew, and Colin McClean. 2001. Omission and commission errors in the field mapping of linear boundary features: implications for the interpretation of maps and organization of surveys. *Journal of Environmental Planning and Management* 44, 3: 331-43.

Keywords: Boundary errors. Cartography. Great Britain. Land use. Maps.

Phase 1 mapping has been used widely in the United Kingdom as a method of resource inventory and as an aid to conservation management and planning. Phase 1 maps may also provide baseline information for studies of land

use change by future generations of landscape ecologists and historians. Contemporary assessments of their accuracy are essential to allow their value to be judged both now and decades hence. The accuracy of Phase 1 mapping of man-made linear boundary features was quantified by comparing maps drawn by six experienced field surveyors with a ground-truth version correctly showing all features. Overall errors within maps varied from 11.2 percent to 96.9 percent between surveys. Most of the error was caused by the omission of boundaries rather than the misclassification of boundaries whose presence was recorded (i.e., errors of commission). The likelihood of a boundary being mapped was positively related to its length, and walls were more likely to be mapped than fences. Linear features can be mapped accurately, but reliance on the discretion of the surveyors, and their interpretation of the survey manual, resulted in variable practice and incomplete data in all cases. If data on linear features are not required, the time saved could be used to improve the accuracy of mapping other habitats (a concern identified in other studies). In addition to the provision of more explicit guidance to surveyors, the reporting of estimates of mapping accuracy and precision are identified as important aspects of the survey technique that require greater attention than is currently the case.

33-4 GEOGRAPHIC INFORMATION SYSTEMS

16-0584

Derekarnaris, G., J. Garofalakis, C. Makris, et al. 2001. Integrating GIS, GPS, and GSM technologies for the effective management of ambulances. *Computers, Environment and Urban Systems* 25, 3: 267-78.

Keywords: Ambulances. Attica, Greece. Emergency management. Geographic information systems. Global positioning system. Global system for mobile communication. Greece.

In this paper, the authors describe a system offering a solution to the problem of ambulance management and emergency incident handling in the prefecture of Attica in Greece. It is based on the integration of geographic information system, global positioning system, and global system for mobile communication technologies. The design of the system was the product of a project funded by the Greek Secretariat of Research and Technology. A significant operation for the handling of emergency incidents is the routing of ambulances to incident sites and then to the closest appropriate hospitals. The response time of a real-time system such as those in Attica, to such queries is of vital significance. By using efficient data structures for the implementation of the graph representing the road network, the time performance of the shortest-path algorithm can be enhanced.

16-0585

Dikshit, A. K., T. Padmavathi, and R. K. Das. 2000/2001. Locating potential landfill sites using geographic information systems. *Journal of Environmental Systems* 28, 1: 43-54.

Keywords: Geographic information systems. Landfills. Site selection. Siting disputes. Solid waste. Waste disposal.

Regulations and public opposition can make siting municipal solid waste landfills difficult. The siting of a landfill not only requires diverse geological, geotechnical, and environmental considerations but also must satisfy legal locational restrictions and other social and cultural factors. In this article, a geographic information system-based method has been presented that identifies potential landfill areas for preliminary assessment. The regulatory restrictions, area attributes, and site assessment criteria provided by experts and/or users have been taken into account. The proposed method has been demonstrated by applying it to a landfill site selection study for the Nilgiri block of Balasore district of Orissa in India.

16-0586

Haque, Akhlaque. 2001. GIS, public service, and the issue of democratic governance. *Public Administration Review* 61, 3: 259-65.

Keywords: Citizen participation. Decision making. Democratic governance. Geographic information systems. Public sector.

Geographic information systems (GIS) provide unparalleled power to examine social, economic, and political circumstances. As this technology becomes more prominent in the public sector, it brings new challenges to democratic decision making. How policymakers choose to apply this technology will determine the relationship between those who control technology and those who engage in governance. This article provides examples on the ways that GIS is being used for policy implementation and then explores the democratic implications of GIS.

16-0587

Laurini, R., S. Servigne, and T. Tanzi. 2001. A primer on TeleGeoProcessing and TeleGeoMonitoring. *Computers, Environment and Urban Systems* 25, 3: 249-66.

Keywords: Geographic information systems. Spatial analysis. Telecommunications.

This paper seeks to define the potential and the characteristics of TeleGeoProcessing and TeleGeoMonitoring. TeleGeoProcessing, as child of geographic information systems and telecommunications, can be considered as a new discipline characterized by spatial database, cartogra-

phy on demand, the exchange of information between different sites by any kind of telecommunication system, and online spatial data analysis. TeleGeoMonitoring can be seen as an extension of TeleGeoProcessing by the use of positioning systems (global positioning systems [GPS or GPS-like], real-time databases, and real-time group decision-making systems.

16-0588

Ryznar, Rhonda M., and Thomas W. Wagner. 2001. Using remotely sensed imagery to detect urban change: viewing Detroit from space. *Journal of the American Planning Association* 67, 3: 327-36.

Keywords: Detroit, Michigan. Geographic information systems. Spatial analysis. Urban change.

The data integration capabilities of geographic information systems are providing new opportunities for urban analysis. This article describes the work of a multidisciplinary team that used spatial data from the National Aeronautics and Space Administration's Landsat earth observation satellite to observe the net vegetation change between 1975 and 1992 in Detroit, Michigan. Furthermore, by integrating the satellite-derived change data with census data from 1970, 1980, and 1990, this research shows how the extensive demographic changes that occurred in Detroit over the past quarter century have resulted in physical landscape changes detectable from space. Strong correlations were found between the patterns of social, economic, and demographic data and the pattern of vegetation change seen in the satellite imagery, both for certain points in time and changes over time. These correlations suggest that the imagery reflects processes of urban growth, inner-city declines, population shifts, and changes in urban form.

16-0589

Wallsten, Scott J. 2001. An empirical test of geographic knowledge spillovers using geographic information systems and firm-level data. *Regional Science and Urban Economics* 31, 5: 571-99.

Keywords: Geographic information systems. Knowledge levels. Predictive validity. Research and development. Small businesses.

Most research on economic geography focuses on large geographic areas such as nations and states. The author uses a geographic information system and a firm-level data set to explore agglomeration and spillovers at the firm level over discrete distances. He calculates the distance between each firm pair to explore colocation and uses these calculations to devise a test of spillovers: is participation in the Small Business Innovation Research (SBIR) program, which provides research and development grants to small firms, a function of whether nearby firms win SBIR grants? The author finds that the number of other SBIR

firms within a fraction of a mile predicts whether a firm wins awards, even controlling for regional, form, and industry characteristics.

33-5 RECREATION/OPEN SPACE PLANNING

16-0590

Hamin, Elisabeth M. 2001. The US National Park Service's partnership parks: collaborative responses to middle landscapes. *Land Use Policy* 18, 2: 123-35.

Keywords: Agency-community partnerships. National parks. Rural areas. U.S. National Park Service.

Historically, the U.S. National Park Service (NPS) has been an uneasy, often unwelcome, presence in rural communities. Broader recent acceptance of nontraditional types of national park units has opened the door to more positive collaborative relationships between the NPS and rural communities. The author presents three case studies of partnership parks that vary from extensive federal land ownership while retaining traditional land uses to virtually no federal land ownership where achievement of unit goals rests on developing locally collaborative relationships. Reasons for the change are presented, and lessons for new partnership park units are explored.

16-0591

Schouten, Meinke J., Johannes S. Timmermans, Giampiero E. G. Beroggi, et al. 2001. Multi-actor information system for integrated coastal zone management. *Environmental Impact Assessment Review* 21, 3: 271-89.

Keywords: Coastal area management. Coastal areas. Geographic information systems. Indonesia. Java.

Regional authorities in coastal zones need to be supported in identifying the relevant stakeholders, their objectives, and means to resolve conflicting interests that have adverse impacts on the marine environment and sustainable development. We developed a MultiActor Information System (MAIS) that provides this type of support to regional authorities in the Banten Bay area, part of the province of West Java. The influence analysis module of MAIS was evaluated in a case study in the Bojonegara sub-district. Structured interviews were conducted at twelve organizations to determine their interests, their means of control, and their interorganizational dependencies. The case study provided regional authorities with important information about the potential for conflicts in the bay. The influence analysis identified relevant actors, issues, and means to resolve conflicts. The influence analysis also revealed additional parties and issues that have to be involved to prevent negative developments in the area. The user-friendly integration of multimedia technology and concepts of social network analysis into MAIS provides the regional authorities with a powerful tool for future monitoring and assessment of potential conflict situations in the Banten Bay.

16-0592

Smailes, Peter J., and Derek L. Smith. 2001. The growing recreational use of state forest lands in the Adelaide Hills. *Land Use Policy* 18, 2: 137-52.

Keywords: Adelaide Hills, Australia. Australia. Forest areas. Recreation. State government. South Australia.

Pine forests in the Adelaide Hills in Australia, originally planted and managed as a source of timber, have become important as a recreation destination, close to the Adelaide urban area, with free public access. A count of forest visitors was carried out over a twelve-month period, and a sample was interviewed to determine their main activities, place of residence, and socioeconomic characteristics. Comparison with the results of a previous study suggest that forest visiting has been increasing at about 8 percent per year. A dollar value for recreational use was estimated using the travel-cost technique, suggesting a 1996/97 ratio of about 1:3.5 between recreation use value and the gross value of timber delivered to the mill. Results confirm the importance of continued public ownership and of continued (and enhanced) multiuse management strategies.

34. Transportation and Communication

34-1 TRANSPORTATION POLICY

16-0593

Beattie, C. I., J.W.S. Longhurst, and N. K. Woodfield. 2001. A preliminary analysis of the linkages between air quality management and transport planning policies in a sample of English highways authorities. *Journal of Environmental Planning and Management* 44, 3: 391-408.

Keywords: Air quality. Great Britain. Highways. Transportation planning. Transportation policy.

This paper considers the evolution of the local transport planning process and examines a sample of nine county-scale areas with regard to the integration of air quality issues within the transport planning process over the past three years. It concludes that transport planning in the United Kingdom has made some headway toward the integration of environmental considerations into the planning process, including air quality considerations. There is, however, notable diversity between highway authorities in the degree to which air quality is considered. Air quality management operates to a significantly shorter time scale than transport planning. The differing time scales of the two planning processes have hindered their integration as a consequence.

16-0594

Root, A. 2001. Can travel vouchers encourage more sustainable travel? *Transport Policy* 8, 2: 107-14.

Keywords: Commuting. Fiscal policy. Public transportation. Tax incentives. Transportation policy. Travel vouchers.

The growth of transportation poses difficult dilemmas for social and environmental policy. There is broad agreement that a variety of carrot-and-stick measures are needed. This article asks whether tax-free travel vouchers for employees could be important as incentives or carrots to encourage the use of public transportation. The basic idea of it is somewhat similar to luncheon vouchers for public transport. Employers issue the vouchers and claim the tax back from the government. Potentially, travel vouchers could generate a win-win situation in which transport operators' rising revenues justified new services and these, in turn, encouraged more passengers. The study described here uses survey data and the National Travel Survey to examine acceptability and potential fiscal impact of a rural, tax-free travel voucher scheme throughout the United Kingdom. These results show that there is sufficient acceptance of the idea of travel vouchers in rural areas to justify the further development of this policy.

34-2 TRANSPORTATION MODELING

16-0595

Pandey, J. S., S. Khan, and P. Khanna. 2000/2001. Modeling and quantification of temporal risk gradients (TRG) for traffic zones of Delhi City in India. *Journal of Environmental Systems* 28, 1: 55-69.

Keywords: India. Motor vehicle accidents. New Delhi. Temporal risk gradients. Traffic management. Transportation models.

Vehicular density in Delhi has increased by more than 100 percent in the past decade. Moreover, 67 percent of the total vehicular population is of the most polluting kind, mainly two- and three-wheelers. On the other hand, vegetation, which serves as an important sink for vehicular emission, helps in assimilation of gaseous pollutants. For study purposes, the city of Delhi was divided into three grids of 6, 12, and 18 km radii. Leaf samples from twelve important traffic zones were collected and microscopically analyzed for measuring relevant stomatal parameters. This data was subsequently used as the input for the EHER (Ecosystem-Health Exposure-Risk) Model [1] for quantifying risks due to vehicular emissions, namely, CO, NO, and HC. Future projections have been made for different categories of vehicles on the basis of models developed for them and calibrated with the help of available data. Subsequently, these temporal models for different vehicular categories have been interfaced with the EHER-model for deriving the expression for the temporal risk gradient, which represents time-derivative of this interfaced model and helps in analyzing dynamics of risk to the roadside environment due to vehicular emissions. Analysis of modeling results indicates which major roads are the most environmentally risky traffic zones.

16-0596

Schachter, Hindy Lauer. 2001. Creating stakeholders for transportation research: some factors affecting internal customer use of transportation research bureau projects. *Public Works Management and Policy* 5, 3: 233-41.

Keywords: Stakeholders. State government. Transportation models. Transportation research.

This article explores factors that relate to how internal customers use the work completed for them by state department of transportation research bureaus. The influence of researcher-customer relations, top management values, actions of the federal government and industry, and credibility and time dimensions of the research process itself are examined.

34-3 TRANSPORTATION PLANNING

16-0597

Haines, Victor Y., III., Grégoire Merrheim, and Mario Roy. 2001. Understanding reactions to safety incentives. *Journal of Safety Research* 32, 1: 17-30.

Keywords: Program evaluation. Program implementation. Program planning. Safety incentives. Traffic safety. Transportation planning.

Problem: Safety incentives, defined broadly as reward techniques used to improve health and safety results, do not always produce the desired results. Method: Using structural equation modeling and cross-level analysis procedures, this study investigated the relationships between individual- and group-level variables and reactions to a safety incentive program at a production plant. Results: The data obtained from 329 team members support most of the predicted relationships. At the individual level of analysis, locus of control influenced supervisor-subordinate relationships, which, in turn, influenced perceived organizational support and reactions to safety incentives. At the group level, the interaction between group cohesiveness, safety norms, and task interdependence had a significant effect on reactions to safety incentives. Discussion: The findings provide some insights into the functioning of safety incentives in a team environment. Impact on industry: These findings indicate that safety incentive programs are more likely to be effective components of health and safety strategies when they are implemented in settings with positive supervisor-subordinate relationships and within interdependent teams that share safety norms.

16-0598

Janke, Mary K. 2001. Assessing older drivers: two studies. *Journal of Safety Research* 32, 1: 43-74.

Keywords: Aging. Drivers licenses. Elderly. Functional disabilities. Transportation planning.

Problem: As they age, people increasingly incur functional disabilities that may limit the conditions under which they can drive safely or reduce their driving safety more generally. To make sound licensing decisions for impaired drivers, licensing agencies need to identify them and then evaluate their driving. Method: Separate pilot studies were carried out at two sites; subjects were licensed older drivers. Different batteries of nondriving tests were assessed at the two sites, although the same road test, a modified version of California's Driving Performance Evaluation, was used at both. Test scores were used in logistic regression and multiple linear regression analyses to predict subject group in Study 1 (referral versus volunteer, cognitive status group among referrals) and, in both studies, weighted total errors on the road test. Results: On the average, volunteers performed better than referrals and cognitively unimpaired referrals performed better than referrals who were cognitively impaired. Discussion: The purpose of these exploratory studies was limited to suggesting promising avenues of approach to older driver assessment. Summary: A promising group of tests was identified for further validation in a more extensive field study planned to include experienced drivers of any age at several DMV offices. Impact on industry: Any change in licensure testing springing from results of DMV's research program will impact that agency and possibly other licensing agencies; it may also stimulate research by test developers and others into devising better ways of identifying and assessing functionally impaired drivers.

16-0599

Subramanian, Uma, and John Arnold. 2001. *Forging subregional links in transportation and logistics in South Asia*. Washington, DC: World Bank. vii + 133 pp. Tables, figs., illus., appendices. \$22.00. ISBN 0-8213-4885-X.

Keywords: Economic policy. Globalization. International trade. Regional economies. South Asia. Transportation planning. Transportation policy.

In the wake of recent economic liberalization and globalization, South Asian countries are seeking to expand trade and investment links with regional and global partners. Nevertheless, inadequate infrastructure combined with policy and regulatory constraints impose significant limitations in opening up one of the lowest income regions of the world. This volume examines transportation and logistics issues in Bangladesh, Bhutan, eastern India, and Nepal and provides commentary on nontariff barriers that impede the seamless flow of goods and services to regional and global markets. One of the fundamental objectives of this report is to use an analytic framework to identify key transport and logistics impediments that have left the subregion lagging behind on economic growth. A closely linked objective is to improve the access of the landlocked areas in the South Asian subregion, specifically Nepal, Bhutan, and northeast India. For each case, the authors

identify the critical impediments along a logistics chain. They include excessive delays in moving cargo through the ports of Calcutta and Chittagong for international trade; inefficiencies at land border crossings; and limitations on routes for transit cargo, regardless of country. The authors then compare alternate routes (and transportation modes) as a means toward identifying the more cost-effective route.

16-0600

Ulmer, Robert G., Susan A. Ferguson, Allan F. Williams, et al. 2001. Teenage crash reduction associated with delayed licensure in Connecticut. *Journal of Safety Research* 32, 1: 31-41.

Keywords: Accident rates. Adolescents. Connecticut. Drivers licenses. Learners permits. Motor vehicle accidents. Transportation planning.

Problem: On January 1, 1997, Connecticut implemented the first phase of graduated licensing requiring sixteen- and seventeen-year-olds to hold a learners permit for six months (four months with driver's education) prior to licensure. The effect of this change was to raise the minimum licensing age in Connecticut by six months (or four months), during which time a young person could obtain supervised practice driving. **Method:** Crash rates for sixteen- to eighteen-year-olds in Connecticut, before and after the change, were compared with crash rates in nearby counties in New York State. **Results:** Fatal/injury crash involvement of Connecticut sixteen-year-old drivers declined by 22 percent during the first full year following the law change. Declines did not vary significantly between males and females or as a function of the income level of the city/town in which the crash occurred. Fatal/injury crash involvement for seventeen- and eighteen-year-olds in Connecticut and sixteen-, seventeen-, and eighteen-year-olds in New York did not change significantly. **Discussion:** Companion surveys of parents conducted before and after their teen was licensed showed support for the law change and support for additional provisions generally associated with "graduated licensing." **Summary:** Delaying teenage licensure in Connecticut, during which time a teen could engage in more practice driving, was associated with a 22 percent reduction in fatal/injury crash involvement for sixteen-year-old drivers. **Impact on industry:** Crash reduction will be related to a reduction in overall highway loss including medical costs, property damage, and lost work time.

16-0601

Verhoef, Erik T. 2001. An integrated dynamic model of road traffic congestion based on simple car-following theory: exploring hypercongestion. *Journal of Urban Economics* 49, 3: 505-42.

Keywords: Automobiles. Traffic congestion. Traffic management. Transportation models. Transportation planning.

This paper presents a dynamic version of the standard static economic model of road traffic congestion based on car-following theory. It is proven formally and illustrated numerically that the "hypercongested" equilibria found in the standard model are dynamically unstable. For arrival rates of users below the road's maximum capacity, the model reproduces the non-hypercongested stationary state outcomes found in the standard model. When the arrival rate exceeds this maximum capacity, however, the model produces outcomes consistent with Vickrey's model of bottleneck congestion. The model thus offers an integration and a generalization of these two archetype models.

34-4 AIR/RAILROAD/WATER

16-0602

Cantos Sánchez, P. 2001. Vertical relationships for the European railway industry. *Transport Policy* 8, 2: 77-83.

Keywords: European Union. Market structure. Rail transportation.

A key question in the reform process of Europe's railway industry is the decision whether to opt for a market structure that vertically integrates infrastructure and operations or for one that separates them. In making this decision, knowledge of the relationship between operating costs and the infrastructure is fundamental. For this purpose, a translogarithmic cost function is estimated, including the multiproduct nature of railway companies and a measurement of the value of the infrastructure. The results show that costs deriving from freight transport and from the infrastructure are complementary, whereas those deriving from passenger transport and from the infrastructure are substitutes. In any case, the paper shows that if important decisions regarding infrastructure are to be made, rail operating costs will be notably affected, and these effects must be appropriately evaluated.

16-0603

Lin, Cheng-Chang. 2001. The freight routing problem of time-definite freight delivery common carriers. *Transportation Research, Part B: Methodological* 35, 6: 525-47.

Keywords: Freight routes.

The freight routing problem of time-definite common carriers is to minimize the sum of handling and transportation cost while meeting service commitments and operational restrictions. There are two types of operational restrictions: capacity and directed in-tree rooted at each destination. Directed in-tree implicitly suggest that there is a singular path for each origin-destination pair. The routing problem is an integrality-constrained multicommodity problem with side constraints. In this study, the authors examine two approaches: the Lagrangian relaxation (LR) and implicit enumeration algorithm with ϵ optimality (IE- ϵ). The authors use the first largest time-definite freight deliv-

ery common carrier in Taiwan for their numerical test. The results show that the IE-ε outperforms the LR, both quantitatively and qualitatively. In addition, two major shortcomings of the LR approach are shown: it may fail to find any feasible solutions even though they exist, and it cannot determine whether the feasible set is empty.

34-5 AUTOMOBILES/HIGHWAY/ TRAFFIC ENGINEERING

16-0604

Baker, Jeffrey A., and James H. Lambert. 2001. Information system for risks, costs, and benefits of infrastructure improvement projects. *Public Works Management and Policy* 5, 3: 199-210.

Keywords: Cost-benefit analysis. Highways. Infrastructural improvements. Risk analysis.

Several approaches to performance assessment for selecting projects for highway infrastructure improvement are synthesized. In a planning cycle, highway agency divisions face many diverse candidates for maintenance and improvements originating from public demand, accident data, engineering judgment, and local officials. Resources are limited, and selection factors to consider include crash risk reduction, travel time savings, economic development, environmental protection, aesthetics, and capital and maintenance costs. This article describes the adoption of quantitative metrics for some factors, their estimation with varying precision for about thirty actual projects, graphical project comparison, and a related application of multiple factors to interchange design. Identified needs include to (1) select appropriate metrics for diverse projects; (2) coordinate information systems; (3) avoid preassigned factor weighting, enabling juxtaposition of quantitative and qualitative factors and invitation of new factors in a deliberation; (4) interpret public agency planning for citizens and government officials; (5) appreciate any tort liability of generating risk-related data; and (6) address the impacts on saturated, urban networks.

16-0605

DePasquale, Jason P., E. Scott Geller, Steven W. Clarke, et al. 2001. Measuring road rage development of the propensity for angry driving scale. *Journal of Safety Research* 32, 1: 1-16.

Keywords: Aggressive driving. Automobile driving. Propensity for Angry Driving Scale.

Problem: Recent reports indicate incidents of aggressive driving have risen 51 percent since 1990 (Vest, Cohen, and Tharp, 1997), and they continue to rise about 7 percent per year (Pepper, 1977). Current estimates attribute more than 218 deaths and 12,610 injuries to aggressive driving since 1990 (AAA Foundation for Traffic Safety, 1997). **Method:** College students as well as safety professionals were used in a four-phase investigation to develop a Propensity for Angry Driving Scale (PADS). The PADS was designed to

identify individuals with the greatest propensity to become angry while driving and subsequently engage in hostile driving behaviors or acts of "road rage." **Results:** Results of the investigation reveal the PADS to be a unidimensional measure with acceptable alpha levels (.88-.89) and adequate test-retest reliability (.91). In addition, the PADS demonstrated significant and positive correlations with the Buss-Durkee Hostility Index ($r = .40$) and the trait subscale of the State-Trait Anger Scale ($r = .40$). The PADS had a modest but significant correlation with Eysenck's impulsivity scale ($r = .28$) and was uncorrelated with Eysenck's venturesomeness scale ($r = .00$). **Summary:** With the ability to identify anger-prone drivers, research can begin addressing the underlying emotional mechanisms or thought processes that trigger angry and hostile reactions while driving. Given the win/lose hostile climate present on our highways, the PADS is a timely instrument that could be used to identify, study, and intervene on angry drivers prone to experience road rage.

16-0606

Diewald, Walter J. 2001. Requirements for successful technology transfer in the highway industry. *Public Works Management and Policy* 6, 1: 59-69.

Keywords: Federal Highway Administration. Highway construction. Highway technology. Technology transfer.

Change provides opportunities for improvement, and many times it requires improvement. In the case of the Federal Highway Administration (FHWA), recent budgetary and organizational changes resulted in the need for the agency to improve its technology transfer program and accelerate innovation in the highway industry. Past studies of public works infrastructures point to the need to exploit opportunities that recent technological developments—in materials, electronics, information systems, and telecommunications—offer to help meet current and future demand for all categories of infrastructural facilities. Expenditures on U.S. highways amount to about \$100 billion per year, so innovation that improves performance and/or reduces cost is an important goal. This article (1) describes innovation and technology transfer in the highway industry, (2) describes the key role that FHWA plays in highway industry innovation, and (3) suggests how FHWA can accelerate innovation by focusing on requirements associated with the implementation of innovation by state and local highway agencies.

16-0607

Fazal, Shahab. 2001. Land re-organisation in relation to roads in an Indian city. *Land Use Policy* 18, 2: 191-99.

Keywords: India. Land use. Road construction. Urban areas.

Accessibility plays an important role in land-use change or reorganization, especially in and around settlements. Indian cities are strongly dependent on roads for transpor-

tation. The road network is so important in India that the development and growth of several cities stemmed from their location along major roads. Competition for accessible sites is strong, and the land-use patterns of Indian cities are highly dynamic. This study examines the role of accessibility in the reorganization of urban land and focuses on Saharanpur, which is a Class I city (population of 100,000 and above) of western Uttar Pradesh. It traditionally had an agrarian-dominated population, but lately, because of the emergence of several industries, the city has lost its agrarian fabric, and more and more of its population are now quitting the agrarian sector and switching to the secondary and tertiary sectors. This development in the secondary and tertiary sectors is attracting migrants not only from the city's hinterland but also from longer distances. The result is a massive expansion of the city as well as reorganization of land. The study is based on remotely sensed data, processed in a global information system environment using ILWIS software.

16-0608

Hamed, Mohammad M., and A. A. Abdul-Hussain. 2001. Drivers' familiarity with urban route network layout in Amman, Jordan. *Cities* 18, 2: 93-101.

Keywords: Advanced travel information. Amman. Jordan. Street design.

Advanced traveler information systems (ATISs) have attracted a considerable amount of attention in recent years. By providing drivers with traffic information, these information systems are likely to help in reducing travel time and traffic-related congestion and consequently lead to reduced levels of vehicle emissions. With the presence of in-car navigation and communication systems, the ATIS can benefit commuters as well as unfamiliar drivers. However, in the absence of in-car navigation systems—the case in most developing countries—familiar drivers are likely to use these information systems more effectively and hence are likely to make well-informed route-diversion and other travel-oriented decisions. This paper is devoted to developing driver familiarity models to identify the factors that influence drivers' familiarity with the urban route network layout. A number of nonlinear familiarity models are developed and coefficients are estimated. Estimation results indicate that travel characteristics such as familiarity with one alternative route, residence leaving times, travel time to job location, and the presence of young children have a profound impact on the driver's level of familiarity. Separate familiarity models for male and female drivers are also specified and estimated. When subjected to the same set of predictors, the familiarity of male drivers turned out to be more responsive than the familiarity of female drivers. This result could reflect, among other things, the fact that male drivers have more frequent and diverse activity stops that expose them to different sections of the transportation network layout.

16-0609

Harlow, Charles, and Shiquan Peng. 2001. Automatic vehicle classification system with range sensors. *Transportation Research Part C: Emerging Technologies* 9C, 4: 231-47.

Keywords: Motor vehicle classification. Motor vehicle identification. Range sensors.

Traffic management systems use inductive loop detectors and more recently video cameras to detect vehicles. Loop detectors are expensive to maintain, and video-based systems are sensitive to environmental conditions and do not perform well in vehicle classification. Cameras based on range sensors are not sensitive to lighting and may be less sensitive to other environmental conditions. In addition, range imagery should provide data to form a good basis for vehicle classification applications. In this paper, we describe methods for processing range imagery and performing vehicle detection and classification. A vehicle classification rate of more than 92 percent accuracy was obtained in classifying vehicles into different vehicle classes.

16-0610

Hendren, Patricia G., and Debbie A. Niemeier. 2001. Techniques, cases, and issues. *Public Works Management and Policy* 5, 3: 179-98.

Keywords: Federal Highway Administration. Highways. Traffic management. Transportation policy.

This article examines the current methodology for collecting state transportation expenditure data as reported in *Highway Statistics*, a publication of the Federal Highway Administration (FHWA) Statistics Program. Currently, the transportation data cover state-administered highways (interstates, arterials, collectors, and local roads under state control) and mass transportation systems. *Highway Statistics* is the only comprehensive report of these state transportation expenditures. The data published in the report play an essential role in the development of transportation policy, legislative documents, and academic research. Growing demand for accountability of government agencies has increased the visibility of and the need to scrutinize such data. Data are examined with respect to three factors: the data-reporting process, data reliability, and the suitability of data for cataloging current transportation trends. The study finds that FHWA-published expenditure data are often misreported, misinterpreted, and misused. The article concludes with suggestions for refining the data-reporting process, improving data relevance, and minimizing future misuse of data.

16-0611

Khattak, Aemal, Joseph E. Hummer, and Hassan A. Karimi. 2001. Evaluation of roadway infrastructure data collection technologies. *Public Works Management and Policy* 6, 1: 18-31.

Keywords: Data collection. Evaluation techniques. Information technology. Infrastructure. Performance evaluation. Research techniques. Roads.

Because of technological advances in data-collection equipment, many transportation agencies are considering the use of mobile mapping systems: data-collection vehicles equipped with a global positioning system receiver, an inertial navigation system, several digital cameras, and a computer. The host system is driven on a roadway, and data are collected on the fly. These raw data are then processed on a computer using photogrammetric software packages and input to an inventory database. Many transportation agencies are faced with the decision of using mobile mapping systems to improve their infrastructure data. This article presents a stepwise test protocol that transportation agencies can use to judge different data-collection methods. Based on results of four experiments, the protocol provides guidance on different activities associated with the recommended evaluation process. The protocol is accompanied by information that transportation agencies may use as a benchmark for evaluating different inventory data-collection methods.

16-0612

Kingham, S., J. Dickinson, and S. Copsey. 2001. Travelling to work: will people move out of their cars? *Transport Policy* 8, 2: 151-60.

Keywords: Automobile driving. Commuting. Employees. Public transportation. Transportation policy.

This paper examines employees' perceptions of their modal choice during the journey to work and addresses what factors influence modal choice and whether people can be moved out of their cars to other, more sustainable forms of transportation. The result of surveys of the commuting habits of employees at two British companies are presented and compared with other relevant studies. Results indicated that 97 percent and 88 percent of staff of the respective companies travel to work by car. Although only 2 percent and 7 percent of respondents cycled to work, real potential for cycling was identified, given improvements in the cycling infrastructure. Similarly, whereas only 0 percent and 3 percent currently use public transportation for the journey to work, improved services could see a significant modal shift. Overall, there seemed to be genuine willingness to move out of the car for the journey to work, with one of the main barriers being a perception that the alternatives are not viable. Additionally, it appears many individuals live too far from the workplace to cycle or use public transportation.

16-0613

Lam, William H. K., and Yafeng Yin. 2001. An activity-based time-dependent traffic assignment model. *Transportation Research, Part B: Methodological* 35, 6: 549-74.

Keywords: Highways. Multinomial logit models. Traffic assignment model. Traffic management. Transportation models.

This paper presents a conceptual, activity-based and time-dependent traffic assignment model. The temporal utility profiles of activities are employed to formulate the temporal activity choice behavior of individual as a multinomial logit model. Route choice behavior is then described as the ideal dynamic user equilibrium condition. The combined activity/route choice is formulated as a time-dependent variational inequality problem, which is solved by a heuristic solution algorithm based on the space-time expanded networks.

16-0614

Ochia, Krys. 2001. Traffic calming in public works: agency characteristics and professional staff roles. *Public Works Management and Policy* 5, 3: 242-48.

Keywords: Agency decision making. Neighborhoods. Professional roles. Residential livability. Traffic calming. Traffic control.

Traffic calming is becoming an important public works traffic management tool for improving neighborhood livability in many U.S. jurisdictions. However, most published works on traffic calming focus on devices used, along with engineering design and standards or financing. In this study, the roles of engineers and planners in the delivery of traffic calming public works projects are examined. To better understand these roles, some characteristics of those public agencies involved with traffic calming are also discussed. Engineers play significant roles in the delivery of traffic calming public works services, from project ranking, design, and public involvement/outreach to project construction. Planners, on the other hand, contribute to such services in only about a third of surveyed jurisdictions, where they spend a substantial amount of their time on citizen involvement. Public agencies should encourage engineers and planners to collaborate in the delivery of traffic calming to maximize staff contributions and service to the public.

16-0615

Willoughby, C. 2001. Singapore's motorization policies 1960-2000. *Transport Policy* 8, 2: 125-39.

Keywords: Automobiles. Land use. Motor vehicle traffic. Road construction. Singapore.

Because of the rapid economic growth it sustained over the past forty years and the small physical space at its disposal, Singapore has had to give special attention to managing the process of motorization—the spread of private motor vehicle ownership and use. Despite the inevitable imperfections of the policies adopted—and, more seriously, of

related land use and resettlement policies—the motorization constraints have had no major negative side effect on economic growth and generated substantial funds for the improvement of social welfare. The package of policies applied merits close examination by developing country and transition country cities that need urgently to find new ways of raising financial resources to meet the huge needs arising from population growth and resettlement.

34-6 MASS TRANSPORTATION

16-0616

Abdel-Aty, Mohamed A. 2001. Using ordered probit modeling to study the effect of ATIS on transit ridership. *Transportation Research Part C: Emerging Technologies* 9C, 4: 265-77.

Keywords: Advanced transit information systems. Northern California. Ordered probit models. Public transportation. Telephone surveys. Transit ridership. Urban areas.

A computer-aided telephone interview was conducted in two metropolitan areas in northern California. The survey included an innovative stated preference design to collect data that address the potential of advanced transit information systems. The study's main objectives are to investigate whether advanced transit information would increase the acceptance of transit and to determine the types and levels of information that are desired by commuters. The survey included a customized procedure that presents realistic choice sets, including the respondent's preferred information items and realistic travel times. The ordered probit modeling technique was used. The results indicated a promising potential of advanced transit information in increasing the acceptance of transit as a commute mode. It also showed that the frequency of service, number of transfers, seat availability, walking time to the transit stop, and fare information are among the significant information types that commuters desire. Commute time by transit, income, education, and whether the commuter is currently carpooling were among the factors that contribute to the likelihood of using transit.

16-0617

Denno, Neil Alan. 2001. Foundation of sand—increasing efficiency by devolution: transit industry productivity during the Reagan-Bush years Ph.D. diss., Rutgers, State University of New Jersey.

Keywords: First Bush Administration. Public transportation. Reagan administration. Transit systems.

Members of both major political parties in the United States argue that the activities, power, and expenditures of the federal government are excessive and need to be curbed by devolving an extensive array of governmental functions to the states, localities, and the private sector. Among the assertions made in support of this devolution position is

that federal involvement breeds waste and inefficiency. The history of urban transit in the United States during the 1980s was one of devolving the federal funding role in transit to lower levels of government. Thus, transit provides an exquisite test bed for assertions that federal involvement leads to inefficiency. If such assertions are true, transit efficiency should have improved remarkably during the 1980s. However, changes in transit efficiency during the 1980s appear to be largely unrelated to changes in federal transit funding. Thus, one of the basic arguments in support of devolution seems to be built on a foundation of sand. This dissertation shows that the devolution of federal transit funding during the 1980s did not result in the improvements to productivity predicted by devolution proponents. Transit productivity is very complex and influenced by a myriad of factors. Among these are the federal rules, regulations, and requirements that were not devolved during the 1980s. Also among them are subsidies from nonfederal sources, which increased during the 1980s by substantially more than federal subsidies were reduced. These increases likely came with a quid pro quo for transit services that may not be the most productive in terms of the traditional measures of transit productivity. Devolution proponents argue that lower levels of government, left to their own resources and controls, are less wasteful and more efficient in the delivery of governmental services. Based on that assertion the substantial reductions in federal transit funding should have yielded productivity improvements. The productivity improvements did not materialize. From the experience of the federal devolution of transit funding in the 1980s, the argument that devolution yields reductions in waste and inefficiency appears to be built on a foundation of sand.

16-0618

Rietveld, P., F. R. Brinsma, and D. J. Van Vuuren. 2001. Coping with unreliability in public transport chains: a case study for the Netherlands. *Transportation Research, Part A: Policy and Practice* 35, 6: 539-59.

Keywords: Case studies. The Netherlands. Public transportation. Transit schedules. Transportation chain reliability.

Unreliability in public transportation means that actual departure and arrival times may deviate from the official timetable. Data on reliability are usually unimodal. In this article, the authors address unreliability from a multimodal perspective, implying a shift of attention away from the supplier toward the customer. Estimates of unreliability of public transport chains in the Netherlands are provided. In addition, customer valuation of unreliability is estimated. The authors find that the valuation of a certain travel time lost of one minute is twenty-seven cents, whereas the valuation of a two-minute delay is sixty-four cents. This implies a strong attitude of risk aversion toward travel time of passengers. On the basis of these values, an evaluation of probability-enhancing strategies has been carried out. The authors conclude that the most promising

means of improving the overall quality of the chains is that travelers use the bicycle as an entrance or exit mode. Other measures that are relatively inexpensive to implement and result in fairly large gains for the average public transportation passenger are an increased transfer time and a strict constraint on bus drivers to prevent them from departing early.

16-0619

Roson, Roberto. 2001. Assessing the option value of a publicly provided service: the case of local transport. *Urban Studies* 38, 8: 1319-27.

Keywords: Econometric analysis. Local transportation. Northern Italy. Public finance. Public transportation. Valuation. Willingness to pay.

This paper presents a theoretical and empirical study of the problems incurred in valuating local public transportation services. A contingent valuation exercise that considers two case studies in northern Italy is illustrated. This serves as a basis for an econometric analysis aimed at highlighting the role of socioeconomic variables in the determination of willingness to pay, through public funds, for the provision of public transportation services. The argument is made that social reverences for the provision of a public transportation service cannot be directly deducted from observable market behavior and that the preferred supply level of transportation capacity weakly depends on individual consumption levels, whereas the perception of mobility problems (possibly generated by experience) and the characteristics of social networks (especially the family) are likely to be much more important.

16-0620

Urban Resource Center. 2001. Urban poverty and transport: a case study from Karachi. *Environment and Urbanization* 13, 1: 223-33.

Keywords: Case studies. Karachi, Pakistan. Low-income groups. Public transportation. Urban areas.

This paper examines the role of transport provision on the lives of low-income groups in Karachi, Pakistan. It draws on interviews with 108 transport users living in one central and four peripheral neighborhoods and on interviews and focus group discussions with bus owners and drivers. It describes the large distances that most poor groups have to travel to get to and from work, and the costs; most bus users spend more than 10 percent of their income on bus fares. It describes the time spent traveling (most people spend more than two hours a day traveling), the overcrowding and sexual harassment on the buses, the absence of schedules, the limited hours of operation, and the high rate of accidents. The government authorities have failed to provide the framework needed for an integrated system, any bus terminals and other facilities—resulting in road encroachment by bus-related activities. It also describes

how minibuses are acquired by entrepreneurs and the informal payments they have to make to be allowed to operate.

34-7 TRANSPORTATION ECONOMICS

16-0621

Cascetta, Ennio, and Andrea Papola. 2001. Random utility models with implicit availability/perception of choice alternatives for the simulation of travel demand. *Transportation Research Part C: Emerging Technologies* 9C, 4: 249-63.

Keywords: Random utility models. Simulation. Supply and demand. Transportation demand. Transportation economics.

Random utility models are undoubtedly the most used models for the simulation of transport demand. These models simulate the choice of a decisionmaker among a set of feasible alternatives, and their operational use requires that the analyst is able to correctly specify this choice-set for each individual. Some early applications basically ignored this problem by assuming that all decisionmakers chose from the same prespecified choice-set. This assumption may be unrealistic in many practical cases and cause significant misspecification problems. The problem of choice-set simulation has been dealt with in the literature following two basically different approaches: simulating the perception/availability of an alternative implicitly in the choice model and simulating the choice-set generation explicitly in a separate model. The implicit approach is more convenient from an operational point of view, whereas the explicit one is more appealing from a theoretical point of view. In this paper, a different approach to the modeling of availability/perception of alternatives in the context of random utility model is proposed. This approach is based on the concept of intermediate degrees of availability/perception of each alternative simulated through a model (or "inclusion function"), which in turn is introduced in the systematic utility of standard random utility models. This model, named implicit availability/perception (IAP), may be differently specified depending on assumptions made on the joint distribution of random residuals and the way in which the average degree of availability/perception is modeled. In this paper, a possible specification of the IAP model, based on the assumption of random residual distributed as i.i. Gumbel and with the average degree of availability/perception modeled as a binomial logit, is proposed.

16-0622

Gottlieb, Paul D., and Barry Lentnek. 2001. Spatial mismatch is not always a central-city problem: an analysis of commuting behaviour in Cleveland, Ohio, and its suburbs. *Urban Studies* 38, 7: 1161-86.

Keywords: Blacks. Commuting distance. Racial differences. Spatial mismatch theory. Suburbs. Whites.

One prediction of the spatial mismatch hypothesis is that black residents of the central city will face longer commuting distances than others. This prediction actually has two difference components: blacks commute longer distances because they face discrimination in housing, labor markets, or both; and city dwellers commute longer distance because entry-level jobs are scarce in the central city. The authors use a quasi-experimental design to distinguish between these two types of spatial mismatch. They compare 1990 commuting times for the residents of four Cleveland neighborhoods: a low-income black neighborhood, a lower-middle-class black neighborhood, a lower-middle-class black suburb, and a lower-middle-class white suburb. The authors were unable to find strong evidence that city residents suffered from poor job accessibility in 1990. They did find, however, that residents of the black suburbs faced longer commuting distances than residents of the white suburb—in spite of the fact that the black suburbs were accessible to more skill-matched jobs. Probing further, the authors found that far more black than white suburbanites worked in the central city. This finding suggests that hiring discrimination or industry sector preferences on the part of black workers are potentially overlooked causes of racial differentials in commuting behavior.

16-0623

Jun, Myung-Jin, and Jae-Wan Hur. 2001. Commuting costs of “leap-frog” new town development in Seoul. *Cities* 18, 3: 151-58.

Keywords: Commuting costs. Commuting distance. New towns. Seoul. South Korea. Suburban development. Urban development.

The study aims to estimate commuting costs of the “leap-frog” new town development in the Seoul metropolitan area. To measure the commuting costs of the leap-frog new town development, the authors assume a contiguous new town construction to Seoul, allowing new town development within Seoul’s greenbelt. Total VMT savings from the contiguous new town development to Seoul are 744 million km/year. Average commuting distance would be shortened by 1.5 percent for every worker of the SMA if 196,000 workers (2.7 percent of total jobs) and 420,000 residents (5.7 percent of total commuters) in new towns have been relocated into hypothetical new towns. Total commuting costs associated with the leap-frog new town development are \$42.45 million per year for out-of-pocket costs (\$5.82 per commuter), or \$255 million per year (\$34.88 per commuter) including value of travel time. The biggest benefit goes to the workers who live or work in the new towns with the “contiguous new town development” scenario. The average work trip distances of residents and workers of new towns would have substantially decreased by 27 percent and 17 percent if the five new towns had been developed contiguously to Seoul. VKT savings for the residents and workers of the new towns are 1,141 million km/year and 256 million km/year, respectively. New town res-

idents would gain commuting cost savings of \$155/year excluding the value of travel time and of \$927/year including the value of travel time by the relocation of new towns towards Seoul.

16-0624

Martin, Richard W. 2001. Spatial mismatch and costly suburban commutes: can commuting subsidies help? *Urban Studies* 38, 8: 1305-18.

Keywords: Commuting costs. Commuting distance. Exclusionary zoning. Housing discrimination. Spatial mismatch theory. Suburbs. Transportation subsidies.

Proponents of the spatial mismatch hypothesis argue that job decentralization harms low-income residents of central cities because of barriers that limit their access to suburban job markets. Such barriers can take the form of housing discrimination, exclusionary zoning, or long and difficult commuting. This paper uses an urban equilibrium model of spatial mismatch to analyze the impact of commuting subsidies on the welfare of low-income, central-city households with restricted mobility. Specifically, it seeks to determine how effective such subsidies are at reducing the welfare impact of spatial mismatch. Although subsidized outward commuting is found to raise the welfare of the low-income households, the welfare gains are only a small portion of the welfare loss that arises from spatial mismatch.

34-8 PARKING/ TRANSPORTATION FACILITIES

16-0625

Tsamboulas, Dimitrios A. 2001. Parking fare thresholds: a policy tool. *Transport Policy* 8, 2: 115-24.

Keywords: Automobile driving. Parking fare increase. Parking fares. Transportation policy.

This paper estimates drivers’ behavior for changing an already-chosen parking location and the thresholds of current parking fare increases that would induce them to shift to another mode from the currently used private automobile. The models are calibrated with data from the Central Business Area of Athens employing revealed and stated preference methods. They can be employed to estimate the impact of a specific transportation policy related to parking fares, and as such they are useful policy tools providing the means to estimate changes in automobile usage and parking locations utilization.

34-9 PEDESTRIANS/BICYCLES

16-0626

Black, Colin, Alan Collins, and Martin Snell. 2001. Encouraging walking: the case of journey-to-school trips in compact urban areas. *Urban Studies* 38, 7: 1121-2001.

Keywords: Bicycling. Pedestrians. Population density. School commuting. Short trips. Student pedestrians. Transportation policy.

An activity-based approach is used to analyze one specific short-trip purpose that has persistently frustrated transport analysts to induce more walking, cycling, or public transport trips. This study of the journey-to-school trip is motivated by a general consensus that, to effect a more sustainable transport system, there is a necessity to reduce car use, especially for short trips. Resistance to modal transfer from cars has been shown to be embedded in various psychosocial obstacles that are not readily tested in orthodox econometric studies of travel demand. The authors report on an empirical study that fuses psychometric (construction of coping scales) and econometric analyses (logit analysis) in an attempt to uncover the psychological and sociological factors influencing modal choice as well as the usual range of economic and demographic factors.

16-0627

Haklay, Mordechai, David O'Sullivan, Mark Thurstain-Goodwin, et al. 2001. "So go downtown": simulating pedestrian movement in town centres. *Environment and Planning B: Planning and Design* 28, 3: 343-59.

Keywords: Geographic information systems. Pedestrian circulation systems. Predictive models. Simulation. Town centers. Urban development.

Pedestrian movement models have been developed since the 1970s. A review of the literature shows that such models have been developed to explain and predict macro, meso, and micro movement patterns. However, recent developments in modeling techniques and especially advances in agent-based simulation open up the possibility of developing integrative and complex models that use existing models as building blocks. In this paper, the authors describe such an integrative, modular approach to simulating pedestrian movement behavior. The STREETS model, developed by using Swarm and global information systems, is an agent-based model that focuses on the simulation of the behavioral aspects of pedestrian movement. The modular structure of the simulation is described in detail. This is followed by a discussion of the lessons learned from the development of STREETS, especially the advantages of adopting a modular approach and other aspects of using the agent-based paradigm for modeling.

16-0628

Helbing, Dirk, Péter Molnár, Illés J. Farkas, et al. 2001. Self-organizing pedestrian movement. *Environment and Planning B: Planning and Design* 28, 3: 361-83.

Keywords: Crowds. Pedestrian behavior. Pedestrian circulation systems. Self-organizational models.

Although pedestrians have individual preferences, aims, and destinations, the dynamics of pedestrian crowds is

surprisingly predictable. Pedestrians can move freely only at small pedestrian densities. Otherwise their motion is affected by repulsive interactions with other pedestrians, giving rise to self-organization phenomena. Examples of the resulting patterns of motion are separate lanes of uniform walking direction in crowds of oppositely moving pedestrians or oscillations of the passing direction at bottlenecks. If pedestrians leave footprints on deformable ground (for example, in green spaces such as public parks), this additionally causes attractive interactions that are mediated by modifications of their environment. In such cases, systems of pedestrian trails will evolve over time. The corresponding computer simulations are a valuable tool for developing optimized pedestrian facilities and way systems.

16-0629

Kerridge, Jon, Julian Hine, and Marcus Wigan. 2001. Agent-based modelling of pedestrian movements: the questions that need to be asked and answered. *Environment and Planning B: Planning and Design* 28, 3: 327-41.

Keywords: Agency decision making. Occam's razor. Pedestrian circulation systems. Pedestrian road use. Risk analysis. Simulation. Transportation planning.

Vulnerable road users have steadily attracted increased importance in transport and planning. The behavior of pedestrian movements (especially in the areas off but adjacent to roads) requires improved tools to address the issues now being raised. Such behavior and interactions can now be modeled by using a combination of massively parallel processes simulating individual pedestrians and a series of behaviors of these simulated pedestrians in the interactions with each other and their environment. The PEDFLOW model has been implemented in the parallel processing language Occam as an agent-based evolutionary system, which allows extensive modeling of detailed pedestrian behavior with minimal complication. The principles and methodology of its development and application are specified.

16-0630

Kurose, Shigeyuki, Aloys W. J. Borgers, and Harry J. P. Timmermans. 2001. Classifying pedestrian shopping behaviour according to implied heuristic choice rules. *Environment and Planning B: Planning and Design* 28, 3: 405-18.

Keywords: Choice behavior. Heuristic choice rules. Pedestrian circulation systems. Shopping behavior.

The aim of this paper is to build and test a model that classifies and identifies pedestrian shopping behavior in a shopping center by using temporal and spatial choice heuristics. In particular, the temporal local-distance-minimizing, total-distance-minimizing, and global-distance-minimizing heuristic choice rules and spatial nearest-destination-oriented, farthest-destination-oriented, and intermediate-destination-oriented choice rules are combined to classify

and identify the stop sequences and route choices of shopping pedestrians. First, several linear networks with a single entry node and a few stop nodes are investigated. For these networks, the global-distance-minimizing and spatial choice heuristics classify and identify the sequences of stops very well. Although the local-distance-minimizing choice rule identifies pedestrian route choice quite well, another heuristic is needed to improve the identification. In this paper, a new attractive-street-oriented heuristic is suggested to improve the identification ability of the model. This choice rule suggests that shopping pedestrians will never leave the attractive shopping streets before completing their shopping. The model is then applied to empirical data of pedestrian shopping behavior in Veldhoven City Centre in the Netherlands. The findings of this application suggest that the model based on choice heuristics might be useful to classify and identify the sequences of stops and route choice behavior of shopping pedestrians in a shopping center.

16-0631

Lake, Mark. 2001. The use of pedestrian modelling in archaeology, with an example from the study of cultural learning. *Environment and Planning B: Planning and Design* 28, 3: 385-403.

Keywords: Archaeology. Geographic information systems. Pedestrian models. Simulation.

In this paper, the author briefly reviews the use of computer simulation in archaeology and argues that pedestrian modeling has the potential to overcome many of the problems associated with earlier simulation studies. The author then introduces the MAGICAL simulation software, which was written to facilitate the use of multiagent simulation within a geographical information system. In the final part of the paper, the author describes the use of MAGICAL to study the evolution of cultural learning among early hominids.

16-0632

Zacharias, John. 2001. Pedestrian behavior and perception in urban walking environments. *Journal of Planning Literature* 16, 3: 3-18.

Keywords: Choice behavior. Literature review. Pedestrian behavior. Pedestrian models. Urban areas.

Planning pedestrian environments requires assumptions on the ways pedestrians will respond to characteristics of the environment as they formulate and enact their walking itineraries. As a consequence, most research interest in public environments focuses on behavior in relation to these characteristics. For example, there is a substantial body of descriptive and typological studies of pedestrian environments. Metric, geometric, and topographic models have proved useful in characterizing density and direction of movement. The need to understand that the mechanism

of choice has prompted microscale and laboratory-based research on exploratory spatial behavior within walking districts. Studies of behavior in relation to comfort, the way images of place impinge on choices, and how dynamic and serial experience of the city affect individual itineraries have all developed as specialized fields of understanding. In general, studies of pedestrian environment dynamic have both diversified and multiplied as its systems and methodologies are adopted for planning other environments.

34-10 COMMUNICATIONS

16-0633

Barbu, Alain, Rafael Dominguez, and William Melody. 2001. Information infrastructure: the World Bank Group's experience. Operations Evaluation Department/Operations Evaluation Group. Washington, DC: World Bank. xxvii + 54 pp. Tables, figs., appendices. \$22.00. ISBN 0-8213-4969-4.

Keywords: Communication infrastructure. Developing countries. Economic aid. Information technology.

This joint Operations Evaluation Department/Operations Evaluation Group (OED/OEG) publication follows up an earlier (1993) review by the OED of the World Bank's experience in telecommunications. It assess how the World Bank Group's assistance from 1993 onward has influenced the development of information infrastructure (the mix of telecommunications networks, computing hardware and software, and services required for the efficient transmission of information together with the related policy, legal, and institutional framework) in developing countries. Findings indicate that the recommendations of the 1993 review have generally been heeded, with (1) the adoption of a new private sector-led agenda (emphasizing privatization), (2) the incorporation of the so-called new agenda in most recent World Bank lending and nonlending interventions, and (3) the unceasing share of the International Financial Corporation's role in total World Bank Group's funding commitment for telecommunications (from 8 percent in 1986 through 1992 to 32 percent in 1993 through 1999). Outcomes of the projects are rated highly overall.

16-0634

Finucan, Karen. 2001. The world of e-planning. *Planning* 67, 7: 4-9.

Keywords: Information systems. Local government. Planning profession. Regional government.

"Technology," says U.S. Representative Tom Davis of Virginia, "is like a steamroller. Either you're on board or you become part of the pavement. And when it comes to the Internet, government is fast becoming part of the pavement." An opposite opinion is offered by Patricia McGinnis, president of the Washington, D.C.-based Council for Excellence in Government. "Our vision of electronic

government is truly of, by, and for the people. We see a situation where anyone can choose to go online, instead of being in line, any time, anywhere, to get information, to get services, to conduct transactions, to talk to their elected representatives, and to participate in the business of government in many ways." Although it will be years before municipalities fully achieve McGinnis's vision, planning departments in many cities and towns are beginning to use the Internet to better serve the constituencies: residents, elected and appointed officials, developers and builders, the media, and other governmental agencies. The author reports on information technology adoptions in Milwaukee, Los Angeles, and other cities, then offers a series of steps for urban and regional governments to adopt information technology.

16-0635

Roscigno, Vincent J., and William F. Danaher. 2001. Media and mobilization: the case of radio and southern textile worker insurgency, 1929-1934. *American Sociological Review* 66, 1: 21-48.

Keywords: Communication technology. Labor movements. Media. Radio. Southeastern United States. Strikes. Textile industry.

Collective action rests, in part, on group identity and political opportunity. Just how group identity is manifested and perceptions of political opportunity are altered, however, remain unclear, particularly in the case of a geographically dispersed population. An often overlooked mechanism is media technology. This article analyzes an important yet underexamined instance of worker mobilization in the United States: the southern textile strike campaigns of 1929 to 1934, during which more than four hundred thousand workers walked off their jobs. Using historical data on textile manufacturing concentration and strike activity, FCC data on radio station foundings, and analyses of political content and song lyrics, the authors show that the geographic proximity of radio stations to the "textile belt" and the messages aired shaped workers' sense of collective experience and political opportunity: walk-outs and strike spillover across mill towns resulted. The implications of the analyses for social movement theory generally, and for the understanding of how media can enable or constrain collective struggle, are discussed.

35. Architecture and Urban Design

35-1 URBAN DESIGN

16-0636

Beard, Andrew. 2001. Urban Design in the USA. *Urban Design Quarterly* 79:11-13.

Keywords: Baltimore. Research trends. St. Louis, Missouri. Suburbanization. Urban design.

The suburbanization of North American cities has been well documented: in the past fifty years, many city centers in the United States have suffered a massive decline as retailing, banks, offices, and middle-class residents moved out to the suburbs. Many explanations were offered to the author, a Briton visiting the United States: the construction of the interstate highway network, the growth of automobile ownership, low gasoline prices, the availability of plentiful cheap land, an absence of planning controls, instability and even riots in the inner city, and racism. It was also suggested that the federal government gave such strong support for the development of the highways because they would allow rapid evacuation in the event of a nuclear attack or rapid deployment of police in the event of riots. Whatever the truth, the effect has been to drain the population out of many cities on a massive scale. Case studies are drawn from St. Louis, Missouri, and Baltimore.

16-0637

Erbil, A. Ögüt, and T. Erbil. 2001. Redevelopment of Karaköy Harbor, Istanbul. *Cities* 18, 3: 185-92.

Keywords: Harbor development. Karaköy Harbor, Istanbul. Turkey. Urban design.

Following the examples in industrial countries, the old inner-city harbors in developing countries have also been subject to revitalization in the past decades. Karaköy Harbor in Istanbul is an example for undergoing transformation in a developing country, Turkey. This article depicts Karaköy Harbor's transformation and the related issues. The goal is to outline the character and condition of the harbor and present dilemmas for its future while providing a different perspective on the revitalization of harbors both in Turkey and other countries. The research concludes that there is a need for a new planning approach that includes central-local government coordination and public participation.

16-0638

Gordon, David. 2001. Weaving a modern plan for Canada's capital: Jacques Gréber and the 1950 plan for the National Capital region. *Urban History Review/Revue d'histoire urbaine* 29, 2: 43-61.

Keywords: Architecture. Canada. Jacques Gréber. National Capital region. Ottawa. Urban design.

The 1950 Plan for the National Capital is one of the most significant documents in Canadian planning history. The plan was the guide for the rapid transformation of Ottawa and Hull from dreary industrial towns into an attractive modern capital. Jacques Gréber, a French architect, planner, and landscape architect, headed the planning team. He was personally recruited by Prime Minister Mackenzie King to realize his dream of a capital that inspired pride among Canadians. Gréber was considered France's lead-

ing planner in midcentury, having completed plans for the Fairmount Parkway in Philadelphia, Lille, Marseilles, and Rouen. Ironically, Gréber is almost forgotten in his native land, whereas his legacy is fondly remembered in North America.

16-0639

Gournay, Isabelle. 2001. Revisiting Jacques Gréber's *L'Architecture aux États-Unis: from City Beautiful to Cité-Jardin*. *Urban History Review/Revue d'histoire urbaine* 29, 2: 6-19.

Keywords: Architecture. Beaux-Arts movement. City Beautiful movement. Garden City movement. Jacques Gréber. Urban design. United States.

In 1920, Jacques Gréber published what was, and still is, the largest book on U.S. architecture and urban design ever issued in France. His dual agenda was to stress the impact of Beaux-Arts design methods (presenting his gardens and Philadelphia parkway as highlights of this trend) and to advocate the practical accomplishments of a pragmatic and affluent civilization. Showcasing an "edited" North American city devoid of commercialism and filled with civic structures and great dignity and comfort, *Architecture aux États-Unis* looked back to ideals and accomplishments of the American renaissance and ahead to the metropolitan culture of the 1920s. For the first time in France, ventures by U.S. architectures in the field of civic art were acknowledged as major achievements. Gréber formulated ideas about modern North American civic centers, business districts, parks, and model suburbs that would affect his proposals for Ottawa and his French career. His book triggered the evolution of French views of the U.S.-built environment toward greater interest and generally more positive views.

16-0640

Heath, Tim. 2001. Revitalizing cities—attitudes toward city-center living in the United Kingdom. *Journal of Planning Education and Research* 20, 4: 464-75.

Keywords: Central business districts. Central cities. North America. Residential areas. United Kingdom. Urban renewal. Western Europe.

At the beginning of the twenty-first century there is evidence of an increasing demand for downtown or city-center living in North America and Western Europe. Policymakers are increasingly promoting the concept as part of sustainability and revitalization strategies, as it is strongly believed that this will help to achieve a whole range of social, economic, and environmental goals. To date, however, there has been a dearth of research examining peoples' attitudes and the level of demand for this locational choice. This article draws on the research of the author and others analyzing the attitudes of the public in the United Kingdom to such a lifestyle and identifies a substantial minority attracted by homes in the city center.

16-0641

M'Bala, José. 2001. Prévenir l'exurbanisation: le Plan Gréber de 1950 pour Montréal/Preventing exurbanization: the Gréber Plan of 1950 for Montreal. *Urban History Review/Revue d'histoire urbaine* 29, 2: 62-71.

Keywords: Canada. Central business districts. Jacques Gréber. Montreal. Suburbanization. Urban sprawl.

This paper is a case study of a project that runs counter to the belief that urban sprawl is the unique model of growth for Montreal, a belief based on the concept that its burgeoning center exerts a centrifugal force that must necessarily engulf the outlying region. Jacques Gréber's plans provide a functional alternative by which those very elements of the urban fabric that give rise to a unified and human-centered urban agglomeration can have the opposite effect of creating centripetal forces of attraction, centered inward toward the Port of Montreal and its related industrial activities. Accordingly, by creating urban neighborhoods within a perimeter of the services that supply these nodes, a practice adopted toward the end of the 1970s, Jacques Gréber has attempted to protect open and agricultural spaces against uncontrolled invasion. Consequently, even if his proposal appears to have arrived too late to prevent the demographic spillover from Montreal region's urban center, it was nonetheless timely for the island of Montreal and its surrounding area, where urban growth was still limited. Nevertheless, in the absence of the explanatory report of this plan, its interpretation is based on the theoretical framework of the Athens charter and, methodologically, to other Gréber plans for Ottawa (1950) and Quebec City (1956). The detailed plan and report for Ottawa, and the accuracy of the report for the missing Quebec plan, which appeared at the same time period as the Montreal plan, justify their use as a basis for this analysis.

16-0642

Moulaert, Frank, Elodie Salin, and Thomas Werquin. 2001. Euralille: large-scale urban development and social polarization. *European Urban and Regional Studies* 8, 2: 145-60.

Keywords: France. Lille, France. Social polarization. Socio-economic status. Urban development.

Has large-scale urban regeneration in general and Euralille in particular affected the social and economic harmony of the Lille metropolis, the largest northern agglomeration of France? To answer this question, the impact of large-scale urban development projects on real estate, housing, and job markets is evaluated. It is found that Euralille plays in the first instance an emblematic role in the economic development and social reconstruction of the Lille community. Its impact on socioeconomic rezoning of the metropolis is however far from just symbolic. It has set the trend for a new type of corporate estates, it has disturbed the construction cycle of new offices in other parts of the urban region, and it has taken the lead in the creation of a middle-market retail system attracting customers from far beyond

the Lille agglomeration to its shopping arcades. Moreover, together with other downtown real estate initiatives, it has fuelled the displacement of lower-income housing to cheaper areas of the Metropolis.

16-0643

Nelson, Suzy. 2001. The nature of partnership in urban renewal in Paris and London. *European Planning Studies* 9, 4: 483-502.

Keywords: London. Paris. Redevelopmental partnerships. Urban renewal.

This article reviews the growing body of European literature exploring the nature of contemporary partnerships. Some common themes emerge, but there also appear to be differences in the way partnership is viewed in different national contexts. The paper then describes the relationships between organizations involved in the process of redevelopment of an area of Paris and an area of London. These relationships are examined using the conceptions of partnership identified in the literature. The paper concludes by identifying some features of partnership that may be common to different national contexts and some that may vary according to context.

16-0644

Nghi, D. Q., and H. D. Kammeier. 2001. Balancing data integration needs in urban planning: a model for Ha Noi City, Viet Nam. *Cities* 18, 2: 61-75.

Keywords: City planning. Data integration. Hanoi. Vietnam.

The underlying question of this paper is why the integration and sharing of land-related information remains so limited despite its importance in urban planning. The paper examines the integration issue that "there are many data sources in the city, but the bureaucracy is not able to sharing," thus "we have a lot of data but we are information poor." The authors' approach to this problem is to address common integration needs by measures relevant to the urban planning context. After the analysis of integration interests, an open, multistage model is proposed, the components of which favor city management and the participation of city agencies. An application for Ha Noi (Hanoi) City in Vietnam demonstrates the potential of the proposed model for urban planning.

16-0645

Odovicki-Self, Danilo François. 2001. The elusive faces of modernity: Jacques Gréber and the planning of the 1937 Paris World Fair. *Urban History Review/Revue d'histoire urbaine* 29, 2: 20-35.

Keywords: Jacques Gréber. Modernity. Planning. Urban history.

The occasion of the first commission that Jacques Gréber received to plan the new city center of Ottawa—the 1937 Paris International Exposition—was the scene of the first encounter between the proponents of the New Architecture and the tenets of the *Retour à l'Ordre*. The last in the long tradition of French *Universelles*, with their common eighteenth-century illuminist legacy, the exposition Gréber planned was the first to open its doors widely to the most radical modern arts. This article argues that Gréber based the exposition on a double refusal: on one hand, the refusal to introduce a unique controlling style, as had been the case in all previous French fairs, and on the other, the refusal to represent modernity in any single-minded form. This pluralist approach announced in France the end of modernity understood as an issue of style altogether.

16-0646

Ploegaerts, Léon. 2001. Un projet inconnu de Jacques Gréber: La Cité-jardin de Villeray du Domaine Saint-Sulpice à Montréal/The unrealized project of Jacques Gréber: the Garden City of Villeray of Domaine Saint-Sulpice in Montreal. *Urban History Review/Revue d'histoire urbaine* 29, 2: 36-42.

Keywords: Garden City movement. Jacques Gréber. Montreal.

This article analyzes the unpublished plan for the Garden City of Villeray located within the Domaine Saint-Sulpice in Montreal, conceived by the French architect and town planner Jacques Gréber in July 1935. This plan, discovered by Professor David L. A. Gordon, precedes by several years the *Cité-jardin du tricentenaire* in Montreal, which is considered the first notable realization in this field in Quebec. Gréber's project, probably commissioned by the Chomedey Building Company, was never built. However, it establishes the basis for a better knowledge of Gréber's work and modifies the generally accepted chronology of his Canadian work. This article represents what the author calls a modest contribution toward the recognition of an immense body of work still awaiting its *catalogue raisonné*.

16-0647

Vicari, Serena. 2001. Naples: urban regeneration and exclusion in the Italian south. *European Urban and Regional Studies* 8, 2: 103-15.

Keywords: Italy. Naples. Southern Italy. Urban renewal.

This article analyzes the socioeconomic impact of the Naples business center (CDN), a large redevelopment project for a complex of offices and residences built in the core of the metropolitan area of Naples over the past two decades. Naples, one of the major cities in the underdeveloped regions of the south of Italy, presents specific processes of social exclusion and polarization. Currently, the

city faces the restructuring of the local economic system as well as the problems generated by its historical path of development. The article begins with a discussion of the main dimensions of social, economic, and political exclusion. In this context, it discusses the two fundamental sources of exclusion in Naples: labor problems (unemployment, informal work, and the impact of a clientelistic welfare policy) and the lack of a ruling framework of legality (new links between organized crime and the political system, widespread corruption, money laundering). It then describes and evaluates the city's urban policy and strategy in the face of these problems over the past three decades. The decision-making and implementation processes of the CDN are described and an account given of the dynamics of the public-private partnership involved in its development. The final section evaluates the physical, economic, and social impact of the CDN project and demonstrates that it has not only failed to address the principal problems of the city but has actually aggravated them.

35-2 HISTORIC PRESERVATION

16-0648

Hakim, Besim S. 2001. Reviving the rule system: an approach for revitalizing traditional towns in Maghrib. *Cities* 18, 2: 87-92.

Keywords: Historic preservation. Islam. Maghreb region. North Africa. Town renewal.

The rule system is defined for the purposes of this paper as the underlying system of rules and codes that Islamic culture has established for itself to guide and control societal activities, including decisions and activities related to design and construction. Within each particular region, the local customs are normally a part of the governing rule system. The author argues for the revival and adaptation of the traditional rule system by maintaining its positive attributes and incorporating modern technology and changes in the lifestyles of the people in specific localities. He suggests a policy for the governments of the Maghrib (Maghreb) countries—Tunisia, Algeria, Morocco—for initiating the process of reviving the rule system, and he outlines the necessary steps for implementing such a policy.

16-0649

Hobson, Edward. 2001. Value and control: perceptions of conserving the built environment in local planning authority practice. *Environment and Planning B: Planning and Design* 28, 3: 461-74.

Keywords: Historic preservation. Local government. Planning profession. Small towns. Value orientations.

In this paper, the author explores values in conserving the built environment as applied by local planning authorities in two towns of different historical character, although comparable in size and statutory conservation responsibilities. A two-tier investigation involved exploring the con-

servation practices of these local authorities and examining four recent development cases. Interviews with a wide range of local players built up a picture of the perceptions of local conservation culture. The results suggest that tensions are created as the national emphasis toward conservation's more flexible contribution to regeneration is exposing weaknesses in some underlying assumptions. In drawing away from the traditional development control aspect and covering such a breadth of justifications, this creates professional, political, and public misunderstandings that may undermine support for conservation.

16-0650

Pendlebury, John. 2001. Alas Smith and Burns? Conservation in Newcastle Upon Tyne city centre 1959-68. *Planning Perspectives* 16, 2: 115-41.

Keywords: Great Britain. Historic preservation. Modernism. Newcastle, United Kingdom. Planning theory.

Modernist planning was at its zenith in Britain during the 1960s, after postwar austerity had passed and before disillusion and reaction set in toward the end of the decade and in the 1970s. It is a time often now associated with clean-sweep planning, where the only constraints on redevelopment were economic and conservation policy was restricted to the preservation of a limited number of major buildings and monuments. This article considers the replanning of Newcastle city center in the period when planning in the city was led by T. Dan Smith and Wilfred Burns, from Smith's assumption of political control in 1959 to Burns's leaving in 1968. It demonstrates that, although modernist rationalism was the driving force in the city's replanning, it coexisted with a conscious policy of conservation born out of a picturesque design tradition.

16-0651

Stroud, Nancy E. 2001. Comment on *East Bay Asian Local Development Corporation v. The State of California*: To what extent may religious uses be constitutionally exempt from historic landmark regulations? *Land Use Law and Zoning Digest* 53, 5: 9-11.

Keywords: California. East Bay Asian Development Local Development Corporation. Historic landmark regulations. Historic preservation. Lawsuits. Legal exemptions. Religious organizations. State government.

On December 1, 2000, the California Supreme Court upheld a California statute that grants religiously affiliated organizations the authority to declare themselves exempt from historic landmark preservation laws. *East Bay Asian Local Development Corporation v. The State of California* was decided adversely to the municipal and nonprofit organizations that challenged the statute on the grounds that it violated the state and federal Establishment Clause, which prohibit the making of laws "respecting an establishment of religion." The breadth of the statute's exemption and the

potential impact on not only historic preservation but also on other land-use laws makes this decision one of the more important First Amendment land use cases in many years. The unsuccessful challengers (East Bay) have petitioned the U.S. Supreme Court for a writ of certiorari to review the California Supreme Court's decision. The challenge by East Bay gives the U.S. Supreme Court an opportunity to clarify the extent to which exemptions for religious organizations cross the constitutional line from a reasonable accommodation of religion to a violation of the Establishment Clause.

35-3 VISUAL FORM

16-0652

Cloke, Paul, and Owain Jones. 2001. Dwelling, place, and landscape: an orchard in Somerset. *Environment and Planning A* 33, 4: 649-66.

Keywords: Landscape design. Orchards. Sense of place. Somerset, United Kingdom. United Kingdom. Visual form.

In this paper, the authors seek to develop the concept of dwelling as a means of theorizing place and landscape. This is done for two interconnected reasons. First, dwelling has come to the fore recently as an approach to nature, place, and landscape; but the authors argue that further development of this idea is required to address issues relating to romantic views of places, authenticity, localness, and the way we see landscapes. Second, the authors turn to the notion of dwelling to develop interconnected views of the world that can still retain a notion of place, a key but problematic concept within geography, landscape studies, and environmental thinking. In particular, the authors seek to develop ideas of place within the context of actor network theory. The authors explore the notion of dwelling in Heidegger and as adapted by Ingold and trace how dwelling has been deployed subsequently in studies of landscape and place. The authors then develop a more critical appreciation of dwelling in the context of an orchard in Somerset, which they researched as a place of hybrid constructions of culture and nature.

35-4 HISTORY AND DESIGN

16-0653

Hartoonian, Gevork. 2001. The limelight of the House-Machine. *Journal of Architecture* 6, 1: 53-79.

Keywords: Architectural history. Domino frame. Charles Edouard Jeaneret Le Corbusier. Modernism. Urban design.

Recent scholarly work on the subject of vision and visibility has set the task for architectural historians to reexamine the dialectics of seeing and construction beyond the context of modernism. Equally important is to renew one's understanding of the perspective regime at a time when the visual, as experienced in contemporary cul-

ture, is saturated with the technologies of image making. In this paper, Le Corbusier's Domino frame is used as a case study to test the architectonic implications of the linear perspective. Underlining Leon Battista Alberti's distinction between lineaments and building, it is suggested that perspectivism initiated a design process that projects a three-dimensional object out of a two-dimensional plan. It also opens a window through which architecture is seen from a vanishing point, which frames the frontal facade as a painterly image whose surface is articulated by what Le Corbusier called the regulating lines. Through a reading of the Villa Savoye, it is argued that the Domino frame presented the chance for Le Corbusier not only to rearticulate the classical distinction between appearance and construction but also to suspend the idea of frontality. Looking back from the vantage point of the present architects' interest in spectacular forms, it is suggested that Le Corbusier's early work paved the path for contemporary architects' drift into abstraction, thus marginalizing the tectonic and tactile aspects of construction.

36. Environmental Psychology/ Environment-Behavior Research

36-1 ENVIRONMENTAL PERCEPTION/COGNITION

16-0654

Kaplan, Rachel. 2001. The nature of the view from home: psychological benefits. *Environment and Behavior* 33, 4: 507-42.

Keywords: Apartments. Building design. Environmental cognition. Low-rise apartments. Psychology of design. Window views.

Depending on what is in the view, looking out the window may provide numerous opportunities for restoration. Unlike other restorative opportunities, however, window viewing is far more frequent and for brief moments at a time. The setting is also experienced from afar. A study conducted at six low-rise apartment communities, using a survey with both verbal and visual material, provides considerable support for the premise that having natural elements or settings in the view from the window contributes substantially to residents' satisfaction with their neighborhood and with diverse aspects of their sense of well-being. Views of built elements, by contrast, affected satisfaction but not well-being. Views of the sky and weather did not have a substantial effect on either outcome. The potential of nature content in the view from home to contribute significantly to satisfaction and well-being suggests clear action mandates.

16-0655

Korpela, Kalevi M., Terry Hartig, Florian G. Kaiser, et al. 2001. Restorative experience and self-regulation in favorite places. *Environment and Behavior* 33, 4: 572-89.

Keywords: College students. Place attachment behavior. Self-regulation. Self-restoration. Sense of place.

The authors report further evidence bearing on the relations between restorative experiences, self-regulation, and place attachments. University students ($N = 101$) described their favorite places and experiences in them, and 98 other students described unpleasant places. Natural settings were overrepresented among favorite places and underrepresented among the unpleasant places. In open-ended accounts, frequent mention of being relaxed, being away from everyday life, forgetting worries, and reflecting on persona matters indicated a link between favorite places and restorative experience. Restoration was particularly typical of natural favorite places. Structure evaluations of being away, fascination, coherence, and compatibility indicated they were experienced to a high degree in the favorite places, although fascination was experienced to a lesser degree than compatibility. The favorite and unpleasant places differed substantially in all four restorative qualities but especially in being away and compatibility. Self-referencing appears to be more characteristic of favorite place experiences than engaging or interesting environmental properties.

36-2 ENVIRONMENTAL AESTHETICS/MEANING

16-0656

Jones, Robert A. 2001. Design communication and aesthetic control: architects, planners, and design review. *Journal of Architectural and Planning Research* 18, 1: 23-38.

Keywords: Aesthetic standards. Architecture. City planning. Professional roles. Urban design.

Design review represents an increasingly important regulatory mechanism that purports to provide a forum for public discussion and control over the aesthetic quality of the built environment. It also can be viewed as an important means for design professionals to communicate about their projects with others interested in the development of the built environment. This paper explores issues related to the communicative character of design review within a context of professional architectural and planning practice. It relies, in part, on survey data gathered in Massachusetts and Oregon to demonstrate the extent and variety of professional opinions and experiences regarding design review. Survey results are used to explore the argument that aesthetic control is too readily separated from the stated concern of providing a community voice in the design of the built environment. Design review can have more to do with maintaining social and cultural hegemony than with discussing the aesthetic merit of a proposed development project. Satisfying legal requirements for clear and objective review standards is not sufficient to ensure that meaningful and inclusive dialogue about a design proposal takes place. Design review can provide a useful forum and means to shape the quality of the built environment. Its success, however, requires the development of a deeper understanding of the social, communicative character of architectural and urban design and a fuller appreciation of precisely who is repre-

mented by the review process in a diverse social and cultural environment.

16-0657

Yang, Min-Chih, and Woan-Chiau Hsing. 2001. Kinmen: governing culture industry city in the changing global context. *Cities* 18, 2: 77-85.

Keywords: Aesthetic standards. Culture industry. Spatial analysis. Tourism. Urban design.

Culture industry is now a significant local economic force of many urban areas, due primarily to the effects of new local institutional dynamics and the revaluing of local space as a culture and tourism commodity. In turn, this should be linked to high-quality, space-governing institutions and the "local mobilization" strategies that are related to higher levels of local economic efficiency. In this paper, the city of Kinmen, Taiwan, will be examined. It has transformed the local culture industries (especially the historical and war heritages) into the key economic and identity-revival power relying on appropriate local institutional structures.

36-3 ENVIRONMENTAL ATTITUDE/AWARENESS/VALUES

16-0658

Hartig, Terry, Florian G. Kaiser, and Peter A. Bowler. 2001. Psychological restoration in nature as a positive motivation for ecological behavior. *Environment and Behavior* 33, 4: 590-607.

Keywords: Environmental behavior. Environmental protection. Motivation. Natural settings. Self-restoration.

Shifting the focus from fear, guilt, and indignation related to deteriorating environmental quality, the authors hypothesized that people who see greater potential for restorative experiences in natural environments also do more to protect them by behaving ecologically, for example, by recycling or reducing driving. University students ($N = 488$) rated a familiar freshwater marsh in terms of being away, fascination, coherence, and compatibility, qualities of restorative person-environment transactions described in attention restoration theory. They also reported on their performance of various ecological behaviors. The authors tested a structural equation model with data from a randomly drawn subset of participants and then confirmed it with the data from a second subset. For the combined subsets, perceptions of the restorative qualities predicted 23 percent of the variance in general ecological behavior. As the only direct predictor, fascination mediated the influences of coherence, being away, and compatibility.

16-0659

Kupritz, Virginia. 2001. Aging worker perceptions about design and privacy needs for work. *Journal of Architectural and Planning Research* 18, 1: 13-22.

Keywords: Aging. Building design. Elderly. Interior design. Office design. Privacy. Work environment.

This study examines the compatibility of office design for today's aging workforce in the United States. Research to date has not examined the impact of workplace design on aging workers; nor has it examined cohort perceptions about workplace design. A cohort comparison was conducted utilizing an ethnographic method. The study identifies design characteristics perceived as facilitating and impeding work. Tentative findings indicate that age diversity in the American workforce does not appear to influence the overall types of design items and attributes and privacy features perceived to impact work. Both older and younger workers appear to perceive similar design features as facilitating and impeding work. Pending further research, structural changes to the office may not be necessary to accommodate older workers. This can potentially prove cost-effective to organizations as they strive to support workforce diversity and to manage change. Findings also indicate that privacy is a primary concern of older and younger workers that should not be overlooked when addressing the needs of an organization and its employees. The theoretical considerations presented in the present study, although in their formative stage, offer a beginning insight into aging worker perceptions about workplace design as well as how perceptions of younger workers compare to older workers'.

36-4 SOCIO-SPATIAL FACTORS

16-0660

Benguigui, Lucien, Daniel Czamanski, and Maria Marinov. 2001. The dynamics of urban morphology: the case of Petah Tikvah. *Environment and Planning B: Planning and Design* 28, 3: 447-60.

Keywords: Israel. Petah Tikvah, Israel. Socio-spatial analysis. Tel-Aviv. Urban development.

Urban evolution is composed of two interlinked phenomena. Over time, changes occur in urban size as measured, for example, by population. The geographic space occupied by human activities and by buildings also changes over time. Those two aspects of urban evolution are linked and, as such, should be studied in tandem. In this paper, the authors present an analysis of the process of formation of urban centers as a result of growth spurts and the structured behavior of individuals. The authors then propose a dynamic model of the spatial self-organization of a town. The model yields descriptions of the temporal evolution of the urban population and of the space occupied by it. At the backdrop of the model is a particular conception of the behavior of land developers. The evolution of the town emerges from the juxtaposition of centripetal and centrifugal forces that represent the key elements in the developers' behavior. Through computer simulations, the model has been applied to Petah Tikvah, Israel, a small town in

the Tel Aviv metropolis. The comparison between the simulations and the real town growth is very good.

16-0661

Copus, Andrew K. 2001. European briefing: from core-periphery to polycentric development: concepts of spatial and aspatial peripherality. *European Planning Studies* 9, 4: 540-52.

Keywords: Communication technology. Core-periphery relations. European Union. Information technology. Polycentric development. Socio-spatial analysis. Transportation models. Urban development.

Technical changes in the field of transport, communication, and information technology, together with long-term structural shifts will, in the new century, allow a degree of spatial reorganization of European economic activity. The validity of conventional (spatial) models of peripherality is increasingly questionable. They should be supplemented by more appropriate aspatial concepts. Although many elements of these are already well understood, coherent models and operational indicators are required. These could provide a sound theoretical basis on which to further the European Spatial Development Perspective's polycentric development objective. They could also provide new opportunities for peripheral regions and relief from overheating at the core.

16-0662

Dorrian, Mark. 2001. On some spatial aspects of the colonial discourse on Ireland. *Journal of Architecture* 6, 1: 27-51.

Keywords: Colonialism. Discourse analysis. Ireland. Thomas More. Regional history. Thomas Smith. Socio-spatial analysis. *Utopia*. Utopian ideology.

During the sixteenth and seventeenth centuries, an impressive body of analytical, survey, and descriptive literature on Ireland was produced. This material, associated with the Tudor and Stuart reconquest of the country, included texts, produced in the wake of More's *Utopia*, which have been described as marking the beginning of English colonial theory. This paper sets out to examine the spatial aspects of the colonial discourse on Ireland as displayed in this literature. In particular, it attempts to show the extent to which these aspects are implicated throughout the texts and to delineate the interplay between them. Colonial regimes of space, although clearly demonstrated at the scale of landscape and settlement, are not concluded there: instead, they extend down to the scale of the body in its practices, fashioning, and deportment. The spatial formation of the colonial city—here, Sir Thomas Smith's Elizabethan city—must be understood in the context of the chain of spatial elements: in terms, for example, of the colonial rhetoric dealing with the surface and depths of the land, with penetration and arable cultivation, and with the trope of the colonist-husband. At the end, the paper dis-

cusses a nineteenth-century *Punch* cartoon that illustrates how the dissociation that the colonial discourse introduced between the native and the land is linked to a thematics of penetration, which swings between lack or scarcity (the savage native pastoralist of the sixteenth- and seventeenth-century texts, whose condition springs from a refusal or inability to cultivate) and excess (the monstrous, land-consuming peasant of the nineteenth-century constructions).

16-0663

Rodríguez, Arantxa, Elena Martínez, and Galder Guenaga. 2001. Uneven redevelopment: new urban policies and socio-spatial fragmentation in metropolitan Bilbao. *European Urban and Regional Studies* 8, 2: 161-78.

Keywords: Bilbao, Spain. City planning. Socio-spatial analysis. Socio-spatial fragmentation. Spain. Urban policy. Urban renewal.

Since the mid 1980s, European cities and regions have become increasingly concerned with competitive restructuring and economic growth. This concern goes hand in hand with a rediscovery of the central role of cities in the performance of regional and national economies as a whole. But, in a context of radical transformation of production and demand conditions globally, the performance of cities is mediated by their capacity to lead a process of competitive redevelopment. To meet the challenges posed by the changing global competitive climate, the policy agendas of many cities have been drastically reorganized. On one hand, the search for growth has transformed urban revitalization in one of the main domains of urban intervention. On the other, the new urban policy agenda is singularly framed in a language of competitiveness, improved efficiency, flexibility, entrepreneurship, partnership, and collaborative advantage that underwrite the remaking of planning objectives, functions, and instruments. In this article, the authors examine the rise of new urban policies in Bilbao, Spain, a city where two decades of manufacturing decline and economic restructuring are

gradually giving way to so-called urban renaissance. During the 1990s, Bilbao followed on the tracks of other old industrial cities adopting a revitalization strategy focused around large-scale and emblematic redevelopment projects. The article discusses one of these projects, Abandoibarra, a paradigmatic waterfront development that embodies the new logic of urban intervention. The first section of the paper presents an analysis of economic restructuring and socio-spatial fragmentation dynamics in the city in the past two decades. The second section discusses changes in urban policy making, locating Bilbao's regeneration strategy in the context of the New Urban Policies. The third section focuses on emerging governance dynamics and the critical role of new governance institutions in the management of Abandoibarra's redevelopment scheme. Finally, the fourth part of the article attempts to provide an evaluation of the impact of the project, highlighting the shadows behind what is presented as a new success story in urban revitalization.

16-0664

Teedon, Paul. 2001. Designing a place called Bankside: on defining an unknown space in London. *European Planning Studies* 9, 4: 459-81.

Keywords: Architecture. Bankside district, London. Boundary definition. London. Socio-spatial analysis. Tate Gallery of Modern Art. United Kingdom. Urban design.

In the north part of Southwark in London the local authority has become increasingly keen to promote an unknown area called Bankside. The primary focus of this strategy has been on the clear definition of this area as part of central London. Much of this strategy has been based on the precise definition of this area using design-based and architecturally focused landmarking, notably facilitated by the decision of the Tate to establish its new Gallery of Modern Art in the area. This, the author contends, has produced a heavily commodified landscape for (high) cultural consumption.

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