

Analyzing Quality-of-Place

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Abstract: This paper assesses the current state of knowledge about quality-of-place (QOP) analysis. It finds that there are persistent problems in measuring QOP, highly personal links between individual quality-of-life perceptions and aggregate QOP measurements, mostly unintended impacts of public policy decisions on QOP outcomes, and inadequate triangulation across model approximations and data limitations when building tools to support local decision-making. The analytical community should therefore build adaptive analytical capacity, increase efforts to detect and model the consequences of policies, look across scales, accommodate diverse preferences, tilt towards empiricism, distinguish people from places, balance substance and process, and evaluate change in a humbler way.

Suppose that you were asked to forecast the future quality of life in a town, or analyze how the qualities of the place will change. Would you be willing to perform the analysis? How would you frame it? Could you offer useful advice on planning and policy choices? I recently received such a request and found the process of answering both intimidating and illuminating. In this paper, I reflect on the current state of the analytical art and identify unresolved issues. This review links the popular topics of livability and sustainable development to the specifics of data acquisition and analysis that are the focus of this journal.

Livability is an ensemble concept for describing the qualities of a place (Myers, 1989), and sustainability is a popular planning objective that brings together economic development, environmental preservation, and social equity (World Commission on Environment and Development (WCED), 1987). This comprehensive vision did not spring fully formed from the brow of WCED chair Bruntland, but instead grew out of a wide-ranging, decades-long discourse on quality of life. Both the quality of life and the sustainability debates seek comprehensiveness, offer much potential for forging

consensus on plans and policies, and suffer severe definitional problems. I re-establish that link here to take advantage of lessons already learned.

Several disciplines have developed tools for analyzing the quality of life experienced by individuals and groups (Raphael, 1996). Geographers and planners have specialized in analyzing the related qualities of places (Wee, 1999). Cultural amenities, crime, green spaces, and congestion are a few of the factors determining the local quality-of-place (QOP). Many people assume that QOP relates directly to the more fundamental and important quantum of quality-of-life (QOL). Most would agree that municipal officials influence some QOP factors. Yet officials receive very little help from the analytical community when considering how planning and policy decisions affect QOP, and how those ultimately affect QOL. In this paper, I assess the state of knowledge about measuring and modeling QOP. But first I discuss why QOP is politically salient and why analysts should care about the associated measurement and modeling issues.

Why study QOP?

During both good times and bad, individuals care about the quality of their lives. Yet the political definition of QOL issues changes as circumstances evolve, according to Maslow's (1970) psychological logic and Inglehart's (1977) post-materialism thesis. During bad times the focus of most people is on fundamentals such as the availability of jobs, food, shelter, and security (recall Clinton's 1992 U.S. campaign slogan: "It's the economy, stupid"). During good times the popular definition of QOL expands to include access to amenities, recreational opportunities, pleasant communities, a pristine environment, and a satisfying personal and professional life. It is during these good times that QOP gains political currency and growing places get attention. This is borne out in the "most important problem" questions asked by national pollsters (Gallup Organization, 2000) and in neighborhood surveys (Greenberg, 1999). Contrarians (e.g., Brechin and

Kempton, 1994) argue that peoples' attitudes are steadfast in support of post-material amenities regardless of economic status, and it is evident that the changing industrial structure—globalization and the growth of services—has diminished the apparent tradeoff between local jobs and the local environment. Yet expressed priorities and revealed preferences continue to support the notion of a hierarchy.

Salience within the hierarchy of human needs is not the only factor affecting interest in QOP (Campbell, 1981). In addition, prosperity brings dramatic changes to places. For example, in New Jersey where I live, the 1980s economic expansion led to the construction of four times more new office space in 10 years than had existed previously, plus numerous new housing starts and an additional 360,000 commuters clogging the roads and rails each morning (a 12% increase in what was already the nation's most densely populated state). Public dissatisfaction with the resulting sprawl and congestion led to the creation of the New Jersey Office of State Planning in 1986, a major political step in a state with a tradition of local autonomy. Following a painful recession from 1989 until 1992, the economy again took off. The next upswing surpassed the 1980s boom in length and depth, and by the end of the century it had added another 430,000 commuters into an already congested transportation network: "The suburban and exurban sprawl of the past two decades has now fully yielded suburban and exurban crawl" (Hughes and Seneca, 1999: 17). The political response during the 1990s was to authorize the public expenditure of billions of dollars to protect a million acres of open space, representing one fifth of New Jersey's land area and one half of its remaining developable land (N.J.P.L. 1999, c. 152). Prosperity periodically makes QOP a hot topic.

Myers (1989: 102) offers an argument for studying perceived local conditions: "like a gyroscope, the shifting awareness of quality of life helps to keep in balance the various elements of our urban system." The sustainability literature also employs the

gyroscope analogy in arguing for balance among the objectives of economic development, environmental protection, and social equity (Lee, 1993). The turbulent interactions between growth cycles and the hierarchy of needs imply a somewhat greater navigational challenge—the need to balance objective constraints and subjective expectations in a dynamic equilibrium. Good economic conditions allow environmental issues to gain salience even as the resulting growth exacerbates environmental problems.

Public demand for improvements to the QOP has encouraged public officials to act, sometimes boldly, as the New Jersey example illustrates. Researchers and analysts are expected to offer facts to these value-laden public debates, and many claim to do so. Yet there are enough counterclaims regarding the adequacy of data, theory, and models to make some of these claims suspect. Hence it is timely to assess the state of knowledge about QOP and efforts to measure, model, and prescribe changes to it. Goals for this paper are to assess four hypotheses, framed as "show-stopping" questions, affecting the feasibility of incorporating QOP considerations into decision support tools for local planners. The first two questions address descriptive tasks and last two address prescriptive tasks. If analysts cannot affirmatively answer all four of the questions posed below, then they are not in a position to help local decision-makers:

- Are we measuring relevant aspects of QOP?
- Are there links between QOP measurements and QOL perceptions?
- Are there links between public policy decisions and QOP outcomes?
- Are there useful tools that support local decision-making on QOP issues?

Measuring QOP

Every year, millions of private citizens buy homes using little more than visual evidence of QOP. Many public decision-makers instead depend on quantitative methods that they hope are more reliable than rich but informal visual data. In this public context,

operational definitions of QOP specify two components: the range of qualities and the scale that are of interest. Qualities may include economic, social, political, environmental, human health, public safety, and other concerns. Scales may include census tracts, neighborhoods, municipalities, watersheds, market areas, counties, states, nations, and other spatially distinct units. Data on qualities are not uniformly available across scales. For example, in the United States, detailed demographic data are available at a very fine spatial resolution (e.g., census block group) whereas public health data are most often reported at the county level, and biodiversity data are not collected uniformly at any scale. Thus, while many aspects of QOP are measured, gaps and scale mismatches remain. Are there enough relevant data to make QOP measures operational, and to reveal changing relations among scales?

Measurement problems are best evaluated in the context of practical experience. Indicators research represents the broadest set of experiences. Public health indicators have been reported since the 1830s, and links to social issues such as intemperance and poverty were established early (Cobb and Rixford, 1998). Other indicators came later.

National. Some national economic and demographic statistics have been collected for centuries, but formalized national income and product accounts and reporting of specific economic indicators such as Gross National Product began relatively recently (1935 in the United States, 1941 in Great Britain). Although reporting of U.S. national social indicators began in 1933 at the order of President Hoover and had a brief resurgence under President Johnson, the activity has failed to win consistent political support and therefore has not become institutionalized to the same degree as economic indicators (Cobb and Rixford, 1998; Sawicki and Flynn, 1996). It was not until the 1970s that environmental data collection became widespread, and many environmental

indicators have very short time series or lack widespread acceptance. These national trends in turn affect the potential for developing more localized indicators.

Subnational. The Nixon-era demise of national social indicators did not signal the end of city-specific efforts, and dozens of urban indicators projects continued to track housing, welfare, crime, transportation, and city service delivery throughout the 1970s (Flax, 1978). A second generation of local indicators projects featuring extensive public participation was launched in the mid-1980s by Jacksonville, Florida (Besleme, Maser, & Silverstein, 1999). In recent years there has been a proliferation of subnational indicators projects—activities that measure quality of life, sustainability, healthy cities, or performance benchmarks. QOP needs to be measured at three geographical scales—home, work, and daily transportation paths—because prosperity can impose considerable strains at all of these scales.

Redefining Progress (1999) surveyed approximately 100 projects at various scales, 33% in cities, 25% in counties, 24% in regions, 22% in states, and 8% in rural/neighborhood areas; the total number of projects is estimated to be closer to 200. General indicators categories include air quality, arts and culture, children and family, citizen participation, crime and violence, elderly, economy and employment, environment, education, government and human services, health and safety, housing, jobs (quality and quantity), land ownership, population, poverty, recreation and open spaces, resource use, solid waste, toxic and hazardous waste, transportation, and water quality. There are multiple measures within each category. Illustrative data problems reported in the Redefining Progress report (1999) include:

- "Lack of clear economic indicators applicable to sustainable development in Colorado." – Colorado Sustainability Project

- "Inconsistency between years in measurement definitions and methods. Lack of valid and reliable data." -- Pierce County Quality of Life Benchmark Project (WA)
- "Government doesn't collect outcome data, rather process data." --Minnesota Milestones
- "Lots of data in Boston, however, it's not consolidated in one place." -- Sustainable Boston (MA)
- "We gathered data from multiple counties; data (sic) is collected with different boundaries." – Sierra Nevada Wealth Index (CA)
- "Data not gathered for some of the indicators selected, but we include the indicators in the report." --Sustainable San Mateo (CA)
- "Government downsizing has affected the availability of some data." -- Sustainable Communities Indicator Project (ON, CANADA)

States. The Green Mountain Institute for Environmental Democracy (1997) has surveyed state-level environmental indicators projects. They find that 41 states are using indicators to streamline intergovernmental information and resource flows with the U.S. Environmental Protection Agency, 23 states are preparing one-time state-of-the-environment reports, and 3 states (Connecticut, Florida, and Illinois) have built ongoing indicator reporting systems. An important outcome of these activities is the identification of numerous data gaps affecting environmental managers. Illustratively, the New Jersey assessment identifies dozens of research tasks needed to demonstrate the causal links between various environmental stressors and specific adverse impacts (NJDEP, 1997).

Communities. Alberti (1999a: Figure 12) has surveyed 16 community-level sustainability indicators projects and finds that respondents judge the quality of data used to measure indicators as follows: 4% Very Good, 42% Good, 33% Acceptable, 21%

Poor, and 0% Very Poor. Data quality varies by type: economic and demographic data are usually adequate, but environmental data are not readily available. Scale is also an important issue: “a majority of respondents also indicate the lack of appropriate disaggregation and geographic resolution which would allow them to differentiate trends across population groups and across neighborhoods” (Alberti, 1999a: 18).

Neighborhoods. Sawicki and Flynn (1996) have reviewed neighborhood-level indicators projects and identified additional issues. First, while cities and states have agreed-upon spatial boundaries, neighborhoods are personally idiosyncratic constructions, and even given widespread agreement on the boundaries these rarely coincide with census tracts or other standard units. Second, data are not often reported at the fine-grained neighborhood level, requiring researchers either to extrapolate from more aggregate units or to manipulate administrative records from, say, schools and police departments at considerable effort. Third, small-area data often suffer from volatility and reliability problems, especially for relatively rare phenomena such as teen suicides. Finally, the “people-versus-place” conundrum becomes increasingly important, as crime rates drop because a population ages, or as young people flee a neighborhood for someplace better once they are educated, thereby leaving the old neighborhood looking worse than ever in terms of educational attainment.

In sum, much relatively objective information at various scales is available for measuring QOP. However, some desired measures are not available because no-one collects data, data are proprietary, data are too aggregated, or data suffer from reliability problems. An increasing proportion of the really interesting data are only available through private sources (Curry, 1997), placing ethical and financial burdens on projects in the public domain. To preserve credibility, successful indicators projects therefore set standards that data must meet to be useful, including validity, availability and timeliness,

stability and reliability, understandability, responsiveness, policy relevance, and representativeness (Besleme, Maser, & Silverstein, 1999). These standards eliminate some topics from consideration. Equally important, a determination of whether relevant information is available depends upon having clearly specified goals for the analysis—a vision of what is worth measuring (Raphael, 1999). This need for goals inextricably links data adequacy to the remaining three show-stopping questions.

QOP measurements versus QOL perceptions

Comparative QOP evaluation is a wildly popular activity. *Places Rated Almanac* and similar efforts have enjoyed sustained attention even as they have endured continuing methodological criticism (e.g., Bayless and Bayless, 1982; Loftus, 1985; Cutter, 1985; Norris and Norris, 1986; Landis and Sawicki, 1988). The marketplace demands comparative place rankings because they are fun in a competitive sense, people relocate and want to make informed choices, and the rankings influence public policy (Loftus, 1999). Yet the indices upon which rankings are based have methodological flaws:

- Weighting problems. Indices are subjective aggregations of objective measures, and different individuals do not share identical beliefs about the relative importance of climate and cultural institutions in determining QOP, for example (Wee, 1999; Liu, 1976). The hierarchal nature of needs implies that some factors such as jobs, housing, and crime, should receive greater weight than others, such as aesthetic or cultural factors (Wish, 1986a; Bayless and Bayless, 1982; Milbrath, 1979).
- Correspondence problems. Typical aggregation techniques fail to reflect psychologically important considerations and therefore produce misleading results. For example, the standard index based on an arithmetic mean of rankings along various dimensions allows “average” Pittsburgh to outperform “extreme” San Francisco even though most people would prefer the latter. Most peoples’ mental

models compare ratios rather than differences of two scores, suggesting that place ratings should be based on indices constructed using geometric means (Loftus, 1985).

- Aggregation problems. The task of combining subcategories such as inches of rainfall and number of tornadoes within a category such as climate is often arbitrary and mechanically problematic (Loftus, 1985).
- Scale problems. Rankings are often done at an inappropriate scale—it is meaningless to compare crime rates at the metropolitan scale, for example, because within-area variation is greater than between-area variation (Wish, 1986a).
- Proxy problems. Measures imperfectly representing what really interests people are often pressed into service. For example, inputs such as expenditures-per-pupil are used as proxies for educational outputs such as fraction-of-graduates-attending-college (Wish, 1999).

QOP is a convenient proxy for QOL, but the links between measurement and perception have long been recognized to be subtle and problematic (Liu, 1976; Cho, 1983). Atao (1998) identifies four different theoretical approaches to environmental perception research in the literature: (1) focusing on perceptual and cognitive processes, especially the acquisition, organization, and memory of environmental attributes; (2) emotional and affective appraisals, including responses to and evaluation of environments; (3) relational research linking perception and cognition with emotional and affective appraisal; and (4) interactive research considering the embeddedness of individuals in their environmental context. The relational and interactive approaches bridge both the objective and subjective aspects of QOP—a necessary task in our context.

Successful QOP analysis depends upon linking first the objective environment and human perceptions of that environment, and then those perceptions of the environment with perceptions of human well-being (Wish, 1986a). Ecological fallacy

presents one hurdle, since QOL is perceived at the individual level by people with distinct worldviews, whereas most QOP measures are aggregates applied to large populations. Perceived QOL as measured by psychologists does not always correlate well with aggregate QOP measures (Schneider, 1976; Wish, 1986b), but it does vary systematically with personal characteristics (Farley, Fielding, and Kaysan, 1997; Massey and Denton, 1993). Yet Greenberg (1999) shows that there is more to the story than demographic determinism, because individuals with a positive outlook and a sense of control over their lives tend to report a high QOL regardless of social, demographic, or economic status, even as they deliver brutally negative QOP ratings.

Individuals also have distinct preferences, and this heterogeneity further hinders attempts to link measured QOP and perceived QOL. One confounding mechanism is selection bias, or voting-with-the-feet (Tiebout, 1956). By sorting themselves into places they like, all people can be like those in Lake Wobegon, MN, where “all of the children are above average” (Loftus, 1999). Even more insidious, psychologists observe that people adapt to their environments by changing their preferences to reflect what their surroundings can offer (Loftus, 1999).

For the reasons discussed above, it is inappropriate to claim that there are robust, deterministic links between measured QOP and perceived QOL. Universalist approaches relying on indices therefore are suspect. No single set of indicators can predict QOL for everyone. Rather than give up on meaningful research, however, analysts can imitate the strategy of the *Places Rated* publishers—while the general publication is still available, it has been supplemented with rankings of best places for retirees, African-Americans, women, young families, bicyclers, rock bands, businessmen, and so on. Such efforts underscore the fact that there are no neutral measures of quality of place; every ranking has an implicit theory (Wyly, 1999a). Asking whether QOP measures track what people

really care about becomes the wrong question, and instead analysts should let the policy questions drive the indicators (Sawicki, 1999).

Myers (1988) objects on strategic grounds to individualistic approaches to QOL measurement because they invariably suggest that personal factors such as family situation and society-wide factors such as employment situation are most important, while local planning and public policy don't matter much. He argues that it is more fruitful to emphasize QOP and *community* QOL factors because only they are politically relevant and require concerted local social action to provoke change. However, he overlooks the fact that individuals are the building blocks of both communities and nations, so that relations between scales are as important politically as local decisions. QOP analysis can contribute to political discourse at both the local and national levels.

One way to help planners and local officials is to ask: "To what extent does a place support a good QOL?" (Raphael, 1999). This question guides us to specific decisions that could benefit from a better information base, to the locally actionable characteristics of places, and to key intergovernmental tensions. However, it also forces a confrontation with the theories and goals of these decision-makers: which aspects of whose QOL should be better supported, and how? This in turn raises the question of legitimacy: what gives analysts (and decision-makers) the right to speak and act on behalf of others?

There are many reports, written by detached analysts, which gather dust because they lack political legitimacy (Alberti, 1999a; Hodge, 1997). Process-intensive community indicator projects provide a pleasing contrast. They typically focus on longitudinal measurements of trends for internal use within the community, rather than comparative measurements of standing for external use across communities (Myers, 1987). For example, in the pathbreaking *Quality of Life in Jacksonville: Indicators for*

Progress project, residents operationalized QOL by defining it as “a feeling of well-being, fulfillment, or satisfaction resulting from factors in the external environment,” in other words, as QOP (Beselme, Maser, and Silverstein, 1999: 10). They identified the relevant elements of QOP using a process that was participatory, transparent, and iterative. It involved key community stakeholders from the Chamber of Commerce to environmentalists, and it also involved technical experts to make sure that indicators were valid and reliable. Eventually, public officials accepted the project’s annual report as a legitimate voice of the community, and adopted many of the project’s goals as their own. Over time, this project gained legitimacy by meeting standards for both substantive and procedural rationality. Both dimensions of rationality appear to be essential in the QOP measurement business.

Public policy decisions and QOP outcomes

The qualities of a place result from complex interactions among individual humans, their institutions, and the natural environment. Both public and private institutions play prominent roles in determining QOP. Some responsibilities are the undisputed domain of private actors—job creation, for example—whereas others have shifted out of the public domain and into the private sphere in recent years—examples include gated communities (Blakely and Snyder, 1997) and business improvement districts (Houston, 1997). The link between public policy and QOP therefore depends on the balance between public and private sector roles. Within this changing domain, public institutions implement policies and plans that—intentionally or not—affect local conditions.

Public decision-makers may need more guidance than just indicators showing the system’s current status. They may need to understand the processes or causal structures connecting their decisions to future outcomes, because such information will help them to

avoid unintended consequences (Alberti, 1999b). Analysts offer various theories about the causal structures linking policy decisions and QOP outcomes, but are they well grounded?

There is a substantial literature confirming that specific outcomes correlate with specific policy interventions, and providing empirical corroboration of accepted theory. A comprehensive list would be far too long to cite here, but illustratively, sprawl has negative fiscal impacts (Bunnell, 1997), community policing improves responsiveness and trust (Thayer and Reynolds, 1997), access to transportation facilities enhances property values (Ryan, 1999), but additions to our mature highway network do not increase economic productivity (Boarnet, 1997). Yet these insights do not add up to corroboration of a comprehensive, Forrester-esque theory of the urban system. Empirical evidence is inconclusive regarding the validity of important descriptive theories such as the assertion of suburb-downtown interdependence (Mumphrey and Akundi, 1998), and of prescriptive theories such as the ability of planning to create amenities rather than merely to constrain land supplies (Knaap, 1998).

Adopting an incremental rather than a systems viewpoint for a moment, it is widely believed that zoning regulations, open space acquisitions, public infrastructure investments, public service delivery, and urban design affect QOP. Research confirms that these tools affect outcomes. Zoning to separate residential and heavy industrial land uses (but not other uses) continues to enhance perceived QOP (Burby, 1999). Open space access, infrastructure quality, good schools, and good public services all increase local property values (Knaap, 1998). Footloose firms locate to avoid residential disamenities for their employees (Gottlieb, 1995a). Residents of distressed neighborhoods complain most vocally about inadequate public services (such as policing)

and physical decay, with a secondary focus on pollution and land use conflicts (Greenberg and Schneider, 1996).

While there is good evidence that incremental decisions have cumulative effects (Haughwout, 1999), the relevant processes are complex and poorly understood. For example, few dispute the existence of the negative feedback loop whereby high-quality places attract the most growth, “thereby killing the goose that lays the golden eggs” (Myers, 1989: 91-92). Yet there is no agreement about what constitutes the optimal city size or amenity mix. Economic resources can partially substitute for QOP (as with any other “natural resource” stock) in making people happy, and this substitutability makes many alternative bundles of local characteristics potentially available (Gottlieb, 1995b). Communities therefore have great latitude to choose which bundle they want. Older metropolitan areas feature a patchwork of spatial forms that reflect the housing market choices and socioeconomic conditions of various eras (Wyly, 1999b).

Fewer still would dispute the existence of the positive feedback loop whereby high-quality places that have attracted rich people are able to preserve and add to their amenities, often while externalizing the costs of growth onto others (Bates and Santerre, 1994; Rolleston, 1987). Yet what sort of dynamic balance do these opposing feedback loops achieve in a given place, and what should be the units of measurement? The net effects are difficult to predict, and there may be no consensus on appropriate measures.

Urban design is the sub-field of planning popularly associated with QOP topics (Kunstler, 1996). The New Urbanism, for example, offers well-articulated theory about how public decisions and QOP outcomes are linked (Calthorpe, 1993; Langdon, 1994). Yet empirical tests indicate that this is a normative theory not universally shared—only a fraction of the population is willing to trade off features such as lot size for pedestrian proximity in accordance with New Urbanist principles (Audirac, 1999; Bradford, 1994).

Stamps' (1999) meta-analysis of demographic effects on environmental aesthetic preferences shows that different groups—classified by ethnicity, gender, and level of expertise—share similar preferences regarding standard design choices, although they diverge when confronted with unusual (e.g., avante-garde) stimuli. At the level of design, then, rigorous enforcement of aesthetic standards is defensible, but standardization of amenity bundles is not. Public decision-makers unfortunately have tended to conflate the creation of choice with a relaxation of aesthetic standards. Needed are high aesthetic standards and a diversity of housing and landscape options.

In spite of plentiful local policy levers, there is convincing evidence that the most important QOP outcomes are often unintended consequences of public policies. Fishman's (1999) list of the top ten influences on the American metropolis during the last 50 years awards the top spots to the 1956 federal Interstate Highway Act (and the dominance of the automobile), and Federal Housing Administration mortgage financing and subdivision regulation. The uneven disbursement of defense dollars by the federal government during the Cold War is also widely recognized for having differentially affected regional economic well-being (Markusen et al, 1991). Since the mid-1980s, a less-progressive federal tax policy has increased income disparities which correlate well with increased social and physical pathologies among the poor (Raphael, 2000). None of these policies is under local control, and most are not even place-oriented policies—many are instead person-oriented.

As the U.S. government has devolved responsibilities to the states, this picture has grown even more complex. A decade ago, the analytical solution to both complexity and the dispiriting dominance of exogenous change was to turn inward and focus only on locally actionable choices about QOP (Myers, 1988). Today, analysts are more willing to view these problems as opportunities which may allow seemingly place-neutral policies

to improve quality of place (Wyly, 1999a). Examples include the use of Clean Air Act requirements to further the New Urbanism agenda (Hubbard, 1999; Powers, 1999), and recent anti-redlining provisions in mortgage lending regulations that have begun to improve QOP in inner city neighborhoods (Wyly and Holloway, 1999).

The U.S. context is more limiting than most in this regard. Illustratively, in spite of economic integration, most European workers remain unwilling to migrate in pursuit of new jobs, compared with America's mobile workers. As a result, regional unemployment is more persistent and wage increases in successful regions are higher in Europe than in America, but Europeans can rely to a greater extent on place-based economic development strategies (Champton, 1999). It has been a long time since the United States tried a place-focused policy experiment on the scale of the Tennessee Valley Authority. The U.S. government has had a fragmented rather than coordinated policy vision, supporting local efforts to (1) create economic development zones, (2) overcome spatial mismatch between workers and jobs within metropolitan areas, and (3) disperse disadvantaged people by opening up the suburbs to affordable housing (Wyly and Hammel, 1999). Detecting the impacts of these policies on places has been problematic—was it the people or the place that changed?

There is an ethical perspective as well: Is a focus on places rather than people defensible? For example, is it justifiable to improve QOP at the cost of reducing QOL for a few people, such as by displacing the poor during gentrification (Griffith, 1995)? U.S. laws have tended to favor people (individuals) over places (collectivities), albeit while relying on procedural rather than outcome-based definitions of justice. The net effect has been that money talks, and neither places nor the poor have been well treated. Several decades ago, the ethical solution was political advocacy that attempted to correct the imbalance in economic power, but in recent years the preferred approach has been

collaboration to identify mutually agreeable outcomes (Morris, 1996). This ethical shift reflects a hope that we play a positive-sum rather than a zero-sum game, and can identify creative alternatives to people-versus-place tradeoffs. It also reflects greater humility on the part of experts, who less often believe that they deserve a privileged voice to speak on behalf of others.

In sum, local actors often share aesthetic preferences and can work together to affect QOP, but they hold a diversity of views about what bundles of amenities are desirable. Supra-local coordination efforts are needed to ensure that regions accommodate this diversity, given that people vote with their feet to some extent. Federal efforts to improve local QOP are fragmented and most impacts are unintended. Modeling and analysis structured around these multiple levels of decision-making, and focused on anticipating unintended consequences could have great value.

Tools to support local decision-making on QOP issues

Practicing planners and citizens enthusiastically welcome some purveyors of planning support systems, yet these modelers are greeted skeptically by many planning and public policy researchers. Critics claim that modeling projects are overly ambitious, embarrassingly incomplete, pseudo-objective, inadequately interactive, incomprehensibly complex, or poorly suited for informing public decisions (Lee, 1973, 1994). Yet some modelers have carved out respected niches, and their products find use in both research and practice (Batty, 1994; Wegener, 1994). Outside the research context, the best current modelers design their tools to perform group decision support functions (see the recent special issue of this journal, volume 26, number 3, especially Hopkins, 1999). This section explores the following questions: Planning support systems to assist local officials in understanding the QOP impacts of decisions are an attractive proposition, but are they feasible? Is there an adequate foundation of theory and data upon which to build

a planning support system? Are theory-based (microeconomic, systems dynamical) or evidence-based (indicators, GIS) approaches more appropriate for clients who are local decision-makers? Are narrowly focused or more broadly integrative approaches most appropriate for QOP modeling?

I answer the feasibility question affirmatively because several planning support systems already exist that deal in some way with QOP issues (e.g., Evans and Sutherland, 1999; Klosterman, 1999; Patnode, 1999). Most focus on land use and transportation system interactions, but some include additional environmental, economic, and social phenomena (Alberti, 1999b, Criterion, 1999; Bish and Hoffman, 1999; Orr, 1999). Steady advances in computing and data visualization techniques have put the ideal of a highly responsive, transparent, comprehensible system to support sketch planning and “what-if” explorations within our technological reach. Urban modeling techniques and contemporary planning theory are converging around the themes of collaboration and communication (Guhathakurta, 1999). In this sense, the planning support system approach has an adequate basis in planning theory.

Determining the adequacy of specific models is more problematic. Adequacy depends both on the data and theory issues discussed in earlier sections, and on the coherency of the analytical domain. First, within narrow modeling domains, such as small-area demographic projection, there are often competing paradigms or a lack of predictive success. Second, QOP cuts across the domains within which we traditionally build theories—the economic system, the political system, various technological systems, and the natural environment (Varangu, 1998). Most theories are therefore partial and fail to account for important interactions among systems. For example, the most successful operational urban models represent economic and technological behaviors reasonably well, but fail to address political or ecological processes; environmental models are

similarly primitive in representing human activities (Alberti, 1999b). Models with good explanatory power also may be normatively unpalatable, as when a housing market model replicates racist patterns of buying and selling that offend us. The complexity of social phenomena and the remarkable adaptability of human agents conspire to make reductionistic, deterministic approaches to modeling QOP inadequate, while often making integrative approaches infeasible.

Modeling is the craft of appropriately simplifying reality, and good modelers use different approaches for different contexts. Readers of this journal know that when data are lacking, they build theory-based models, based on strong assumptions about individual behavior or the structure of the feedback loops in a dynamic system, for example. When accepted theory is lacking, they build evidence-based models based on simple extrapolations of historical data, pattern identification, or correlations among indicators. QOP modelers may lack either data or theories or both, and therefore they need to be particularly adaptable and humble. The broad sweep of QOP concerns makes theoretical coherency particularly unlikely and explains why most modeling efforts tilt towards empiricism.

Another key choice for QOP modelers is the scope of study. One modeler might aspire to create a robust and transportable model of a narrow domain, such as air quality, road congestion, or educational attainment. Another might aspire to create an integrative model of all important aspects of a single place such as a neighborhood, city, or state. Both approaches are narrow-minded but in different ways. The choice between them will have more to do with the modeler's aspirations—are they nomothetic (seeking broadly generalizable lessons) or idiographic (seeking a full explanation of a particular case)? The inductive-deductive wheel of science entrains both types of insights in spinning out new knowledge. Yet local decision-makers need idiographic insights, while the fixed

cost of modeling is such that modelers usually create general frameworks that they hope can be widely used. The dependence of QOP phenomena on local conditions requires that such models ingest massive quantities of local data. This tension helps explain why standardized desktop QOP modeling packages have not become ubiquitous in local planning offices. The best decision support modelers solicit public involvement and focus their efforts on a few locally salient issues.

In short, it makes sense to re-frame the questions about whether QOP modeling should be narrow or integrative, aggregated or disaggregated, data- or theory-oriented. QOP modelers working in a decision support context belong firmly in the social science camp where triangulation is customary. If the purpose of decision-support modeling is to encourage collaboration and communication, then it must help participants argue constructively, frame better questions, and illustrate consequences of potential actions. Inadequate data and theory, given enormously complex and evolving phenomena, mandate the use of multiple methods. Good planning support systems triangulate on an argument's validity across model approximations and data limitations (Hopkins, 1999).

While public interest in QOP may be high, analysts sometimes have trouble setting boundaries on their analysis, given the distributed nature of decision-making among multiple actors and levels of government and the overriding importance of context. Local public officials control several policy levers, but other important decisions are in the hands of county, state, or national officials, or lie outside the domain of government altogether. The special features of a place, including the cumulative influence of past human decisions, further constrain the power of local officials to change conditions.

QOP modelers working to support constructive debate and group decision-making need humility more than hubris. Equally, they need interpersonal skills to match their

technical skills (Lim, 1986). When combined with the earlier call for an approach offering both substantive and procedural rationality, we ask much of analysts.

What should the analytical community do?

The short answers to our four show-stopping questions are all “yes, but...,” an outcome that locates us atop a slippery slope. Yes, we have much data, but not enough to characterize QOP fully at the local scale. Yes, there are links between measurements and perceptions, but QOP is at best a minor and subjectively interpreted subset of the factors affecting individual QOL. Yes, we can demonstrate strong links between policies and QOL, but the strongest effects are not associated with local government decisions and are in fact unintentional. Yes, we can build models that are useful for local decision-makers, but only if they support rather than supplant discourse, and are humble, empirical, and triangulatory. So, what should analysts interested in QOP do, and what should sponsors fund? I suggest the following.

Sponsors should focus their efforts on building adaptive analytical capacity.

Planning is about the future, so the fundamental task of planning analysis is to test the potential impacts of policy alternatives and thereby avoid unintended consequences. Historical trends and current status are interesting primarily because they provide a basis for planning. There is no valid basis for building a comprehensive, general QOP mega-model that can be parachuted into localities, because local circumstances, preferences, and motivating questions vary too much. A far better investment would be in data democratization, first to support local-scale data warehousing efforts, and second to employ “data intermediaries” to negotiate between people with questions and abstract sets of numbers (Sawicki and Craig, 1996). Given ubiquitous telecommunications capability, this analytical capacity could be spatially concentrated in a state capital or a university, provided that analysts understand that they have primarily a service mission.

Substantial expertise is still required to package data, create interfaces, and perform credible analysis, which puts such tasks beyond the reach of most lay parties. Thus, simply putting local GIS data on the Web is not an adequate solution, although it is a useful first step.

Sponsors should support efforts to detect the consequences of policies. Efforts to avoid unanticipated future consequences can be strengthened by learning from the recent past. Every policy, plan, or intervention should be viewed as an experiment that deserves monitoring (Talen, 1996). Even better would be to view each intervention as a test of an explicit theory, a theory that if articulated early could be evaluated later and provide an opportunity for social learning (Chen, 1990). Since unintended consequences are probably the strongest link between public policies and QOP, measurement of a broad range of consequences is the key. However, I am not calling for a tremendously subtle or technocratic measurement regime. The local political system already has built-in feedback mechanisms of “voice” and “exit” (Hirschman, 1970). If people don’t like the policies or conditions in a place they will complain and then leave. Thus policy makers and policy analysts most often need simply to respond to complaints. The exceptions are supra-local policy impacts where exit is not feasible, and problems with long gestation periods where voice comes too late. Such cases warrant vigorous prospective analytical efforts. Research identifying leading indicators of QOP would have particular value.

Analysts should perform nested analysis. Two dimensions of nestedness limit the value of existing QOP research. First is the hierarchy of human needs, which withholds political salience from higher-level aspirations until lower-level survival is assured. Thus, analysis of amenities needs to be linked to that of housing and the economy, for example. Second is federalism, which allocates decision-making responsibilities among multiple levels of government. Since local land use decisions play out within national

patterns of transportation infrastructure investment, the analysis should highlight the resulting intergovernmental tensions, for example. Nestedness implies complexity, indeterminacy, and no possibility of optimization. However, it can flag important interactions such as those between land use and transportation system planning (Huang, 1996).

Analysts should perform analysis that will be useful for people with diverse, changeable preferences. The distance between aggregate QOP measures and individual QOL perceptions can be large, and preference measurement is complicated by three factors. First, individuals are not identical, so that they are likely to express a range of preferences. Some people prefer baseball to opera, and others the reverse. Second, individuals vote with their feet, sorting themselves into places whose bundles of attributes they like better. Some people like shorter commutes and others larger lots, for example. Third, people adapt to the places they live, and change their preferences to reflect what is available. Some people in cities without opera companies learn to follow baseball. Diversity of preferences implies a need for analysis with fine spatial detail, measurement of a broad range of attributes, identification of patterns and possibilities, and again, no possibility of optimization.

Analysts should study change in a humbler way. Each place offers a unique bundle of amenities, and most people consciously locate themselves in places they like, all things considered. If the bundle of amenities changes, as when a rural community suburbanizes, then some residents will become unhappy. Local actors respond in diverse ways to impending change. Some leave. Some reject change and work to preserve the status quo, adopting a "drawbridge mentality." Some embrace change and seek to steer it in an optimal direction, as in vision planning. Some accept change but attempt to ensure gentle transitions by advocating growth management. Rather than choosing sides, if

analysts want to help these actors pursue a constructive dialogue they should identify the likely impacts of change and suggest ways to mitigate the impacts *no-one* likes. For example, analysts should remind people that fixed infrastructure elements like bridges often become congested during rapid growth.

Analysts should play to their strengths. Where theory is robust and prediction is feasible, use models. Otherwise stick to empiricism. For example, it is more feasible to model environmental than social phenomena, although environmental data are scarcer. When necessary, analysts should triangulate on QOP using multiple methods. A good model of urban growth will have a modular structure that accepts competing estimates of population change, for example.

Analysts should distinguish people from places. It is not universally appropriate (ethical, efficient, relevant) to focus on policies for places rather than people. Place-based analysis can be used to inform QOP-related decisions, but it often suffers from ecological fallacy when applied to QOL decisions.

Analysts should balance substance and process, instrumental and interpersonal considerations. Since the potential scope of QOP analysis is so broad, it needs to be tailored to local questions, reflect local interests, and gain local legitimacy in order to be relevant to local public debates. An ability to communicate findings—visually if possible—is as important to success as technical ability. Sponsors should support the training of analysts for work in this difficult, collaborative, participatory context.

References

- Alberti, Marina. 1999a. "Indicators of Community Sustainability: An Empirical Assessment." Department of Urban Design and Planning Working Paper. Seattle, WA: University of Washington.
- Alberti, Marina. 1999b. "Modeling the urban ecosystem: A conceptual framework." *Environment and Planning B: Planning and Design* **26**: 605-630.

- Ataov, Anli. 1998. "Environmental aesthetics." *Journal of Planning Literature* **13** (2): 239-257.
- Audirac, Ivonne. 1999. "Stated preference for pedestrian proximity: An assessment of New Urbanist sense of community." *Journal of Planning Education and Research* **19**: 53-66.
- Bates, Luane J., and Rexford E. Santerre. 1994. "The determinants of residential zoning: Some empirical findings." *Journal of Regional Science* **34** (2): 253-263.
- Batty, Michael. 1994. "A chronicle of scientific planning: The Anglo-American modeling experience." *Journal of the American Planning Association* **60** (1): 7-16.
- Bayless, Mark, and Susan Bayless. 1982. "Current quality of life indicators: Some theoretical and methodological concerns." *American Journal of Economics and Sociology* **41** (4): 421-437.
- Besleme, Kate, Elisa Maser, and Judith Silverstein. 1999. *A Community Indicators Case Study: Addressing the Quality of Life in Two Communities*. San Francisco, CA: Redefining Progress. Available on-line at <http://www.rprogress.org>
- Bish, Lucille, and Robert Hoffman. 1999. *A Strategic Approach to Integrated Land Use and Transportation Planning*. Ottawa, Canada: ROBBERT Associates. <<http://www.robbert.ca>>
- Blakely, Edward J., and Mary Gail Snyder. 1997. *Fortress America: Gated communities in the United States*. Washington, DC: Brookings Institution.
- Boarnet, Marlon. 1997. "Highways and economic productivity: Interpreting recent evidence." *Journal of Planning Literature* **11** (4): 476-486.
- Bradford, Susan. 1994. "Why I haven't bought in a TND." *Builder* (March): 100.
- Brechin, Stephen R., and Willet Kempton. 1994. "Global environmentalism: A challenge to the post-materialism thesis?" *Social Science Quarterly* **74** (2): 245-269.
- Bunnell, Gene. 1997. "Fiscal impact studies as advocacy and story telling." *Journal of Planning Literature* **12** (2): 136-151.
- Burby, Raymond J. 1999. "Heavy industry, people, and planners: New insights on an old issue." *Journal of Planning Education and Research* **19**: 15-25.
- Calthorpe, Peter. 1993. *The Next American Metropolis: Ecology, Community, and the American Dream*. New York: Princeton Architectural Press.
- Campbell, Angus. 1981. *The Sense of Well-Being in America: Recent Patterns and Trends*. New York: McGraw-Hill.
- Champton, David. 1999. "The curse of the immobile worker." *Harvard Business Review* (May-June): 17, 20.

- Chen, Huey-tsyh. 1990. *Theory Driven Evaluations*. Thousand Oaks, CA: Sage Publications.
- Cho, Yong H. 1983. "Public policy and quality of life in American cities: A search for linkage." *International Journal of Public Administration* **5** (4):
- Cobb, Clifford W., and Craig Rixford. 1998. *Lessons Learned from the History of Social Indicators*. San Francisco, CA: Redefining Progress. Available on-line at <http://www.rprogress.org>
- Criterion Planners/Engineers, Inc. 1999. *INDEX: Software for Community Indicators*, brochure. Portland, OR: Criterion.
- Curry, Michael R. 1997. "The digital individual." *Annals of the Association of American Geographers* **87** (4): 681-699.
- Cutter, Susan. 1985. "Rating places: A geographer's view on QOL." Washington, DC: American Association of Geographers.
- Evans and Sutherland, Inc. 1999. *E&S RAPIDsite*. Software for in-context visualization for land development.
- Farley, Reynolds, Elaine Fielding, and Maria Kaysan. 1997. "The residential preferences of blacks and whites: A four-metropolis analysis." *Housing Policy Debate* **8** (4): 763-800.
- Fishman, Robert. 1999. "The American Metropolis at Century's End: Past and Future Influences." Pp. 1-12 in *Legacy of the 1949 Housing Act*. Washington, DC: Fannie Mae Foundation.
- Flax, Michael J. 1978. *Survey of Urban Indicator Data*. Washington, DC: Urban Institute. Cited in Sawicki and Flynn, 1996.
- Gallup Organization. 2000. Gallup Social and Economic Indicators: Most Important Problem. Longitudinal summary on Web at <http://www.gallup.com/poll/indicators/Infmip.asp>. Princeton, NJ: Gallup Organization.
- Gottlieb, Paul D. 1995a. "Residential amenities, firm location, and economic development." *Urban Studies* **32** (9): 1413-1436.
- Gottlieb, Paul D. 1995b. "The 'golden egg' as a natural resource: Toward a normative theory of growth management." *Society and Natural Resources* **8**: 49-56.
- Greenberg, Michael R. 1999. "Improving neighborhood quality: A hierarchy of needs." *Housing Policy Debate* **10** (3): 601-624.
- Greenberg, Michael R., and Dona Schneider. 1996. *Environmentally Devastated Neighborhoods: Perceptions, Policies, and Realities*. New Brunswick, NJ: Rutgers University Press.

- Green Mountain Institute for Environmental Democracy (GMIED). 1997. *State Environmental Indicator Activity*. Montpelier, VT (December). Report available on-line at <http://www.gmied.org/>
- Griffith, Jean M. 1995. "Gentrification: Perspectives on the return to the central city." *Journal of Planning Literature* **10** (1): 21-255.
- Guhathakurta, Subhrajit. 1999. "Urban modeling and contemporary planning theory: Is there common ground?" *Journal of Planning Education and Research* **19** (4): 281-292.
- Haughwout, Andrew. 1999. "Regional fiscal cooperation in metropolitan areas: An exploration." *Journal of Policy Analysis and Management* **18** (4): 579-600.
- Hirschman, Albert O. 1970. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Cambridge, MA: Harvard University Press.
- Hodge, Tony. 1996. Presentation summarized on pp. 26-28 of the *Proceedings of the Colorado Forum on National Community Indicators*, sponsored by the Colorado Trust, Redefining Progress, and the White House Interagency Working Group on Sustainable Development Indicators. Prepared by Patricia Scruggs and Associates. Available on-line at <http://www.rprogress.org>
- Hopkins, Lewis D. 1999. "Structure of a planning support system for urban development." *Environment and Planning B* **26**: 333-343.
- Houston, Lawrence O. 1997. *Business Improvement Districts*. Washington, DC: Urban Land Institute.
- Huang, Herman. 1996. "The land-use impacts of urban rail transit systems." *Journal of Planning Literature* **11** (1): 17-30.
- Hubbard, Caroline. 1999. "Building tomorrow's development today." *Shopping Center World* (May 30).
- Hughes, James W., and Joseph J. Seneca. 1999. "The emerging wealth belt: New Jersey's new millenium geography." Rutgers Regional Report Issue Paper No. 17, New Brunswick, NJ: Rutgers University.
- Inglehart, Ronald. 1977. *The Silent Revolution: Changing Values and Political Styles Among Western Publics*. Princeton, NJ: Princeton University Press.
- Klosterman, Richard E. 1999. "The What If? Collaborative planning support system." *Environment and Planning B: Planning and Design* **26** 393 - 408.
- Knaap, Gerrit. 1998. "The determinants of residential property values: Implications for metropolitan planning." *Journal of Planning Literature* **12** (3): 267-282.
- Kunstler, James. 1996. "Home from nowhere." *The Atlantic Monthly* **278** (3): 43-66.

- Landis, John D., and David S. Sawicki, 1988. "A planner's guide to 'Places Rated Almanac.'" *Journal of the American Planning Association* **54** (3): 336-346.
- Langdon, Philip. 1994. *A Better Place to Live: Reshaping the American Suburb*. Amherst, MA: University of Massachusetts Press.
- Lee, Douglas B., Jr. 1994. "Retrospective on large-scale urban models." *Journal of the American Planning Association* **60** (1): 35-40.
- Lee, Douglas B., Jr. 1973. "Requiem for large-scale models." *Journal of the American Institute of Planners* **39** (3): 163-178.
- Lee, Kai N. 1993. *Compass and Gyroscope: Integrating Science and Politics for the Environment*. Washington, DC: Island Press.
- Lim, Gil Chin. 1986. "Toward a synthesis of contemporary planning theories." *Journal of Planning Education and Research* **5** (2): 75-85.
- Liu, Ben-chieh. 1976. *Quality of Life Indicators in Metropolitan Areas*. New York: Praeger.
- Loftus, Geoffrey. 1999. Comments at a workshop on Quality of Place sponsored by the New Jersey Office of State Planning and the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, New Brunswick, NJ (November 12) <http://radburn.rutgers.edu/andrews/projects/qop>.
- Loftus, Geoffrey. 1985. "Say it ain't Pittsburgh." *Psychology Today* (June): 8-10.
- Markusen, Ann, Scott Campbell, Peter Hall, Sabrina Deitrick, Sabina Dietrich. 1991. *The Rise of the Gunbelt: The Military Remapping of Industrial America*. New York: Oxford University Press.
- Maslow, Abraham H. 1970. *Motivation and Personality*. 2nd ed. New York: Harper and Rowe.
- Massey, Douglas, and Nancy Denton. 1993. *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.
- Milbrath, Lester. 1979. "Policy relevant quality of life research." *Annals. AAPSS* **444**: 32-45.
- Morris, Elizabeth W. 1996. "Community in theory and practice: A ramework for intellectual renewal." *Journal of Planning Literature* **11** (1): 127-150.
- Mumphrey, Anthony J., Jr., and Krishna M. Akundi. 1998. "The suburban dependency hypothesis, reconsidered." *Journal of Planning Literature* **13** (2): 147-157.
- Myers, Dowell. 1989. "The ecology of 'quality of life' and urban growth." Pp. 87-104 in *Understanding Growth Management: Critical Issues and a Research Agenda*, eds. David J. Brower, David R. Godschalk, and Douglas R. Porter. Washington, DC: Urban Land Institute.

- Myers, Dowell. 1988. "Building knowledge about quality of life for urban planning." *Journal of the American Planning Association* **54** (3): 347-359.
- Myers, Dowell. 1987. "Internal monitoring of quality of life for economic development." *Economic Development Quarterly* **1** (3): 268-278.
- New Jersey Department of Environmental Protection (NJDEP). 1997. *Environmental Directions for New Jersey: Performance Partnership Agreement*. Trenton, NJ.
- New Jersey Future. 1999. *Living with the Future in Mind: Goals and Indicators for New Jersey's Quality of Life*. Trenton, NJ. <<http://www.njfuture.org>>
- New Jersey, State of. 1999. Garden State Preservation Trust Act (N.J.P.L. 1999, c. 152).
- Norris, D.A., and J.M. Norris. 1986. "Places Rated berated." *American Demographics* **8** (March): 8-9.
- Orr, Wilson. 1999. *Ugrow: An urban growth model*. Prescott, AZ: Sustainability and Global Change Program, Prescott College.
<<http://www.prescott.edu/nasa/urban.htm>>
- Patnode, Paul. 1999. *The CommunityWorks planning support system: Integrating GIS, virtual reality, and impact assessment*. Environmental Simulation Center, Ltd.
- Powers, Mary Buckner. 1999. "EPA bends own rules for Atlanta." *Engineering News-Record* (September 20): 12.
- Raphael, Dennis. 2000. "From increasing poverty to social disintegration: How economic inequality affects the health of individuals and communities." Chapter to appear in Hugh Armstrong, Pat Armstrong, and David Coburn, eds., *The Political Economy of Health and Health Care in Canada*. Toronto: Oxford University Press.
- Raphael, Dennis. 1999. Comments at a workshop on Quality of Place sponsored by the New Jersey Office of State Planning and the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, New Brunswick, NJ (November 12) <http://radburn.rutgers.edu/andrews/projects/qop>.
- Raphael, Dennis. 1996. "Defining quality of life: eleven debates concerning its measurement", in R. Renwick, I. Brown, and M. Nagler, eds., *Quality of Life in Health Promotion and Rehabilitation: Conceptual Approaches, Issues, and Applications*. Thousand Oaks, CA: Sage Publications.
- Redefining Progress. 1999. *Community Indicators Profile Survey: Summary of Findings*. San Francisco, CA. Summarized on-line at <http://www.rprogress.org>
- Rolleston, Barbara. 1987. "Determinants of restrictive suburban zoning: An empirical analysis." *Journal of Urban Economics* **21**: 1-21.

- Ryan, Sherry. 1999. "Property values and transportation facilities: Finding the transportation-land use connection." *Journal of Planning Literature* **13** (4): 412-425.
- Sawicki, David S. 1999. Comments at a workshop on Quality of Place sponsored by the New Jersey Office of State Planning and the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, New Brunswick, NJ (November 12) <http://radburn.rutgers.edu/andrews/projects/qop>.
- Sawicki, David S., and Craig, William J. 1996. "The democractization of data: Bridging the gap for community groups." *Journal of the American Planning Association* **62** (4): 512-523.
- Sawicki, David S., and Patrice Flynn. 1996. "Neighborhood indicators: A review of the literature and an assessment of conceptual and methodological issues." *Journal of the American Planning Association* **62** (2): 165-183.
- Schneider, Mark. 1976. "The quality of life and social indicators research." *Public Administration Review* (June/July): 301.
- Stamps, Arthur E., III. 1999. "Demographic effects in environmental aesthetics: A meta-analysis." *Journal of Planning Literature* **14** (2):155-175.
- Talen, Emily. 1996. "Do plans get implemented? A review of evaluation in planning." *Journal of Planning Literature* **10** (3): 248-259.
- Thayer, Ralph E., and K. Michael Reynolds. 1997. "Community oriented policing." *Journal of Planning Literature* **12** (1):93-105.
- Tiebout, Charles M. 1956. "A pure theory of local expenditures." *Journal of Political Economy* **64** (October): 416-424.
- Varangu, Anne. 1998. "Taking a holistic approach to suburbs." *Journal of Planning Literature* **12** (4):469-547.
- Wee, Hong-Ling. 1999. "Quality of life assessment: A literature review." Bloustein School/Dept. of Geography working paper, New Brunswick, NJ: Rutgers University.
- Wegener, Michael. 1994. "Operational urban models: State of the art." *Journal of the American Planning Association* **60** (1): 17-29.
- Wish, Naomi B. 1999. Comments at a workshop on Quality of Place sponsored by the New Jersey Office of State Planning and the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, New Brunswick, NJ (November 12) <http://radburn.rutgers.edu/andrews/projects/qop>.
- Wish, Naomi B. 1986a. "Are we really measuring quality of life?" *American Journal of Economics and Sociology* **45** (1): 93-99.

- Wish, Naomi B. 1986b. "Some issues about the 'quality' of sunbelt/frostbelt life." *American Journal of Economics and Sociology* **45** (3): 343-357.
- World Commission on Environment and Development (WCED). 1987. *Our Common Future*. Oxford: Oxford University Press.
- Wyly, Elvin K. 1999a. Comments at a workshop on Quality of Place sponsored by the New Jersey Office of State Planning and the Edward J. Bloustein School of Planning and Public Policy at Rutgers University, New Brunswick, NJ (November 12) <http://radburn.rutgers.edu/andrews/projects/qop>.
- Wyly, Elvin K. 1999b. "Continuity and change in the restless urban landscape." *Economic Geography* **75** (4): 309-338.
- Wyly, Elvin K., and Hammel, Daniel J. 1999. "Islands of decay in seas of renewal: Housing policy and the resurgence of gentrification." *Housing Policy Debate* **10** (4): 711-771.
- Wyly, Elvin K., and Steven R. Holloway. 1999. "The color of money revisited: Racial lending patterns in Atlanta's neighborhoods" *Housing Policy Debate* **10** (3): 555-600.

