

Cities and Sustainable Economic Development

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ABSTRACT

What is “sustainability”? How clear is it? How useful? It is impossibly vague. But *sustainable economic development* (SED) suggests a clear enough set of ideas for a useful discussion. I argue that SED is the real sustainability. I show that how we acknowledge the emerging order of urban settlement contributes to our understanding of SED. It follows that if we seek light-touch urban policies, letting our cities develop mostly bottom-up, we could achieve greater prosperity.

KEYWORDS

Cities, sustainable economic development (SED), agglomeration, innovation, growth

INTRODUCTION

“Sustainability is the process of maintaining change in a balanced environment, in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.” (Wikipedia)

“The most astonishing thing about the extraordinary growth and innovation that the U.S. and other economies have achieved over the past two centuries is that it does not astonish us.” (Baumol, Litan, and Schramm 2007)

“Capitalism has saved a couple of billion people and we have treated this miracle as a state secret.” (Brooks 2015)

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Is there a useful “sustainability”? Some writers (Cowen 2018, McCloskey 2019) make the case for *sustainable economic development* (SED) as an ethical imperative. As people become wealthier, they have more choices. As they exercise more choices they become more prosperous. Also, as people become richer and more secure, they become more tolerant, less violent, more literate, and pollute less. World inequality also falls. Phelps (2013) calls it *Mass Flourishing* and also “the good life.”¹ The link between freedom and prosperity is clear. I argue that this includes letting markets guide urban development. Ironically, the practice in the urban planning field is to do the opposite.

Man and beast know not to eat the seed corn. Provisioning for the future is fundamental. Economists have developed formal models that establish how much to put aside. But the formal models are weaker than they look. They necessarily rely on strong assumptions that include presumed knowledge about many things, including the pace of technological change. Yet the pace and the nature of technological change are not knowable. The further into the future the time horizon, the more so. A related problem is that formal models deal in aggregates, leaving out essential

information. Capital is much more complex than k or $k(t)$ in a system of equations. Heterogeneous capital means that hammers are not substitutable for harbors and vice-versa. (Ikeda 2017)

An additional problem is that we may disagree about what to include in measures of wealth or well-being. Cowen (2018, p.30) suggests “wealth plus”². He wants to expand measured GDP, adding the value of leisure time, household production³ and environmental amenities. To be sure, all three bring their own measurement problems and controversies.

In what follows, I argue that the growth discussion requires us to understand the nature of cities and how they are essential to SED. Here are the views of one of the most prominent thinkers on models of economic growth:

“The particular aggregate models I have set out utilize the idea of human capital quite centrally, but assign a central role as well to what I have been calling the external effects of human capital. This latter force is, it seems to me, on a quite different footing from the idea of human capital generally: The twenty years of research I have referred to earlier is almost

¹ “Is there some action a government of India could take that would lead the Indian Economy to grow like Indonesia’s or Egypt’s? If so, what, exactly? If not, what is it about the ‘nature of India’ that makes it so? The consequences for human welfare involved in questions like these are simply staggering: *once one starts to think about them, it is hard to think about anything else.*” (italics added) (Robert 1985)

² Similar to Social Progress Index by Fehder et al. (2018)

³ Already available in NIPA Satellite Accounts. <https://www.bea.gov/data/special-topics/household-production>

exclusively concerned with the internal effects of human capital, or with investments in human capital the returns to which accrue to the individual (or his immediate family). If it is this research that permits us to ‘see’ human capital, then the external effects of this capital must be viewed as remaining largely invisible, or visible at the aggregative level only. For example, in section 4 I arrived at an estimate of $\gamma = 0.4$ for the elasticity of U.S. output with respect to the external effects of human capital on production. Does this seem a plausible number? Or, putting the question in a better way: Is $\gamma = 0.4$ consistent with other evidence? But what other evidence? I do not know the answer to this question, but it is so central that I want to spend some time thinking about where the answer may be found. In doing so, I will be following very closely the lead of Jane Jacobs, whose remarkable book *The Economy of Cities* (1969) seems to me mainly and convincingly concerned (though she does not use this terminology) with the external effects of human capital.” (Lucas, 1988, p 36-37).

Cities are widely seen as “engines of growth”.⁴ They facilitate cooperation and inventiveness. I argue that this means they facilitate the emergence of large numbers of supply chains, including supply chains for ideas. This

also means that cities’ very complex structure is emergent and essential to prosperity. The spatial patterns that emerge reflect and locate the many (evolving) supply chains that underlie our prosperity.⁵

Start with the best-known fact about the long run spatial development of cities: ever outward growth (Figure 1). Successive stages of urban spatial pattern development have reflected ever-advancing technologies that make overcoming the frictions of distance ever less costly. (Mueller 2004) To be sure, there is also historical lock-in and durability. Older forms and older densities persist in many older parts of town. The process and the sequencing continue with modern advances in electronic communication. Add it all up and we get commuting *near as well as far* (Figure 2). But the story also accounts for *agglomeration near and far*, the topic of this paper.

Fastest growing places are not the densest places

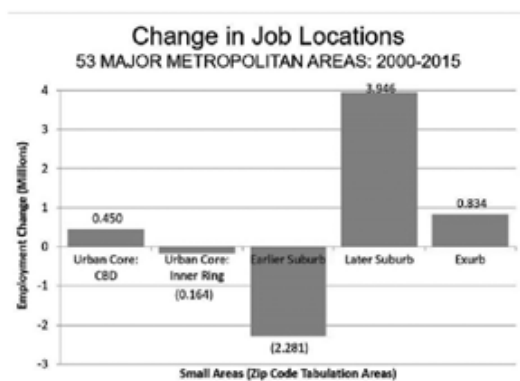


Figure 3
<http://www.newgeography.com/content/005650-dispersed-cities-starting-3rd-decade>

Figure 1: Most job growth in outlying areas

⁴ “The city is the cradle of culture, and the birthplace of nearly all of our most cherished ideas.” (Watson 2011, p. 272)

⁵ Kling’s (2013) “production paths” seeming include both sorts of chains mentioned here. “Production paths are long and complex. Paths change as people make new discoveries.”

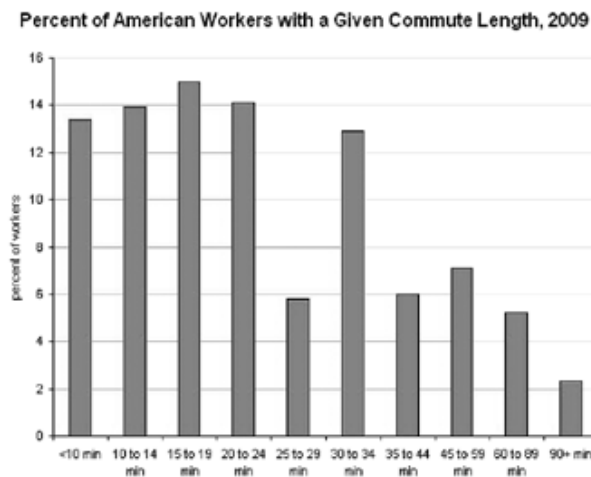


Figure 2: Cities spread outward; commuting near as well as far

Source: U.S. Census Bureau, American Community Survey, 2009

GROWTH, PRODUCTIVITY, CITIES, IDEAS

SED happens when (1) capital flows to productive uses; and when (2) productivity grows.⁶ The two cannot be untangled; most new capital embodies new technology. So, how do capital accumulation and technological advance come about? Both must be encouraged (certainly not discouraged) by the institutional environment. Specifically, institutions that strengthen property rights matter. Of these, I argue that institutional arrangements that allow productive spatial arrangements in cities to emerge are essential.

Unlike Lucas, I discuss economic

growth and how it comes about without the neoclassical modeling paraphernalia of “optimization” or “equilibria” – or “nirvana economics”. (Demsetz 1969)

We know that people naturally seek to improve their situation, mostly via slow trial-and-error learning. Some will fail and some will succeed. But, as Lucas suggests, we cannot discuss productivity and technological change without discussing cities. Why are there cities? What do people (and firms) in cities want? They want space and they want access. They, therefore, evaluate tough trade-offs. Why do they value access? They want to exchange things and ideas.^{7 8}

Just as Coase (1937) highlighted entrepreneurs’ challenge, deciding what to make vs what to buy, I add that this involves choosing what to make and buy and sell *where*. Supply chains, for ideas and for things, have a spatial dimension. This too is decentralized and emergent. This is how we get cities, specifically how we get the composition, layout and form of cities. It is also how we get *realized* networks, interactions and relationships.

New (including re-made, e.g., “new and improved”) things are new combinations of old (existing) things. New ideas are new combinations of old

⁶ Formal measurements of productivity are fraught. The *quality* of our labor is hard to assess except via market tests.

⁷ They are social and they economize. Can we ever unscramble these? For this discussion, we do not have to.

⁸ In fact, people can surely do both at the same time: in most cases, “knowhow” (Carter 1989) is exchanged when there is a transaction. There can also be learning without any obvious transaction taking place.

ideas. Usually, new ideas before new goods. Both involve people interacting. People interacting and transacting do so via the many networks they form. This is the story of markets and comparative advantage. People form and maintain *supply chains*. These include supply chains for things as well as supply chains for ideas.

Supply chains for things are long recognized and appreciated. But there are also supply chains for ideas, formed similarly. Most ideas are not simply public goods that are “in the air”. Rather, in order to be productive, people hunt for *useful* ideas: useful to them and their enterprise at the moment. Just as some goods, more than others, belong in specific supply chains for goods, various ideas are sought because they are thought to fit into a particular chain of ideas.

When goods are exchanged, it is likely that “knowhow” is also exchanged. But ideas can also be sought and cultivated on their own – usually in anticipation of their being useful in a productive effort.⁹ In most (not all) cases, it is fairly clear that the entrepreneurs involved have some inkling of what may be useful. The entrepreneurial zeal with which useful new knowledge is sought *in order to create more new knowledge* outweighs the fact of its presumed publicness. The textbook public goods nature of ideas has been presumed to

dash the zeal with which people pursue ideas. But this makes little sense. The discovery of new ways of doing things enriches entrepreneurs -- and also all the rest of us.

Man and beast know that the acquisition (and processing) of *useful* information is essential to survival. For the case of humans, this applies to the acquisition of useful *ideas* which can be thought of as garnished information. Just as there are supply chains for things, there are spontaneously developed supply chains for ideas. We note where we found the nuggets and may go back for more.

Everyone participates in many of both types of supply chains, the ones for goods and the ones for ideas. This suggests that firms and people chose a location based on their many supply chain roles and activities – as suppliers as well as buyers. In any year, how many purchases and sales do we engage in – in how many places? When we chose a location, it is in the hope that our knowledge and product prospects are enhanced.

This suggests that the supply chains involved and their spatial configurations are emergent. In the modern era, either type of chain can have links that extend near as well as far.

An important fact about modern cities is that the big get bigger. But

⁹ Contra Marshall (1890) who famously stated that in cities, “The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously.” Anne Carter refers to “knowhow trading” which extends to the end of the chain involving important interactions with final consumers.

how? Mostly by expanding outward. This denotes that the big cities have seemingly found ways to avoid scale diseconomies -- and keep on finding and exploiting *net* scale economies. Table 1 shows population rankings for the ten largest U.S. urbanized areas in each of the last six census years. The size rankings are most stable at the top (last column of the table). Most growth has been at the edges. The widely noted fears of “sprawl” are not simply mistaken but misconceived.

Some writers allude to “death of distance” or a “flat” world. Let the data rather than the people commute; let the people locate anywhere. But this overlooks the fact that substantial *tacit* information must be exchanged, not just reams of codified data. People know more than they can easily tell or relate. This underscores the value of conversations (often extended and repeated) that emanate from and sustain established trust relationships. All this helps to explain the finding that “[m]ore than traditional industries, the knowledge economy has an inherent tendency toward geographical agglomeration” (Moretti 2012, p.5).

Building and maintaining supply chains requires building and maintaining trust relationships. Being social is part of being economic. We need not choose between a narrow vs. a non-narrow conception of people. Successful transacting involves social as well as economic skills and ambitions. We cannot easily unscramble these. Boyer (2018, p.245) explains: “Humans

stand apart from other species in the amount and diversity of information they acquire by paying attention to other humans’ behavior, to what others do, and, crucially, to what they say. It is difficult for us to realize how much information is socially transmitted, because the amount is staggering and the process is largely transparent.” People have been meeting in market places and forums and stadia (and public baths) for most of recorded history. These offer opportunities for serendipitous encounters. And establishing and maintaining trust relationships requires some physical presence. “The problem with the internet is that he cannot look her in the eye through a screen, and she cannot ‘feel’ or ‘touch’ him. It is a medium that may help to sustain relationships, but it does not establish deep and complex contacts” (Leamer and Storper 2001).

The benefits of discovery are usually weighed against the associated risks of moving into the unknown. Cities mitigate some of the risk by offering scale and variety and choice. The bigger, the better. Forming and *maintaining* relationships also mitigates risk. Location patterns, location choice, discovery, and risk mitigation all occur together.

DENSITY, PLANNING, LAND USE

Anyone’s terms of trade improve when they become more productive. Most

people know this almost instinctively. What do we know about *how* we get enhanced productivity? Much involves enhanced inventiveness which is most likely to occur in cities where people can meet and exchange ideas. But most people who study these phenomena have been satisfied with the notion that area-wide population density is a good proxy measure of how cities benefit inventiveness. Higher densities suggest the possibility for more interactions.

While basically correct, most analysts' reliance on area-wide density introduces two problems. First, what is the relevant boundary of the "city?" Surely, not the conventional and somewhat arbitrary administrative/political units. Second, the overall approach leaves no room for the fact that complex spatial patterns denote many densities to accommodate many tastes and many situations. A single overall (average) density measure is not informative enough. Large cities (large labor markets) offer many opportunities. Everyone seeks many interactions. This includes interactions near as well as less near. We chose many interactions, over many distances and involving many modes. "Spatial proximity" is unclear and can denote many things. It can be misleading. Location choice is complex.

At what distance do *potential* externalities become *realized* externalities? At what distance do alternate modes of communication and travel become cost-effective? For many people, the possibility of externalities is *prima facie* evidence of

market failure -- and an argument for political intervention. From welfare economics, there are well-known policy prescriptions on how to internalize externalities. From Coase we also know that when property rights are clear and transactions costs manageable, market forces will limit the distortionary effects of negative externalities. Any remaining externalities problems can conceivably be mitigated via policies that prescribe internalizing taxes and subsidies. But there may be less to be mitigated via taxes and subsidies than we might expect because the spatial arrangements *that emerge -- when we let them --* are a spontaneous remedy for many potential externalities problems. Consider the following simple example.

"In many economics textbooks, the presence of externalities is invoked as a justification for government intervention in the marketplace. Yet the private sector often finds its own solutions to externality problems. This is the secret of the shopping mall's success. Because a property developer owns the entire shopping complex, its profits depend on the entire mall, not on any particular shop. By choosing the right mix of tenants and charging rents that reflect each store's contribution to the mall's overall revenues -- including the business it brings to other stores -- the developer can 'internalize' the externality and maximize its profits." (*The Economist*, March 1, 1997)

Private mall developers, as residual

claimants, know it is in their interest to arrange land uses in ways that internalize many externalities, the negative ones as well as the positive ones. While public zoning is supposed to minimize negative externalities, the private mall is designed to also exploit positive externalities where possible. (Pashigian and Gould 1998) Note also that the challenge of addressing externalities (rules or incentives) is lessened if private owners have found spatial arrangements that lessen many uncompensated externalities problems. Potential externalities are not the same as realized externalities. Even the knotty problem of reciprocal externalities is here left to the residual claimant.

The mall example poses the following question: up to what scale can such outcomes be expected? How large and how numerous can viable islands of purposeful planning be? The land use policies discussed by most people who write about cities involve large-scale and top-down guidance. But can any human mind possess enough knowledge?

Consider contrasts with the private mall example. Public land use planners claim that their plans are crafted to avoid negative externalities between “incompatible” land uses. This assumes significant top-down knowledge and responsibility. To make it worse, not only are top-down efforts hampered by the knowledge problem, but those at the top are inevitably tempted by cronyism and politics.

Nevertheless, modesty by urban planners is not forthcoming. Planners have gone beyond the original ambitions and now strive to shape urban development in the hope of alleviating complex social and environmental problems. “New urbanism”, “containment”, “transit-oriented development” and, of course, “sustainability” are popular. High housing prices have been a consequence as have been rail transit projects that bust budgets but disappoint in terms of ridership.

One movement worth noting has been the growing number of communities in the U.S. (usually outside the large cities) that are developed in a fashion reminiscent of the shopping mall. The movement can involve greater purview for private zoning via private communities and homeowner associations. Initial land use design is via a market-oriented developer. Subsequent decisions are via whatever process the homeowner association adopts. But this also involves politics albeit at a more local level.

Nelson (2002) optimistically referred to this as a “quiet revolution” and the “privatization of zoning.” Profit-seeking developers are the planners. They assemble the raw land and engage in finance, planning, development and sales. Subject to various state laws they also draft rules of governance. They eventually hand off governance to a homeowners association or divide it between an association and the local government, depending on the

circumstance. Residents prefer a more local level of control; many traditional governments are happy to hand off responsibilities over to this new level of government. Nelson argues that competition between developers suggests that just as the many physical features of the “proprietary communities” emerge from market competition, the rules of governance are also subject to market forces which bring forth more efficient private property value-enhancing “rules of the game”. In any particular setting, does a rule that there can be no loud parties after 9pm or after 10pm add more to residential values? Serious developers would make it their business to know. Innovation and experimentation are the best way to find out.

PLANNING AND AGGLOMERATION

Decreasing returns describe the world of the early neo-classicists, notably Malthus. But this was also a world that many were incentivized to leave behind. Urban economists emphasize that thriving cities and “agglomeration” economies offered an avenue of escape. Some are optimistic that the process can be somehow augmented and prescribe policies to encourage the spatial clustering of activities to prompt agglomeration economies. “Innovation clusters” are often included in regional plans as a goal.

But do we know enough about how large numbers of complex supply

chains are formed and managed to prescribe spatial policies? Designers are good at designing structures (large and small) as well as everything that goes inside these buildings. But how far can this design capability be scaled up? Brasilia and many other scale-up attempts are considered failures in terms of their inability to develop as originally promoted. Dreams of scaling up to the planning of desired spatial arrangements for a whole city or region run into the reality that at some scale it inevitably becomes more a matter of human action (and all the dynamic but often slow improvements from trial-and-error and tinkering and learning involved) than human design. Human design capabilities have limits. “A city is not a work of art.” (Jacobs 1961) Top-down ambitions must be tempered by what planners and designers can *reasonably* expect they can know (and accomplish) with any degree of confidence.

More than one author has suggested that agglomeration and electronic communication can be seen as substitutes *or* complements. A network of contacts can mean many things. Managers of firms evaluate the possibilities and look for the *blend* of communications channels and modes that works best for them. This choice informs their concurrent evaluation of location choices.

Moretti’s discussion of agglomeration is mostly about transactions-based linkages and *local* “multipliers” – including the importance of linkages to

thick labor markets. Many people find jobs via personal leads. And workers are valuable for the special skills they bring which include the ideas they have accumulated on previous jobs. “Knowledge spillovers” are key.

Gordon and Cho (2019) have shown, in case studies of the Los Angeles and San Francisco metropolitan economies, that very little of *nearby* co-location between businesses is explained by inter-industry input-output relationships between the sectors involved. People (and firms) are willing to pay a price (often a very big one) to ease access to things and people. In the modern age, the latter may be more important as it includes access to ideas and complex (often cumulative ongoing) conversations. These include opportunities to build trust¹⁰ and tight relationships. All of this this suggests that other attractions beyond commodity transaction-based linkages are involved. Complicated trade-offs and choices practically *define* location decisions.

LIGHT-TOUCH PLANNING

How would a more plausible lighter-touch planning look? How might development rules be reformed in light of wisely dispersed knowledge? There are not many examples. Holcombe (2012) notes that everyone plans;

he suggests a division-of-labor. In his view, top-down (usually public) planners should focus their efforts on long-term major infrastructure plans; bottom-up (usually private) planners would take these as rules of the game and then make plans for their own projects; these would be essentially land use projects and the local infrastructure that serves them. Private developers move on their investments *after* they have a plan. These plans are likely to be better informed than those by public officials who have shorter time horizons (perhaps the next election) and less at stake but who have wider ambitions. But top-down planners are in a better position to plan *major* city infrastructure far in advance. The New York City Commissioners’ Plan of 1811 was the original design for the streets of Manhattan, north of Houston Street and south of 155th Street. Long before most of the area under consideration was developed, it put in place a rectangular grid layout of streets and lots that defines Manhattan to this day. It has been hailed as spectacularly resilient and “incredibly visionary” (Barr 2016, p. 88.)¹¹ Bottom-up private project planners have seen these layouts as essential “rules of them game” and have fashioned their private land use plans accordingly. Barr (2016) noted that, “In the end, if the main objective of the Grid Plan was to create a well-functioning urban land market, it was a success” (p.69).

¹⁰ It is impossible to over-estimate the important of trust – and how it is cultivated. “We must encourage social and material exchange between equals for that is the raw material of trust, and trust is the foundation of virtue” (Ridley 1997, p. 265). High-trust societies are most prosperous (2019).

¹¹ Bertaud (2018) suggests there are other examples but only a few.

In this view, the two planning efforts are complementary. We would then encounter difficulties when we do not respect the limits of top-down planners' capabilities. But, as Bertaud (2018) notes, "[f]or some planners, however, limiting planning to the design of a street layout is not ambitious enough" (p.70). Bertaud prefers a division of labor similar to the one suggested by Holcombe (2012). He also suggests how city planning practice can be reformed so as to be more cognizant of market trends and forces.

Are there other plausible models of light-touch planning? Not many. Staley and Scarlett (1997) have suggested how local public planning can be scaled back and limited. They are quite specific. Here is their suggested guidelines (pp i and ii)

- Planning should include a presumption in favor of property owners, requiring public hearings only if parties directly affected by the project identify tangible impacts on their interests. This approach does require that developers properly notice neighbors of proposed developments.
- Local planning decisions should be protected from regional or state interference unless a clear public interest exists or regional spillover effects are not addressed in the proposed plan.
- Developers should be expected to modify projects to minimize negative impacts, but these impacts should be tangible and measurable.
- Planning boards should adopt zoning districts that accommodate a large number of uses to facilitate changing needs.
- Cities should adopt administrative review processes that set forth clearly defined criteria

for what is acceptable by local planning boards.

- Property owners and developers should bear the costs of property development, including infrastructure directly associated with that development. However, property owners should be given latitude to determine what kind of infrastructure is appropriate.
- Standing in public hearings should be limited to parties clearly and directly affected by a proposed development.
- Development approval should be based on a set of clearly defined and stable rules, rather than on prescribing specific land-use outcomes. Stability can be enhanced by requiring a supermajority to modify planning board decisions and by requiring pre-application meetings.

Would the outcomes, if they came to be, have a plausible expectation of autonomy from non-light touch governance higher up the federal system? That can be a stumbling block. U.S. housing policy has been described as national government support for demand and local government efforts to restrict supply. Housing affordability problems inevitably result. These hamper home ownership prospects for newly formed households.

Variants of the Staley-Scarlett suggestions, best suited to local circumstances, are clearly possible. The nature of fast-changing and unpredictable technological change argues for the flexibility inherent in the light touch suggestion. An *approach* sensitive to local conditions and *congenial to entrepreneurial experimentation* has the best chance of developing the spatial arrangements

that work, including workable spatial dimensionality and industry mix. This supersedes the debate over whether regional industrialization specialization or diversity are the better regional planning strategy. Like the other attributes of local industrial development, the most promising spatial organization and industry mix are more likely to emerge bottom-up than be determined via analysis and then promoted top-down. Local area industry mix is inevitably complex and includes peculiar degrees of specialization as well as diversity.

Ironies abound. Mills (2002) in “Truly Smart Growth” argues that top-down planners should back off from “smart” ambitions and consider the market processes at work as cities grow. Bertaud (2018) makes the same point. Benign processes are often stymied by politically-inspired rules and restrictions – and many of them touted as “smart”.

But the planning zeitgeist is in the almost opposite directions from a light touch. Public choice economics (although its champion and articulate expositor James Buchanan was awarded the Nobel Prize in economics in 1986 and significant work followed via the Virginia school of public choice (and many others)) has had little impact on discussions in “mainstream” economics or public policy or city planning. In economics there are still elaborate models that assume a benign and omniscient “social planner.” These

models do recognize that “nirvana economics” is implausible but revert to market failure discussions and (again) rescue by some sort of omnipotent and omniscient public sector, e.g., another implausible nirvana.

The many restrictions that smart growth advocates prescribe have prompted high housing prices – and “affordability” problems. There are, to be sure, also demand effects but the effects of restricted housing supply are clear and remediable if more scope for market forces is allowed. There is considerable evidence for this entirely plausible outcome. The straightforward prescription for enhanced consumer well-being is a less restrictive housing policy (Salem 2016).

Nevertheless, a large literature advances claims that it is necessary *and* feasible to arrest “sprawl” and achieve instead the “smart growth” of cities and regions, usually via bold top-down planning and even involving “master plans.” But is the outward growth that has characterized practically all major cities for almost all years for which we have data really a problem? And, ironies aside, how plausible is it that “smart” top-down planners can really better manage urban growth?

The critics do not see that the big cities continue to grow *outward* and prosper because they have seemingly found ways to avoid scale diseconomies and reap scale economies.¹² Market

¹² Evidence for this phenomenon in cities around the world can be found at this site. <http://www.newgeography.com/category/story-topics/evolving-urban-form>

processes have seemingly found spatial patterns that work. These patterns are complex and mostly involve considerable dispersion. *In spite of* a plethora of land use policies, land markets have seemingly discovered spatial arrangements that allow dispersing places to grow and compete successfully. Talk of economies or diseconomies of urban size must be elaborated or tempered by considering the role of spatial arrangements. The key point is that large-system complexity is surely beyond top-down planners' abilities. The idea of land use complementarities are widely accepted. This means we must be prepared to let spatial arrangements and complementarities emerge (and evolve) *based on information that only the locators can have*. This means that land use planners must aspire to a more modest yet still difficult role.

ENVIRONMENT

Consider the case of pollution and the state of the environment which animates so much of the “sustainability” discussions. The Environmental Kuznets Curve (EKC) (Grossman and Krueger (1995)) links economic growth to changes in environmental quality. Based mainly on cross-country experiences, it plots an inverted-U: in the early stages of industrialization and development, there is environmental degradation; this is reversed once a plateau is passed. EKC supposedly peaks in the neighborhood of \$5,000-

\$13,000 per capita GDP. (Coxhead 2019) Actual numbers depend on specifics of each country case, the available data and circumstances. But the logic is compelling and straightforward. In the early stages of development, alleviating hunger and misery is the priority (even though knowing how came slowly and late). In the later stages, a better fed and sheltered humanity develops a demand for environmental quality beyond just in their immediate surroundings *and* they have means to consider, even afford, the appropriate measures. “The high-income elasticity of demand for environmental quality combined with the increased ability of higher-income countries to implement pollution control technologies leads those that have political systems able to respond to popular opinion to move to reduce emissions of many pollutants.” (Rosser 2006, p. 39) “Green” movements are a rich-country recent phenomenon. Also “dirty” industries are displaced by cleaner (often service) industries along the way (Figure 3). There are turning points. (Ghandi 1972)

Economic Growth with Clean Air

Between 1970 and 2017, the combined emissions of the six common pollutants (PM2.5 and PM10, SO2, NOx, VOCs, CO and Pb) dropped by 73 percent. This progress occurred while the U.S. economy continued to grow, Americans drove more miles and population and energy use increased.

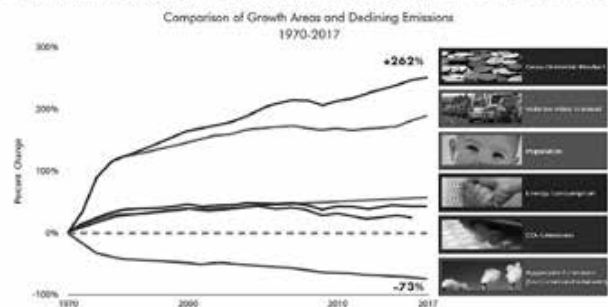


Figure 3: Economic Growth with Clean Air

The most polluted places are the in the poorest countries. Extinction and other dire scenarios are widely discussed but often involve questionable credibility (Ghandi 1972, Lomborg 2003). Most human-caused species extinction occurred in hunter-gatherer days. The Simon-Ehrlich bet is evocative. But wagers are few. How many doomsayers have signed on to wagers that involve measurable outcomes and are date-specific? The key resource is human ingenuity and it is the one non-scarce resource. In situations where freedoms are credible, the possibilities are without limit and actually unimaginable (Simon 1996).^{13 14}

Is climate change the exception? Carbon emissions can be curbed in many ways. Progress in the U.S. has come via the replacement of coal with clean-burning natural gas, made possible by market-developed advances in fracking, another rich-country phenomenon. Replacing coal and oil-burning power plants with nuclear generation facilities is another attractive option but stymied by extremely cautious responses emanating from the tragedies at Fukushima and Chernobyl. But both are known to have been caused by easily avoidable human error. Redirecting city development in the service of fewer carbon emissions is far afield.

CONCLUSIONS

Do people associate for tribal or economic reasons? No one knows how motivations like these can be isolated. For our purposes it does not matter. Both associations occur in cities. In the competition for labor and capital, some cities win: labor and capital are more productive when properly situated vis a vis the right labor and capital.

Development and urbanization have been growing in synch for many years. Researchers have looked at city size or city density (using population as the variable of interest because it is most available). But it is asking a lot to have a single variable do all the explanatory work. Metropolitan areas involve millions of people and (often) millions of parcels of land. These can be arranged in an almost uncountable number of ways. Most of urban economics misses this because it is more macro than micro.

The key lesson of *micro*-economics is that, in a setting that includes a congenial high-trust culture, prices bring forth amazing specialization along with disciplined cooperation (Rose 2019). We vastly augment our own capabilities. Supply chains emerge that are ever more complex, often spanning continents. Their spatial realizations are also emergent. They describe our complex cities and regions.

¹³ Desrochers and Szurmak (2018) include a survey of Simon and his critics and precursors.

¹⁴ Recent research shows that when available data are corrected and elaborated, environmental improvements are even better than had been thought. See Pooley and Tupy (2018).

TABLE 1: Population size rankings of top-ten US urbanized areas, census years 1960-2010

Rank	1960	1970	1980	1990	2000	2010	Rank Changes
1	New York	New York	New York	New York	New York	New York	0
2	Los Angeles	Los Angeles	Los Angeles	Los Angeles	Los Angeles	Los Angeles	0
3	Chicago	Chicago	Chicago	Chicago	Chicago	Chicago	0
4	Philadelphia	Philadelphia	Philadelphia	Philadelphia	Philadelphia	Miami	1
5	Detroit	Detroit	Detroit	Detroit	Miami	Philadelphia	2
6	San Francisco	San Francisco	San Francisco	San Francisco	Dallas	Dallas	2
7	Boston	Boston	Wash D.C.	Wash D.C.	Boston	Houston	3
8	Wash D.C.	Wash D.C.	Boston	Dallas	Wash D.C.	Wash D.C.	3
9	Pittsburg	Cleveland	Dallas	Houston	Detroit	Atlanta	5
10	Cleveland	St. Louis	Houston	Boston	Houston	Boston	5

Source: Author calculations; data from <http://demographia.com>

TABLE 2: Copenhagen Consensus Cost-Benefit Rankings of Policy Interventions: Climate at the Bottom

The results			
Project rating		Challenge	Opportunity
Very good	1	Diseases	Control of HIV/AIDS
	2	Malnutrition	Providing micro nutrients
	3	Subsidies and trade	Trade liberalisation
	4	Diseases	Control of malaria
Good	5	Malnutrition	Development of new agricultural technologies
	6	Sanitation and water	Small-scale water technology for livelihoods
	7	Sanitation and water	Community-managed water supply and sanitation
	8	Sanitation and water	Research on water productivity in food production
	9	Government	Lowering the cost of starting a new business
Fair	10	Migration	Lowering barriers to migration for skilled workers
	11	Malnutrition	Improving infant and child nutrition
	12	Malnutrition	Reducing the prevalence of low birth weight
	13	Diseases	Scaled-up basic health services
Bad	14	Migration	Guest-worker programmes for the unskilled
	15	Climate	"Optimal" carbon tax
	16	Climate	The Kyoto protocol
	17	Climate	Value-at-risk carbon tax

Source: Copenhagen Consensus

Note: Some of the proposals were not ranked

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