Tracy C. Bishop

This writing sample is an assignment from John Morehouse's Spring 2021 EC 330 Urban Economics class. EC 330 was an undergraduate level class I took to give myself some background knowledge while waiting to be accepted into the master's program.

The assignment was a book report on Edward Glaser's Triumph of the City. The assignment description is repeated in its entirety below for your information and the writing sample itself begins on the following page.

The assignment for the book report is to write around 1000 words (roughly 2 to 2.5 pages single spaced) on the following: The subtitle of Edward Glaeser's Triumph of the City is How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier. Choose one—and only one—of the adjectives from that list (i.e., richer or smarter or greener or healthier or happier) for which you personally feel that Glaeser made the most compelling or interesting arguments. Summarize his arguments about why and how cities promote your one chosen adjective from the list, including specific details from the book. Mention and discuss specific policies Glaeser recommends (or would recommend) that cities—perhaps particular cities—adopt to further promote your chosen adjective (richer, smarter, greener, healthier, or happier).

For some people, the word “city” still seems to conjure up images of turn-of-the-century industrial London and Pittsburgh, with pollution so thick that streetlights were needed day and night. Or perhaps a more modern image of Los Angeles smothered by smog and car horns. In Triumph of the City, Edward Glaeser makes the argument that modern city living is far more environmentally friendly than the suburban or rural alternatives.

Glaeser calls out Henry David Thoreau, Prince Charles, and others for their back-to-nature anti-urban bent, going so far as to say that the best thing humans can do for nature is to stay away from it. Many times, he makes the point that tall, high-density buildings are environmentally friendly because by housing so many people on a limited footprint they leave more land for other uses. Plus, the higher cost of housing keeps living spaces small leading to lower home energy use. Finally, denser neighborhoods mean less driving to work, school, and for errands.

Glaeser points out that America, with its high proportion of single-family homes and personal vehicles, is one of the highest producers of carbon dioxide in the world with around 20% of our emissions related to residential energy use and another almost 20% associated with our motor vehicles. Glaeser reports that he, along with Matthew Kahn calculated that in 2006, “holding family income and size constant, gas consumption per family per year declines by 106 gallons as the number of residents per square mile doubles” (pg 207).

It will be interesting to see if the relationship between gasoline use and population density changes significantly in the aftermath of the COVID-19 pandemic. As discussed in class, there is already evidence of people leaving cities for less dense areas. If the population redistribution is permanent, then I expect energy usage to go up because people will be heating and cooling larger homes. The effect on gasoline use seems more ambiguous. Certainly, there will be more driving for errands but if remote work remains an option, then the reduction in daily commutes could offset some, or all, of that increase.

It is unlikely that America and other industrialized places will undergo drastic redistribution of their populations into higher density living arrangements; especially soon after a global pandemic caused by a respiratory disease. However, the path taken by rapidly industrializing places like India and China will have major repercussions for the global environment. If the Chinese and Indian government policies encourage high density living, then the rate of growth in energy and gasoline use will be much less than if they take their lead from American policies encouraging suburbs and personal vehicles. Glaeser advocates for the loosening of building height limits in India’s cities to allow taller buildings and thus higher population densities.

I was familiar with the arguments that city living involved less home energy use and driving; the argument newer to me and very compelling was that by restricting building in mild climates like California and driving up home prices we are causing people to substitute into areas where their energy use will be higher and/or their power source dirtier. Now that it has been brought to my attention, the argument makes perfect sense. Temperate climates require less energy use for heating and air conditioning. If places with temperate climates also have higher

housing costs due to having more land use regulations the higher cost will necessarily drive some people into more energy intense regions. The problem is compounded when considering the difference in emissions from power plant type in each region because more temperate regions also seem to have cleaner power sources. Glaeser advocates for "seeking smarter environmentalism" which means taking into account the knowledge that a project rejected in one region of the country will likely be built in another region and considering the environmental impact of the alternative region not only the impact of a "go/no-go" decision in the proposed region.

Glaeser recommends encouraging high density living space, even at the cost of green space in urban cores, embracing incentives like congestion pricing and emission taxes using the proceeds to fund improvements in public transportation, and subsidizing R&D in fuel efficient and low emission technologies while sharing the results at low or no cost with developing countries. An incentive Glaeser does not mention but might endorse is an incentive for LEED[1] certified buildings in the form of priority issuance of building permits or tax breaks. The level of the incentive could be tied to the level of certification the project received; or is designed to receive in the case of a building permit incentive. Keeping in mind that efficiency will never be the final answer because, per Jevon's paradox, as technologies become more energy efficient, they are used more often, ultimately resulting in higher energy use.

In the decade plus since the book was published there have been many advances in material technology that will strengthen Glaeser's contention that city living can be environmentally friendly. Updates in concrete manufacturing have incorporated waste or residual materials from other industries and production now emits less carbon dioxide than traditional concrete while maintaining a similar price and durability[2]. Porous concrete alleviates some of the stormwater concerns of traditional concrete sidewalks[3]. Although porous concrete is currently more expensive and harder to install, some lifecycle cost estimates are lower than traditional concrete because of the reduced need for special drainage features[4]. A less mature but very promising technology is Building-Integrated Photovoltaics (BIPV)[5] which incorporate solar power generation into building materials such as windows, roofs, and facades.

A point that Glaeser does not make but probably should is that, just like living space, green space does not need a large footprint. I have seen living walls and vertical gardens in places as diverse as Pittsburgh, Shanghai, and Singapore, and an elevated train track turned into garden in Manhattan. The inclusion of living plants in urban design is a wonderful way to remind us that, for better or worse, human beings and our living spaces are part of nature, not separate from it. We have no choice but to affect and be affected by our world-wide integrated ecosystem.

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[1] https://www.usgbc.org/leed
[2] https://www.specifyconcrete.org/blog/eco-friendly-alternatives-to-traditional-concrete
[3] https://m.olympiawa.gov/~/media/Files/PublicWorks/Water-Resources/PorousConcreteSidewalks_BuildSidewalks_NotStormwaterPonds.pdf?la=en
[4] https://www.customconcrete.biz/2019/11/26/is-pervious-concrete-more-expensive/
[5] https://www.seia.org/initiatives/building-integrated-photovoltaics