

REVIEW • FORUM

Doug Saunders' *Maximum Canada*¹**Minimum ecology in *Maximum Canada*: A review from an ecological economics perspective**

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Doug Saunders, an international affairs columnist for the *Globe and Mail* newspaper, is convinced that an extra 65 Million people living in Canada's cities by 2100 would be "the best ecological asset Canada could have" (p. 179). In his book *Maximum Canada: Why 35 Million Canadians are not Enough*, the author boldly asserts that "underpopulation harms Canada's climate and ecological prospects." He writes that underpopulation "forces us" to use energy-inefficient and polluting transportation systems and heating technologies. And it "denies us" the people and tax revenue needed to replace inefficient systems and technologies with green energy that would "protect us against the effects of climate change" (p. 173). The sprawled auto-dependent mode of past planning is the result of too few people, such that Toronto and Vancouver "need a lot more population in order to overcome the practical and ecological problems of population" (p. 174).

Saunders anticipates that some might question whether "a higher population means more pollution and degradation" (p. 176). In a global context, Saunders claims that "Canada serves as a population-growth reducer for the world, accelerating the decline in the number of carbon-emitting people" (p. 177) by offering them a new home, a lower-fertility jurisdiction. He asserts a positive correlation between "places with large, dense populations" and "robust conservation programs": "Canadian history has shown that conservation and respect for natural resources rise when populations increase and become more diverse." This idea is extended abroad, noting that ecological catastrophes, including the Exxon Valdez oil spill, "occurred in sparsely populated places where few eyes are watching and there aren't sufficiently dense communities to press for ecological protection" (p. 178).

This environment-focused content occupies about 10 per cent of the pages that imagine Canada's capacity in the future. About two-thirds of the book is devoted to a historic exploration of "the minimizing impulse" (p. 9) from pre-confederation to the present era, which he calls "the maximizing consensus" (p. 121). Readers interested in the environmental aspects of Canadian population are likely to be underwhelmed by the amount of content that should have been included to support many of the bold "ecological" assertions in the book. In the opinion of this reviewer, it would have been more instructive to raise questions, rather than provide assertions, about the ecological ramifications of a "maximum" Canada. In this review, I offer a few of my own questions on the ecological aspects that arose upon reading *Maximum Canada*.

1. *Maximum Canada: Why 35 Million Canadians Are Not Enough* (Toronto: Knopf Canada, 2017). ISBN 978-0-7352-7309-2. Softcover C\$29.95, 247 pp.

Does population density determine the means of transportation, or vice versa?

Saunders rightfully criticises the inefficiency of transportation based upon the internal combustion engine. But I question the assertion that “we don’t have the masses of people needed” (p. 173) for transit and rail. I live in Hamilton. As in many Canadian cities, hydroelectric-powered transportation once dominated Hamilton, with its streetcars and electric inter-city rail. These were developed by, and for, a *smaller* population—and were all removed with a *growing* population. No explanation is offered as to why the automobile came to dominate, and no exploration of how its dominance might be incentivized to subside in bigger cities, or be deliberately downsized. And no hint is given as to how the existing landscape of suburban mazes could be retrofitted, considering the lock-in of not just the internal combustion engine but also current property rights and pro-automobile social norms.

Will efficiency necessarily grow enough to offset growth in total consumption?

Saunders suggests that population growth would enable more energy and emissions efficiency, without considering its practical implications. By my calculation, to accommodate the energetic demands of 100 million Canadians by 2100 through greater efficiency alone would require 1.35 per cent reductions in total energy consumed *every year for the next 80 years*, while the number of energy consumers grows at the same rate. That would be an extraordinary accomplishment. For example, applying that to Saunders’ concern about “single-family dwellings that lack heating efficiency” (p. 173), space heating in 2100 would need to be generated from just 34 per cent of the energy used today. To accomplish this by changing habitation alone would require almost tripling the average household size without any increase in the total volume of heated habitation within Canada.

How much of this challenge could be mitigated by new furnaces, or different furnaces, and higher insulation (net of its up-front energetic costs)? I’m not aware of any research that has explored this empirically; for now, one may be skeptical not only of its technical potential but also its economic feasibility and practical likelihood. Moreover, even without any growth in the number of consumers, increased efficiency can generate what are known as rebound effects, with some of the savings from increased efficiency being used to further consumption of the same thing, or other things, thus mitigating the net benefit. Add to this challenge another one that is not addressed in *Maximum Canada*: Canada has made commitments to significantly reduce *total* emissions over the coming decades. A 2011 report by the National Round Table on the Environment and the Economy (NRTEE) is cited about the costs of adapting to climate change, and is used to assert that the costs would be easier to manage with more people in Canada—without, however, acknowledging that more people would mean more infrastructure to adapt.

Do cities necessarily provide ecological economies as they grow in size?

In Saunders’ book it is asserted that “larger, denser cities are vastly less ecologically damaging than smaller, looser ones” (p. 174). The academic literature is rich with investigations into whether pollution and other ecological outcomes decline with a growing scale of human activity. Some of this is captured by studies on “decoupling” and some by the theory of an Environmental Kuznets Curve (which Saunders considers). A more neutral and nuanced read of the literature casts doubt on some of the categorical correlations and causations. Comparing cities of different sizes—even when considered within just one country—can obscure important differences that could prevent smaller ones from replicating the characteristics of larger ones through growth.

Different cities can rely upon different energy mixes for electricity and heat, resulting in different emissions even with the same consumption of energy. Furthermore, different cities can exist in different climates, and can take different forms, from monocentric to polycentric patterns,

each offering different possibilities and constraints for densification. And different cities can have people with different levels of average material affluence and disposable income. All of these details should temper one's enthusiasm for categorical assumptions about ecological economies of scale. Even without any empirics, in the realm of theory one should wonder whether the theory of economies of scale is indefinite, or whether there can be points beyond which there are dis-economies of growth. On the other hand, there are certainly enough examples in the world of megacities with lower ecological consumption per resident, but at the cost of vastly lowered quality of life.

How can we account for the total ecological demand of cities?

Saunders is rightfully concerned about land use efficiency. But on this matter it is important to point out that the physical footprint of a city is only part of its *total ecological demand*. All economic production involves the transformation of materials and energy from nature, requiring ecological inputs and generating outputs into ecosystems. Cities concentrate people, and can indeed economize on infrastructure (as Saunders correctly noted), but their areas are still supported by the use of ecosystems outside their boundaries. Without counting total ecological demand, one cannot be sure that a city with a higher human density is necessarily more ecologically efficient. Similarly, one may question the assumption that the hinterland will be better conserved with more people living in cities, since more hinterland will need to be used to supply the additional materials and energy (especially *green energy*) and ecosystem services used by additional urbanites.

The Ecological Footprint is a useful and relevant measure. It measures the amount of biologically productive land and sea area needed to supply a given population with settlements and infrastructure, cropland, grazing lands, fishing grounds, forested lands that provide timber and fibre, and other areas that sequester greenhouse gas emissions (Borucke et al. 2013). The broad scope of this indicator makes it a comprehensive measure of the ecological demands of humans.

A 2015 assessment of Ontario's Ecological Footprint found that its size was close to the sum of all biologically productive areas within Ontario's borders (Zokai et al. 2015). Assessments at a municipal scale have found a lack of correlation between the size of cities and the Ecological Footprint of their residents. For example, residents in Winnipeg and Quebec have a smaller average per-capita Ecological Footprint than those who live in Toronto, while residents in Calgary and Edmonton and Halifax have some of the highest (Wilson and Anielski 2005; Isman et al. 2018). The physical footprint of settlements and infrastructure is a relatively small part of the Ecological Footprint of urban dwellers. Global assessments similarly shed light on wide discrepancies in per-capita footprints and the effect of trade flows, such that some jurisdictions have effectively offshored their Ecological Footprint (Borucke et al. 2013).

What are the costs and dependencies of growth and demographic changes?

Saunders seems to imply that a growing population provides a sort of free lunch, with more people providing more bodies and more tax revenues to support public services. This optimism isn't balanced by a consideration of how demand would change from a larger and growing population; nor is consideration given to any change in age structure that would result from combinations of growth from fertility and net immigration.

Demand for public services, and the capacity to supply them, are a function of the total population, its age structure, and any differences between cohorts. However, the convention of using age-based measures of dependency can be questioned. After all, not all *working-age* people work, not all *seniors* depend upon *working-age* people for care, and higher fertility generates additional *young* dependents. These details are important, but are not considered by Saunders.

Saunders suggests that a public inquiry should be held to estimate “the investments needed” (p. 212) to accommodate growth. In the public interest, such an inquiry should consider competing population and economic policies—not just the scenario of a 100-million Canada. It should also consider the *returns on investment*, to inform a more balanced consideration of costs and benefits. And it should assess *who* would and could do the investing and *who* would benefit. As with all properly done economic assessments, such an inquiry should consider externalized costs, including unpriced environmental benefits and damages such as wastes and pollution.

Humans depend upon ecosystem goods and ecosystem services. Their scarcities also need to be considered as part of the logic of demographic dependencies. In response to Saunders’ view that immigration to Canada reduces population growth elsewhere, which results in “accelerating the decline in the number of carbon-emitting people” (p. 177), consider a couple immigrating to Canada from India. The couple would raise 1.6 children in Canada rather than 2.4 children in India, according to average national total lifetime fertility rates (World Bank 2015). Yet their smaller family in Canada would account for 54.4T of emissions, versus 7.5T if they raised a larger family in India (based on average per-capita emissions of 15.1T in Canada versus 1.7T in India; World Bank 2014).

Does demography affect behaviours and attitudes and environmental outcomes?

Environmental outcomes are a function not only of the number of people, but also their age structure and cultural norms, which can be cohort-based. Research in this area is admittedly weak, in part because there have been few recurring environment-oriented surveys by Statistics Canada. Saunders hopes that more people will generate more pro-environmental political attitudes, and thereafter more higher-density settlements. This reviewer is not convinced. In my observation, younger cohorts remain as paradoxical as older ones. Car-sharing is hip, as is interest in global travel; I see more vegetarianism together with a normalization of dining out and deliveries; I see young people wanting to live in denser neighbourhoods while still wanting a house with a yard for the family dog. The young households in my neighbourhood don’t appear to fill their recycling boxes with the *Globe and Mail*, but they certainly put out a lot of take-away containers and parcel boxes from Amazon.

Will market forces (on their own) generate environmental outcomes?

In this book, market liberalization is attributed as a maximizing orientation. But it’s not clear how the minimizing impulse on emissions and energy use would be achieved within a *laissez-faire* context. To achieve the environmental commitments that Canada has already made will require governments of all levels to deliberately make pollution and depletion and land more scarce by making it more costly. Saunders’ claim that a more populous Toronto or Vancouver would provide the “voter clout to make such developments happen” (p. 174) is not convincing. Indeed, it seems to me that the supply of elected representatives has not matched growth in the supply of the electorate, with an outcome that political power is increasingly concentrated.

All considered, the above questions are just a few that come to mind to this reviewer when reading *Maximum Canada*. The chapter on sources is prefaced by Saunders’ assertion that “a comprehensive history of Canadian population has yet to be written.” I would add that a comprehensive demographic-environmental assessment of Canada’s future is also needed. I would encourage Canadian demographers to take an interest in environmental issues—and for environmental scholars to take an interest in demography. Both lend themselves to useful empirical modelling in order to test conjectures and explore the implications of oft-held beliefs.

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