The Journal of Population and Sustainability

ISSN 2398-5496

Article title: Editorial introduction
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Vol. 3, No. 2, (2019), pp.5-11

doi: 10.3197/jps.2019.3.2.5

Editorial introduction

David Samways – Editor

While spanning a wide range of topics, all of the papers in this issue of the *JP&S* are, at one level or another, concerned with the role of global economic inequality and its relationship to population growth, human welfare and environmental degradation.

Developed by Ehrlich and Holdren (see Holdren, 2018) in the early 1970s as a response to Barry Commoner's assertion that environmental problems were caused by poor technical choices rather than the pressures of population and affluence, the IPAT equation identifies population (P), affluence (or consumption) (A) and technology (T) as the major driving forces in environmental impact (I). The fact that the absence of affluence, i.e. poverty, is frequently associated with the growth of population is illustrative of the interconnectedness of the components of IPAT. Indeed, low levels of development and high fertility are firmly linked in the demographic literature (see Bongaarts and Watkins, 1996), and the negative relationship between fertility and economic development has become one of the most accepted empirical regularities in the social sciences (Myrskylä, et al., 2009).

Poverty can also be a significant driver of environmental impact in many parts of the developing world (Masron and Subramaniam, 2018). Such impacts are amplified by growth in population, and in some circumstances communities under stress have breached sustainable limits in the short term. In extreme cases the collapse of ecological sustainability has been a significant factor in the demise of a number of societies (for an overview see Diamond, 2005) with perhaps the most celebrated example of this being Easter Island/Rapa Nui. Discussion continues over the precise details of the vast social and ecological changes in Rapa Nui, but

most of the evidence seems to suggest that an increase in population combined with cultural and other factors led to the deforestation of the island, the collapse of the food supply and a huge reduction in population (see Flenley and Bahn, 2003). Although more complex factors are undoubtedly in play, modern-day Haiti demonstrates how communities that experience rapid population growth (Haiti's population has nearly tripled since the 1960s) and are unable to expand into new territories can have a devastating impact on their environment (Hedges et al., 2018). In the case of Haiti it is clear that poverty and the absence of alternative sources of fuel structurally delimit the choices people have, forcing them to engage in deforestation leading to a massive loss of biodiversity.

As Kelly Austin shows in her paper in this issue of the *JP&S*, poverty and subsistence farming are significant drivers of deforestation in many parts of the world. Most of us are familiar with the role of deforestation in local and global environmental disruption. Not only does deforestation have a significant effect on the carbon cycle, but its replacement with cattle ranches amplifies the impact. From an anthropocentric perspective, the loss of what is usually referred to as "ecosystem services" to human beings is becoming increasingly well recognised, and therefore the replacement of diverse flora and fauna with mono-cultures of crops like oil palms is arguably of equal importance. However, it is easy to lose sight of the unintended facilitation of opportunities for species which humankind finds a great deal less welcome. In "Felling Trees, Furthering Malaria", Austin considers the role of population growth in deforestation and consequently on the spread of malaria. While commercial logging and agriculture are often cited as the culprits in deforestation, Austin shows how the growth and migration of poor rural populations engaging in subsistence agriculture is responsible for the majority of primary forest clearance. Due to a number of factors, including issues of land tenure, these "frontier migrant" populations are often displaced by the expansion of large scale commercial agriculture responding to demand for food crops or meat from urban populations in both the developing Global South and the already developed world. The consolidation of deforested land into large commercial agricultural or ranching enterprises pushes out subsistence agriculturalists into areas where they engage in further clearance of primary forest. Austin's paper shows how deforestation also leads to an increase in the populations of the mosquitos that are vectors for malaria by increasing their breeding grounds. We see then that, as with many other environmental problems, a complex combination of population growth, poverty, globalisation and overconsumption

are implicated in significant environmental transformations. The consequences of these transformations (both local and global) are frequently disproportionately borne by the very populations whose structural position drives their actions and who, for the same reason, are least resilient to ecological disruption.

Austin's paper demonstrates that the effects of population growth on the welfare of the local population can be direct and unanticipated. However, the effects of population growth and shifts in demographic structure can lead to more dramatic and socially contingent outcomes. Stewart Britten and Wahida Paikan's paper (published in this issue) shows the links between a "youth bulge" and conflict in the complex social and environmental context of Afghanistan. They argue that the success of programmes aimed at improving maternal and infant health coupled with a neglect of family planning services has led to a demographic youth bulge (over 60% of the population is under 25 years of age) which further threatens the prospects for peace in a country already suffering from prolonged civil strife. At more than 5 births per woman, Afghanistan has the highest total fertility rate outside Africa. Three-quarters of Afghanistan's population live in rural areas, and with the majority engaged in subsistence agriculture or pastoral nomadism it remains one of the least developed countries in the world. Furthermore, Afghanistan faces important challenges in terms of feeding its growing population, with significant environmental problems including vulnerability to climate change among them. With insufficient productive land and few opportunities for employment in the cities, the prospects for Afghanistan's young people are poor. Britten and Paikan argue that the poor opportunities for Afghanistan's youth exacerbates the country's civil conflict as young men often join the Taliban to escape the lack of employment.

While economic and social development is not the only driver of reduced fertility (see Cleland 1987), it is nonetheless an important factor, especially when viewed at an aggregate level (see Bongaarts and Watkins, 1996; Myrskylä, et al., 2009). As Britten and Paikan argue in respect of Afghanistan, the economic development of the least developed countries (LDCs) is likely to be an important factor in their transition to lower fertility rates. However, whether development leads to fertility reductions or not, economic development of the LDCs is necessary to improve the welfare of the world's poorest. Many have attempted to model the complex relationship between population, global economic development,

and environmental sustainability (for recent examples see Motesharrei et al., 2016; McBain et al., 2019) and most recognise that key ecological boundaries have already been breached. McBain et al. have argued that although natural systems demonstrate considerable resilience by continuing to deliver resources at a global scale, this ecological deficit can only be maintained in the short-term. It follows that incremental increases in global ecological footprint, whether from increased consumption in the rich world or from the development so desperately needed in the LDCs, will further deepen the ecological deficit unless systemic changes in the global consumption and distribution of resources are addressed.

O'Neill et al. (2018) have shown that in principle, with equal distribution, it would be possible to meet the physical needs (nutrition, sanitation, access to electricity and the eradication of extreme poverty) of the global population within ecological boundaries. However, the universal achievement of the high quality lifestyles, which the majority of us take for granted in the developed world, would require 2-6 times the sustainable resource level. O'Neill et al. conclude that a pursuit of universal human development as part of the UN's Sustainable Development Goals (SDG's) "has the potential to undermine the Earth-system processes upon which development ultimately depends" (p.93). They suggest that a more optimistic scenario can be achieved through abandoning the goal of economic growth in favour of the pursuit of sustainable and equitable human well-being. Nonetheless, for a good life to be achieved by all within ecological boundaries, this will still require a dramatic reduction in the resources required to meet basic needs. Building on the work of O'Neill et al., Hickel (2019) argues that to remain within ecological boundaries a reduction of the developed world's biophysical footprint of between 40-50% will be necessary, entailing degrowth strategies and a shift toward a post-capitalist economic model. Both O'Neill et al. and Hickel recognise the role of population as a multiplier in ecological footprint and the need to reduce it. As Hickel notes in relation to rich-world degrowth:

> One approach would be to gradually reduce the size of the population (in an equitable, progressive and non-coercive way), so that GDP per capita can be maintained even while total economic activity shrinks. But if we assume that the population grows according to existing projections and stabilises at 9–11 billion, this will require de-growth in both absolute and per capita terms. (Hickel, 2019, p.13)

From this quote it's not quite clear if Hickel is arguing for reduction in global population per se, but this would certainly not be incompatible with his general approach. Unquestionably, population reduction in the developed world would have a considerably bigger impact than shrinking the population of presently poor countries. But if poor countries justly take a larger share of the ecological pie then, as they become more prosperous, their numbers will eventually matter too. The now relatively prosperous countries of east Asia such as South Korea (see WWF Korea, 2016) are a good illustration of the transition from low to high population and consumption. While Hickel is right when he argues that rethinking living within ecological boundaries "requires a fundamental reorientation of development theory, from focusing primarily on the deficiencies of poor countries to focusing on the excesses of rich countries" (p.14), this does not mean that population growth in the developing world is unproblematic. Apart from anything else, the provision of education and sexual health services are of vital importance to the economic and social wellbeing of women in developing countries. The high correlation between female emancipation and lower fertility represents a win-win situation. Human welfare, population and environmental sustainability are inextricably linked.

In this issue of the *JP&S*, Theodore Lianos' paper, "Environment, Poverty and the Steady State Economy", develops ideas from his paper published in our special issue on economic growth (Vol. 3, No. 1) and deals directly with the welfare-population-sustainability nexus. Here Lianos argues that the enormous economic growth experienced after WWII has caused unprecedented environmental degradation and at the same time fuelled massive population growth. While economic growth has improved the welfare of the world's population in general, on a global scale the rewards of growth have been very unevenly distributed and hence one of the most significant issues facing the contemporary world is widening inequality. Central to Lianos' argument is the idea that two major contradictions characterise the modern world. The first is the contradiction between humans and nature where growth of production has led to ecological overshoot, and the second is the contradiction between the interests of labour and of capital leading to the concentration of profits into fewer hands. For Lianos, the two contradictions are directly related to population growth since population is a multiplier of environmental impact and large populations increase the supply of labour, depressing wages and exacerbating inequality. He goes on to

demonstrate that a transition to a steady-state economy with an aim to reduce population size to around 3 billion would begin to address these contradictions. Lianos argues that by reducing population and keeping it constant, the price mechanism, with some state intervention when necessary, will eliminate the ecological deficit and alleviate poverty and inequality.

In their opinion piece, Steven Burr, Katie McManus, and Yee Leung "Sustainability of Equality: a Paradox for Democracy" also pick up on the issue of equitable distribution of resources. However, they argue that while liberal democracy, through the institutions of the state, can be effective in creating conditions that lead to the reduction of the birth rate and hence the rate of population growth, in terms of achieving an absolute reduction in the global population compatible with high welfare and environmental sustainability, liberal democracy appears unequal to the task.

We finish with my own review of the puzzlingly titled *Empty Planet* by Darrell Bricker and John Ibbitson, not so much because it is an argument worthy of consideration, but because it is representative of a journalistic sound-bite approach to the demographic literature that renders complexity into a sanguine view of the future in terms of human environmental impact.

References

Bongaarts, J. and Watkins, S.C., 1996. Social interactions and contemporary fertility transitions. *Population and Development Review*, Vol. 22, No. 4, pp. 639-682.

Cleland, J. and Wilson, C., 1987. Demand theories of the fertility decline: An iconoclastic view. *Population Studies* 41: 5-30.

Diamond, J., 2005. *Collapse: How societies choose to fail or succeed.* London: Penguin Books.

Flenley, J. and Bahn, P., 2003. *The Enigmas of Easter Island* Oxford: Oxford University Press.

Hedges, S.B., Cohen, W.B., Timyan, J. and Yange, Z., 2018. Haiti's biodiversity threatened by nearly complete loss of primary forest. *PNAS* [e-journal] Vol. 115, No. 46 www.pnas.org/cgi/doi/10.1073/pnas.1809753115.

Hickel, J., 2019. Is it possible to achieve a good life for all within planetary boundaries? *Third World Quarterly* [e-journal] Volume 40, Issue 1. https://doi.org/10.1080/01436597.2018.1535895.

Holdren, J.P., 2018. A brief history of "IPAT". *The Journal of Population and Sustainability.* Vol. 2, No. 2, pp.66-74.

O'Neill, D.W., Fanning, A. L., Lamb W.F. and Steinberger, J.K., 2018. A good life for all within planetary boundaries. *Nature Sustainability* 1, 88–95.

Masron, T.A. and Subramaniam, Y., 2018. Does Poverty Cause Environmental Degradation? Evidence from Developing Countries. *Journal of Poverty,* [e-journal] 1–21. doi:10.1080/10875549.2018.1500969.

McBain, B., Lenzen, M., Wackernagel, M. and Albrecht, G., 2017. How long can global ecological overshoot last? *Global and Planetary Change* [e-journal] Volume 155, Pages 13-19 https://doi.org/10.1016/j.gloplacha.2017.06.002.

Motesharrei, S., et al., 2016. Modeling sustainability: population, inequality, consumption, and bidirectional coupling of the Earth and human systems. *National Science Review* [e-journal] Volume 3, Issue 4, pp.470–494. https://doi.org/10.1093/nsr/nww081.

Myrskylä, M. Kohler, H-P. and Billari, F.C., 2009. Advances in development reverse fertility declines. *Nature.* [e-journal] Vol. 460 https://doi.org/10.1038/nature08230.

WWF Korea, 2016. *Korea ecological footprint report 2016: Measuring Korea's impact on nature.* [pdf] Seoul: WWF Korea. Available at <https://www.footprintnetwork.org/content/documents/2016_Korea_EF_Report_English_lo.pdf> [Accessed 5 June 2019].