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DEBATE

Re-examining the role of population policies in climate action

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ABSTRACT With the global population surpassing eight billion in November 2022, I revisit the debate over incorporating population strategies in climate change mitigation efforts. In this perspective, I review diverse literature, questioning the efficacy of fertility choices for reducing carbon emissions and examining the moral equivalence of procreative and consumption decisions. I explore historical and contemporary debates, from Malthusian concerns to modern neo-Malthusian and demographic revisionist views. While larger populations generally lead to higher greenhouse gas emissions, I argue that reducing population growth is insufficient as a standalone climate strategy due to demographic momentum, and because it disregards existing disparities and structural inequalities. Instead, I emphasize the need for justice-centred approaches, advocating for voluntary, rights-based family planning, women's empowerment and equitable resource access and distribution to address both population dynamics and affluent consumption patterns. My perspective calls for integrating ethical, cultural and justice considerations to balance environmental sustainability with human needs.

KEYWORDS Population • Climate change • Procreation • Affluent consumption • Women's rights

Background

When the global population reached eight billion in November 2022 (United Nations, 2023), the question of whether population strategies ought be part of efforts to address climate change resurfaced (Cafaro, 2022). This is in the face of mounting evidence that humanity is appropriating an increasing share of Earth's resources, which has undeniably altered our planet's climate and ecosystems, and has led us to transgress multiple planetary processes (IPBES, 2019; IPCC, 2023; Richardson et al., 2023). The question being debated again is whether population policies are a viable way to address climate change. This resurgence of global population as a crucial factor in environmental debates is exemplified by recent appeals to limit childbearing by choosing to have only one or no children (Burkett, 2021; Crist et al., 2022). In what follows, I discuss key literature that spans a diversity of views on this issue. My own view aligns with that expressed in some recent studies, which is that raising this question in isolation, without effectively addressing issues of human rights,

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particularly women's rights, and global justice that are essential to balance human needs with sustainability concerns, is untenable.

From the time of Malthus, prospects of unchecked population growth have raised concerns (Malthus, 1798). Malthus's theory of human population asserts that disequilibrium between the arithmetic growth of food supply (subsistence resources) and the exponential growth of human population is inevitable. In the 1960s, neo-Malthusians renewed this concern by expressing anxiety about limits to growth and a population explosion (Ehrlich, 1971; Meadows et al., 1972). This view was challenged, first by Ester Boserup, who argued that human ingenuity drove agricultural intensification, and thus emphasized the adaptive capacity of societies to overcome resource constraints (Boserup, 1965). Later, in the 1970s and 1980s, demographic revisionists also argued that more people are advantageous because growing human capital spurs more ingenuity, inventiveness and innovation to solve the challenges facing humanity (Simon, 1981).

While there has been some convergence in thinking across these polarized views within the recent scientific literature, how important population dynamics are to environmental and climate policy continues to be debated (Coole, 2013). The population question also remains morally, religiously and politically fraught because profound ethical questions surround all aspects of demographic change, in particular the choice to procreate and the policies that affect it (Andersson et al., 2024; Cripps, 2015; Hickey et al., 2016).

Population growth, greenhouse gas emissions and climate change

A vast scientific literature links population and economic growth with greenhouse gas (GHG) emissions (Lamb et al., 2021; O'Neill et al., 2010, 2012; Rosa & Dietz, 2012). The Kaya Identity, a simple mathematical formulation, has been used in several assessments to express total GHG emissions as the product of population, GDP per capita, energy intensity of GDP and carbon intensity of energy (Kaya & Yokobori, 1997). Larger populations tend to contribute more to emissions because they generate higher aggregate demands for energy, materials, resources and food, even if per capita demands continue to vary substantially (Chakravarty et al., 2009; Dhakal et al., 2022). Larger populations also mean that many more people could be exposed to climate risks, and would thus be vulnerable to climate impacts (Dodson et al., 2020). Previous studies have argued for reducing population growth as a way to lower emissions and to mitigate the impacts of climate change (Bongaarts, 1992; Bongaarts & O'Neill, 2018). Apart from highlighting the role of population size, the literature has also emphasized that accounting for the diverse composition of populations is crucial for guiding climate change mitigation and adaptation efforts (O'Neill et al., 2010, 2020). But scholars arguing that slowing human population growth can lower emissions have only rarely engaged with the implications of population heterogeneity or addressed aspects of equity and justice and their relationship to environmental or ecological damage and climate change.

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Varied carbon footprints of procreation and consumption, and their moral equivalence

Over the past few decades, studies have investigated the carbon footprint resulting from individual choices to procreate (Murtaugh & Schlax, 2009; Wynes & Nicholas, 2017). In a widely debated study, the authors directly compared various options for altering consumption behaviour, such as switching light bulbs, with the decision to have a child (Murtaugh & Schlax, 2009). In their approach, they considered a parent accountable for 50 per cent of their children's GHG emissions, 25 per cent of their grandchildren's emissions, and so forth. By integrating their formula with information on fertility rates, life expectancy and the average individual emissions of citizens in different nations, they estimated the carbon footprint associated with acts of procreation. Their analysis revealed that across all nations, the carbon footprint of procreation significantly surpasses that of individual consumption choices such as driving less, buying more energy-efficient appliances and cars and other common practices. However, they also found that the average emissions resulting from the birth of a single child varies by orders of magnitude between nations (e.g., 56 tonnes in Bangladesh and 9441 tonnes in the United States). The emissions associated with childbirth in emerging and other middle-income countries lie between these extreme bounds but have been singled out by some researchers as particularly concerning because rapid growth in the future without climate action could mean that the children born in these countries today will have an even larger future footprint.

The study by Murtaugh and Schlax has been criticized by Pinkert and Sticker among others on methodological grounds (Basshuysen & Brandstedt, 2018; Pinkert & Sticker, 2021). They argued that attributing procreation to a parent's carbon footprint leads to double-counting children's consumption emissions. They also questioned the relevance of comparing emissions that could be avoided right now to emissions that would happen several years or decades in the future (because of the consumption of children and their subsequent offspring), particularly if these emissions are not discounted. They emphasized that arguments asserting the moral equivalence of procreation and consumption often overreach, resulting in unacceptable consequences, particularly for professions like medicine, where saving lives or facilitating procreation is essential. They concluded that it is important to consider reproductive decisions within a broader framework of climate policy and individual responsibility. Authors like Burkett also argued that attributing all expected lifetime emissions of all subsequent offspring to a parent's is overstretching a parent's responsibility (Burkett, 2021). However, Burkett concluded that even if accounting only for essential emissions of a direct offspring, procreation still constitutes the most substantial contribution to an individual's GHG emissions. This view is shared by Hedberg, who argued that if one accepts that each of us has a duty to reduce our emissions, then questions of procreation and the choice to have children should not be excluded as effective options for meeting this obligation (Hedberg, 2019). Authors like Young have also argued that it is logically inconsistent to condemn overconsumption while simultaneously endorsing procreation, given their comparable environmental impacts, voluntary nature and similar underlying desires (Young, 2001).

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In other research, the intersection between carbon emissions and income or consumption inequality has been explored, revealing wide disparities in per capita emissions across nations and individuals (Bruckner et al., 2022; Chancel, 2022; Oswald et al., 2020). Such studies have explored the interplay between income/consumption patterns, economic structures and energy systems to shed light on why certain regions and peoples exhibit higher or lower carbon footprints than others. This research has highlighted that high-income countries and individuals often have lower fertility rates but significantly higher per capita and cumulative emissions due to their consumption patterns and industrial activities. It has identified affluent consumption or excessive luxury spending as the primary driver of resource use and environmental impacts (Wiedmann et al., 2020). Not all consumption is avoidable, as sustaining human life requires materials, energy and other resources. However, recent evidence shows that providing everyone with a decent standard of living is achievable without generating a significant energy and material footprint (Kikstra et al., 2021; Millward-Hopkins et al., 2020; Rao et al., 2019; Vélez-Henao & Pauliuk, 2023). Other empirical work has concluded that policies that limit childbearing or fertility today are unlikely to impact carbon emissions in the near term because of the inertia in population momentum (Budolfson & Spears, 2021). Therefore, to pursue more equitable global environmental policies while addressing the urgency of climate change, we need to consider not just the quantity of people and fertility choices, but also the quality and the sustainability of consumption and historical legacies of resource use.

Advancing the population and climate change debate through a justice lens

In wider deliberations on climate policy, the debate over whether addressing individual fertility choices and policies that affect population growth is an ethical imperative or an infringement on personal freedoms frequently sparks discord and remains morally charged. Advancing this discourse requires us to make justice concerns central to any discussion about the role of demographic elements, such as population size and composition, in climate policy. In my view, arguments for voluntary and rights-based family planning as options to address the climate crisis must be considered alongside those to address current inequities and affluent consumption. I also believe these arguments should reflect historical carbon emissions and resource appropriation legacies. Raising the population issue without considering growth in human activity, production and consumption levels, as well as their distribution across regions, populations and time, may be interpreted as a diversion from and an unwillingness to address affluent consumption or to undo global structural inequalities. It can instead be seen as an eagerness to lay the blame for our current and growing climate and environmental crises solely at the feet of population growth.

Slower population growth can make climate mitigation, climate adaptation and efforts to prevent environmental degradation less challenging. Thus, slowing population growth may help to reduce pressure on natural resources and the environment. But discussions around family planning and population policies must be approached with sensitivity to avoid reinforcing historical inequalities and social injustices. Such efforts must empower individuals

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and give them the autonomy to determine the quantity and the timing of their births, while also educating them about the responsibility they bear for their environmental impacts. At the same time, conscious and informed choices on fertility and contraceptive use should be respected (Senderowicz & Maloney, 2022).

A serious consideration of justice issues demands the implementation of policies that are already known to have the potential to limit fertility and to contribute to climate change mitigation. Ensuring women's rights and empowerment and universal access to sexual and reproductive health, literacy and other basic services and resources are all linked to lower fertility rates and to women having greater autonomy over their own bodies. A vast literature provides evidence of how access to education and reproductive healthcare, including contraception, better equip women to plan and space their pregnancies according to their preferences, and is associated with lower family size (Abel et al., 2016; Bongaarts, 2010; Canning & Schultz, 2012). This strand of literature clearly shows that empowering women economically and socially contributes to breaking the cycle of high fertility rates and helps to foster healthier families. There is also evidence that better education and lower fertility are important for climate adaptation (Lutz et al., 2014; O'Neill et al., 2020). Moreover, recent work has shown that ensuring that women are not poor and have access to decent living standards, like electricity and clean cooking services, can help to reduce fertility levels (Belmin et al., 2022). Thus, by prioritizing women's rights and access to healthcare, education and other decent living standards, societies can promote gender equality and advance population policies that respect individual choices and contribute to the well-being of women and their communities, while simultaneously addressing climate change. Feminist political ecology literature, however, cautions against portraying women as either inherent victims or champions in their relationship to nature and the environment (Sasser, 2018). This body of literature advocates for a nuanced understanding that recognizes women's agency and the structural factors influencing their choices, while cautioning against attributing environmental stewardship to innate female qualities (Rainard et al., 2023).

Developing just and equitable climate policies requires us to take account of ethical considerations, cultural contexts global inequalities and the distribution of capabilities and responsibilities. It also requires us to engage with questions about the power dynamics associated with how human life is valued, who determines this value and at what scale. Considering not only individual behaviours related to consumption and procreation, but also the systemic impact of environmental policies, redistribution to address structural inequalities, women's empowerment and reproductive choices is crucial for ensuring the planet's sustainability. Ultimately, balancing the pressing need for environmental sustainability with respect for human rights and social justice remains a paramount challenge.

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