

FERTILITY, IMMIGRATION, AND THE FIGHT AGAINST CLIMATE CHANGE

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ABSTRACT: Several philosophers have recently argued that policies aimed at reducing human fertility are a practical and morally justifiable way to mitigate the risk of dangerous climate change. There is a powerful objection to such “population engineering” proposals: even if drastic fertility reductions are needed to prevent dangerous climate change, implementing those reductions would wreak havoc on the global economy, which would seriously undermine international antipoverty efforts. In this article, we articulate this economic objection to population engineering and show how it fails. We argue, first, that the economic objection paints an inaccurate picture of the complicated relationship between demographic change and economic growth, and second, that any untoward economic effects of fertility reduction can be mitigated with additional policies. Specifically, we argue that supplementing fertility reduction with policies that facilitate the emigration of younger people from developing nations to developed nations could allow for both global reductions in GHG emissions and continued economic stability. Further, we show that moral arguments against such unprecedented increases in immigration are unsuccessful. We conclude that population engineering is a practical and morally justifiable tool for addressing the twin evils of climate change and global poverty.

1. INTRODUCTION

With the ratification of the Paris Agreement on October 5, 2016, the world has entered a new phase of cooperation in combating the threat of dangerous climate change. While the

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agreement signals the international community's willingness to begin significant reductions in greenhouse gas (GHG) emissions, experts worry that the policies proposed for achieving these reductions are not up to the task.² In our view, the fact that humanity's most ambitious plans for dealing with climate change involve so much risk of failure justifies looking for additional strategies for reducing emissions. One such strategy that has been advocated recently is to adopt fertility-reduction policies alongside other decarbonization efforts, so that we have *fewer emitters* each doing *less emitting*. Philip Cafaro, for instance, has argued that the prospect of climate change warrants an expansion of voluntary population control efforts.³ Sarah Conly argues that, given large-scale environmental threats including climate change, we each have the right to only one child.⁴ We have recently argued that several types of non-coercive interventions aimed at reducing fertility rates are likely necessary and morally justifiable parts of humanity's broader efforts to limit warming.⁵ We call

² A number of credible analyses estimate that with even with full implementation of the agreement's voluntary intended nationally determined contributions (INDCs), we are still on track for between 2.7°C and 3.5°C of warming. See, e.g.: Joeri Rogelj, et al. Paris Agreement Climate Proposals Need a Boost to Keep Warming Well Below 2 °C. *Nature* 2016; 534: 631-639, International Energy Agency (IEA). 2015. *World Energy Outlook: Special Briefing for COP21*. Paris: OECD/IEA: 4. Available at: http://www.iea.org/media/news/WEO_INDC_Paper_Final_WEB.PDF [Accessed 12 Apr 2017]. Louise Jeffrey, et al. 2015. Climate Action Tracker Update. *Climate Action Tracker* 8 Dec. Available at: http://climateactiontracker.org/assets/publications/briefing_papers/CAT_Temp_Update_COP21.pdf [Accessed 12 Apr 2017]. Bill McKibben. 2015. Climate Deal: The Pistol Has Fired, so Why Aren't We Running? *The Guardian* 13 Dec. Available at: <http://www.theguardian.com/commentisfree/2015/dec/13/paris-climate-talks-15c-marathon-negotiating-physics> [Accessed 12 Apr 2017].

³ Philip Cafaro. Climate Ethics and Population Policy. *Wiley Interdisciplinary Reviews: Climate Change* 2012; 3: 45-61.

⁴ Sarah Conly. 2016. *One Child: Do We Have a Right to More?* Oxford: Oxford University Press.

⁵ Colin Hickey, Travis Rieder, and Jake Earl. Population Engineering and the Fight against Climate Change. *Social Theory and Practice* 2016; 42: 845-870.

our program of manipulating the size and structure of human populations to achieve particular goals “population engineering,” an allusion to geoengineering proposals for combating climate change,⁶ and we will adopt that same terminology to describe all such efforts.

Those who have defended population engineering (ourselves included) have largely overlooked a serious objection to such proposals: even if drastic fertility reductions are needed to prevent dangerous climate change, implementing those reductions would wreak havoc on the global economy, which would seriously undermine international antipoverty efforts.⁷ Population engineering, the objection goes, fails to take seriously the relationship between the massive threats of climate change and absolute poverty, and thereby threatens to harm the world’s most disadvantaged people with its obsessive focus on reducing GHG emissions.

In this article, we defend population engineering against this sort of economic objection. In the following section, we will explain the argument for population engineering and articulate the economic objection to that argument. In the third section, we will show, first, that the economic objection paints an inaccurate picture of the complicated relationship between demographic change and economic growth, and second, that any untoward economic effects of fertility reduction can be mitigated with additional policies. Specifically, we argue that supplementing fertility reduction with policies that facilitate the emigration of younger people from developing nations to developed nations could allow for both global reductions in GHG emissions and continued economic stability. Finally, we defend these migration management policies against practical objections that they will undermine the very goal of reducing emissions and moral objections that they would wrong immigrants and/or receiving nations.

2. POPULATION ENGINEERING AND THE ECONOMIC OBJECTION

⁶ *Ibid.*, 845. John Shepherd, et al. 2009. *Geoengineering the Climate: Science, Governance and Uncertainty*. London: Royal Society.

⁷ We briefly address this serious worry in Hickey, Rieder, and Earl, *op. cit.* note 5, pp. 868-869, fn. 88.

In our previous work, we outlined a framework for fighting climate change with ethical fertility-reducing policies. The first aim of this framework is to expand education and access to healthcare and family planning services where there is need, particularly in the developing world, while simultaneously using “informational media and values-focused messaging” to sway family-size preferences. Depending on the efficiency and efficacy of these fertility-reduction efforts, we also endorse the use of a “progressive system of positive and negative incentives” to motivate people to adopt small-family promoting behaviors. With an eye toward targeting the biggest potential GHG savings per child avoided, and to minimize the risk of injustice to the worst-off, we argue that positive incentives should be directed to lower-income individuals while negative incentives should be directed to higher-income individuals (e.g., in the form of a “progressive, income-sensitive tax for every additional child one creates”).⁸

The key reason for pursuing this policy framework is that fertility reduction is needed in order to adequately address the risk of dangerous climate change.⁹ We argue that the “consensus approach” to climate policy, which requires immediate action on many fronts (but which excludes fertility-reducing interventions), allows for too much risk that global surface temperatures will rise more than 2°C by 2100.¹⁰ Not only is there as high as a 33% chance that we will cross the 2°C

⁸ Ibid: 866-869.

⁹ Ibid: 848-853. We go on to argue that, provided that fertility reduction policies are carefully implemented, they would not violate people’s moral rights (pp. 855-866). The relevance of these arguments hinges on the truth of the necessity argument.

¹⁰ Ibid: 848-849. Temperature increases beyond 2 °C are generally recognized to be “dangerous.” See: Intergovernmental Panel on Climate Change (IPCC). 2014. Summary for Policymakers. In *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Ottmar Edenhofer, et al., eds. Cambridge: Cambridge University Press: 10. Available at:

threshold even if humanity implements all of its recommendations, but the consensus approach also assumes the development of technologies that are currently underdeveloped (such as scalable carbon capture and storage) or that have significant known risks (such as nuclear energy).¹¹

The best climate change mitigation plans that focus exclusively on reducing per capita emissions, then, face significant hurdles. We note, however, that fertility reductions over the next century would yield a massive reduction in GHG emissions.¹² These two facts constitute a strong *prima facie* case for fertility reducing interventions, but only on the assumption that the sort of global fertility reduction we advocate does not produce risks that are comparable to or larger than those involved in the consensus approach. In the remainder of this section, we will develop the *economic objection* to population engineering, which aims to show that fighting climate change with global fertility reduction is at least as risky as fighting climate change without it.

Popular economic wisdom suggests that low fertility can lead to slowed growth, stagnation, and even recession.¹³ Japan is often cited as a case study for this sort of phenomenon, though examples can be found in Europe and elsewhere.¹⁴ After decades of rapidly declining fertility, Japan had a birthrate of 1.39 children per woman in 2010 and its population began shrinking in 2011.

http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_summary-for-policymakers.pdf

[Accessed 12 Apr 2017].

¹¹ Hickey, Rieder, and Earl, *op. cit.* note 5, p. 850. It is also particularly worrisome that all of this uncertainty and risk concern a 2°C threshold, while the Paris Agreement has stated an aspirational goal of 1.5°C.

¹² Ibid: 851-853.

¹³ Klaus Prettnner, David E. Bloom, and Holger Strulik. Declining Fertility and Economic Well-Being: Do Education and Health Ride to the Rescue? *Labour Economics* 2013; 22: 70-79, pp. 70-71.

¹⁴ The Wharton School, University of Pennsylvania. 2014. The Graying of Japan: Tough Choices on the Population Dilemma. *Knowledge@Wharton* 21 May. Available at <http://knowledge.wharton.upenn.edu/article/graying-japan-tough-choices-population-dilemma/> [Accessed 12 Apr 2017].

These demographic facts led to the rapid “graying” of Japan, in which the average age of the Japanese rose and the ratio of working-age Japanese to the non-working elderly declined. As the labor pool declined and the tax base shrank, the costs of health and social services for the increasing numbers of elderly Japanese expanded, resulting in increasing public debt. The lack of labor productivity combined with high debt has led to nearly a decade of economic stagnation, even as other developed nations have bounced back from the Great Recession.

The lesson from Japan is that below-replacement fertility over time grays societies, which results in economic stagnation, lower standards of living (as governments cut benefits to balance budgets), or both.¹⁵ If this is a reliable effect of significant reductions in fertility, then that spells trouble for population engineers. This need not be for nationalistic or ‘selfish’ reasons, such as the interest of globally wealthy citizens to avoid lowering their standard of living. Indeed, the strongest form of the objection is a worry about *injustice*, since a stagnant or shrinking global economy would undermine humanity’s efforts to fund the mitigation and adaptation measures needed to combat climate change, as well as to alleviate the suffering of the world’s most vulnerable. In the extreme, economic destabilization resulting from persistently low fertility over decades could completely stifle developed nations’ ability and political will to contribute to international antipoverty initiatives.¹⁶

¹⁵ See, e.g.: James Manyika, et al. 2015. Can Long-Term Global Growth Be Saved? *McKinsey Global Institute* Jan. Available at: <http://www.mckinsey.com/global-themes/employment-and-growth/can-long-term-global-growth-be-saved> [Accessed 12 Apr 2017].

¹⁶ Foreign aid budgets, foreign direct investment, and trade, central elements to the alleviation of poverty all tend to fall during recession. See, e.g.: Organization for Economic Co-operation and Development (OECD). 2012. Development: Aid to Developing Countries Falls because of Global Recession. *OECD Newsroom* 4 Apr. Available at: <http://www.oecd.org/newsroom/developmentaidtodevelopingcountriesfallsbecauseofglobalrecession.htm> [Accessed 12 Apr 2017].

Even assuming that humanity is able to maintain the expensive efforts needed to mitigate the risks of global climate change, the failure to eradicate absolute poverty would leave many of the world's citizens as badly off as they would have been had we failed to mitigate and adapt to climate change.

The economic objection asks us to compare the risks involved in the consensus approach to fighting climate change to the risks involved in an approach that includes significant reductions in human fertility. There are significant risks and uncertainties built into the consensus approach, and these might work out in such a way that millions more people will suffer the harms of climate change. However, as we have just seen, an approach that tries to mitigate these risks and uncertainties with global fertility reduction may work out in such a way that millions more people will suffer comparable harms from absolute poverty, perhaps in addition to the harms of climate change. At present, nearly 800 million people live in extreme poverty on less than \$1.90 a day, and hundreds of millions more live in moderate poverty on less than \$3.10 a day.¹⁷ Nearly 800 million people are undernourished, 1.4 billion lack access to electricity,¹⁸ nearly one billion are illiterate,¹⁹ and 400 million lack access to vital health services.²⁰ Poverty of this sort undermines many of the most

¹⁷ The World Bank. 2016. Poverty Overview. 2 Oct. Available at:

<http://www.worldbank.org/en/topic/poverty/overview> [Accessed 12 Apr 2017].

¹⁸ United Nations. Goal 2: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture. *Sustainable Development Goals: 17 Goals to Transform Our World*. Available at:

<http://www.un.org/sustainabledevelopment/hunger/> [Accessed 12 Apr 2017].

¹⁹ UNESCO Institute for Statistics. 2013. Adult and Youth Literacy. *UIS Fact Sheet* September. Available at

www.uis.unesco.org/literacy/Documents/fs26-2013-literacy-en.pdf [Accessed 12 Apr 2017].

²⁰ World Health Organization. 2015. New Report Shows that 400 Million Do Not Have Access to Essential Health Services. 12 June. Available at: <http://www.who.int/mediacentre/news/releases/2015/uhc-report/en/> [Accessed 12 Apr 2017].

basic opportunities for functioning to which human beings are morally entitled.²¹ While important strides have been made in poverty reduction,²² these gains could be undone by the kinds of economic disruption that significant fertility reductions might bring. When choosing among imperfect solutions, it seems unreasonable to risk the certain harms of increased poverty rather than the uncertain harms of some amount of climate change.

3. TWO RESPONSES TO THE ECONOMIC OBJECTION

Although the economic objection to population engineering has significant *prima facie* plausibility, we believe that it is unsuccessful. In this section, we will develop two lines of response which together show the objection to be mistaken. First, we will argue that conventional economic wisdom is likely incorrect, and that significant reductions in fertility do not inevitably lead to economic stagnation or contraction. Second, we will argue that even if the sorts of fertility-reducing policies needed to effectively mitigate the risk of dangerous climate change would undermine economic growth, this problem can be addressed by supplementing those policies with interventions that facilitate migration from developing to developed nations.²³

The first response available to population engineers is to contest the empirical premise that low fertility threatens economic growth and stability. A great deal of empirical research by

²¹ For a concise version of what such entitlements might be, see: Martha Nussbaum. 2011. *Creating Capabilities: The Human Development Approach*. Cambridge, MA: Belknap Press of Harvard University Press.

²² The World Bank, *op. cit.* note 18.

²³ A further response is that an economic system that requires constant growth is ultimately unsustainable on a planet with limited resources, and so humanity needs to transition to a steady-state economic system (Herman Daly. 1991. *Steady-state Economics*. 2nd ed. Washington, DC: Island Press). Since our arguments are sufficient to refute the economic objection, we will not pursue such a response here. However, it should be noted that Daly's response is clearly important for our long-term thinking, as a finite planet cannot sustain an infinite growth in resource consumption.

economists on the causal influences of demography on economic growth suggest that the conventional wisdom on this question is incorrect.²⁴ In a recent example of this research, Ronald Lee and colleagues determine that fertility could be much lower in developed economies and still allow for continued (if smaller) economic growth. Moreover, fertility reductions can advance growth (significantly) in developing economies.²⁵ Fertility rates at or below the replacement rate can be good for standards of living and increased consumption. This is principally because as the size of the labor pool declines, so do capital costs for raising, educating, and bringing children into productive social roles. Provided that societies with declining fertility divert resources that would have gone to providing for the basic needs of children to human-capital building enterprises such as education and infrastructure, declining fertility is not a death knell for continued growth. The conventional economic wisdom turns out to be too simplistic, as it fails to account for the cost savings and new opportunities for growth in human capital that result from long-term reductions in fertility.

If the fertility reductions and population declines required to accomplish significant additional reductions in GHG emissions fall within the “safe zone” sketched by Lee et al., then population engineering proposals escape the force of the economic objection entirely. However, even if Lee et al. are correct and the simple economic objection doesn’t tell against population engineering through fertility reduction in all scenarios, it might be the case that fertility would need to quickly decline to levels that are inconsistent with continued economic growth in order to stave off dangerous climate change. The near-term fertility reductions needed in developed nations to make a significant dent in total GHG emissions would be steep, and even recent empirical research

²⁴ See, e.g.: Quamrul H. Ashraf, David N. Weil, and Joshua Wilde. The Effect of Fertility Reduction on Economic Growth. *Population and Development Review* 2013; 39: 97-130; Prettnner, Bloom, and Strulik, *op. cit.* note 14.

²⁵ Ronald Lee, et al. Is Low Fertility Really a Problem? Population Aging, Dependency, and Consumption. *Science* 2014; 346: 229-234, p. 229.

confirms that these sorts of drops in fertility would have untoward economic effects. This would breathe new life into the economic objection, as the more aggressive fertility reductions would predictably result in economic stagnation or destabilization that could stifle global antipoverty efforts.

Even if the fertility reductions needed to mitigate the risks of dangerous climate change go beyond the “safe zone” identified by empirical research, population engineers can adopt a policy fix for this problem. Recall the example of Japan, where decades of low fertility produced a graying of the population, which led to economic stagnation. One solution to this problem would have been for Japan to encourage immigration. Allowing relatively young people to immigrate to Japan would have improved the ratio of effective labor to the non-working elderly, thus improving the tax base for social services and allowing for continued innovation and economic growth. The general lesson is that economic drag caused by imbalances in a population’s age structure can be fixed by immigration. Many countries already rely on these effects to some degree or another.²⁶ Indeed, given facts about relative quality of life and current population structures in developed and developing nations, there is already strong incentive for young people from developing nations to move to developed nations, were they afforded the opportunity to do so. Population engineers can therefore supplement their recommendations for global fertility reduction with an additional set of interventions, which we will call *migration management* policies, aimed at facilitating immigration from developing nations to those developed nations undergoing steep declines in fertility.

²⁶ E.g., Germany has mitigated the graying of its population from low fertility somewhat by net immigration of +200,000 annually. The U.S., despite having near-replacement fertility, continues to grow primarily through immigration.

There are, however, several ways one might object to this kind of response to the economic objection. The rest of this section is devoted to dealing with *practical objections* to this proposed solution, while in the next section, we will address a variety of *moral objections*.

The central practical objection is a concern that diverting to the migration management fix is *self-undermining* for a project attempting to mitigate GHG emissions through population engineering. People who emigrate into a developed nation may very well have GHG emissions orders of magnitude larger than what they would have been in their home countries.²⁷ If this is the case, migration management could swamp the GHG reductions brought about from fertility reduction, and so there would be little point in aiming for lower fertility in the first place.

This practical objection fails for a few reasons. First, data show that immigrants from developing nations have significantly lower emissions than individuals born and raised in developed nations.²⁸ Assuming this trend holds, replacing what would have been native-born citizens with immigrants would result in net emissions reductions. Second, over the course of the 21st century developing nations will increase their per capita GHG emissions as a result of economic development, while (assuming current international agreements hold) developed nations will decrease their per capita GHG emissions. This means that the net increase of a person's GHG emissions by emigrating from a developing nation to a developed nation will decrease over time. In many scenarios, it is likely that there will be no net increase in an individual's emissions following emigration, and indeed there might even be a decrease (for example, emigration from China to the

²⁷ Cafaro, *op. cit.* note 3, p. 49. See also: Philip Cafaro and Winthrop Staples III. The Environmental Argument for Reducing Immigration into the United States. *Environmental Ethics* 2009; 31: 5-30.

²⁸ Leon Kolankiewicz and Steven A. Camarota. 2008. Backgrounder: Immigration to the United States and World-Wide Greenhouse Gas Emissions. *Center for Immigration Studies* August: p. 1. Available at: <http://www.cis.org/sites/cis.org/files/articles/2008/back1008.pdf> [Accessed 12 Apr 2017].

Netherlands in 2050). But even where GHG emissions of some individuals do increase through migrating, this can be consistent with significant global decreases in GHG emissions as long as migration management policies are implemented in tandem with fertility reduction efforts.

This leads to the second practical objection: increased emigration from developing nations to developed nations will spur rapid urbanization and other carbon-intensive activity in the developing world, leading to an “overheating effect” that would overwhelm any reductions in GHG emissions brought about by global reductions in human fertility. This objection is mistaken for a few reasons.

First, by removing members of developing nations’ disproportionately young populations, emigration could improve the ratio of older to younger citizens, thereby lowering the total costs (financial and emissions-related) of providing for and educating the next generation of workers.²⁹ Second, the total amount of infrastructure development needed to reduce poverty and expand capabilities for a developing nation’s citizens would also be reduced, since those who emigrate will take advantage of the infrastructure (and its sunk carbon expenditures) of their new nation. Third, because new infrastructure is more carbon intensive than old infrastructure,³⁰ migration management policies would reduce the total GHG emissions needed for reducing poverty in developing nations. Fourth, since many developing nations have natural resources rich in biological diversity and in

²⁹ David Bloom, David Canning, and Jaypee Sevilla. 2003. *The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change*. Santa Monica, CA: RAND. Lee, et al., *op. cit.* note 26.

³⁰ Preservation Green Lab, National Trust for Historic Preservation. 2011. The Greenest Building: Quantifying the Environmental Value of Building Reuse. Available at: <https://savingplaces.org/preservation-green-lab> [Accessed 12 Apr 2017]. Radian Group. 2011. Lifetime Emissions of Retrofit versus New Build. September. Available at: http://www.superhomes.org.uk/wp-content/uploads/2012/06/Lifetime_CO2_Emissions-Retrofit-vs-New-Build_2011.pdf [Accessed 12 Apr 2017]. Mike Berners-Lee. 2010. What’s the Carbon Footprint of ... Building a House. *The Guardian* 14 October. Available at: <http://www.theguardian.com/environment/green-living-blog/2010/oct/14/carbon-footprint-house> [Accessed 12 Apr 2017].

carbon-sinking potential, developing with smaller total populations could have additional comparative environmental benefits, not only for climate change but for species preservation and local environmental concerns.³¹ Finally, provided the terms of the Paris Agreement are followed, nations will take on greater burdens for decarbonizing their economies as they develop, thereby mitigating the projected growth in GHG emissions resulting from economic activity.

Population engineers' proposals to reduce global fertility to fight climate change do not, then, fall to the economic objection. Even if the necessary fertility reductions are larger than is consistent with economic growth, managed migration of young families from developing nations can slow the graying of the labor force in developed nations, thereby mitigating negative economic impact.

We should also note that in addition to alleviating the problems with fertility reduction, immigration is often *good for immigrants*, as those individuals might be pursuing opportunity or fleeing threats to their well-being, including threats from climate change. Recall that the economic objection was not simply aimed at the self-interest of developed nations, but at the fact that a slowing economy could harm the global poor. In essence, the economic objection points out the tension between attempting to mitigate climate change and alleviating poverty, as economic development is seen as a contributor to both emissions and poverty reduction (under our current economic model and technological limitations). With this in mind, it is plausible both that many take it to be good to reside in a developed nation and that providing some degree of opportunity to those not born there is a demand of justice. Thus, even if increased immigration somewhat tempers the effectiveness of fertility reduction in the developed world, it seems likely this outcome is more *just* than one in which

³¹ Georg Kindermann, et al. Global Estimates of Reducing Carbon Emissions through Avoided Deforestation. *PNAS* 2008; 105: 10302-07. Oliver L. Phillips and Simon L. Lewis. Evaluating the Tropical Forest Carbon Sink. *Global Change Biology* 2014; 20: 2039-41.

every spot in a high-emitting nation is taken by future native-born citizens. Developed nations should allow for more immigration not only because people from developing nations are good workers with marginally lower GHG emissions, but because they are owed the opportunity as a matter of justice.

4. MORAL OBJECTIONS TO MIGRATION MANAGEMENT

One concern with a population engineering approach that includes migration management is that it would coerce would-be migrants into leaving their homelands. We want to be very clear that forcing people to leave their home countries to solve economic concerns of fertility reduction abroad would violate basic rights, and will not be considered. Any migration management policies would have to be implemented, with respect to would-be migrants, on a strictly volunteer basis. Given background facts of poverty and looming risks of involuntarily becoming climate refugees in the future, not to mention the promise of expanded opportunities upon migrating, there is likely to be no shortage of volunteers.

Leaving aside such obviously problematic coercion, critics will likely be quick to worry about other significant moral costs for migrants under a wide-scale migration regime. Not only might immigrants face the prospect of losing their local languages and cultures by being pressured to adopt new values and practices in their receiving nation, but unfortunate social facts such as xenophobia and racism prevalent in developed nations could put migrants at risk of suffering significant harms.³²

Again, we take these concerns about the health, safety, well-being, and cultural values of would-be migrants very seriously and they would need to be foregrounded in the development of any actual policy. We think, however, that with thoughtful implementation, there are ways of

³² For a glimpse at the empirical side of some of these effects, see: Yin Paradies, et al. Racism as a Determinant of Health: A Systematic Review and Meta-Analysis. *PLoS ONE* 2015; 10: e0138511.PMC.

mitigating the most serious concerns such that they do not defeat the justification for a population engineering program that includes migration management.

First, given that we would know in advance that migration management programs would be moving large numbers of people, policymakers and politicians would be able to strive to maintain cohesive blocks of cultural identity by structuring migrations so that a stable and critical mass of the migrating population move together. This can maintain some of the most important aspects of cultural identity and autonomy among those migrating.

Second, defensible migration management would begin by seeking volunteer migrants *and* volunteer receiving communities, which would go some way to minimizing the risks of harm from discrimination and xenophobic violence. Designing these programs by paying close attention to particular cultural issues and local histories would help policymakers reduce these dangers by strategically matching migrants to the most appropriate receiving communities. Additionally, any migration management scheme would have to budget for strong immigrant support mechanisms such as good crime reporting services, positive messaging, funding for cultural exchange/bridging events, etc.

At the very least, those who are considering migrating should be informed of these risks before agreeing to be relocated so as to be able to give their fully informed consent. Even if the above measures don't eliminate the risk of xenophobic discrimination, cultural exposure can be an important tool in breaking down biases and stereotypes; thus, while such risks are possible painful aspects of the transition, they may also be an important step towards breaking down some of the worst vestiges of racism and easing future migration.

There is one other point worth making: many of the would-be immigrants are *already* facing the prospect of needing to relocate, but doing so as climate refugees rather than as volunteers with

careful planning.³³ Sadly, for many, the risks of a difficult relocation will be neither surprising nor even an imposition of risk that they would not otherwise face.³⁴

This first set of moral objections to migration management has been regarding concern for would-be migrants. However, there are also moral objections regarding the status of would-be receiving states. Given the self-interested economic reasons to accept immigrants to solve problems from population imbalances, some states would be likely to voluntarily accept more immigrants. However, not all will be so eager.

In a recent paper, Christopher Wellman argues that states have strong collective rights of freedom of association, which would be violated by migration management of this sort.³⁵ He begins by showing that individuals have strong rights to freedom of association in virtue of standard liberal commitments to self-determination and dominion over one's self-regarding affairs. This is why, for example, individuals have a right against forcible marriage. One has a "right to exclude" and "disassociate" from a potential suitor no matter how nice he is, how much one's family encourages the marriage, how much better off the parties would be together, etc.³⁶ Wellman thinks that states,

³³ Granted, if population engineers accomplish enough using fertility reduction to eliminate the climate threat, perhaps there won't be as many prospective climate refugees, but they may still be stuck in poverty, many looking for routes to opportunity through migration.

³⁴ Reliable estimates are hard to come by and the variables at play are significant, but the UNHRC has suggested that somewhere in the range of 250 million to 1 billion people will be forced to move based on climate change or environmental degradation by 2050. See: L. Craig Johnstone. 2008. *The Climate Change Future Is Now*. Institute of Public Policy Research Conference: Climate Change and Forced Migration. 19 Apr. Available at:

<http://www.unhcr.org/cgi-bin/txis/vtx/search?page=search&docid=4901e8e82&query=climate%20refugees>

[Accessed 12 Apr 2017].

³⁵ Christopher Heath Wellman. Immigration and Freedom of Association. *Ethics* 2008; 119: 109-141.

³⁶ *Ibid*: 110.

analogously, have such rights. Without them we would not be able to condemn peaceably executed (where no individual is harmed) forced mergers, where a country unilaterally annexes another.³⁷ He thinks it is obvious that even if no one were worse off (and perhaps a fair few better off), there would be something wrong with the U.S. simply annexing Canada. The way to explain such wrongness, he thinks, is by appeal to Canada's strong rights of freedom of association. Just like for individuals, collectives' rights to freedom of association entail rights to exclude.

There are, however, a number of compelling ways to push back against Wellman. First, we might question how analogous the individual and state really are with respect to freedom of association. For instance, while one might have a right not to marry someone on the basis of race (even if that would be racist), it seems that states do not have the right to exclude on the basis of race.³⁸ Alternatively, the intimacy involved in marriage may do the moral work to explain a right to exclude in a way that simply doesn't extend to a nation. Citizens of developed nations might have rights to refuse taking strangers into their bedrooms or their homes, but it seems less likely that these rights allow them to exclude migrants from their neighborhoods, cities, or nation-states.

This is just one way of suggesting how self-determination and freedom of association are limited in their scope. They might not always generate rights to exclude, and even when they do, such rights might be defeated by competing claims, for instance the others' right to exit.³⁹ Sarah Fine

³⁷ Ibid: 112.

³⁸ To do so would betray a liberal democratic commitment against "stigmatizing form[s] of discrimination" (ibid: 179). For discussion, see: Joseph Carens. 2013. *The Ethics of Immigration*. Oxford: Oxford University Press, ch. 10.

³⁹ As David Miller correctly notes, having the right to exit doesn't mean someone has a right of entry to just anywhere. But it does mean they need some options, so not every state could have a closed border. This shows that the right to exclude cannot be absolute (David Miller. *Immigration: The Case for Limits*. 2005. In *Contemporary Debates in Applied Ethics*. Andrew Cohen and Christopher Wellman, eds. Malden, MA: Blackwell, pp. 193-206).

has pressed both of these lines of argument persuasively.⁴⁰ By Wellman's own lights, as individuals, our self-determination entitles us to act freely only when our action does not harm others. As Fine points out, Wellman illegitimately ignores this condition when talking about states' self-determination.⁴¹ But the plight of refugees (climate or otherwise) or those facing absolute poverty is so dire that a robust right to exclude could itself constitute harm to them.

Another line of objection to the moral acceptability of migration management proceeds from the other direction: If migration is *managed*, then some of the world's poorest who would choose to migrate may be prevented from migrating to a developed country. But some critics will argue that there is a robust right to freedom of movement between borders, and an immigration regime that falls short of fully open borders will violate the rights of those who would want to migrate but be prevented from doing so under a managed migration scheme.

Joseph Carens, for instance, argues that liberal justice requires open borders.⁴² Liberals care about human freedom to pursue projects and are committed to equality of opportunity, and borders violate both of these.⁴³ In an obvious way they limit autonomy, freedom of movement, freedom of association, and freedom to sell one's labor. Moreover, he argues that borders violate equality of

⁴⁰ Sarah Fine. Freedom of Association Is Not the Answer. *Ethics* 2010; 120: 338-356. Sarah Fine. 2013. The Ethics of Immigration: Self-Determination and the Right to Exclude. *Philosophy Compass* 2013; 8: 254-268.

⁴¹ Fine, "Freedom of Association Is Not the Answer," p. 345.

⁴² Joseph Carens. Migration and Morality: A Liberal Egalitarian Perspective. 1992. In *Free Movement: Ethical Issues in the Transnational Migration of People and of Money*. Brian Barry and Robert E. Goodin, eds. Philadelphia: University of Pennsylvania Press, pp. 25-47. Carens, *op. cit.* note 39.

⁴³ Carens, *op. cit.* note 43, p. 266.

opportunity by restricting access to various social, political, and economic goods on the basis of something that is “arbitrary” from the moral point of view.⁴⁴

There are two responses to this objection from open borders. First, like the right of free association, the right of freedom of movement must be a limited one; even open borders advocates like Carens recognize this, citing traffic regulations and rights to exclude others from one’s home.⁴⁵ Critics of the open borders argument, like David Miller, have tried to suggest a range of legitimate reasons to restrict immigration ranging from protecting a shared culture or political identity, to protecting against economic destabilization, security threats, quality of life reductions, overpopulation, ecological destruction, etc.⁴⁶ While we wouldn’t endorse all of the inferences Miller draws from this list (especially about protecting a shared culture or political identity, as evident in our response above to Wellman), our response to the open borders challenge is structurally similar.

The key to justifying restrictions on the freedom of movement, by Carens’s own lights, is a sensitivity to the equal claims of all. That condition, we think, justifies some restrictions on migration given the risks of global climate change.⁴⁷ Allowing the migration of a large group from developing nations to developed nations, *when that number significantly surpasses population needs created by*

⁴⁴ Ibid: 267. Arash Abizadeh. Democratic Theory and Border Coercion: No Right to Unilaterally Control Your Own Borders. *Political Theory* 2008; 36: 37-65. Abizadeh argues that closed borders are problematic because they are coercive in a way that cannot be democratically justified to all parties that are owed justification.

⁴⁵ Carens, *ibid.*, p. 268.

⁴⁶ Miller, *op. cit.* note 40. He has also tried to show that while freedom of movement is important, it is a threshold concept that can be satisfied by freedom within a nation. Carens would respond that all of the reasons that sanction movement within a state (and we would be quite upset if the state prevented us from moving counties) apply equally between states, and some are of much greater urgency. Our way of responding to Carens doesn’t require settling this question.

⁴⁷ In a different world, without these concerns, Carens open borders challenge would be much more difficult to defeat.

aggressive fertility reduction in developed nations, would significantly risk failure to prevent dangerous climate change. On the condition offered by Carens himself—the condition of giving equal weight to the claims of everyone (including potential climate victims)—we can justify preventing or dissuading *that* group from attempting to exercise the pro tanto right of freedom of movement, as it would result in significant harm to others. And on this basis we think it could survive a democratic test of legitimacy for its version of coercive exclusions.⁴⁸

Moreover, although a just migration management scheme would restrict the ability of people to exercise an unencumbered right to freedom of movement between borders, it would increase freedom of movement as compared to the status quo by prioritizing offering pathways to migration for many, if not all, of the world’s poorest and most climate-vulnerable citizens. To whatever extent advocates for open borders are motivated by a sensitivity to the equal claims of all, population engineering with migration management certainly fares better than its rivals that do nothing to expand freedom of movement from the status quo.

5. CONCLUSION

Although the economic objection ultimately fails to undermine population engineering, it does succeed in highlighting the need for such a program to embrace a broader mandate than merely reducing fertility. To wit, a complete program of population engineering must consider not only the *number* of people on earth, but also the *geographic distribution* of those people. A full articulation of

⁴⁸ It is important to realize how different this view is from that of Cafaro and Staples (*op. cit.* note 48). Unlike them, we are in favor of significant immigration increases from developing nations to developed nations, given aggressive fertility reduction in developed nations – indeed, a primary justification for aggressive fertility reduction in developed nations is precisely to make room for immigrants while still reducing GHG emissions. While we share the recognition that there will be a morally justifiable limit to immigration at some point, we disagree starkly about what the current immigration policies of developed nations should be.

population engineering including migration management would result from only a massively collaborative effort. The exact mechanisms of such a proposal would, of course, be complex, and many questions would arise concerning how best to enact such a program, but we know a bit about what such a program would look like.

As per the approach we have defended elsewhere, one component of population engineering would focus on fertility reduction. Fertility reduction efforts would prioritize access to certain basic goods (such as health care, family planning resources, and education), and would likely include persuasive media efforts, information campaigns, and ultimately an income-sensitive program of positive and negative incentives. In line with short-term emissions reduction goals, the most important populations to influence are those in wealthy, high-emitting nations; however, it is equally important to ensure that developing nations transition to lower fertility *prior* to developing into higher per capita emitters. As we've argued in this article, another component of population engineering would focus on migration management. On the assumption that the fertility reductions needed to avoid dangerous climate change are larger than is consistent with a healthy global economy, then increased migration would be necessary to sustain global anti-poverty efforts. This migration can be consistent with overall emissions reductions, and the moral risks can be mitigated through careful planning.

This rough proposal seems in principle to be both practical and morally justifiable, and given the seriousness of global poverty and the threat of climate change, ought to be taken seriously as a strategy for simultaneously combatting the evils of climate change and absolute poverty.