

DON'T CALL IT A CRISIS: THE NATURAL EXPLANATION BEHIND COLLAPSING BIRTH RATES

An NPG Forum Paper
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Americans are having far fewer children than in the past, as a recent report by the U.S. Centers for Disease Control (CDC) shows. The media has declared this a “crisis” that demands government attention. In reality, the plummeting birth rate is a natural and inevitable result of overpopulation and overcrowding. Science has already proven this. Therefore, the only correct action U.S. policymakers should take is no action whatsoever.

Is overpopulation a problem that fixes itself? Let's consider the evidence.

The total fertility rate for the United States has fallen to an all-time low, according to a May report released by the U.S. Centers for Disease Control and Prevention.¹ The ongoing COVID-19 pandemic has encouraged millions of women and couples to delay having children, pressing childbirths to 4% below last year's figures.² Of course, the birth rate has been falling lower for some time now – the pandemic merely exacerbated a pre-existing phenomenon. But the recent news brought out the usual panicked voices. Pundits and the press have declared this trend a “crisis” that demands urgent government action. It's no such thing, and no government intervention is warranted.

The reality is these statistics and others like them are signs that nature is now enforcing upon the U.S. a natural law that Negative Population Growth has long advocated for as a goal: slowing population growth, to be followed by an ultimate cessation to U.S. population expansion. It's a rule of nature: nothing grows forever. It's definitely not a crisis. Rather, in the face of the collapsing birth rates trend – and a possible future decline in U.S. population that may ensue because of it – the only proper response by the U.S. government is no response whatsoever. The same goes for the world as a whole – governments everywhere should avoid all attempts to manipulate birth rates, period.

Why? Because research published from 2002 to 2017 has uncovered incontrovertible evidence that falling human fertility in the U.S. and globally is a natural phenomenon with a natural explanation behind it: rising human population density. Average birth rates are falling nearly everywhere because they *must* fall, per a natural law governing nearly all animal species, and humans are no exception. The effect is known to ecologists as “density dependence”. Why this can be so confidently asserted is explained here, but density dependence *is* the explanation. Data unveiled by economists, ethologists, and one of the world's leading demographers reveal how average birth

rates correlate most strongly to average population densities. Moreover, this connection is stronger than any other factors mentioned as probable causes for why women and men are deciding to have fewer children. The Japanese have already noticed the link between population density and plummeting birth rates;³ we Americans have yet to catch on. Because it's natural, inevitable, and inescapable, it cannot be fixed, so governments should avoid trying to fix it. But others are demanding that they do just that, even though they can't.

As noted, in May the CDC's National Center for Health Statistics released an update on U.S. birth and fertility rates. When the pandemic first forced millions to lock themselves indoors early last year some foolish commentators cheekily predicted a COVID baby boom. More sensible thinkers knew better and foresaw the exact opposite – an impending baby bust. The CDC's latest data vindicates those serious prognosticators: the pandemic seems to have encouraged Americans to give birth to the fewest number of babies since 1979. The total fertility rate (TFR) for the U.S. in 2020 was about 1.64 births per woman, “another record low for the nation” as CDC reported.⁴ The total fertility rate was “again below replacement – the level at which a given generation can exactly replace itself,” CDC added.⁵ The replacement TFR is put at about 2.1 births per woman (the replacement TFR value would fall lower with higher life expectancy, but there is no guarantee life expectancy will rise indefinitely).

Again, the trend is not new for America; the pandemic only exacerbated it. There may be a recovery in TFR later this year, but it won't change the underlying fact that Americans are increasingly having fewer children. Economists fear dire consequences for the nation's Social Security system given that its function is to take care of the elderly by taxing the young – with numbers of elderly rising and of youth falling, that math no longer works, right? Thus, the plunging birth rate is deemed a “crisis”,⁶ and not only in America. *The New York Times* calls it China's “time bomb” and “looming demographic crisis”⁷ using the same

loaded language whenever this topic pops up.

There is nothing abnormal about collapsing birth rates in the U.S., Europe, East Asia, and much of the developing world. Rather, this is an expected and predicted outcome of rising population density, especially in colony-forming species like ours. To understand how, let's consider some fundamentals of population dynamics.

All other things being equal, populations of living organisms tend to grow exponentially; population growth tends to speed up over time. This explains the rapid human population growth seen over the past century. Thomas Malthus found this math frightening, inspiring him to pen his famous essay warning of impending mass starvation, but it's not that simple. On Earth, population dynamics are influenced not only by animals' propensity to reproduce but by an ever-shifting balance between biotic potential – the biological potential for reproduction – and key environmental constraints enforced by both limiting factors and decimating factors. The never-ending dance of these three forces permits all living populations to either boom, bust, stabilize, or stagnate.

Though a population's biotic potential may be great, in the end limiting factors always win out, putting a ceiling on a species' population size (occasionally a decimating factor can enter the scene to do precisely what the name suggests: decimate a population. But this is rarer). Oftentimes the ceiling on population size is reached well before an environment's theoretical carrying capacity is breached. Because of limiting factors, one rarely sees animal populations eating themselves to oblivion in never-ending boom-and-bust cycles of growth and collapse. So it is with humans – the limiting factors enforced on us are now pressing our biotic potential lower, as is seen over and over again in the natural world, the very one that gave birth to our species. To put it another way, if Malthus knew what wildlife researchers know today, he may have felt compelled to either rewrite his famous essay or withdraw it from publication altogether.

Decimating factors include natural disasters, wildfires, volcanic eruptions, or any calamity capable of wiping out large numbers of individuals in a short period. Rare events. Limiting factors are more common. They include predators, diseases, or parasites (which can spread disease or otherwise weaken overall fitness). Limiting factors can also involve conditions of limited food availability or a lack of adequate shelter. They're often hard to pin down and can be subtle. For instance, are there enough tall trees with hollows for a species of owl to nest in? Is a stream wide enough for a species of fish to navigate or find a spot to lay its eggs? If no, then such limiting factors very much limit biotic potential, preventing out-of-control population explosion.

The point is this: populations tend to grow exponentially, but that growth rate does not stay exponential indefinitely. Rather, it slows and then plateaus as the influences of limiting factors strengthen over time. Limiting factors “press down” on a population's capacity

to reproduce, eventually slowing population growth. This slowdown could come from rising mortality, but more importantly for this discussion, limiting factors also depress a population's size through a most clever natural mechanism: falling birth rates.

The influences of limiting factors are weak at first, then strengthen over time as population increases. But here's the key that matters most, especially to us humans: population size certainly determines the degree to which a population is exposed to limiting factors, but not as much as population density does. This is what ecologists mean by “density dependence” in population dynamics. And it is density dependence that's now pressing America's birth rate lower; not feminism, or lapsing religiosity, or lack of government-mandated paid family leave, or other such socioeconomic reasons offered.

For ecologists, population dynamics are driven by a general rule-of-thumb: population growth tends to be faster when population density is low, and population growth tends to be slower when population density is high. That's how it works for most animals, insects, and even many species of plants. For the mammal *Homo sapiens*, population density is very high almost everywhere. Therefore, our rate of population growth is slowing, and it will go slower still if average human population density continues to increase via the process we call urbanization.

Sure, population growth tends to be exponential; resource availability, on the other hand, is either fixed or expands in a more linear fashion. This is what alarmed Malthus, but he was only looking at gross population numbers. The dynamic changes completely at higher population densities – not just with a greater number of individuals in a population, but the degree of that population's “crowdedness”. This is because exposure to limiting factors increases at higher population densities. For instance, predator success rises when prey is more densely populated. Diseases become more communicable, and parasites more common. The pressures that higher population density brings to bear on foraging, shelter availability, and nesting opportunities have a great impact on animal behavior and biology. This is what prevents a population from growing exponentially until all resources are exhausted and everyone starves to death. A population's size expands exponentially at first, but as population density increases population growth rates tend to slow and slow and slow until that population's size either plateaus or begins to curve downwards.

You're probably wondering: what does any of this have to do with humans? We have no natural predators. Parasites in the population are generally not serious problems. Before COVID-19 most would have agreed that threats from communicable diseases were kept under wraps. This may still be true; as terrible as the pandemic is, disease outbreaks in wildlife tend to result in far worse mortality levels. Food and shelter availability aren't insurmountable issues for us, either. But these aren't the only limiting factors.

As mentioned earlier, limiting factors can be very nuanced or subtle. Today, humanity's total fertility rate is being pressed lower by the subtlest limiting factor of them all: stress.

Crowding causes stress, and stress lowers a population's average fertility. And believe it or not, it works the same for the rest of the animal kingdom as it does for humans. For instance, researchers know that higher population densities – crowding – in rabbit populations stress individual bunnies to a point where they not only give birth to fewer litters each cycle, but the size of their litters declines.⁸ When deer are densely populated, the stress this imposes sometimes results in the females taking longer to begin birthing young, leading to fewer total offspring.⁹ The effect of crowding-induced stress on fertility and birth rates has been witnessed and described time and time again, for a wide variety of species. This effect is both behavioral and biological. Such is the power of density dependence.

There's still disagreement in ecological circles over whether density dependence dominates population dynamics or is just one of several factors; biologists also recognize the role of density-independent factors. Nevertheless, there's broad scientific consensus that density dependence is very real, very important, and critical to understanding population dynamics in virtually all species. As I argue in Chapter 1 of my book *Anthill Economics: Animal Ecosystems and the Human Economy*, the same holds true for understanding human population dynamics. Science has already proven it.

Those few scholars who are brave enough to explore whether density dependence influences humans – in the same way that it influences animals – have confirmed that a very strong relationship exists between a nation's average population density and its total fertility rate. In other words, the higher a country's population density, the lower its birth rate. The data proves it.

The earliest reference pointing to human population density as it relates to lower birth rates that I found is a 2002 study by Austrian demographer Wolfgang Lutz and colleague Ren Qiang published in the journal *Philosophical Transactions of the Royal Society*.¹⁰ After uncovering the first clues, Lutz and other researchers grew curious enough to follow up in a separate study published in *Population and Environment*. That research team found the evidence even more convincing the second time around; gathering data on birth rates from 145 countries, including the United States, and testing it against estimated population densities, Lutz et al. discovered “a consistent and significant negative relationship between human fertility and population density,” a relationship as clear as daylight.¹¹ Perhaps most powerfully, that study not only discovered how higher population density tightly correlates to lower birth rates, the researchers also found that this correlation grows statistically stronger over time, a sure sign of causation.¹² “Population density is now the most important factor explaining the fertility level, with only

female literacy coming close in significance,” they concluded.¹³ Two Belgian economists discovered the same reality in 2017, confirming this powerful connection between higher population densities and lower birth rates exists for both developing and developed countries.¹⁴

Of course, the reasons people give when asked why they choose to have fewer or no children are true. They often cite economic anxiety, which is real. They are not lying when they say uncertainty about the future causes them to forego childbirth. But the root cause of all this anxiety and uncertainty is the stress induced by rising population density – crowding, especially urban crowding.

The pressures of crowding induce stress. We see this in higher housing costs and higher costs of living. The same occurs in nature: the “cost of living” for animals rises, as well, at higher population densities. This added stress is apparently negatively impacting biological fertility also, and not just for women. For example, there is strong clinical evidence that elevated stress levels depress human male fertility.¹⁵ Stress kills sperm. In fact, in an earlier NPG Forum paper, Dr. Gregg Miklashek explains the health consequences associated with stress, including infertility.¹⁶ From recent peer-reviewed medical literature on this topic it appears the world of medicine is starting to take seriously the role that stress plays in lowering human fertility.

The evidence is clear: falling human total fertility rates and birth rates are natural, inevitable, and ultimately inescapable so long as our average population density keeps rising. The data supports it. And it matches precisely with what's been witnessed and described in nature over and over again, and humans are a product of nature, though we often forget this fact.

With higher or increasing population densities, birth rates are pressed lower. That's just the way it is. Governments should accept this reality, and avoid trying to fix national birth rates as if they're problems that can be fixed in the first place. They aren't, and they can't. But many governments, including ours, will probably try anyway. Too many haven't learned from other failed attempts at population engineering.

In the 1980s, South Korea's government begged its citizens to stop having so many kids; today it begs them to do the opposite, but the citizens are ignoring this plea. France, Italy, and more have their own pro-natalist programs, and the Danish are told to “do it for Denmark”. Those efforts aren't working either. Now experts are screaming “crisis!” in the U.S. and demanding that America's leaders do something. They can't, even if they wanted to. This trend is no more a crisis than gravity or the laws of thermodynamics. If we must fix welfare and healthcare systems, then we'll need to find other ways to go about it. Manipulating birth rates won't work.

Immigration is an option many pundits will inevitably propose, but this will drag birth rates even lower if it results in higher population densities. And don't get our government or others entertaining ideas of reversing

urbanization somehow to address plunging birth rates, as Japan is attempting to do by enticing people to live in the countryside. Our crowding into cities is also natural: this “clustering” is the most common population dispersal pattern seen for life on Earth. We should treat low and declining birth rates in extremely densely populated societies for what they are – as nature taking its course, and not socio-economic aberrations requiring misplaced and futile social engineering. In the face of falling birth rates, do nothing; that’s the message Washington, D.C. needs to hear.

For Negative Population Growth the trend may call for celebration but not complacency. Long advocating for an end to U.S. population growth, I think NPG will eventually get its wish, though this will take some time. But let’s be clear: this is no “mission accomplished” declaration. Time and time again governments have proven themselves incapable of leaving their populations’ demographics alone. Washington will be no different. As the U.S. birth rate falls lower the media panic will grow louder, and NPG’s work will become more vital than ever. Eventually this issue will find its way to Congress, so NPG must press forcefully for the only reasonable and appropriate policy response called for: none.

Where will America’s plummeting birth rate take it next? Only time will tell. The country’s population continues to expand, but that rate of growth is slowing precipitously. Washington may try to reverse this through higher levels of immigration, but I predict this will merely delay the inevitable. We may already be seeing this in Canada, where per-capita immigration is higher and the birth rate is lower – Canada’s population growth is now slowing as a result, and it may actually turn negative in our lifetimes. I believe America will follow; at some point U.S. population will peak and then move in reverse, as seen in virtually all animal populations. This will happen regardless of Washington’s policies because America is becoming too crowded, crowding causes stress, and stressed-out individuals can’t or won’t have children.

NOTES

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