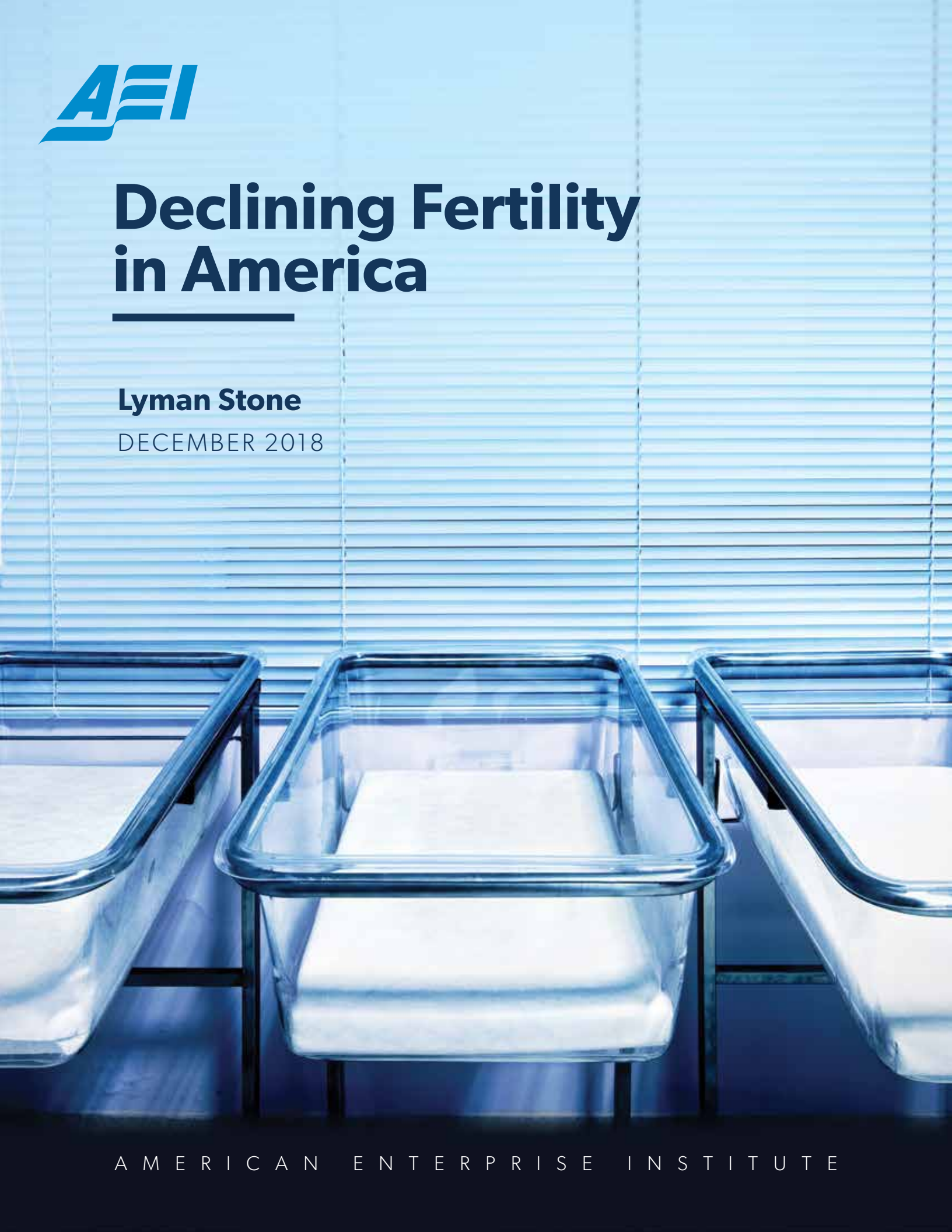

Declining Fertility in America

Lyman Stone

DECEMBER 2018

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Executive Summary

Birth rates in America are declining, leading to one of the lowest rates of population growth on record, soon to become the lowest ever. This will likely have far-reaching negative economic consequences. Furthermore, the trend is shared with many industrialized nations and is observed across geographic areas and ethnic groups in the United States, including immigrant women and previously high-fertility states such as Utah and Hawaii.

This decline is led by falling birth rates for women under 30, but in recent years, even women in their 30s have seen falling birth rates. These declines will almost certainly result in millennial women ultimately having fewer children than previous generations had.

Most of these changes in age-specific birth rates, however, can be attributed to changing marital patterns. Controlling for marital status, fertility in the United States has been roughly stable for the past decade and a half. Most changes in marital status, in turn, can be attributed to the increasing delay in young people getting married. In other words, declining fertility is really about delayed marriage.

This trend cannot be reversed with "technological" or "technocratic" solutions. Even significant improvements in reproductive technology would be insufficient to boost fertility to replacement levels, and even significant restrictions of abortion or contraceptives would only modestly alter birth rates. Known environmental factors affecting fertility, such as lead exposure, should be addressed, but even if addressed, they would alter birth rates only modestly.

Declining fertility also cannot be reversed by a campaign to alter Americans' ideals or desires for children. Americans already report high desired fertility, and, indeed, fertility desires are already naturally rising. Americans want to have more children than they are actually having, even among young women. The problem, then, is not about Americans not valuing childbearing, but about *barriers* to childbearing (and, implicitly, barriers to marriage and independent family formation). These barriers are numerous:

- Increased young adult debt service costs due to student loans;
- Decreasing young adult homeownership due to rapidly rising housing costs and student loans;
- Increasing years spent actively enrolled in educational institutions, which tends to reduce birth rates dramatically while enrolled;
- Higher cost of market-based childcare, alongside rising need for hired childcare due to diminished extended family support and more two-earner families; and
- Changed social and cultural expectations of parents and parenting, making children and childbearing more burdensome than for previous generations.

Some of these barriers, such as student loan burdens or housing costs, may be readily addressed through various policy changes. Other barriers are more difficult to surmount, such as societal expectations about parenting styles or market norms about years of education required for work. Young families today face a sufficiently wide range of challenges to childbearing, and policy responses are likely to be sufficiently anemic, that a major recovery in fertility seems unlikely. Rather, fertility will likely remain below the historic average until the next recession, when it will plummet even lower.

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Around the country, maternity wards are seeing less demand for their services, churches are seeing fewer babies brought in for baptism, and toy stores are struggling to stay in business. Fewer babies are being born in absolute terms and especially in terms of the national birth rate. Depending on how it is measured, birth rates are either at their lowest point in history or approaching it quickly. What is causing this decline? Is it secularism? Economic demoralization? The decline of the family? High housing costs?

Explanations for the ongoing baby bust are as numerous as they are panicky. And indeed, figuring out the cause of the decline, and hopefully how to prevent it, is a vital question for policymakers and the nation on the whole. Lower birth rates could mean slower economic growth, insolvent public obligations, and a growing culture of intergenerational despair. Luckily, there is a large amount of research on fertility, so the causes and consequences of the baby bust can be teased out and analyzed.

Where Have the Babies Gone?

In 1947, 55,000 babies were born in West Virginia, according to data from the Centers for Disease Control. This was the highest it had ever been. But from the 1900s to 1940, at least 40,000 children were born almost every year. The coal industry was leading the way in industrializing the rural, underdeveloped heartland of Appalachia, so the population was booming. West Virginia's congressional delegation rose steadily from three representatives before 1883, to four after redistricting, to five in 1903, and then to six in 1913, when the size of the congressional delegation held steady until 1963.

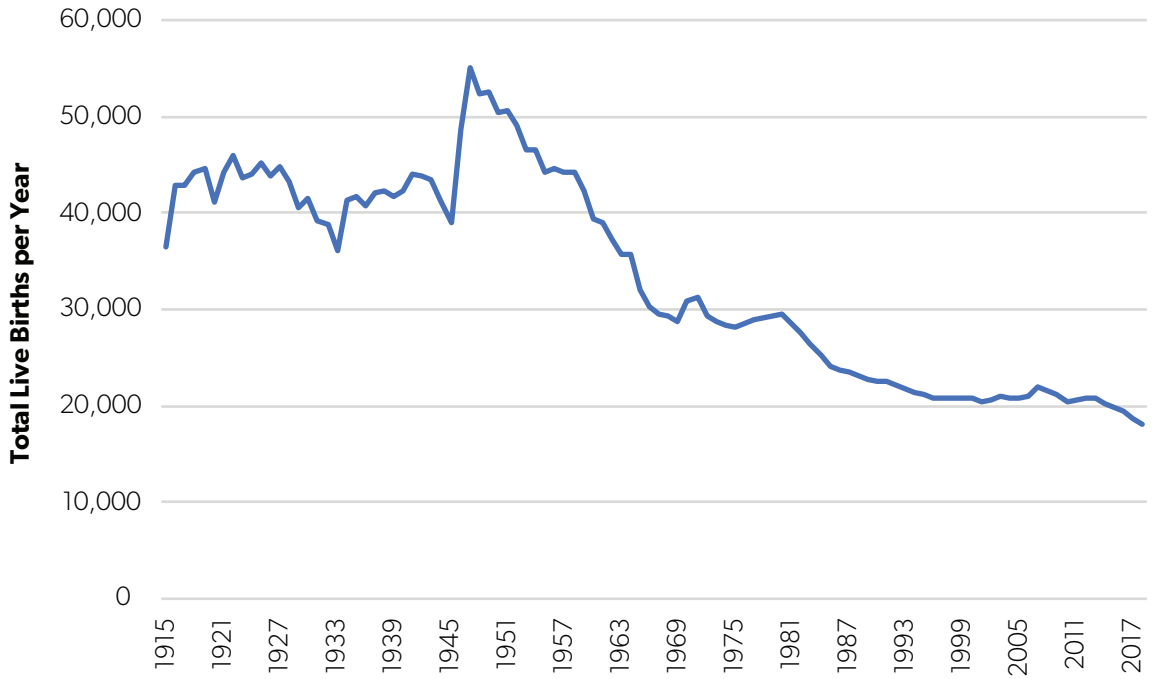
Those good times did not last. Since the peak in 1947, births in West Virginia fell steadily to the mid-1990s, when they leveled out around 20,000 babies per year. But lately, the birth rate has fallen again, and births in 2018 will probably come to about only 18,000 in total, just a third of what they were in 1947 (Figure 1).

West Virginia's experience is atypical in its severity, but not in its direction. Birth rates are falling around the United States (Figure 2). The total number of births in Maine, Michigan, Mississippi, Pennsylvania, and Rhode Island have all fallen by about half since their peaks. As of 2018, no state in the union has births at, or even close to, a peak. Even states with population booms such as Florida or Washington have birth counts 5 or 10 percent below their peaks.

Falling birth rates are a major contributor to the falling national rate of population growth. If the trend from 2010 to 2017 continues—a trend largely attributable to fewer births—2010–20 will likely see the lowest rate of population growth of any decennial period in American history except for the 1930s.

The academic literature on the causal impact of population shocks on various economic outcomes does not yet have a consensus view. Generally, however, a host of potential problems can be imagined. For example, if population growth slows nationally, then demand for housing will not rise as much. If population change turns negative, then demand for housing could enter into a permanent decline. Imagine how many American households' finances will be insolvent if home values entered a permanent decline. Or, more simply, ask someone from a shrinking town in

Figure 1. West Virginia Annual Births



Source: Centers for Disease Control and Prevention, National Vital Statistics Reports, https://www.cdc.gov/nchs/products/nvsr.htm; Integrated Public Use Microdata Series, National Historical Geographic Information System, "Vital Statistics," https://www.nhgis.org/; and Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/.

Appalachia, or even from Detroit, what durable population decline does to the real estate market. In Japan, where population growth has already turned negative, real estate prices have shown no growth even in high-demand cities such as Tokyo.

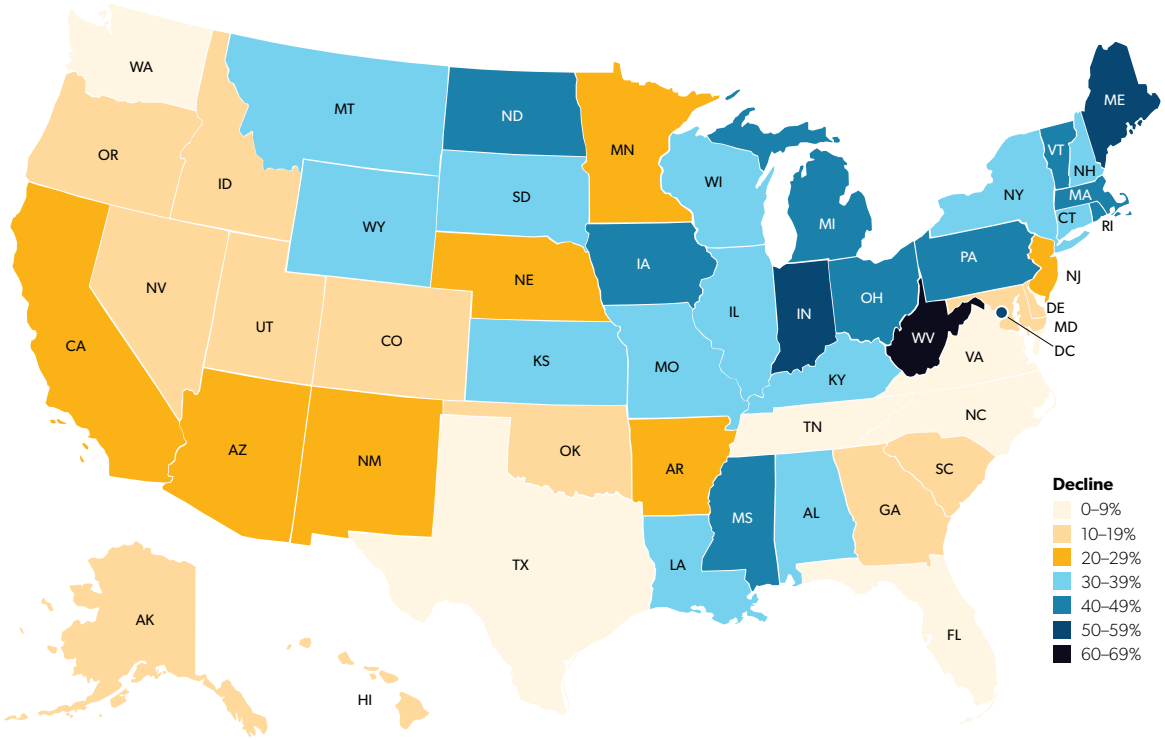
Consider the solvency of intergenerational transfer systems such as Social Security and Medicare or even the performance of the stock market. Without as many young workers to pay into Social Security and Medicare or buy the hot dogs and iPhone apps that make corporate shares worth holding, the retirement prospects for American workers will dim. Their 401(k)s will not be worth as much, they will have long lines at the hospital, and their Social Security checks will perhaps be smaller than they expected. In other words, in a low-fertility world, Americans may have to work longer and harder before retiring.

If the size of the economic pie is not growing as quickly, it will be harder for new companies to enter the market. They cannot capture "new" customers because the pool of customers is never growing. Instead, entrepreneurs will always be competing directly with existing brands. As such, fewer firms will likely capture more economic growth, yielding more monopoly power for a few brands and companies. Again, regions with economic decline are already familiar with this effect, as declining places depend more on a few big employers, which enables those employers to "capture" the local government and demand tax breaks and other benefits or keep wages low.

Some research does suggest that falling population can have good effects, such as by encouraging automation and increased capital intensity. But while these strategies can keep the economy afloat in aggregate, they increase the economic returns to the ownership class while leaving workers with fewer opportunities.

In the past, these displaced workers found jobs in new economic sectors, which was partly possible because, with booming population growth, demand for

Figure 2. Births vs. Peak



Source: Centers for Disease Control and Prevention, National Vital Statistics Reports, https://www.cdc.gov/nchs/products/nvsr.htm; Integrated Public Use Microdata Series, National Historical Geographic Information System, "Vital Statistics," https://www.nhgis.org/; and Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/.

goods and services was always expanding. But in the future, this constant positive shock to demand, in the form of more people, may not be there, so the workers disemployed by robots may have fewer alternatives. In other words, low fertility may increase inequality.

Certainly, falling fertility can directly increase economic inequities in at least one way: When the average estate is divided among fewer heirs due to having fewer children, the role of intergenerationally inherited wealth in the economy will rise, as big inherited estates will not be broken up as much. A low-fertility world is one in which more of society's wealth is inherited, rather than earned.

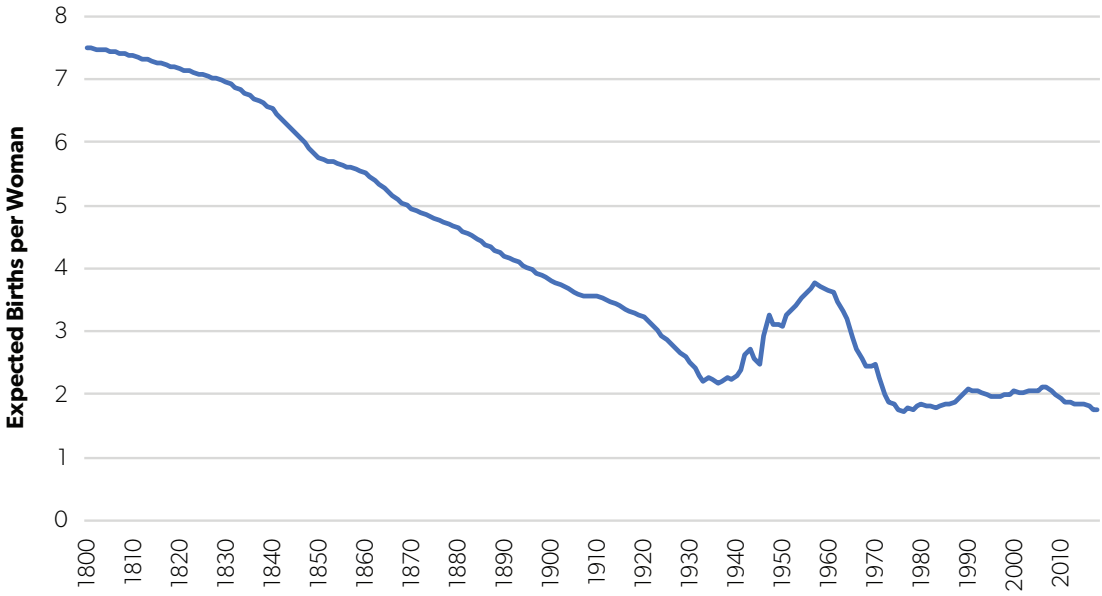
Declining population growth, then, is a serious, if still highly uncertain, social issue. And central to that issue is the question of birth rates. Why are there fewer babies? Where have they all gone?

How Many Children Will You Have?

The best way to measure how birth rates are changing right now is not the crude number of babies born but the total fertility rate (TFR). This measure provides an age-controlled estimate of how many kids a woman beginning her childbearing years now would have over her whole life if current birth rates remain stable. In other words, it is a simple forecast of childbearing. It often ends up being too high or too low, and it is much more volatile than completed fertility, but it is the best indicator of trends in childbearing *right now*.

The history of fertility rates in America may be surprising (Figure 3). Before the Civil War, American women may have had as many as six or seven children if they survived their childbearing years.[1] Many, of course, did not, although research suggests that rising

Figure 3. Historic Total Fertility Rates in the United States



Source: Author's estimates from Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/; Centers for Disease Control and Prevention, National Vital Statistics Reports, "U.S. Decennial Life Tables," https://www.cdc.gov/nchs/products/life_tables.htm; and Michael R. Haines, "Ethnic Differences in Demographic Behavior in the United States: What Can We Learn from Vital Statistics About Inequality?," National Bureau of Economic Research, September 2017, http://www.nber.org/papers/w23827.

female life expectancies actually have little to do with less death in childbirth. Maternity-related deaths were perhaps never as important a life span limiter for women as popular accounts make them seem.[2]

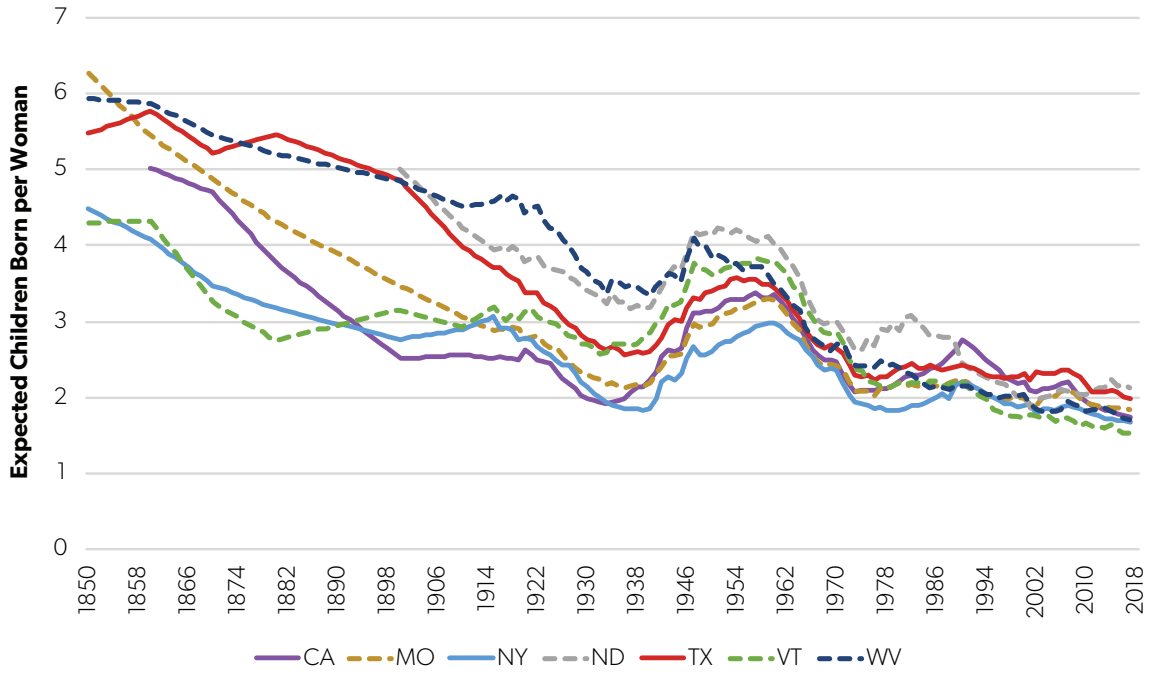
Over the 19th century, fertility rates steadily declined. By the early 20th century, American women were having children at rates not far above modern fertility levels: as low as 2.2 children per woman. Long before modern contraception was widely available, and at a time when Americans were more religious than today, American women had found ways to reduce the amount of childbearing they experienced. Fertility decline in the 19th and early 20th centuries, then, was a product of general economic development, not some broad cultural shift toward modern secular values. Fertility remained low during the depressed 1930s, and then it began to rise in the early 1940s.

It is sometimes wrongly believed that the baby-boom generation began with a postwar surge in births. In fact, as recent research has shown, the mid-20th-century baby boom began in different countries at different times, beginning in the United States closer to 1940.[3] Fascinatingly, this same research suggests that, before welfare states were widespread or known to be politically durable, married fertility often rose in periods when married people might have had *grimmer* expectations for the likelihood of future social support.

In brief, the authors suggest that childbearing substitutes for social support. So when social support networks seem imperiled, such as during the early years of World War II when the whole democratic order seemed imperiled, it may cause a baby boom. This finding is counterintuitive and recent, but the key point—that the baby boom began as the soldiers were being *recruited and deployed*, not as they were *coming home*—is documented fact.

On the other hand, another recent paper suggests that the baby bust during the Depression, and the baby boom after the war, can be explained by changes in economic volatility, rather than simply growth. The paper shows fairly convincingly that when growth

Figure 4. Historic Fertility Estimates by State



Note: The estimates are of children ages 0–1 residing with a parent.
Source: Author's estimates from Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/; and Centers for Disease Control and Prevention, National Vital Statistics Reports, "U.S. Decennial Life Tables," https://www.cdc.gov/nchs/products/life_tables.htm.

rates are steady, fertility rises, but when growth rates bounce around a lot, fertility falls.[4] After the war, fertility kept rising until it hit its 20th-century peak value of an expected 3.77 children born per woman entering her childbearing years in 1957, if age-specific rates had remained stable.

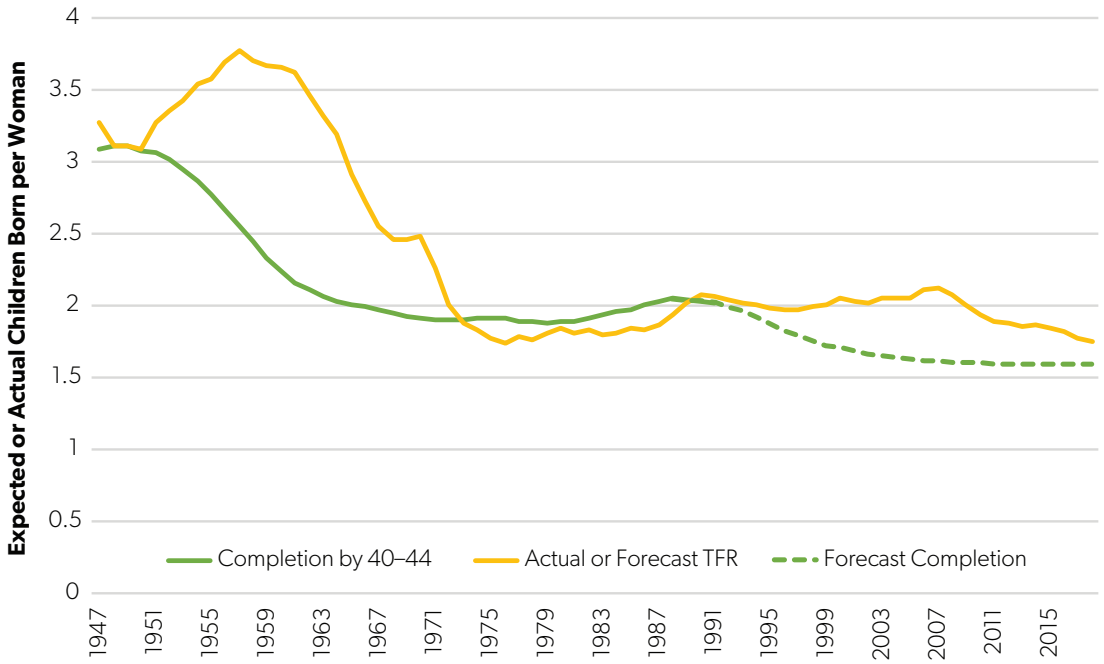
But, as is well-known, birth rates did not remain stable, and from 1958 onward, they declined. This decline coincides with the introduction and adoption of birth control, and economic research confirms that when contraceptives were legally allowed in a new area, or when federal family planning expenditures rose, fertility fell.[5] However, the reason for this is because, as I will discuss more below, in 1957 the average woman only wanted to have something like 3.2 to 3.6 children. In other words, introducing birth control effectively reduces fertility when childbearing norms are above, or have in recent memory been above, what most women want for themselves.

Access to reproduction-reducing technologies continued to improve throughout the 1960s, and actual fertility continued to fall alongside falling fertility desires. Then, in 1973, *Roe v. Wade* made abortion widely available around the country.

Yet, strangely, fertility stopped falling. Fertility reached its all-time low in America in 1976, at 1.74 kids per woman. It then rose back above 2.0 kids in the late 1980s and remained above 2.0 until around 2010. Since its most recent peak in 2007, fertility has been in steady decline. In 2018, the TFR is likely to fall to around 1.74 or 1.75 kids per woman once again.

This broad pattern is consistent around the United States. Using data from previous censuses, we can estimate what TFRs must have been in each state historically. This task is challenging as state birth data before the 1940s are highly incomplete, and most data from before the 1990s are not fully digitized. But the series in Figure 4 represents a good

Figure 5. Period-Specific vs. Completed Fertility, Historic and Forecast



Source: Author's estimates from Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/; Centers for Disease Control and Prevention, National Vital Statistics Reports, "U.S. Decennial Life Tables," https://www.cdc.gov/nchs/products/life_tables.htm; and Michael R. Haines, "Ethnic Differences in Demographic Behavior in the United States: What Can We Learn from Vital Statistics About Inequality?," National Bureau of Economic Research, September 2017, http://www.nber.org/papers/w23827. The fertility completion data are from US Census Bureau, Current Population Survey.

approximation of what fertility must have been in a few selected states.

While the exact level of fertility in each state varies, virtually all states have the same general pattern across time. Not many states "buck the trend," which is to be expected given that the national trend is simply the aggregate of the states.

But is this story *really* what happened? Did a woman turning 15 in 1957 really have 3.77 children? Will a woman hitting puberty in 2018 really have only 1.74 kids on average? Has fertility *really* declined so much? To answer that question, we have to turn to a different metric: completed fertility.

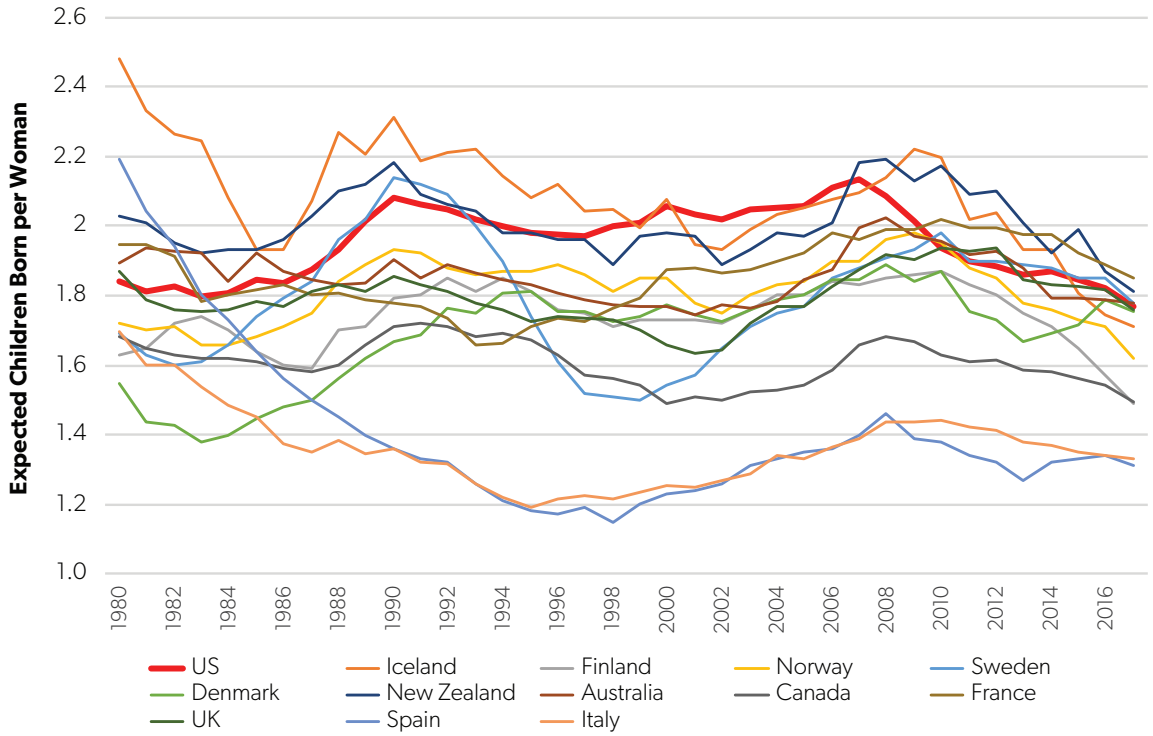
How Many Children Did You Have?

The Current Population Survey asks women how many children they have ever had. Because most women have finished having kids by their mid-to-late 40s, the answers given by women in their 40s should reflect how many kids will *ever* be had by the average woman in that generation. By walking these answers back to the year those women turned 15, we can see how well the TFR predicted the number of children a given generation of women actually ended up having.

There is some inconsistency in these estimates as fertility completion estimates (the completed fertility rate, or CFR) not only include women who may not have been resident in the US when they were 15 but are now because of immigration, but also exclude women who were resident when they were 15 but are not anymore because of mortality or emigration. But generally, CFR should *approximately* match historic TFR.

The women turning 15 in the 1950s and 1960s had *far* fewer children than the TFR projected, because, as they hit peak childbearing years in their 20s, they were facing an environment with much lower fertility rates.

Figure 6. Total Fertility Rates in Selected Developed Countries



Source: United States Census Bureau, Statistics Iceland, Statistics Finland, Statistics Norway, Statistics Sweden, Statistics Denmark, Stats New Zealand, Australian Bureau of Statistics, StatCan, National Institute of Statistics and Economic Studies, Central Statistics Office of Ireland, Office of National Statistics of the United Kingdom, Spanish Statistical Office, Italian National Institute of Statistics, and Statistics Korea.

Meanwhile, women turning 15 in the 1970s ended up having slightly *more* children than the TFR suggested they would, as fertility rates were rising in the 1980s and 1990s, when they were having kids (Figure 5).

We do not know for sure how many kids women turning 15 in the 1990s will end up having, because they are not in their 40s yet. But we can make an educated guess based on how many kids women in their 20s and 30s have had thus far and fill in the remaining years based on various forecasts of age-specific birth rates in the future. We can use a simple but pessimistic forecast as an example: What if birth rates continue their 2007–17 decline for a few more years, then flatten out at around 1.6 kids per woman?

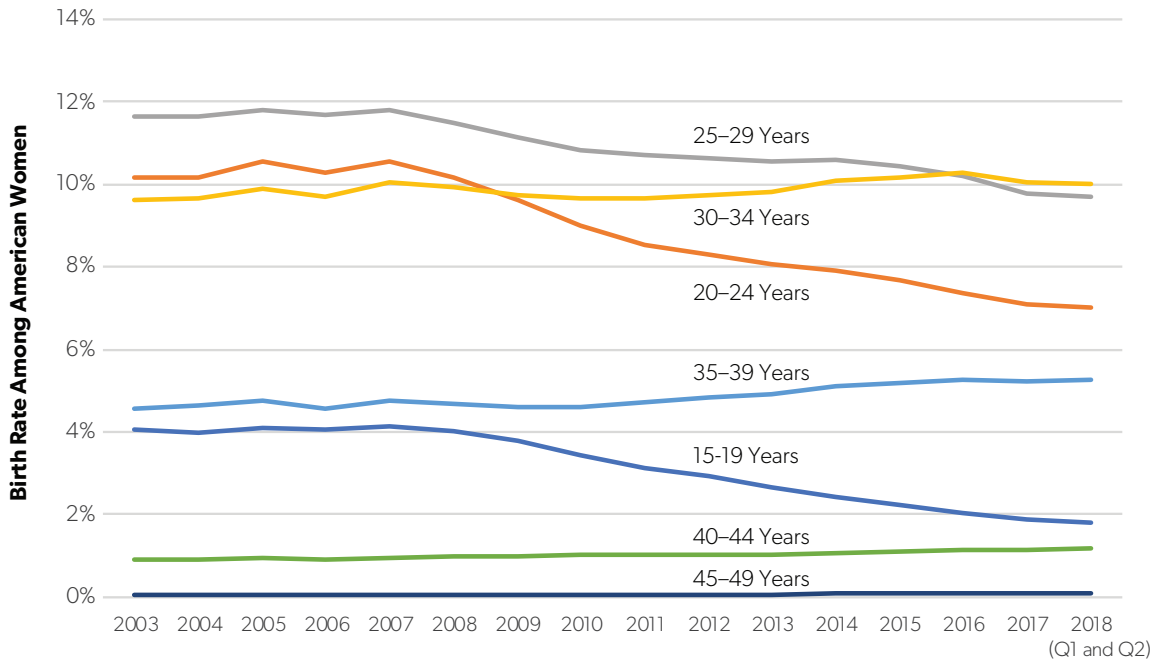
In that scenario, completed fertility falls *well* below its historic low point from the 1970s and has no forecast recovery (Figure 5). American women today are extremely unlikely to have anywhere close to replacement rate fertility.[6] In other words, while the timing of fertility completion trends is a bit different, the overall conclusion, that the past decade has seen near-lowest-ever birth rates, remains the same. The specter of low fertility, and ultimately of declining population, has come to America.

International Comparisons

However, the United States is not the only place with declining fertility. Indeed, throughout much of the Western world, fertility has fallen significantly in the past decade (Figure 6).

TFRs have declined in many countries in recent years. Even traditionally high-fertility countries such as France have seen declines, often despite generous government supports for childbearing. However, the

Figure 7. Age-Specific Fertility Rates



Source: Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/; and Centers for Disease Control and Prevention, Natality Dashboard, https://www.cdc.gov/nchs/nvss/vsrr/natality-dashboard.htm.

American decline has been particularly severe. While the United States once had much higher fertility than almost any of our developed-world peers, today we are about average, and, if the current decline continues, we could slip into below-average fertility rates for a rich country.

With the decline so severe in the United States yet shared to varying extents across large swathes of the rich world, it raises the question: *Why?* And how low will it go?

Why Is Fertility Declining?

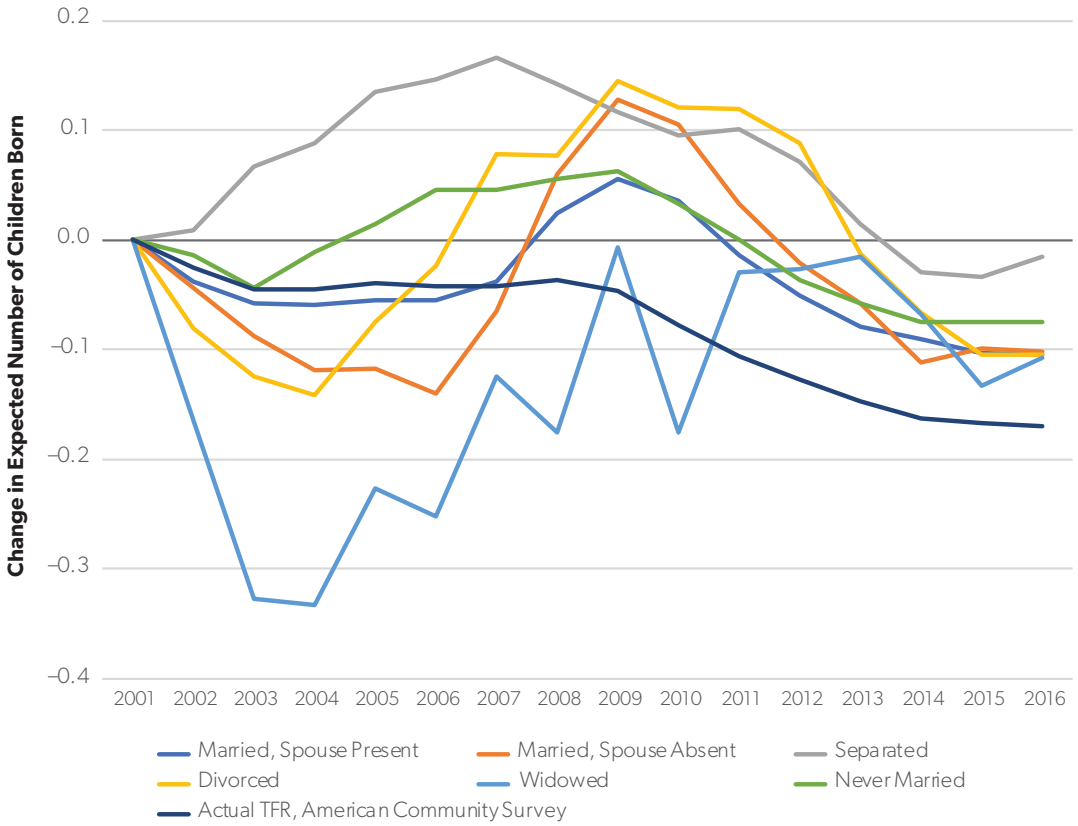
The best place to start answering *why* fertility is declining is to look at *who* is experiencing fertility declines. To start, we can look at the birth rate among specific age groups of American women (Figure 7).

The trend of declining teen pregnancies has been going on for decades and is generally regarded as socially desirable. Teen pregnancies can create serious socioeconomic disadvantages for both the mother and child and are frequently unintended or undesired. Preventing teen pregnancy, then, has been a key policy goal for public health programs around the developed world for generations. These programs appear to have been successful.

But prevented pregnancies have slowly climbed up the age ladder. It started with women in their early 20s, then their late 20s, and then their early 30s, and now even late-30s birth rates have stopped rising. In other words, prevented teen pregnancies are *not* being replaced by births later in life. Women are not, on average, *delaying* births, but rather simply *not having as many* births. While the decline began with young women, it now affects a wide age range of women and cannot only be written down to changing youth behaviors.

The next logical place to look for fertility decline is to control for marital status: Are married or unmarried

Figure 8. Change in Marital TFR



Source: American Community Survey.

women having more or fewer births? It is important to control for age in this calculation because the age composition of married women and unmarried women is different. To keep the comparison simple, we can calculate a TFR for women of various marital statuses and see how it has changed over time.

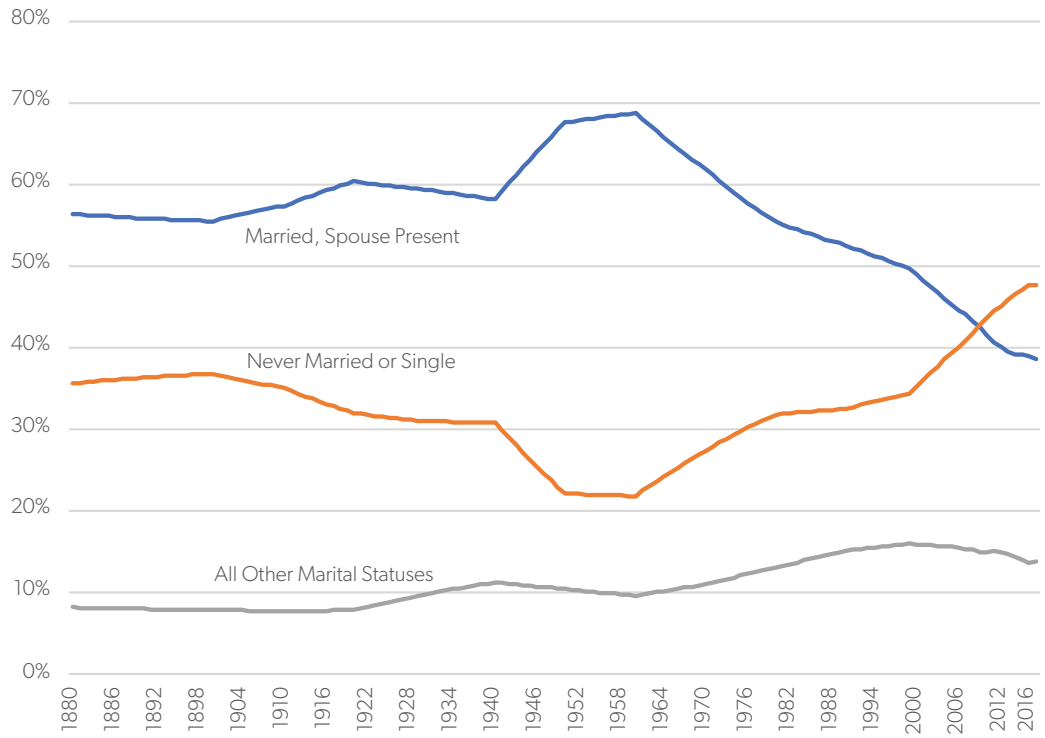
As Figure 8 shows, there is relatively little long-run change in the childbearing behaviors of specific marital status groups. There is some shift here or there, and all groups have declined recently. But, on the whole, a married woman of a given age is about as likely to have a child today as she was a decade ago, and a similar story is true for other women. Meanwhile, overall fertility has fallen by substantially more than the fertility of *any* marital status group.

But how can this be? How can *marital* fertility be fairly stable if *overall* fertility is falling? Figure 9 provides an answer.

The share of women who are married has been declining for virtually every age group over the past 15 years. People are getting married later and spending more of their peak-fertility years unmarried. Thus, they are less likely to have children. When they do eventually get married, having kids is much harder, even with the assistance of reproductive technology. Indeed, changed marital composition explains the vast majority of changes in American fertility over the past 10 or 20 years, and much the same can be said for other developed countries: Where marriage goes, so goes fertility.

As low as fertility has gotten in the United States, it could easily get even lower. Throughout the world, the average age of first marriage is a strong predictor of the average age of first birth, and birth timing is a good predictor of recent fertility declines. Across a sample of 71 countries for which data were available,

Figure 9. Marital Composition



Note: The figure represents women age 15–50.
Source: American Community Survey.

marriage age can explain 80 percent of the variation in birth timing. The United States' average age of first marriage is just a bit over 27 years old, which may sound high, but in many developed countries, it is even higher. In Australia, Canada, and the UK, people get married around age 30. It is around age 31 in France and Norway and over age 33 in Sweden. In other words, as dire as the American situation is right now, *it could get worse.*

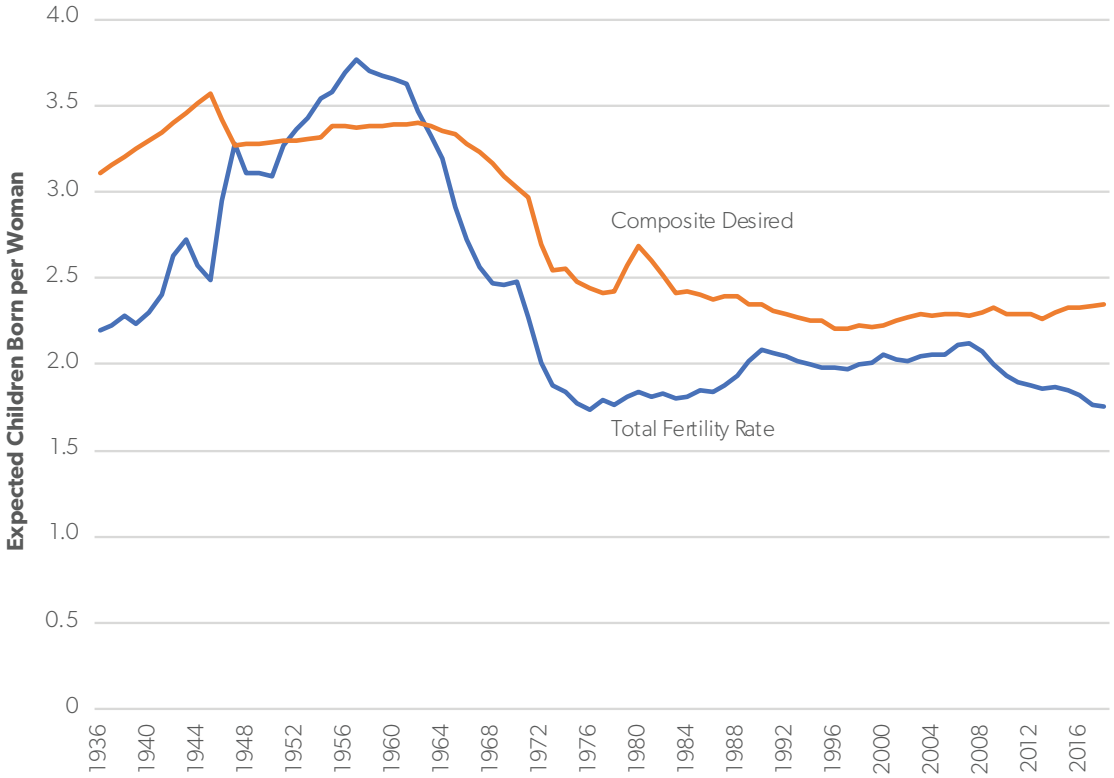
Women in the US remain comparatively *more* likely to have kids and get married at a young age than women in many other rich countries. In other words, if other countries are anything to go by, American fertility has not hit anything close to the rock bottom.

Do You Want a Baby?

It may of course be suggested that what is *really* happening is that American women's priorities are changing and they simply do not want children anymore. Luckily, an enormous amount of survey research on the subject of fertility desires and intentions shows that, if anything, American women actually desire *more* children than they used to.[7] Figure 10 shows a summary measure of fertility desires or ideals among women of childbearing age alongside TFR.

American women want to have kids but are not succeeding. There is simply no evidence of a big change in values or priorities away from having children: The evidence is entirely that something is happening to *prevent* childbearing, which women do, in fact, desire. To get fertility back up to historic levels, then, does not require a big change in values, just a removal of whatever that obstacle may be.

Figure 10. Desired Fertility vs. TFR



Source: Author's estimates from Lyman Stone, "How Many Kids Do Women Want?," Institute for Family Studies, June 1, 2018, https://ifstudies.org/blog/how-many-kids-do-women-want.

This is not simple, however. It is popular among some social conservatives to blame contraception and abortion for low fertility, but the evidence for that is quite weak. For example, academic research from Texas[8] suggests that restricting access to abortion has only extremely modest effects on fertility: Dramatically reducing abortion clinic coverage raised birth rates only 2–7 percent. Likewise, restricting contraception probably would not boost fertility much either, as US fertility fell to around 2.2 expected children per woman long before modern contraception existed, and countries with poor contraceptive access nonetheless often have falling fertility.

Furthermore, when the price of contraceptives in Chile rose suddenly and dramatically, birth rates rose about only 4 percent, suggesting even major contraceptive restrictions have small effects.[9] Plus, this strategy—restricting access to abortion or contraception—is politically divisive and may have large unintended side effects. This is not a viable strategy for altering society-wide fertility in a healthy, fair, and sustainable way.

Other countries have tried a different approach: Why not just *lean in* to the delay in fertility? Reproductive technology is improving all the time, enabling older women to have more children. Perhaps the solution is simply to keep innovating in that field and subsidizing late-in-life technologically aided childbearing.

One country often used as a model in this regard is Israel, where reproductive technology, and particularly in vitro fertilization (IVF), is generously supported by the health system. Israeli women receive 10 times as many IVF treatments per capita as American women.[10] The result, so the story goes, is that Israel has much higher fertility than any other developed country does.

But while Israel does have high fertility, the math does not work out in this story. We know about how

many children are conceived using IVF in Israel, and it cannot even account for *one-fifth* of the difference in fertility rates between Israel and the United States. Births from assisted reproduction account for less than 7 percent of all births in Israel. In other words, while Israel does have anomalously high fertility compared to its income level, it is mostly *not* caused by more intensive use of IVF.

Furthermore, the possibilities of reproductive technology are limited. Even with IVF, not every woman can have children into her late 40s, and IVF success rates decline rapidly as women age. With each passing year, some women move beyond the biological possibility of children. Moreover, while we could *perhaps* expect still-fertile 47-year-old women to conceive another two or three children before turning 55, that seems unlikely.

The human life cycle is such that biological fertility is no longer the only limiting factor. Many parents are hesitant about having a high schooler still in the house when they are hoping to retire. Late-in-life childbearing is unlikely to ever become substantial enough to compensate for diminished early-in-life childbearing, even if technologically possible, because of other life cycle factors such as retirement and aging.

Finally, even if it were technologically possible to boost late-in-life childbearing, and even if cultural norms about the life cycle could accommodate later family formation, many Americans remain concerned about the ethical ramifications of some forms of reproductive technology, particularly those forms that can result in unused fertilized embryos, such as IVF. The people who have these ethical concerns are more likely to be religious, and religious people are the most likely to desire children anyway, which means the group who you would *most want* to empower to have kids (that is, those who *want* more kids) is *least likely* to use the technology in question.

Indeed, religion may be a key part of the story for fertility. Religious people generally have more children than the nonreligious do. This holds up even recently in the United States using data from the General Social Survey (Figure 11).

However, fewer Americans are religious. The same survey shows that the share of Americans who strongly identify with any faith is in decline. The share of Americans who report any attachment to religion has fallen from over 91 percent to about 77 percent, while the average number of times an American reports going to church in a year has declined from about 25 times per year to about 20. In other words, there has been a very real decline in religiosity in America.

This decline in religion is probably suppressing fertility somewhat. There are no data on annual birth rates by religion, but General Social Survey data on fertility completion suggest that the decline in religion over the past decade can account for about 10 percent of the decline in childbearing. Overall, the direct effect of declining religiosity on fertility is probably fairly small.

Furthermore, religiosity might not cause fertility as much as *fertility* causes *religiosity*. It may be that, when people have kids, they become more religious. Certainly, getting married and having children is closely associated with greater attendance at religious services.[11] Longitudinal studies of religiosity and family formation have repeatedly found that having children boosts religiosity versus pre-birth behavior and belief.[12] Thus, while religion may have some role to play in declining fertility, it is unlikely to be the sole or even primary influence.

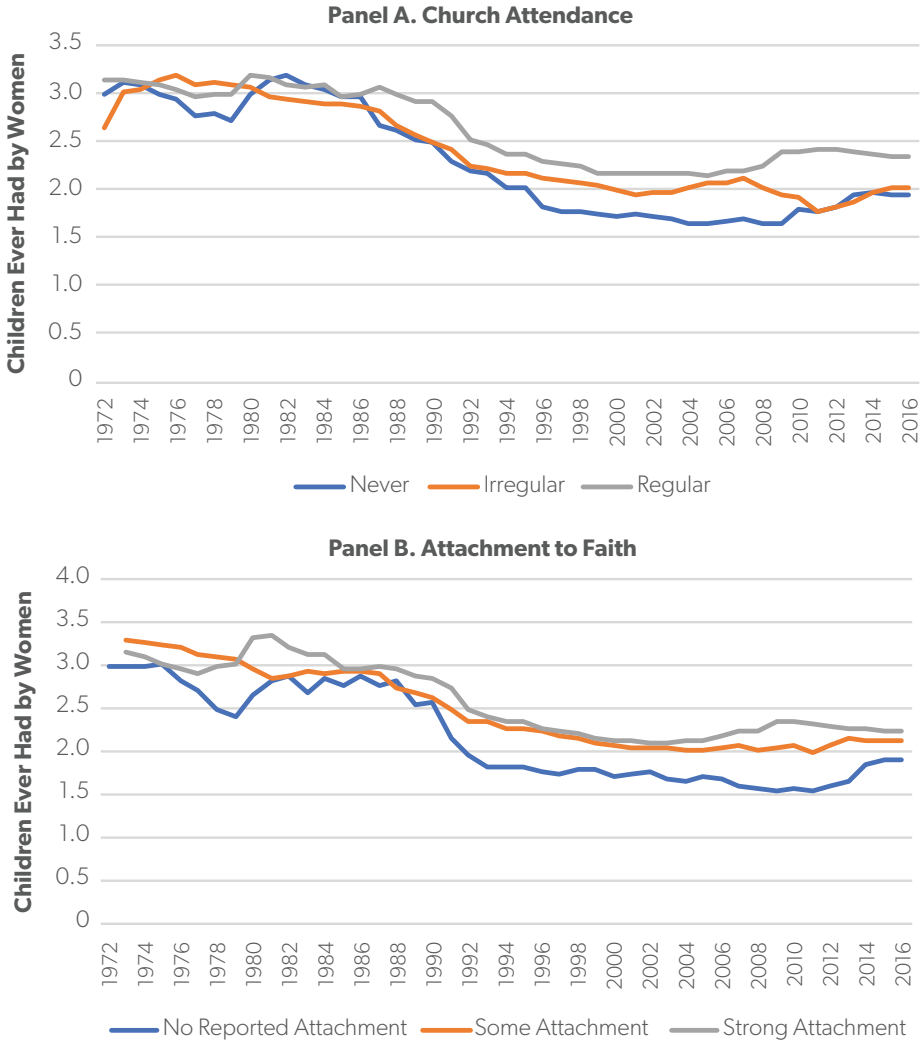
In sum, while American women today still want kids and, indeed, want more kids than their own mothers did, they are finding it hard to achieve those wants. Even with advances in reproductive technology, women having kids today will unlikely enjoy the family life they envisioned for themselves. This problem, it turns out, is not amenable to a purely technological solution.

What Is to Be Done?

Is there *anything* that can boost fertility, helping women achieve their family desires and keeping population growth at a decent clip?

Many countries have tried different policies. Russia has tried some of the most generous financial incentives for childbearing anywhere in the world,

Figure 11. General Social Survey Fertility by Religion



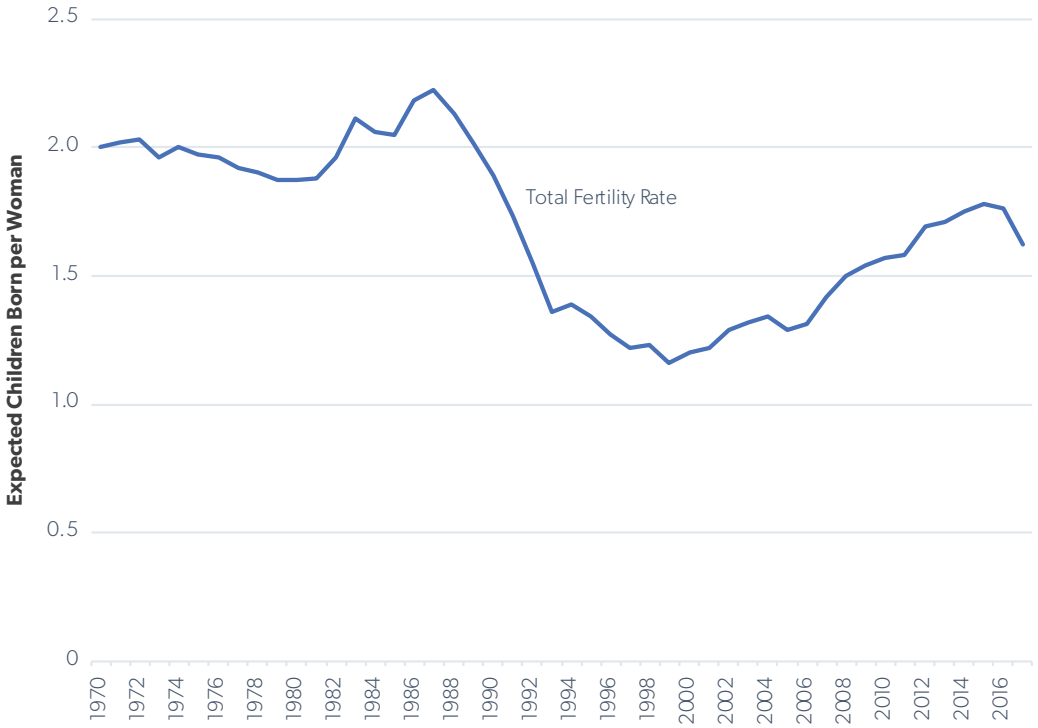
Note: This figure represents children ever had by women age 40–60. "Irregular" includes less than once a year, once a year, every few months, and monthly. "Regular" includes anything more than monthly.
Source: General Social Survey, 1972–2016.

worth the equivalent of nearly $40,000 per child in some cases.[13] It worked for a while: Fertility grew explosively, especially in the most religious parts of Russia where desired fertility was highest, such as in the Islamic southern areas or some of the rural parts of Siberia. But today, Russian fertility is falling again, despite huge financial incentives (Figure 12).

France is famous for offering numerous tax incentives for childbearing, and academic research suggests these incentives have had some effect.[14] But, again, fertility is now falling in France. The Nordic countries such as Sweden have also had waves of benefit expansions for moms, and each time it creates a short-lived boom and little increase in long-run fertility.[15]

The consensus of the academic literature on the topic is that financial incentives for fertility can create short- or medium-run baby booms if fertility rates are below desired fertility, but durable increases in

Figure 12. Russian Federation TFR



Source: Russian National Statistics Service.

fertility are much rarer.[16] Furthermore, the cost per extra child is prohibitively high. Using the range found in the academic literature, I have estimated that boosting fertility to a demographically stable level of 2.1 kids per woman in the United States would cost between $50 and $350 billion per year. To keep fertility completion at that level indefinitely could cost much more—between $125 billion and $950 billion per year.[17]

Some countries, such as Hungary and Poland, have such desperately low fertility that they have taken the plunge and spent massive shares of their gross domestic product on fertility-related initiatives. Thus far, the results can be characterized as modest at best.[18] While both countries have seen their birth rates rise, the increases still leave a huge chasm between their current fertility and demographic replacement. And, in both cases, births were already rising somewhat before any policies were implemented, so it is not clear how much of an independent effect policy changes actually had.

That said, while the price tag on boosting fertility fully to replacement is high, even smaller increases would be helpful. Even if we cannot get fertility back up to replacement rate, getting it halfway back would raise the rate of population growth appreciably and slow down decline. Many countries have simple per-child cash allowances paid regularly to parents. A larger child tax credit with greater refundability, building on the limited, temporary improvements achieved in the 2018 Tax Cuts and Jobs Act, would go a long way toward providing something like a child allowance for American families.

We could also get more creative, such as by making a portion of a person's Social Security benefit dependent not on their earnings but on their offspring's earnings—that is, a "fertility dividend" would reward parents based on their children's earnings. While

almost certainly impossible to implement, such a proposal would usefully illustrate the problem posed by the combination of low fertility and intergenerational transfers.

A fertility dividend would make childbearing a viable part of retirement planning, just as it was before modernization. Having kids, and particularly having kids who get a good education and a good job, would directly enhance a person's retirement prospects. An individual's choice to have children does more to keep Social Security solvent for the future than even high earnings during their working years, and thus rewarding retirees based on child contributions would more closely align the incentives of current workers and families with the actuarial needs of intergenerational social insurance plans such as Social Security and Medicare. And, given that some of the research mentioned elsewhere suggests that children *substitute* for social insurance, making the generosity of social insurance partially contingent on childbearing would help undo the anti-natal impacts of the expansion of social insurance over the past century.

Does Culture Matter?

However, in most places where fertility has actually risen from low levels and remained high, the cause is not primarily a cash incentive. The best example is the former Soviet republic of Georgia. There, a religious campaign to encourage childbearing and discourage abortion, alongside expanded birth incentives from the government, resulted in a sharp jump in fertility, which has been sustained to the present day, a decade after the policy change.[19] But Georgia is a small, ethnically homogenous country. There is no American equivalent to the Georgian Orthodox patriarch who is universally admired and who can induce costly personal behaviors in a wide swathe of the population.

Aside from straightforward financial incentives, there are other ways to boost fertility. Many countries have instituted holidays of various kinds centered on encouraging childbearing. Singapore's government has established a "National Night" for baby making,[20] while South Korean government offices close early on some Wednesdays to give workers time to go home and procreate.[21]

However, these efforts have had virtually no measurable effect, whereas "organic" cultural observances—such as auspicious or inauspicious Chinese years,[22] Christmas and summer holidays in the Czech Republic,[23] Ramadan observance among Muslims in Israel,[24] and New Year's festivities in France[25]—have all been shown to have a major role in shaping fertility behaviors.

The persistence of "cultural" fertility impacts is remarkable: holidays, religion, or even TV shows. Whether *16 and Pregnant* in the United States,[26] various soap operas in Brazil,[27] celebrity babies,[28] or simply TV ownership generally,[29] exposure to different cultural norms and forms of entertainment seems to have a real impact on fertility behavior. There is no study yet exploring the effects of Netflix or smartphones on lifelong fertility, but we may expect that these entertainment forms probably also nudge reproductive behaviors. However, recent studies have shown that higher rates of minority fertility are probably driven by specific, intergenerationally transmitted cultural norms and that minority fertility responds to local cultural attitudes about that minority—that is, culture matters.[30]

So if culture affects fertility, then adjusted cultural norms and changed social policies may be able to alter fertility rates. From who gets reserved parking spaces to social expectations about who gets invited to game night and whose responsibility it is to watch children, cultural norms may be able to alter childbearing. In the United States, these norms are hard to influence through any central effort, since we generally frown on too much direct government social engineering and have a diverse, pluralist society.

However, some cultural norms *can* be influenced. One of the most reliable ways to reduce fertility is to increase the number of years that women are in school. To be clear, this is not just an impact of being educated, but rather is closely related to being enrolled.

School environments create large demands for students' time while usually providing little or no income, and, for university environments, significant

debt can be accumulated. The combination of these factors tends to reduce fertility. Figure 13 shows the birth rates by age for women with the same prior education (high school degree, bachelor's degree, or graduate degree) in the years likely immediately after they attain said degree, broken out by whether they are enrolled in any further education beyond that degree.

In every case, women of the same educational background have much higher fertility if they do not continue to be enrolled, and in every case fertility rises sharply in the years after enrollment ceases. *Education* does not lower fertility in the developed-country context so much as *enrollment* lowers fertility. Once they are out of school, degreed women see higher fertility and make an effort to "catch up" and have kids in their 30s.[31]

However, average years enrolled in school have risen so much that many women find it impossible to fully make up for lost childbearing opportunities during their schooling years. And worse, these women tend to push ahead with plans to have kids and end up far less likely to work and use their degree than they anticipated when making debt and enrollment choices. Not only do women today not get to "have it all," but also society is empirically not enabling them to achieve their family ambitions *or* their work ambitions.[32]

If universities, instead of operating with a quiet hostility toward students who have families at a young age, provided flexible, discounted, on-site childcare, it might alter social norms about whether to begin childbearing while enrolled in school. This is not an unprecedented suggestion. Most universities already offer discounted access to gyms, counseling services, and many other health- and wellness-related services.

Furthermore, university-provided childcare would have the dual effect of making it easier not only for enrolled women to have children while in school but also for women who already have kids to enroll in courses. Many parents, even if they could afford to return to school, have a hard time finding childcare for the irregular hours needed to attend classes. Flexible, on-campus childcare could change that dynamic.

Creating a government-enforced "university childcare mandate" is a bridge too far, as higher education is already burdened with an enormous array of mandates and regulations that drive up costs. Luckily, many private universities are already rhetorically committed to promoting various religious perspectives, and most of those religions view childbearing positively. Private religious institutions could lead the way, finding low-cost childcare solutions for their students to empower those students to achieve their ambitions in the workplace. If religious universities began offering childcare, many secular and public universities would likely eventually follow.

Beyond the direct impact on fertility of being enrolled in a university, higher education can durably suppress fertility if students become highly indebted. Academic research has found that student loans can suppress both marriage[33] and fertility,[34] though the exact channel is unclear.[35] In other words, the entire educational complex is presently structured in such a way as to discourage family formation for young adults.

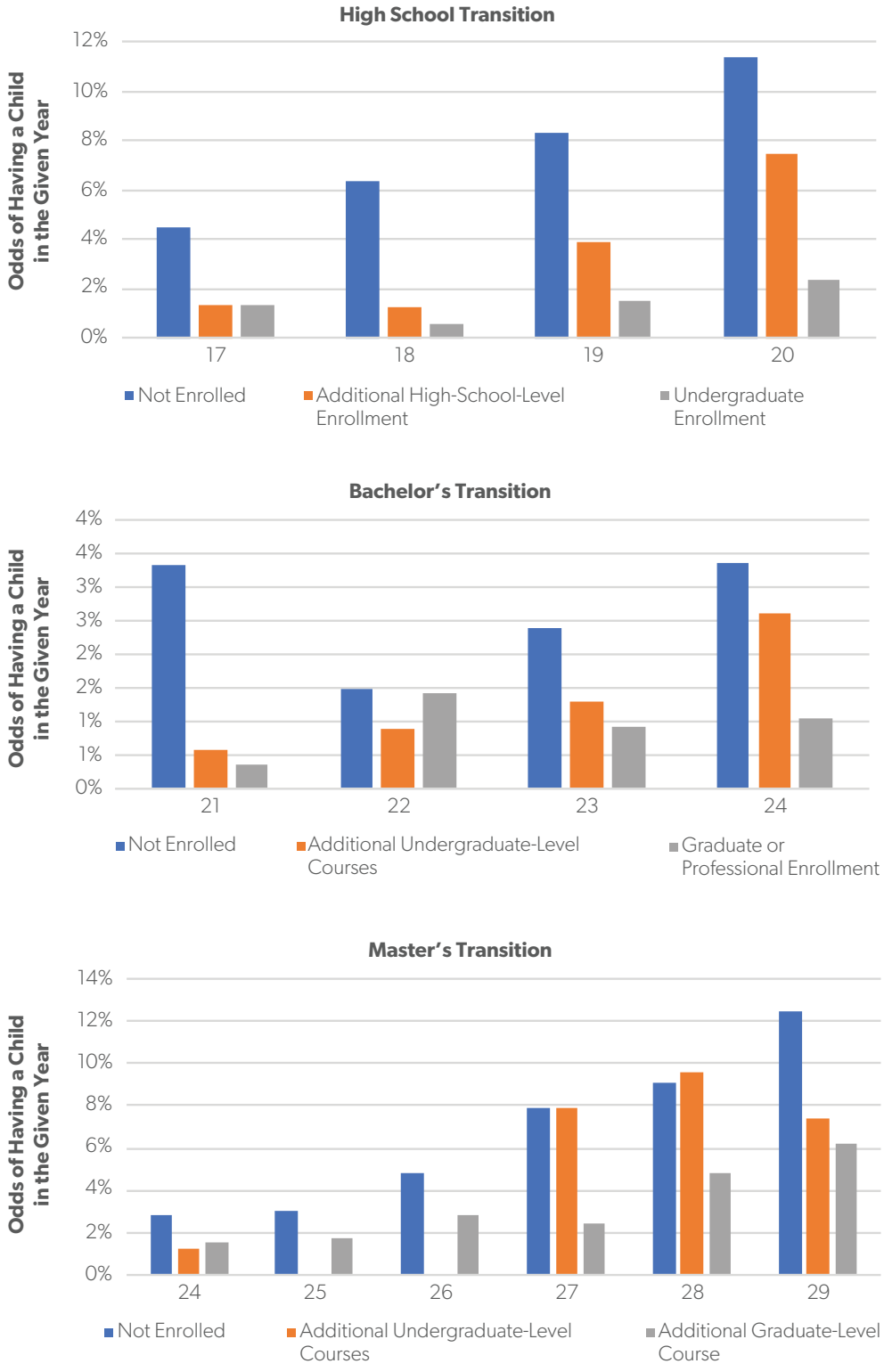
First, more years spent enrolled pushes young people to postpone having the kids they want to have. However, years of education required for middle-class jobs have risen so much that, to meet their childbearing goals, young adults need to have kids as soon as they leave school and space their kids tightly. But that swift beginning to childbearing is harder to achieve than in the past, as student debts make it harder to become independent, secure suitable housing, get married, and support children. In other words, the market's demand for educational credentials has expanded too far into prime childbearing years for American families to be able to have both suitable careers and satisfying family lives.

Does Housing Matter?

Student loans are not the only substantial cost-of-living factor that might affect fertility. Diminishing access to homeownership may play a role as well.

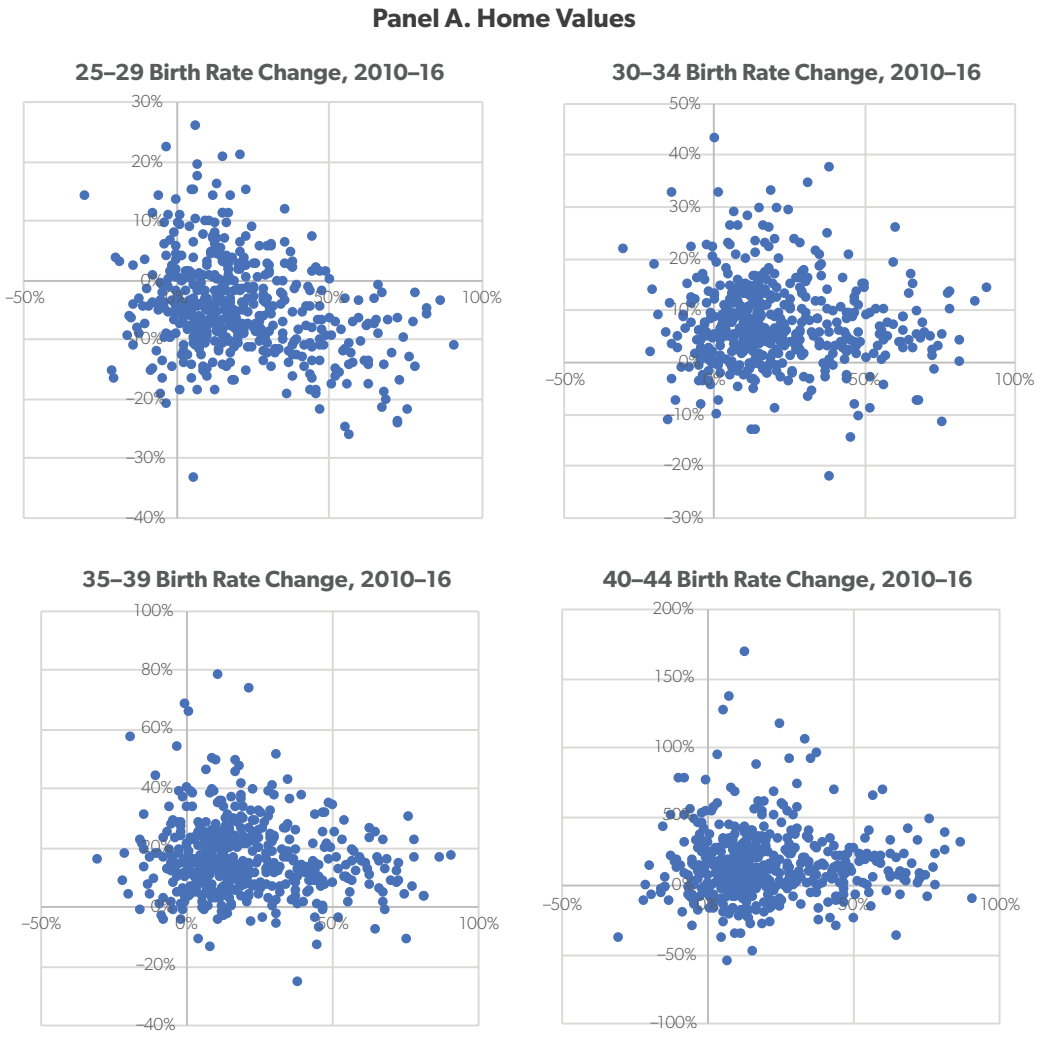
Since 2007, homeownership rates for people under 35 years old have fallen by 15 percent, versus just a 4 percent decline for those over age 65. Between ages

Figure 13. Education Transitions



Source: American Community Survey 2012–16.

Figure 14. Age-Specific Fertility Rates by Rent and Home Value



Source: Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/; and Zillow, https://www.zillow.com/.

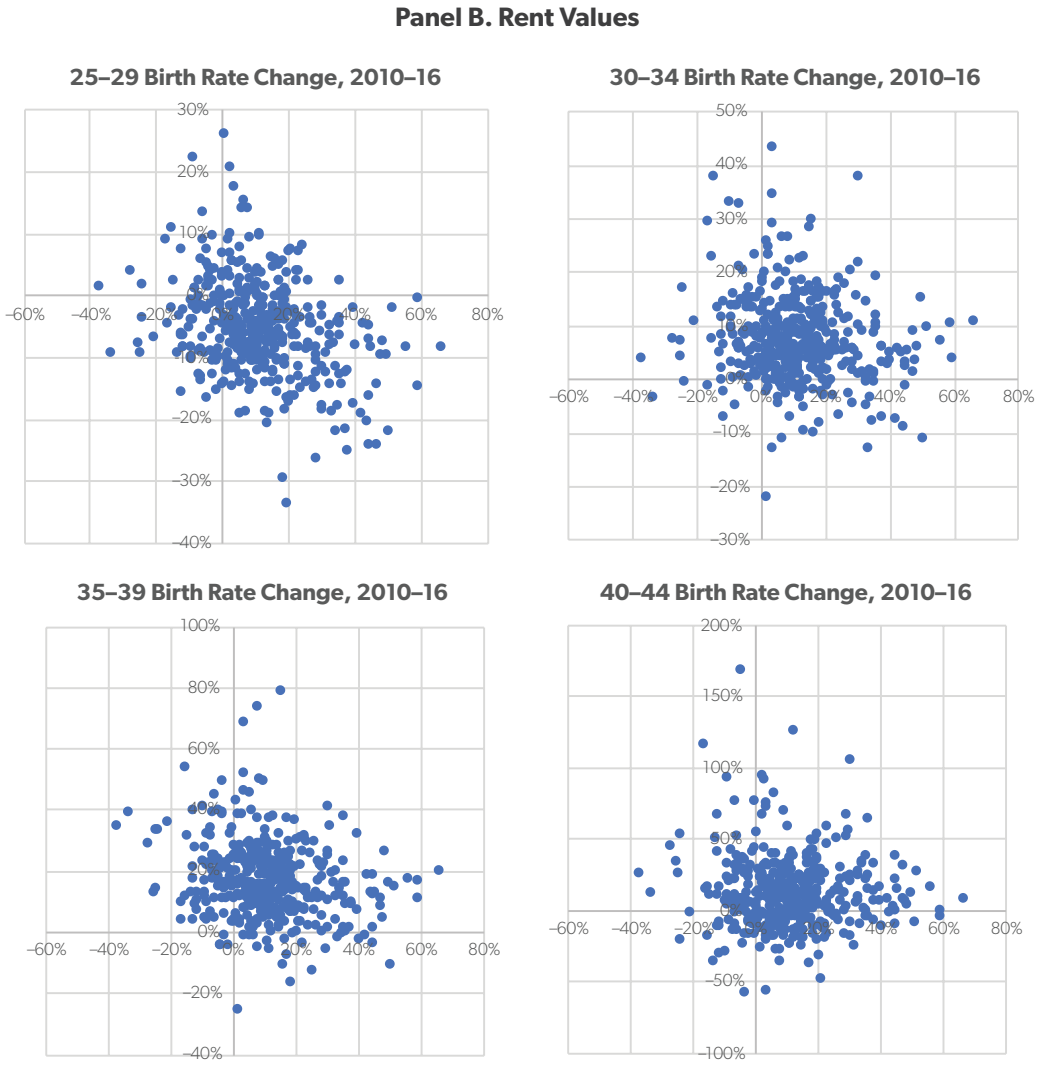
35 and 65, the same general rule applies: The older the age group, the less homeownership has declined. While some of this may be a voluntary move away from homeownership, poor job opportunities, excessive student loan debt, and tight credit conditions have almost certainly played a role as well.

Around the United States, change in fertility rates over the past several years has been closely tied to housing costs. Places where rental costs have risen the most have seen sharper declines in fertility.[36] But crucially, this relationship varies by age and whether the housing cost variable used is *home values* or *rents* (Figure 14).

Rents have a negative association with fertility for every age group, but the relationship is strongest for fertility rates for women in their 20s. Home values, however, have a negative relationship with fertility for *only* younger women. For older women, higher home values are weakly associated with *higher* fertility.

These relationships make sense. Higher rents are basically always bad for fertility, because higher rents accrue to landlords, and the number of landlords is

Figure 14. Age-Specific Fertility Rates by Rent and Home Value (continued)



Source: Centers for Disease Control and Prevention, Wonder, https://wonder.cdc.gov/; and Zillow, https://www.zillow.com/.

much smaller than the number of renters. In other words, higher rents are just a pure "cost" for having kids because adding more kids often means living in a bigger house.

For homeownership, the story is different. For younger women, high home prices are a barrier to fertility because it is more expensive to purchase that first home. High home values lock these young would-be moms into smaller rental units where raising a family seems more daunting. But for older women, who are more likely to already be homeowners themselves, rising home values constitute rising *household wealth*. As the family feels richer and is less credit constrained, adding another kid becomes more financially viable.

Housing costs are not purely determined by the market. Local rules about where new homes can be built, how many approvals are needed to renovate a home, how tall buildings can be or how much parking they must have, how much green space must be preserved, and what environmental and safety standards must be implemented all serve to radically alter the price of housing. In areas that can produce large

amounts of new housing thanks to light regulation of land use, cost-conscious building codes, affordable construction, and abundant available land, housing prices can be kept within a reasonable range. In areas where new real estate development faces lots of red tape, community opposition, political suspicion, or simply sky-high construction costs, housing prices get pushed higher, while birth rates are pushed lower.

Indeed, one of the simplest ways a local area can boost its birth rate is simply to build more houses, thus keeping the price of new homes within reach of young families looking to put down roots. Young Americans are less likely to couple up and get married, and less likely to have kids, if they are in cramped spaces shared with others.

Does Parenting Matter?

People of a past generation might hear these complaints and scoff. They might say that in the past, people had families even without spare bedrooms. They just put four kids to a room with bunk beds. Do not complain about costs, just find a way to make do.

These criticisms are empirically valid. American living spaces continue to grow, and by any objective standard, Americans are consuming more goods and services. We are living more luxurious lives, and thus, objectively, complaints about *costs* must be taken with a grain of salt.

But while objectively fair, these responses miss an essential point: Parenting has changed. In the past, parents could get away with putting four kids in a room, perhaps. Today, many cities have maximum occupancy rules that would render such a housing situation illegal. In the past, parents could stuff seven kids in the back of a van. Today, they not only are required by law to have expensive car seats but also must regularly replace those car seats—at substantial cost. Whereas kids in the past might play in the park or walk to school without supervision, today it can be illegal to give children such freedoms.[37]

And even if these were not *legal* requirements, they may be *social* requirements. Parents today are often treated as persona non grata in many circles, even many putatively pro-family circles, if they cannot provide enriching experiences for their 2-year-olds, do not buy special toys "proven" to be cognitively enriching and safe for kids, and will not put their child on a special (usually inconvenient) diet. Good parents, we are assured, buy their children Nordic-made wooden toys with nontoxic paint, never let their kids watch TV, and do not let their kids eat any sugary foods.

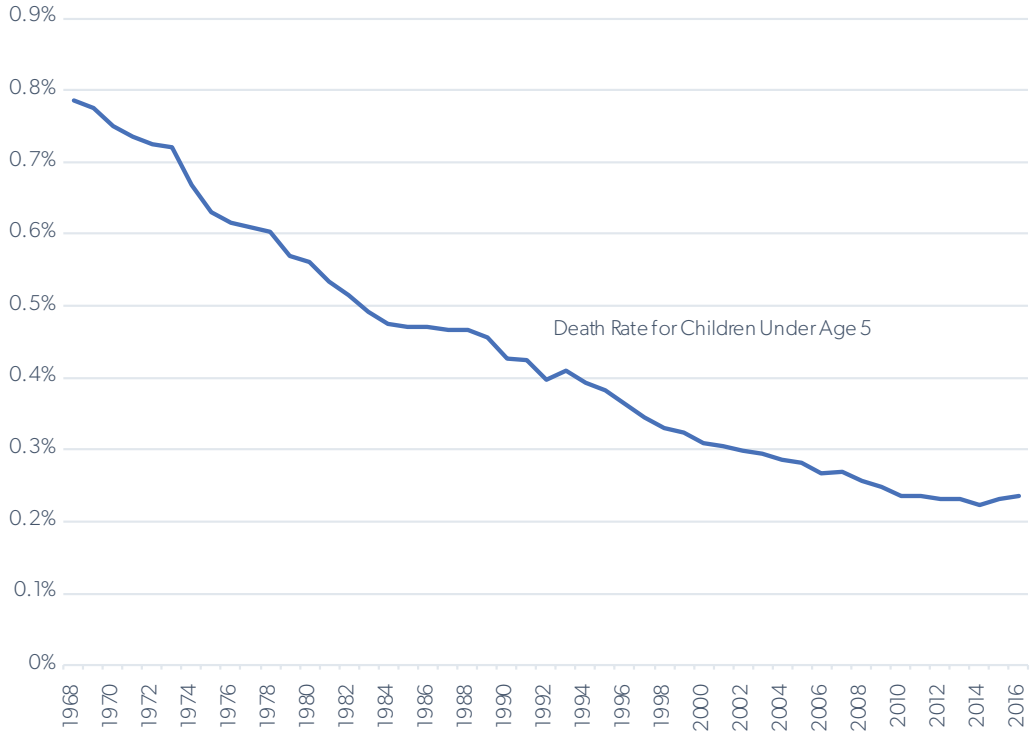
Further, leaving a child with the 14-year-old babysitter next door, once quite normal, is now impossible in many places because that 14-year-old is either involved in more extracurricular ativities themselves or because it is illegal to hire unlicensed babysitters. Or if it is legal, the other moms in the playgroup would never let you hear the end of it for hiring a nonprofessional. They certainly would not trust leaving *their* child at your house when your safety standards are so low.

The pressure on parents begins at birth: Will they breastfeed or use formula? While there is evidence that breastfeeding has some health benefits, many of the alleged benefits are greatly overstated by well-intentioned family and child advocates relying on dubious academic research.[38] But regardless of the weak scientific support for the benefits of breastfeeding, over the past 50 years, the share of women who report breastfeeding their kids has risen from 20 percent to about 80 percent.

While this may be good in many regards, such as promoting child health and a close relationship with parents, it also creates a parenting norm that is extremely burdensome. Breastfeeding is uncomfortable and time-consuming, and thus if parents are convinced that *good parenting requires breastfeeding*, perhaps persuaded by well-intentioned mommy blogs or family-friendly peers, then that social pressure raises the time cost of having a kid. Breastfeeding may indeed be good, but is it beneficial enough to justify creating a rigid social norm that imposes huge time demands on new moms?

Breastfeeding is one well-documented instance of this, but the phenomenon plagues all parenting. Special railings for stairs; special coverings for corners of tables; special new cribs—instead of the crib the parents, their parents, and their grandparents were

Figure 15. Odds of 1-Year-Old Dying Before Age 15



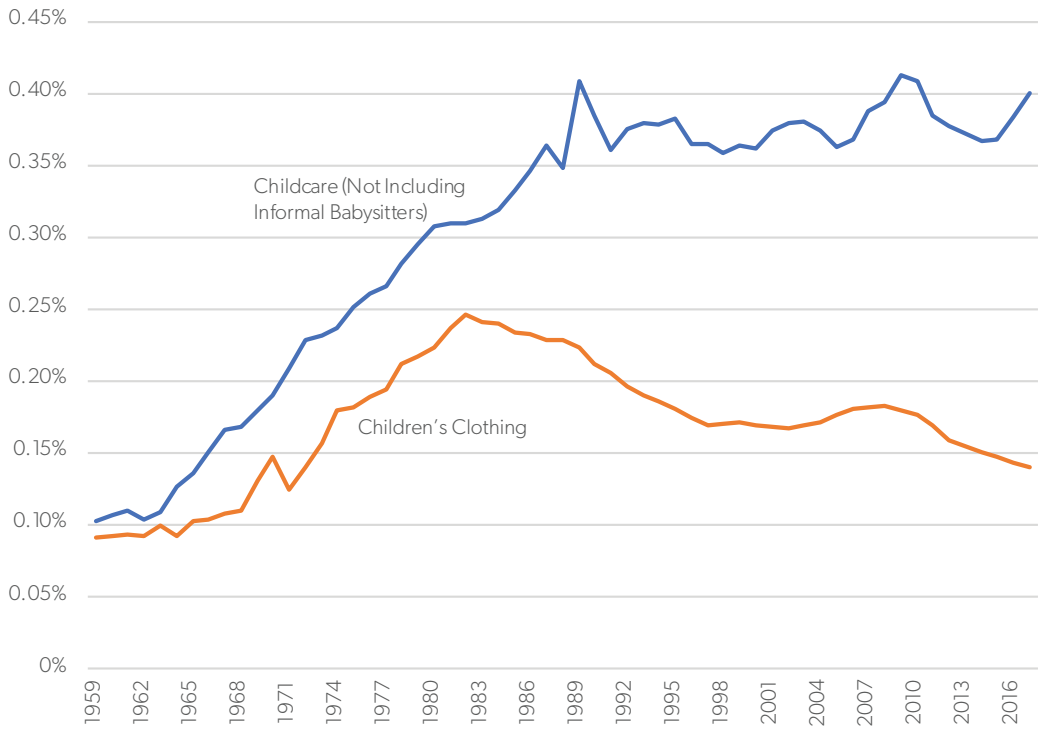
Source: Author's estimates based on Centers for Disease Control and Prevention's crude death rates by five-year age groups, 1968–2016.

swaddled in—that prevent sudden infant death syndrome; expensive swim classes for 9-month-olds; scholarship-application websites for middle schoolers; high-stakes testing and school applications for kindergarteners; and minivans with three TV screens, automatic doors, cameras at all angles, and two fewer seats than the one you grew up with: This is modern parenting. It has real benefits. For example, as Figure 15 shows, the odds of a child dying before high school have fallen dramatically over the past few decades, while test scores and youth IQ scores continue to rise.[39] Our society is, objectively, keeping kids alive better and helping them achieve greater things, which is good. Part of the trade-off, however, is that we just are not having as many kids.

But this strategy is highly competitive and has diminishing returns. There are only so many spots at "good schools," so investments in higher-quality parenting may end up to be zero-sum. Furthermore, doubling the time and money poured into a child will not cut their odds of an early death in half, and it will not double their future income. Indeed, child death rates have actually begun to creep back up again in the past five or 10 years, even as fertility is falling.

While some studies do show that parental investments have good outcomes for kids, those findings are hotly contested, and even the *most optimistic* studies would suggest that if your goal is maximizing life years spent with children, maximizing economic output, or maximizing time spent enjoying close relationships with the next generation, bigger investments in fewer kids is a bad strategy. Rather than trying, and failing, to do twice as much with one kid, a parent can just have two kids. For example, in China, elderly couples who lived in provinces exposed to more intensive family planning campaigns (before the one-child policy) had fewer children, but they were also *less* likely to have close emotional ties to the children they did have.[40] Fewer kids does not necessarily mean closer relationships with them.

Figure 16. Childcare vs. Child Clothes



Note: The data include personal consumption expenditures on childcare, day care, nursery schools, and children and infant clothing.
Source: Bureau of Economic Analysis.

The added complexity and societally created burden on parents have an economically concerning twist ending. Most child- and parenting-related services are labor intensive. That is, nobody trusts a robot to watch their child. They want a human babysitter and often a caring one—ideally one who can teach or tutor. This demand for human labor, for the investment of individual emotional energy, creates rapid cost increases.

First, it is hard to increase productivity of human care: A babysitter today cannot meaningfully babysit more kids than they babysat 50 years ago. Productivity of babysitting simply has not risen much. But wages *have* risen. Thus, because productivity for childcare and other child-related services is basically flat, parents face constantly rising costs.

To make matters worse, formal legal requirements and informal social norms have, if anything, *reduced* productivity. A daycare that formerly had 10 kids per worker now might have just five, as society increasingly demands environments of maximum care and maximum safety. Thus, on a fundamental level, productivity may well be *falling* in many care-intensive sectors as standards of care increase.

But the truly dangerous feedback loop for society on the whole comes from the specific fact of this "cost disease" affecting *fertility*. Because these higher costs may reduce childbearing, they can reduce the size of the future workforce. The fertility cost disease is self-reinforcing as each generation invests more in high-quality parenting. But the costs reduce the total potential amount of children, and in turn the next generation's labor pool shrinks, creating an even tighter spiral.

There is no clear way out of this cost spiral. The share of American consumer spending dedicated to childcare is gradually creeping upward, despite a declining birth rate. The share of consumer spending dedicated to children's clothing, meanwhile, provides

a useful comparison for what happens in sectors where there is rising productivity: The amount American families spend on baby clothes is *falling* relative to their total spending. But childcare? No such luck.

Unless and until Americans find a way to strategically disarm in the parenting rat race, boost the productivity of care-intensive sectors, or lower the cost of socially normative parenting products and services, childbearing will just get more costly, and, thus, the birth rate will keep falling.

Conclusion

Fertility rates could bump up in the next few years if the current economic expansion continues, but they will not return to replacement rate. The trends suppressing fertility are too deeply engrained in American society. Tight zoning for housing is not going away. Marriage is more delayed every year. Educational requirements will not go away, and student loan balances are ever increasing. There is not going to be a societal turn away from high-cost parenting strategies because those strategies work for the kids who are born. Policy levers to push back against these trends are weak, and thus whatever policymakers may do will almost certainly be too little too late.

There may be a deeper problem as well. Some research suggests that, aside from all these economic or sociological factors, *biological capacity to produce children may be falling*.[41] The data on male sperm count and female biological infertility are generally poor quality, so the research on this topic is highly preliminary and hotly contested. The human biological potential for reproduction could still be the same as it ever was. But, if the most recent research is correct, then male sperm counts are declining throughout the industrialized world. By the end of the 21st century, the average American man may be unable to sire children without medical help.

The dour conclusion of all this is simple: Fertility is likely to remain low over the next century. American fertility could fall as low as many countries in southern and eastern Europe or East Asia and get as low as 1.5 or 1.4 children per woman. No powerful, ongoing social trend would lead a forecaster to be optimistic about fertility, other than the general assumption of demographers that human populations tend toward replacement rate fertility.

Policymakers must confront the reality that all our long-term obligations will have to be financed with substantially fewer people (or, perhaps, substantially more immigrants) than most actuarial projections assume. The Congressional Budget Office, the Social Security Administration, and Medicare's actuaries do not assume long-run fertility of below 1.7 or 1.8. None have even published stress-test scenarios of long-run fertility at 1.5 or 1.6, and most assume long-run fertility of around 2.0. This is an incredible collective failure of foresight by almost all the economic bodies whose job it is to anticipate this kind of problem. Unfortunately, it may soon be too late to fix the problem, so the 21st century is likely to see increasingly bitter struggles over the ramifications of declining fertility.

About the Author

Lyman Stone is an adjunct fellow at the American Enterprise Institute, where he specializes in population change and regional development. He formerly worked as an agricultural economist for the US Department of Agriculture.

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