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The Economic Implications of Declining Birth Rates in the United States

Executive Summary

Since 2007, the United States has experienced a dramatic decline in birth rates, dropping from nearly 70 births per 1,000 women to just 54—a decrease of almost 20% (Kearney et. al). This significant demographic shift has far-reaching implications for the U.S. economy, particularly workforce sustainability, social security funding, healthcare systems, and long-term economic growth.

This paper identifies five key factors contributing to the declining birth rate: initially the Great Recession of 2007-2009, lack of affordable housing, increasing childcare costs, shifting of societal values, and contraception popularity. Each of these drivers is analyzed in detail to uncover their direct and indirect effects on population trends and economic outcomes.

The consequences of this trend are profound. A shrinking working-age population threatens economic productivity, innovation, quality of life, and global competitiveness. Additionally, aging demographics strain social programs such as Medicare and Social Security. To address the issue, this research proposes two actionable and cost-efficient solutions. First, by encouraging remote/flexible work environments for jobs that are able, and second by implementing a more lenient immigration policy to attract foreign talent in high-need industries.

This paper will synthesize quantitative data, case studies, and academic literature to provide a comprehensive analysis of the problem and offer evidence-based recommendations to policymakers, businesses, and communities. Addressing the decline in birth rates is a necessity moving forward to avoid a shrinking population.

Relevant Background Information

According to the National Institute of Health, the replacement level fertility rate is 2.1 children per woman. This represents 2 children to replace the mother and father and 0.1 to account for child mortality. In 2023, the United States birth rate dropped once again by the rate of 2% to 1.62 children per woman, totaling 1 million fewer births overall (CDC). This is 1 million fewer innovative workers, doctors, and STEM workers.

To help give this declining birth rate some context, consider the following example: Imagine an initial cohort of 100 individuals, 50 men and 50 women. At our current birth rate, this cohort will have a total of 81 children, those 81 children will give birth to 66 grandchildren, and those grandchildren will have just 53 great-grandchildren for the initial cohort. Additionally, this follows the assumption that the birth rate will remain fixed over time, but many economists see this trend only becoming worse. This simple example is visualized above in Figure 1. Furthermore, using the same logic but for the 1970 birth rate of 3 children per woman, this would lead to an outstanding 370 great-grandchildren for the initial

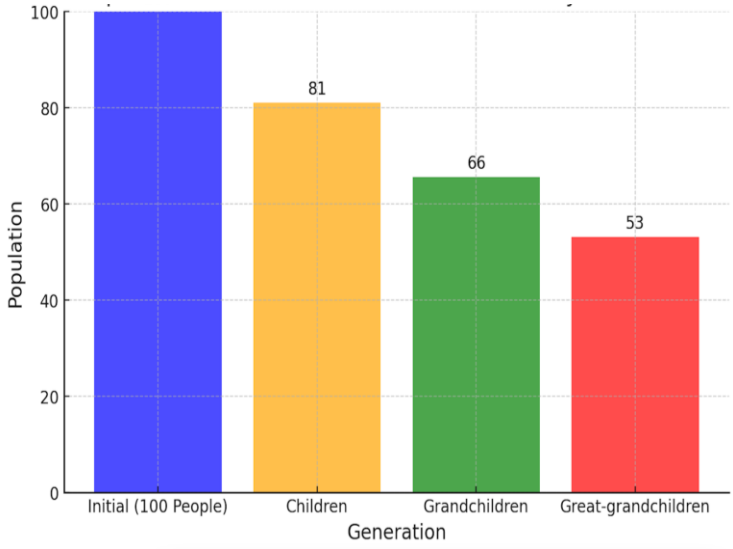

Figure 1: Population Decline Over Generations at Fertility Rate of 1.62 (ChatGPT)

100-person cohort. This shift represents a 7x decrease in great-grandchildren over just 50 years. One can imagine the impact that this many fewer children would have on economic indicators such as Gross Domestic Product (GDP), Social Security Contributions, Tax Revenue, Innovation, and Global Competition.

Causes of a Declining Birth Rate

Moving forward, it is important to understand some of the many causes of a declining birth rate so that we can better tailor our solutions to this problem. Figure 2 shows the trend in US birth

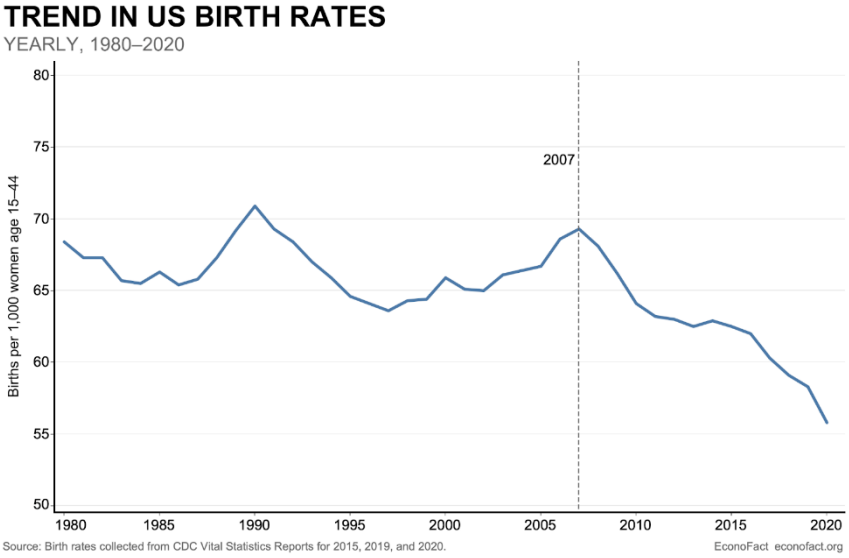

Figure 2: Trend in US Birth Rates (Kearney et. Al)

rates from 1980-2020. Here we see the initial decline due to the Great Recession which lasted from 2007-2009. This decline due to the recession was expected, considering an array of empirical evidence relating recessions to decline in birth rates, but economists are concerned due to the lack of rebound since then.

One possible explanation for why the birth rates have yet to recover is the lack of affordable housing in the United States. According to the Federal Housing Finance Agency (FHFA), the

House Price Index (HPI) has doubled since 2009. Coupling this fact with data from the Bureau of Labor Statistics, we see that average hourly wages have only increased 61% since the Great Recession. This disparity is leaving individuals with less disposable income to allocate towards children. Research from Zillow further exemplifies this issue stating that a 10% increase in housing prices leads to a 1.5% decrease in the birth rate.

Another example of rising costs can be seen more directly with increasing costs of childcare. These costs are shown both directly and indirectly. To start, according to the Bureau of Labor Statistics, there has been a 22% increase in daycare/preschool costs between 2020 and 2024. Supplementing this information with data from the Department of Labor we see that childcare costs account for anywhere between 8% to 19% of median income levels. Most families do not have this much extra income to put towards a child. Additionally, the indirect costs of having a child have increased in recent years as well. This is due to improvements in women's economic position. More women are increasingly successful and focused on their careers which leads to a higher opportunity cost of leaving the workforce to support a child (Kearney et. al). With a workforce trending towards more women, developing a solution that allows them to balance their careers while having aspirations of children is essential.

Lastly, it is hard to mention the causes of the declining birth rate without mentioning the increasing popularity of contraception use. In "The Puzzle of Falling US Birth Rates since the Great Recession" by Kearney et. al, the authors stated that "There is ample evidence from recent US contexts that expanded access to affordable and efficacious contraception has led to a reduction in births among affected populations (for example, Kearney and Levine 2009; Bailey 2010; Lindo and Packham 2017; Kelly, Lindo, and Packham 2020)." While the widespread use

of contraception has undoubtedly empowered individuals with greater control over their reproductive choices and contributed to improved health outcomes for women, its impact on birth rates cannot be overlooked. By enabling more precise family planning and delaying childbearing, contraception has played a significant role in the demographic shift towards fewer births.

The Problem and Impact of Declining Birth Rates

The problems associated with declining birth rates primarily manifest through a shrinking working-age population. One way economists measure this is by looking at the Old Age Dependency Ratio (OADR). This is shown below in Figure 3 of this paper. The old-age

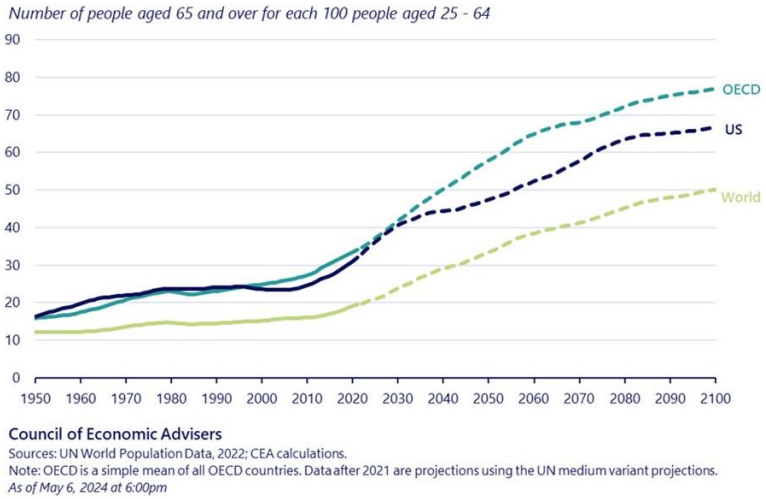

Figure 3: Old Age Dependency Ratio (The White House)

dependency ratio is defined as the number of people aged 65 and over for every 100 people aged between 25-64. In other words, the number of non-working-age individuals for every 100 working-age individuals. Figure 3 shows an increasing OADR and projects to reach nearly 70 by the year 2100, a sharp increase from 23 in 2007 (The White House). With fewer individuals in the working-age population, the government will collect less tax revenue in the forms of social security and Medicare to support older citizens. Some estimates show Social Security benefits to

be depleted by as soon as 2031 (SSA). This trend upends an integral assumption that a larger working-age population will support a smaller retired populace—and receive, in turn, the same level of care when they retire.

Additionally, an aging population brings increased healthcare costs. Unfortunately, these rising costs may coincide with an insufficient labor supply to meet the growing demand for healthcare services. If left unaddressed, this issue could become a cyclical problem, where future generations face a persistent shortage of working-age individuals to care for an expanding elderly population. Work from Lutz et. al formalizes this cyclical problem as the "Low-Fertility Trap Hypothesis." Their research shows that once a society's fertility rate falls below 1.5 children per woman it becomes increasingly difficult to reverse this trend, leading to a self-reinforcing cycle of low fertility. This points to the necessity for urgent action on this matter as the United States currently sits at 1.62 births per woman.

Another way to view this problem is through the lens of Gross Domestic Product (GDP). Given a smaller workforce, we can imagine that our country's total output will decrease as well. Many economists view economic output as a measure of the Standard of Living. For example, The White House released an article in May 2024 titled "A First-Principles Look at Historically Low U.S. Fertility and its Macroeconomic Implications." Here, they defined the Standard of Living to be linked to Output per capita which is equal to output per worker * workers per capita. Or formally:

$$Output\ per\ Capita\ =\ Output\ per\ Worker\ \cdot Workers\ per\ Capita$$

Here we notice that a decrease in the number of workers will lead to a decline in the standard of living (as represented by output per capita) unless the output per worker increases proportionally

to offset the reduction. This offers a two-step framework for addressing the fertility crisis: 1) increasing the number of workers, or 2) enhancing worker productivity and output rates. Recognizing the impact of a smaller workforce on critical issues such as global competition, domestic innovation, quality of life, and elderly care underscores the urgency for immediate action to mitigate these effects.

Case Study: South Korea

One country that currently faces issues that the United States might see in the future is South Korea. South Korea currently sits at a birth rate of 0.78 births per woman, one of the lowest in the developed world (Ahn). This has been declared a national emergency by the country's president (CNN). In the same context as we discussed earlier with Figure 1, which illustrates the United States Great-Grandchildren example, an initial 100-person cohort of South Korean families would result in only 5 Great-Grandchildren in total, highlighting the stark difference in demographic trends. Figure 4 below visualizes South Korea's birth rate decline. While there are numerous social and economic factors contributing to South Korea's decline, we can examine their efforts, in conjunction with economic research, to identify which solutions have been effective and which have not.

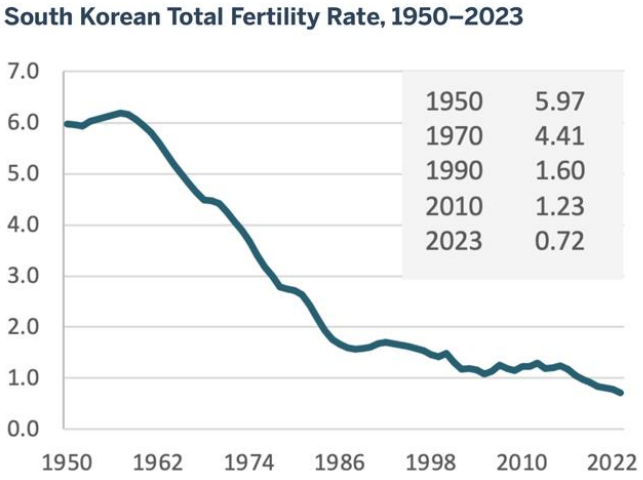

Figure 4: South Korean Total Fertility Rate (The Terry Group)

According to UNICEF, South Korea has some of the best childcare policies in the world. Over the past 16 years, South Korea has spent over $200 billion to increase its birthrate mainly through implementing pro-natal type policies. These include providing monthly

payments to households with an infant under 1 year old ($770), and half of that between the ages of 1 and 2. Additionally, they have announced plans to increase the paid parental leave period from one year to a year-and-a-half. This is a large increase, especially considering the United States has no national paid parental leave plan (Ahn). Despite all of the efforts, there has been minimal effect on South Korea's birth rate. In fact, their birth rate has continued to decrease since 2007. Andrew Yeo, a Senior fellow at the Brookings Institution Center for East Asia Policy Studies, calls South Korea's approach a "Band-Aid Solution." His thoughts on the situation are confirmed by one of the leading experts on this topic, Mellisa Kearney, who considers these pro-natal policies modestly effective in the short term but unlikely to lead to sustainable higher birth rates (Kearney et. al).

Looking at South Korea we see that there has been minimal impact, if any, despite $200+ billion being spent. This provides us with a strong framework of what not to do. Research from Lyman Stone's 2020 paper "Pro-Natal Policies Work, But They Come With a Hefty Price Tag" shows precisely what their title says. They found that if the United States were to implement pro-natal policies to close the gap between the replacement rate and current fertility rate it would cost up to an additional $1 trillion annually, or $200,000 per baby born. This case study along with supplementary research from both Kearney and Stone shifts this paper's conclusions away from pro-natal policy and towards simplified, cost-effective alternatives that will treat the symptoms of a declining birth rate.

Conclusions and Actionable Takeaways

While declining birth rates are the focus of this paper, addressing them directly may not be necessary to identify a viable solution. Furthermore, the complexities of research on affordable

housing extend beyond the scope of this paper. Recalling our Standard of Living formula from before:

$$Output\ per\ Capita\ =\ Output\ per\ Worker\ \cdot Workers\ per\ Capita$$

We will seek to implement policies that will increase the number of workers and simultaneously increase the output per worker. With that being said, we have simplified our conclusions to two actionable and cost-effective takeaways: 1) encouraging flexible models of remote work, and 2) implementing adaptable immigration policies.

Looking at our first recommendation, research from the Economic Innovation Group indicates that remote workers with children can dedicate more time to childcare and housework, which has contributed to increased birth rates among women working from home. The study finds that, on average, individuals save an hour a day by not commuting, allowing them to better manage their households and nurture relationships with their spouses and children (EIG). Their results concluded that "remote work increases intentions to have more children by about five percentage points."

Additionally, the EIG found that individuals with some remote work are 6.3% points more likely to marry in the next year. As both men and women are more likely in the workforce, remote work may enable individuals interested in marriage to relocate closer to one another. We can expect this increase in marriage potential to lead to an improvement in birth rates in the long run.

Lastly, it is important to note the benefits of productivity that have been found through remote work. Barrero et. al noted in their 2021 paper titled "Why Working From Home Will Stick", that work-from-home environments had a 5% productivity boost in the post-pandemic economy due to re-optimized working arrangements (Barrero et. al). This increase not only highlights the

adaptability of remote work but also underscores its potential to sustain economic growth while offering greater flexibility to workers.

These examples help exemplify how working from home can increase the number of workers but also improve productivity levels, working to improve of Standard of Living formula. These policies are additionally extremely cost-effective for companies to implement. In fact, encouraging remote work can even reduce costs for companies by eliminating or reducing the need for physical office space, which can lead to significant savings on rent, utilities, and maintenance. While there are various ways to implement a remote work policy, one approach could be to allow fully remote work for 18 months (or more) following the birth of a child. Ideally, this would build on an existing paid parental leave period. The proposed 18 months aligns with Sweden's 480-day parental leave policy, which UNICEF ranks as one of the best globally. Providing women the opportunity to work fully from home during this period enables them to balance their careers while prioritizing their childcare responsibilities, improving both professional growth and family well-being.

Our second and final solution is to implement Visa reforms to incentivize immigration and attract foreign talent in high-need industries. This can directly solve any labor shortages we may face as a country. Specifically, we have identified three key areas in need of immigration. The first is in Science, Technology, Engineering, and Mathematics (STEM) fields. Increasing investment in STEM has numerous benefits, but in the context of this paper, we focus on how a stronger STEM workforce can enhance productivity rates and output per worker, ultimately improving economic growth through applications of Artificial Intelligence (AI) to the workforce. The next key area is in healthcare. As we continue to fight the effects of an aging population and growing old-age dependency ratio, immigrating more healthcare workers can help us treat the

elderly population better. Lastly, as a country, we will benefit from increasing the labor supply of childcare workers through immigration. As previously discussed, childcare costs are rising dramatically and consume a substantial portion of the average family's income. By injecting the economy with more childcare-capable workers, we can help reduce these costs, making childcare more accessible and affordable. This, in turn, could alleviate financial burdens on families and potentially encourage higher birth rates by reducing one of the key barriers to parenthood.

Overall, immigration will expand our labor supply, bring us closer to the replacement rate of workers, and strengthen critical indicators such as social security, tax revenue, and innovation (IMF). By addressing labor shortages and fostering a more dynamic workforce, immigration can play a vital role in supporting long-term economic stability and growth.

To conclude, we are confident that our solutions offer a cost-effective and practical approach to mitigating the effects of a declining birth rate. Based on thorough research, we have identified remote work policies and immigration reforms as key strategies to address labor shortages, boost productivity, and improve the overall economic environment. These solutions are grounded in evidence that demonstrates their potential to enhance economic sustainability and ensure long-term prosperity for our society.

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