BBVA Research

Economic Analysis

Gone Baby Gone

Implications of a declining fertility rate

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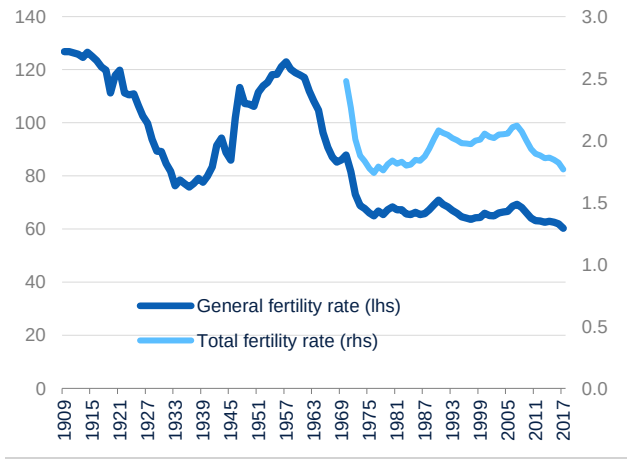
Introduction

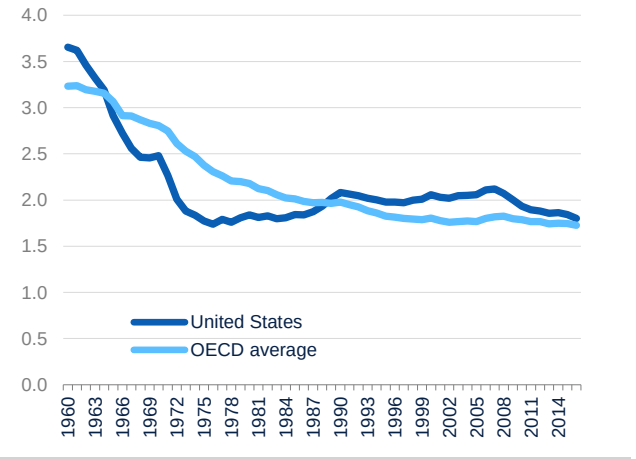
The purpose of this report is to present some of the most important drivers and implications of a declining fertility rate in the U.S. According to the U.S. National Center for Health Statistics (NCHS), the general fertility rate -number of births per 1,000 women aged 15 to 44- declined to 60.3 in 2017. This was the ninth decline in the last ten years and the lowest rate since the start of the data in 1909. Similarly, the total fertility rate (TFR), or the average number of children a woman is expected to have during her childbearing years, continued on a downward trend, falling to 1.77, the third lowest in 48 years. From a demographic perspective, the fertility rate is the single most important factor that determines population growth. The U.S. population grew by 0.6% between July 2017 and July 2018, the lowest in 80 years. In the absence of major swings in immigration or emigration flows, a TFR equal to 2.1 is considered the "replacement rate," meaning that 2.1 children per woman would be the number sufficient to keep population levels stable.

Chart 1 U.S. Fertility Rates



Source: BBVA Research and Haver Analytics

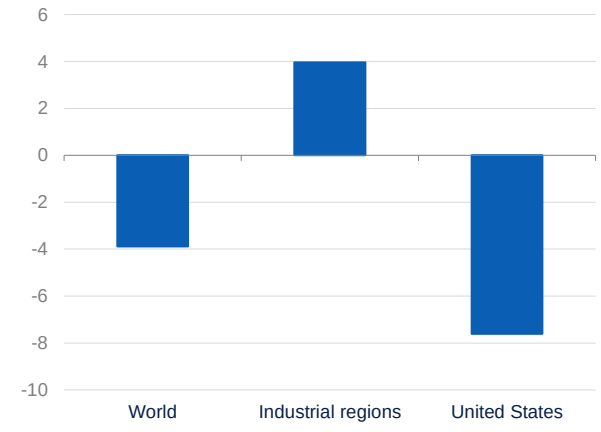
Chart 2. Total Fertility Rate



Source: BBVA Research and World Bank

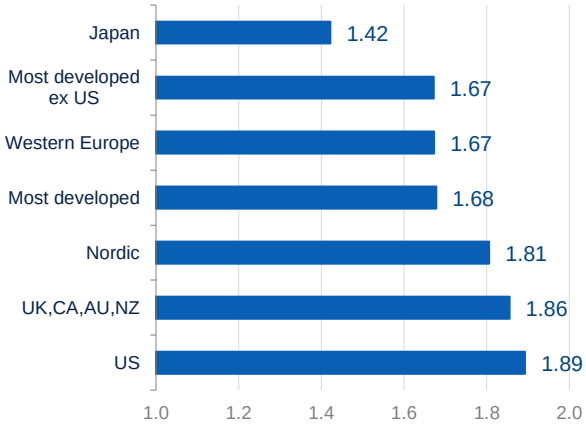
Between 1955 and 2017, the U.S. fertility rate exhibited a similar trend to that of other developed nations. The TFR declined by 43%, compared to an average decline of 40% in other industrialized countries. However, between 2007 and 2017, the U.S. was one of the few developed countries that experienced a cumulative decline -the second largest after Portugal- as opposed to the majority of countries where fertility rates remained stable or increased slightly. Moreover, the cyclical recovery that is common in the years following an economic recession has been significantly weaker during the current expansion. This suggests that, although the historical decline in the U.S. fertility rate shares some similarities with other developed nations, the magnitude of the downward adjustment over the last two decades seems to respond mainly to idiosyncratic factors that may have been aggravated by the long-lasting effects of the Great Recession. In the following sections, we present the data and explain some of the main forces behind the decline in the U.S. fertility rate, assess the potential impact on the economy, and discuss a series of policy options and long-term scenarios.

Chart 3. Fertility rate cumulative change (2007-2017, % change)



Source: BBVA Research and United Nations

Chart 4. Fertility rate by country and region (births per woman, 2017)

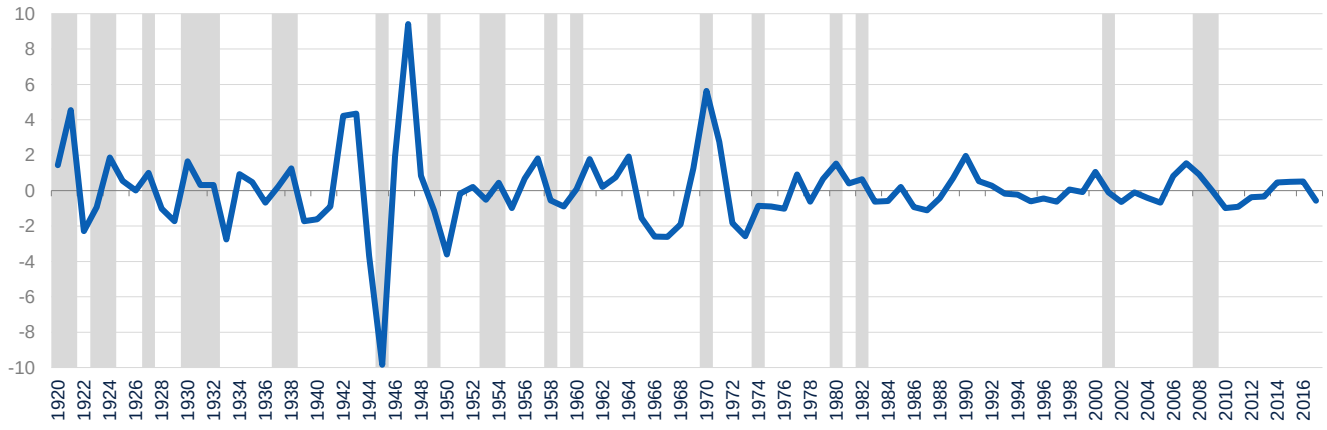


Source: BBVA Research and United Nations

Failure to launch

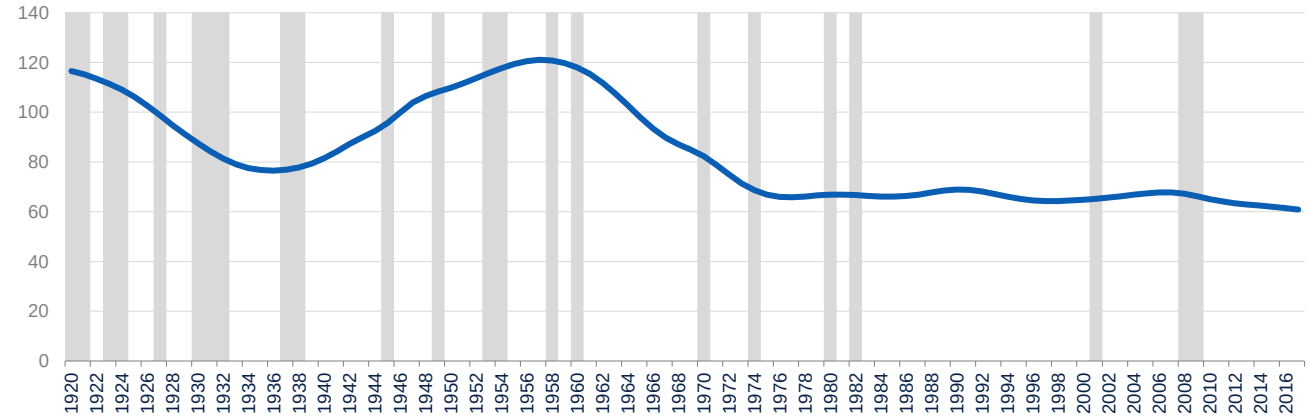
A historical comparison between the fertility rate and the business cycle shows that when the economy expands the incentives to have children increase. Conversely, the incentives to have children decrease when the economy contracts. As expected, fertility rates declined as a result of the Great Recession, but contrary to previous behavior, they did not recover during the subsequent expansion. This suggests that structural factors may have been the main drivers of the decline during the last 10 years. Some of these factors are well-known as they have contributed to the decline in fertility rates for decades. For example, more gender equality as well as greater access to labor markets, education and healthcare. However, there are other factors that have only become relevant in recent years: a drastic reduction in teenage pregnancy, rising cost of living in urban areas, aging of the population, the impact of the digital economy, and changes impacting foreign-born and second generation immigrants.

Chart 5. U.S. General fertility rate (cyclical component from Hodrick-Prescott filter, recession in shaded areas)



Source: BBVA Research and Haver Analytics

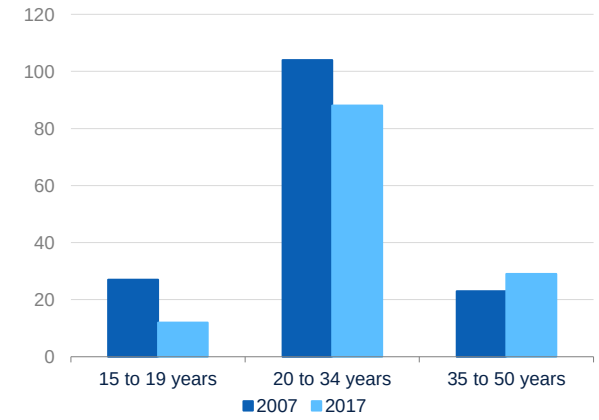
Chart 6. U.S. General fertility rate
(births per 1000 women, trend extracted from Hodrick-Prescott filter, recession in shaded areas)



Source: BBVA Research and Haver Analytics

The analysis of available data reveals that women are not only having fewer children during reproductive years, but also having their first child later in life. In 2017, the average age of mothers at first birth reached a new record high of 28; this is 3 years higher than in 2000 and 7 years higher than in 1970. According to the American Community Survey, between 2007 and 2017, the number of births per 1,000 women went down from 104 to 88 in the 20-34 years old cohort, but went up to 29 from 23 in the 35-50 years old cohort. Moreover, the number of births per 1,000 women in the 15-19 years old cohort declined substantially from 27 to 12. The drastic decline in the teenage fertility rate reflects a wider use of contraceptive methods and the positive impact of pregnancy prevention programs mainly directed to the most vulnerable groups. Nonetheless, although the U.S. teenage pregnancy rate stands at the lowest point on record, it remains above other countries like Canada and the U.K.

Chart 7. Births per 1,000 women by age cohort



Source: BBVA Research and American Community Survey

Table 1. Total fertility rate
(by race and Hispanic origin and urbanization level)

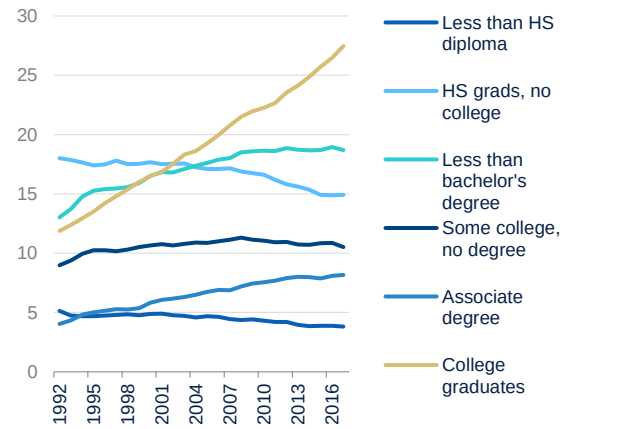
Race and Hispanic origin	2007	2017	% change
Non-Hispanic white			
Rural counties	2.09	1.91	-8.7%
Small or medium metro counties	1.91	1.66	-12.9%
Large metro counties	1.82	1.58	-13.5%
Non-Hispanic black			
Rural counties	2.19	1.85	-15.6%
Small or medium metro counties	2.12	1.88	-11.4%
Large metro counties	2.13	1.79	-16.1%
Hispanic			
Rural counties	3.13	2.32	-25.8%
Small or medium metro counties	2.98	2.12	-28.7%
Large metro counties	2.75	1.93	-29.9%

Source: BBVA Research and NCHS

By race, Hispanic women have exhibited the sharpest drops in fertility rates, particularly in large metro counties, where the total fertility rate went from 2.7 in 2007 to 1.9 in 2017, according to NCHS. Meanwhile, although the median age at birth was the highest at 29 in 2017 for non-Hispanic whites in large metros, the biggest increase in the last ten years was for non-Hispanic blacks in large metro countries, where the median age jumped from 23 to 26 in the same period.

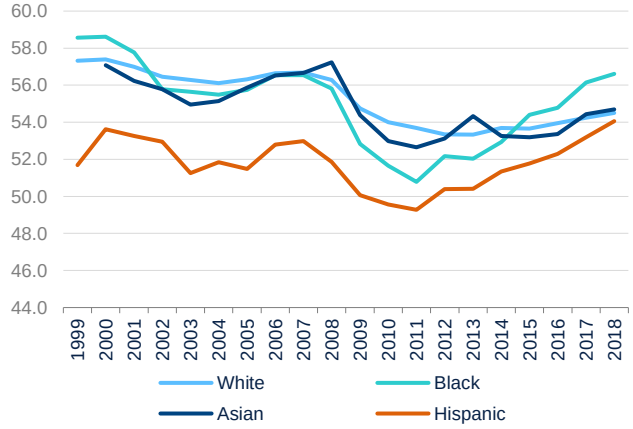
It can be argued that access to education and job opportunities have played an important role in the decline of fertility rates. The percentage of females between 18 and 24 years old with some college and bachelor's degree increased from 44% and 11% in 2007 to 48% and 13% in 2017, respectively. The impact of more education and access to the labor market tend to be stronger for disadvantaged groups. This could explain why the employment to population ratio for Hispanic females stands at its highest level on record, while their unemployment rate is at one of its lowest points on record (4.6%) -although still high compared to white women (3.2%).

Chart 8. Labor force: women 25 years and over (million)



Source: BBVA Research and BLS

Chart 9. Employment to population ratio (NSA, %)



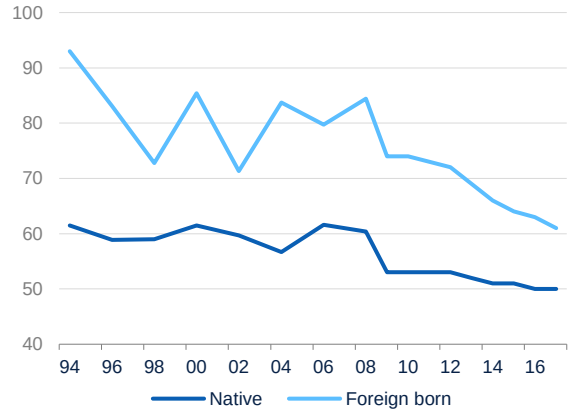
Source: BBVA Research and BLS

Factors beyond education, gender equality and labor markets are also influencing the decision to have children. In particular, the costs of living and supporting a large family have increased, particularly in large metros. Thus, the incentives to have fewer children or to postpone having children are greater. For lower-income families, the greater need of having two income earners could impact the decision to have children. Although the fertility rate has declined for all sizes of counties, the drop has been more pronounced in large metros, where it reached 1.71 in 2017, an 18% decline since 2007. In the same period, the fertility rate for small-medium and rural counties declined 16% and 12%, respectively. Moreover, the mean age at first birth has increased across all levels of urbanization, but it was the highest in large metro counties. This implies that as population continues to shift towards larger metros, the downward impact on fertility has been steeper.

For the foreign-born population, integration and higher education levels may explain changes in their fertility rates. Although the share of foreign-born women that gave birth in the previous 12 months remained stable at around 20% between 2007 and 2017, their fertility rate declined from 72 to 61, respectively. For native women, it slowed modestly from 52 to 50 in the same period. Since Hispanic immigrants account for the largest group of foreign-born, a decline in fertility rates among Hispanic females would have a large impact on the overall rate.

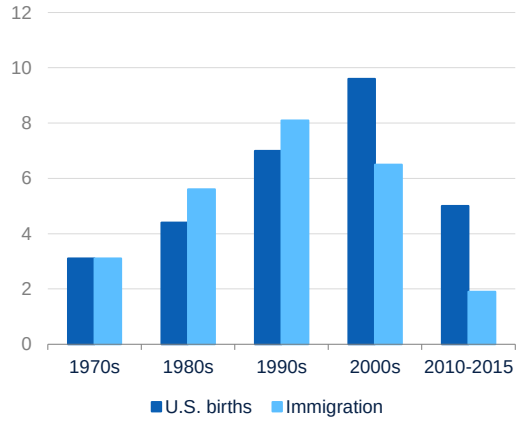
In general, immigrants tend to have fertility rates similar to their countries of origin, but these rates converge with the lower rates of the native population as their descendants become more integrated to society and labor market opportunities increase. In the 1990s, immigration accounted for around 54% of the increase in Hispanic population and 46% was U.S. births. In the current decade, the increase in Hispanic population from immigration accounts for less than 30% while more than 70% is U.S. births. As immigration shifts from countries with higher to lower fertility rates, the aggregate level declines. Between 2000 and 2016, the share of immigrants from Asia increased from 26% to 31%. In 2017, Asian women had the lowest fertility rate at 52 among non-whites.

Chart 10. General fertility rate by nativity status (births per 1,000 women)



Source: BBVA Research and American Community Survey

Chart 11. Sources of Hispanic population growth by decade (million)



Source: BBVA Research and Pew Research Center

In sum, the decline in fertility rates appears to reflect greater returns to education, better labor market opportunities for women and higher urbanization. The impact for minorities appears to be larger. In addition, changes in the origin of immigrants and the integration of second- and third-generation descendants also explain lower fertility rates. To the extent that technological change in the last 20 years has had a disproportionate impact on these factors, the structural downward trend in fertility rates may have accelerated and offset the cyclical improvement during the current economic expansion.

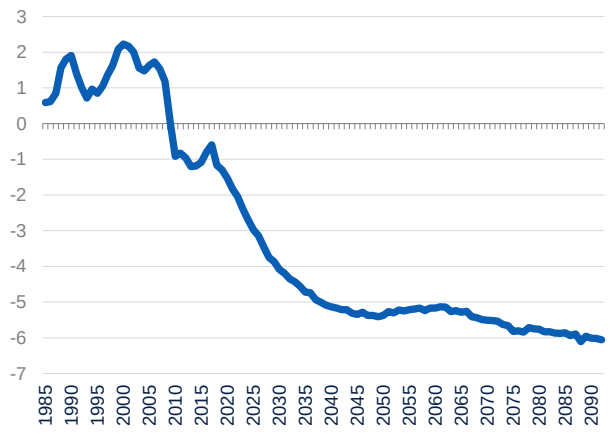
How concerned should we be about lower fertility rates?

From an economic perspective, higher or lower fertility rates are neither positive nor negative. For example, if a country has low economic growth, large fertility rates could result in higher poverty rates and lower living standards. Likewise, low fertility rates in a country with high economic growth could imply rising living standards as greater wealth is shared among a population that is growing at a slower pace.

In the case of the U.S., a low fertility rate is for the most part regarded as negative on two major fronts. First, according to the classical notion that growth is determined by the combination of capital, technological change and labor, a lower fertility rate would reduce the contribution of labor and, all else equal, potential economic growth would be lower. According to the Congressional Budget Office (CBO), real potential output is expected to average 1.8% between 2023 and 2028. This will be 43% or 1.4 percentage points (pp) lower than the 1950-2017 average. About 1pp (70%) is due to lower labor force growth. Similarly, the contribution of potential hours worked in 2023-2028 to real potential output of the nonfarm business sector will be about one-fifth the historical average.

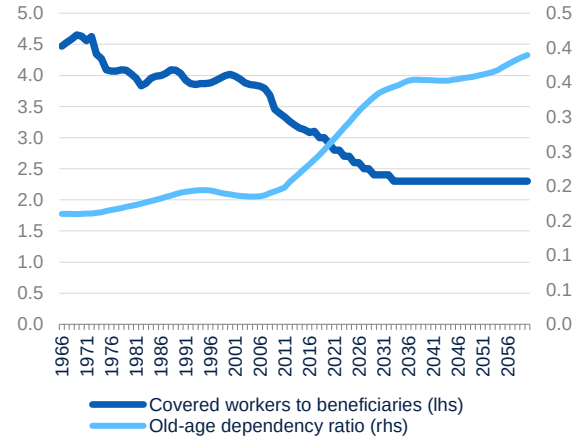
Second, funding of entitlement programs such as Social Security and Medicare depend mainly on payroll taxes. Spending on these programs is determined by the aging of population and healthcare costs, which tend to grow faster than overall inflation, and are not subject to automatic adjustments linked to life expectancy or labor force participation. Therefore, lower fertility rates would have a major impact on tax revenues and the dependency ratio -people aged 65 years and more over working age population-, which in turn would result in substantial fiscal risks and unmanageable policy challenges. According to the CBO, in 2018, mandatory spending -of which social security and Medicare account for 60%- totaled $2.5 trillion or 12.7% of GDP. By 2028, mandatory spending will reach $4.5 trillion or 15.2% of GDP. This implies that by 2028, total mandatory spending will reach $27K per person in the labor force, an increase of almost 100% in real terms compared to 2007.

Chart 12. Social Security tax revenues minus outlays, with scheduled benefits
(percentage of taxable payroll)



Source: BBVA Research and Congressional Budget Office

Chart 13. Medicare ratio of covered workers to Beneficiaries, and old-age dependency ratio



Source: BBVA Research, Haver Analytics and Centers for Medicare & Medicaid Services. Old-age dependency ratio equals number of people aged 65 and over as % of labor force (aged 15-64)

The consensus approach

There is a wide range of views that have emerged to try to revert or remedy the impact of declining fertility rates. From an economic perspective, the most efficient solution would be immigration reform. The vast majority of studies confirm that immigration has had a net positive contribution to economic growth. Attracting immigrants based on skills and labor market conditions will help boost labor productivity, increase the fertility rate and reduce the dependency ratio. In fact, for more than 200 years, the U.S. stands as one of the best living examples of how immigration can help tackle imbalances while boosting economic performance.

Policymakers could also modify age and income thresholds to reduce total spending of entitlements. This would lower the fiscal burden on active workers even if the dependency ratio remains unchanged. Alternatively, they could leave the requirements and benefits of entitlement programs unchanged but reduce spending in other areas, raise taxes or increase borrowing. However, these options are likely to have a net negative impact on long-term economic growth. Already, federal spending on R&D as a share of GDP is at its lowest level in more than 60 years. According to the American Society of Civil Engineers, the country faces a $2 trillion gap in infrastructure. Diverting resources from human capital investment will have a major negative impact on productivity and living standards. Without swift reforms, higher deficits and debt ratios will result in higher borrowing costs and crowd out private investment, further reducing productivity and potential GDP growth, which will exacerbate the pressures even more.

Policymakers could also establish policies that support child-bearing (public daycare, more generous paternity and maternity leave policies, fiscal incentives, etc.). It is worth noting that the U.S. has some of the least generous policies to support working parents among the developed world.

However, many of these options are unlikely to get traction under current political conditions. For example, although just 12% of Democrats think immigrants are a burden, among Republicans this share is around 44%. In addition, during the 2016 presidential election, voter turnout for people 65 years and older was 71%, while for citizens 18 to 29 years old it was 46%. Considering that the share of registered voters in these two groups is similar at around 21% of total, older voters outnumber younger ones by 1.45 times. In addition, a third of people 65 years and older report making political donations, while average donation rate for those ages 18 to 29 is less than 10%. These trends combined with the aging of population and the decline in child population imply weaker prospects for

entitlement reform as politicians will have to court the older voters, who have shown limited willingness for redistributing public spending in favor of categories that could have a larger positive impact on long-term growth at the expense of maintaining welfare benefits for the elderly.

Therefore, prospects for meaningful policy changes remain low unless a major crisis occurs. An even then, it is not clear that policymakers will stand to the task. In the last 10-years for example, Washington has failed consistently at almost every chance of making structural changes. This may not be that bad. After all, historical trends suggest that short-sighted and catastrophic views typically lead to dramatic policy failures. For example, in the 1930s, as a result of weak innovation and low population growth, some people feared that the U.S. was condemned to "secular stagnation" unless the federal government adopted large-scale deficit spending. However, in the following years, the U.S. experienced strong population and economic growth.

A similar case occurred in the 1960s when global population growth was high and food supply was running short, leading to a series of famines. However, the green revolution, or the ability to produce more food with fewer workers and in the same amount of land, reversed these negative trends. In the 1970s, fears that the U.S. was running out of crude oil led Congress to pass an export ban; however, forty years later the shale revolution would significantly boost production and turn the ban obsolete. Likewise, the one-child policy implemented in China was mostly in response to fears that the country was not going to be able to feed a growing population. However, as the country opened to trade and promoted structural and technological changes, it was able to reduce poverty and increase living standards at a pace not seen before.

Thinking out of the box

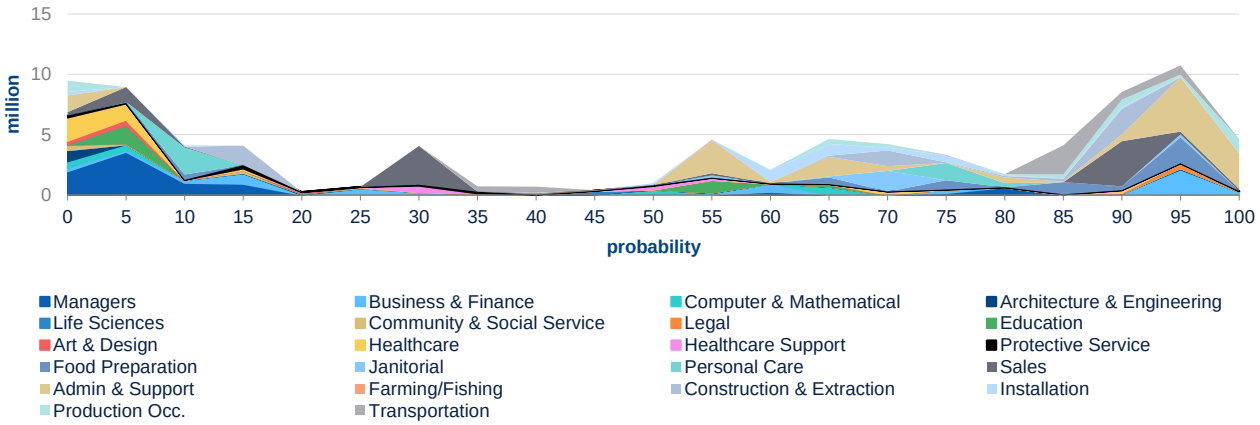
A lower fertility rate may not be as catastrophic at seems. The traditional view that a large population is good for a country has been challenged by technology and more recently by climate change. Activities that are vital to our existence such as agriculture are becoming less reliant on human workforce. The same is happening for manufacturing and services. Not so long ago, it was in the best interest of countries to host large populations in order to supply their armies with soldiers in the event of war. Nevertheless, even conventional warfare has been disrupted by the use of armed robots capable of making decisions, drones and, cyber weapons controlled by few people thousands of miles away from the battlefield.

Likewise, automation and artificial intelligence are expected to displace human labor in many areas. The following decades could be characterized by the struggle of millions of human beings to avoid becoming economically irrelevant. In the absence of policies that help these segments of the population, the risks of social unrest and political instability increase. In this context, low fertility rates that ultimately lead to slower population growth could reduce such risks. In a 2017 article, historian Yuval Noah Harari argued that:

"The crucial problem isn't creating new jobs. The crucial problem is creating new jobs that humans perform better than algorithms. Consequently, by 2050 a new class of people might emerge – the useless class. People who are not just unemployed, but unemployable. The same technology that renders humans useless might also make it feasible to feed and support the unemployable masses through some scheme of universal basic income. The real problem will then be to keep the masses occupied and content. People must engage in purposeful activities, or they go crazy." [1]

1: Yuval Noah Harari (2017). "The meaning of life in a world without work". The Guardian. May, 8. Available at: https://bit.ly/2pq4jWY

Chart 14. U.S. jobs at risk of automation



Source: BBVA Research, ACS, IPUMS and Frey and Osborne (2013). "The Future of Employment. How Susceptible are Jobs to Computerisation. September. https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

In this regard, some experts have proposed taxing robots to offset the social costs caused by the negative externalities of automation and displacement of workers. The revenues would therefore be used to deal with the problems of high long-term unemployment. However, critics argue that taxing robots would just delay their eventual deployment and prevent society from reaping the benefits of higher productivity and lower costs. The solution according to these critics is not making robots more expensive but reforming legislation to effectively share the wealth of super-star firms that enjoy abnormal profits and excessive market power, stemming from reduced competition, barriers to entry and government protection.

Similarly, it's been argued that lower fertility rates may actually be good in the context of climate change. In the absence of bold action to mitigate global warming, slow-growing or even declining populations could help reduce pressures on natural resources and reduce carbon emissions. This view is increasingly held by younger people and some renowned scientists. Wynes and Nicholas (2017) calculated that one child less per family could save an average of 58.6 tons of carbon emissions per year. By comparison, going car-free would save 2.4 tons of carbon per year.[2] Nevertheless, what anti-natalist movements may be overlooking is the fact that science and public policy may offer better solutions to the climate crisis.

In this regard, policymakers could try to manage the transition by implementing changes to immigration, benefits and taxes while reforming fiscal policy consistent with increasing dependency ratios, automation and a higher share of value-added stemming from information technology and intellectual property. For traditional businesses, although lower fertility implies slower sales growth, the opportunities from 6.5 billion people living in emerging and developing economies with a $35 trillion market would more than compensate these pressures.

Conclusion

A declining fertility rate will bring a series of economic, social and political challenges. Potential GDP will slow down, fiscal pressures would mount up, and polarization will worsen. The battle to keep or reform entitlements and redirect public spending could significantly damage social stability. Immigration reform may not be a solution, at least in the short-run, given the increasing anti-immigration sentiment, as well as the decline in the flow of unauthorized immigrants to the U.S. However, there is still room for policies that can improve the conditions of women in the workforce. Relative to other advanced countries, the U.S. could do more to support working mothers particularly among the most vulnerable groups. The private sector could also play a part by supporting parents

2: Seth Wynes and Kimberly A Nicholas (2017). "The climate mitigation gap: education and government recommendations miss the most effective individual actions." Environmental Research Letters 12 074024

through generous family leave policies or childcare facilities. After all, a lower fertility rate means less opportunity for businesses.

Nonetheless, the decline in fertility rates should not generate unwarranted anguish. In fact, it reflects an overall improvement in terms of educational attainment and employment opportunities for women in general, but particularly for minorities. In the long-run, a lower fertility rate may not necessarily lead to negative outcomes. This is because the traditional idea that robust population growth is good for a country has been challenged by technological change, specifically by automation and artificial intelligence. Yet, policymakers need to have a deep understanding of how these changes will influence labor markets and explore innovative and creative ideas to guarantee that automation, artificial intelligence, machine learning and the Internet of Things end up improving living standards for all citizens.