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## Confronting low fertility rates and population decline

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Fertility rates have been declining in high-income countries for decades. This trend, along with increasing human longevity, poses a challenge for advanced economies. This column argues that a holistic set of policies can be implemented to address the economic risks. These policies should stimulate human capital accumulation and education, which are more important than population size for economic prosperity. Furthermore, policies should promote healthy aging and more choice over retirement decisions, and family-friendly policies to slow the fall in fertility should be enacted.

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Fertility rates have been declining in high-income countries for decades. From 1960 to 2023, the total fertility rate (TFR, which represents the expected lifetime number of children per woman, given current age-specific fertility rates) among OECD countries fell by more than half – from 3.29 children per woman to 1.54 (United Nations 2024a). All but one of the 38 OECD countries (Israel being the exception) currently have a TFR well below the long-run replacement rate of roughly 2.1, meaning that their total and working-age populations are on long-term contractionary paths (see Table 1).

**Table 1** Total fertility rates (TFRs) of OECD countries and the world in 1960, 2023, and 2050

<b>Country / Region</b>	<b>TFR in 1960</b>	<b>TFR in 2023</b>	<b>TFR in 2050</b>
<b>World</b>	<b>4.70</b>	<b>2.25</b>	<b>2.10</b>
<b>All OECD Countries (aggregate)</b>	<b>3.29</b>	<b>1.54</b>	<b>1.57</b>
<b>Individual OECD Countries</b>			
Australia	3.45	1.64	1.64
Austria	2.69	1.32	1.43
Belgium	2.53	1.38	1.49
Canada	3.82	1.35	1.39
Chile	4.70	1.17	1.24
Colombia	6.74	1.65	1.58
Costa Rica	6.71	1.33	1.38
Czech Republic	2.09	1.45	1.57
Denmark	2.56	1.51	1.57
Estonia	1.98	1.35	1.51
Finland	2.72	1.28	1.41
France	2.74	1.64	1.65
Germany	2.38	1.44	1.54
Greece	2.29	1.33	1.41
Hungary	2.02	1.49	1.55
Iceland	4.26	1.54	1.51
Ireland	3.76	1.60	1.60
Israel	4.37	2.83	2.31
Italy	2.38	1.20	1.35
Japan	1.98	1.21	1.35
Latvia	1.94	1.34	1.44
Lithuania	2.62	1.20	1.35
Luxembourg	2.28	1.40	1.48
Mexico	6.76	1.91	1.70
Netherlands	3.12	1.43	1.52
New Zealand	4.24	1.67	1.62
Norway	2.85	1.41	1.50
Poland	3.00	1.30	1.40
Portugal	3.16	1.51	1.57
Republic of Korea	5.99	0.72	1.03
Slovak Republic	3.02	1.56	1.60
Slovenia	2.19	1.58	1.60
Spain	2.81	1.21	1.36
Sweden	2.17	1.43	1.52
Switzerland	2.44	1.43	1.52
Turkey	6.38	1.63	1.62

United Kingdom	2.70	1.56	1.55
United States	3.73	1.62	1.64

Source: United Nations (2024a); see also United Nations (2024b) for a description of the TFR estimation and (medium scenario) projection methods.

In “The End of Economic Growth? Unintended Consequences of a Declining Population,” Charles Jones argues that the “profound implications” of low fertility include a growing paucity of new ideas that could effectively asphyxiate innovation and lead to long-run economic stagnation (Jones 2022). He points out that multiple economic growth models centre on innovation and that a larger population with larger absolute numbers of researchers, scientists, and inventors—and therefore, more bites at the (breakthrough) apple—is likely to achieve more (and more significant) discoveries. Jones proposes a model in which negative population growth leads to an ‘Empty Planet’ scenario (Bricker and Ibbetson 2019) wherein “knowledge and living standards stagnate for a population that gradually vanishes”. Jones juxtaposes this outcome against one of continued population growth and improvements in living standards that he calls the ‘Expanding Cosmos’ (Jones 2022). “Can the quality of people substitute for the quantity of people in the production of ideas?” Jones ponders in a Stanford Graduate School of Business piece. “Basically, the answer’s no. If the number of people is shrinking to zero, it’s hard to imagine that one person with lots of education can make up for a billion people that contain Einstein and Edison and Jennifer Doudna” (Gilson 2022). While Jones allows that automation and artificial intelligence could help maintain or improve living standards by propagating scientific advances, the central question of his piece’s title sounds an ominous note for declining fertility (Jones 2022).

In our recent paper (Bloom et al. 2024), we review data and ideas pertaining to the historically unprecedented fertility decline that characterises today’s wealthy industrial countries. We acknowledge that falling fertility could hinder innovation. But we argue that changes in behaviour, technology, policy, and institutions can influence the economic impacts of fertility and workforce decline and fertility levels themselves.

Innovation is indisputably a driver of economic progress, but it depends on more than just population size. Human capital – the skills and capacities that are embodied in people and enhance their ability to create valuable goods and services – is also key to innovation. Another basic feature of human capital is that it can be purposively accumulated, typically through investments in schooling, job training, or health.

Education, for example, is a well-established determinant of macroeconomic performance and economic well-being. It also tends to expand naturally under conditions of low fertility, leveraging wider and deeper investments into the knowledge and skills of small-sized cohorts. In this way, low fertility tends to enhance a population’s capacity for innovation and enables it to create more value through work, spurring both individual and societal well-being (Lee and Mason 2010, Prettner et al. 2013). Other things equal, small birth cohorts also aid population health.

History and rigorous research indicate that a population’s productive characteristics figure more prominently than its size in defining its capacity for knowledge creation and innovation. The number of healthy and well-educated people – which is distinct from the number of people – represents the human capital that rightly features in the knowledge production function as a fundamental determinant of technological progress and economic growth.

Oded Galor’s recent book, *The Journey of Humanity: The Origins of Wealth and Inequality*, buttresses our more optimistic perspective on the implications of low fertility for economic growth. This book centres on the argument that falling fertility and rising education (and subsequent technological progress) leading to human capital formation is at the core of long-term increases in economic prosperity (Galor 2022). Indeed, Galor points out that since the 19th century, life expectancy has doubled and per capita incomes have skyrocketed 14-fold across the globe, spurred by fertility decline that alleviated population pressure, paving the way for human capital accumulation and dramatic improvements in living standards.

Low and declining fertility also translates into short- and medium-term declines in youth dependency rates, which can further charge the economic growth process by naturally boosting rates of labour force participation, savings, and capital accumulation. This boost, which is known as a demographic dividend (Bloom et al. 2003), contributed up to 2–3 percentage points to the growth rates of income per capita in many countries following the end of the baby boom that occurred in the aftermath of WWII. As such, the trend of falling fertility in high-income countries from the 1950s to the present day has promoted – not impeded – economic activity and improved standards of living.

The challenge of low fertility is magnified by the fact that it causes older-age population shares to swell. Population aging may naturally hamper economic activity insofar as older people impose significant burdens associated with public expenditures on health and long-term care and economic security and tend to work less than their younger counterparts. Social and economic adaptations to these demographic realities are nevertheless possible.

Retirement policy reforms are one of those adaptations (Kuhn and Prettner 2023). Such reforms have considerable potential to forestall workforce shrinkage by removing the disincentives to working longer that increasingly long-lived people face. This strategy is emblematic of how policies related to declining fertility may be stronger in unison than in isolation: robust investments in the health and education of a relatively small youth and prime-age adult cohort may enable that cohort – as it reaches the older ages – to be healthy and well-trained enough to work productively past traditional retirement ages. In the middle of the United Nations’ Decade of Healthy Ageing, a frequently asked question remains relevant: are we just adding years to life, or are we also adding life to years (Bloom 2019)? Coupled with allowing more choice over retirement decisions, policies promoting healthy aging could relieve the mounting pressure on pension and health systems and the accelerating demand for long-term care in the wake of population aging (Bloom 2022). Thus, stakeholders would benefit from combining synergistic policy initiatives to augment their efficacy.

Public and private policymakers also have at their disposal a myriad of family-friendly policies that can slow or reverse the fall in fertility. These policies, which seek to balance work and family responsibilities, include tax breaks for larger families, extended parental leave policies, and—most effective of all, according to Doepke et al. (2023)—public and/or subsidised childcare. Of course, if such policies achieve their aims, the short- and medium-term result would be an increase in the youth dependency ratio, with gains in workforce size not beginning to accrue for approximately 20 years.

Policy decisions must be mindful of the evolving work landscape, particularly the rise of digitalisation, robotics, automation, and artificial intelligence (see Prettner and Bloom 2020). While these tools offer tantalising potential, such evolution will not only impact the types of jobs available and how they are performed (as well as what is produced and consumed), but it will also affect the way that workers interact socially, which will likely have significant implications for dating and partnering, with an as-yet indeterminate effect on fertility levels and patterns.

Thoughtful policy changes should be holistic, recognising the social and political repercussions alongside the economic outcomes. Policies that relax or restrict international migration may be nationally or internationally destabilising, depending on contextual factors, and have implications for social and economic equity. In addition, the environmental implications of low fertility must be kept in view as it could slow or accelerate the pace of climate change depending on whether fewer people with higher incomes have the net effect of easing or intensifying greenhouse gas emissions.

Low fertility and fertility decline are indisputable realities in high-income countries across the globe. Given the significant uncertainty surrounding the nature and magnitude of its attendant economic consequences, ignoring the low-fertility alarm bell would be imprudent, particularly when fertility decline is paired with another dominant demographic trend: increasing human longevity. But demography is not destiny. Fertility decline—and its implications for population size and structure—poses serious challenges, but they are not insurmountable. Humanity has an admirable record of identifying and taking advantage of the opportunities it faces. In this situation, multiple mechanisms are available for countering low fertility and addressing its economic repercussions. The time is ripe for mounting a swift and integrated response to pinpoint and implement the most promising policy countermeasures.

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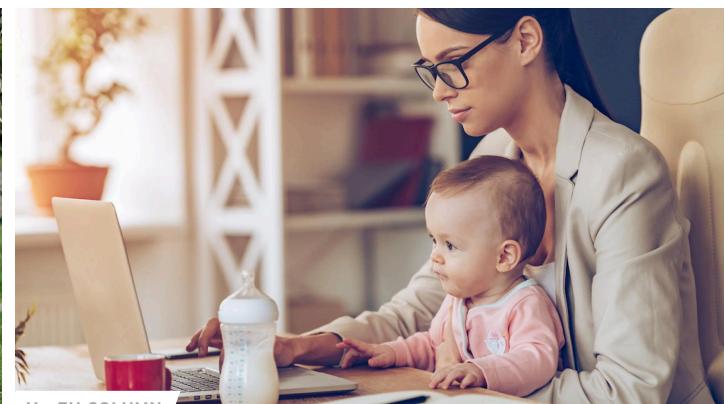


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David Bloom

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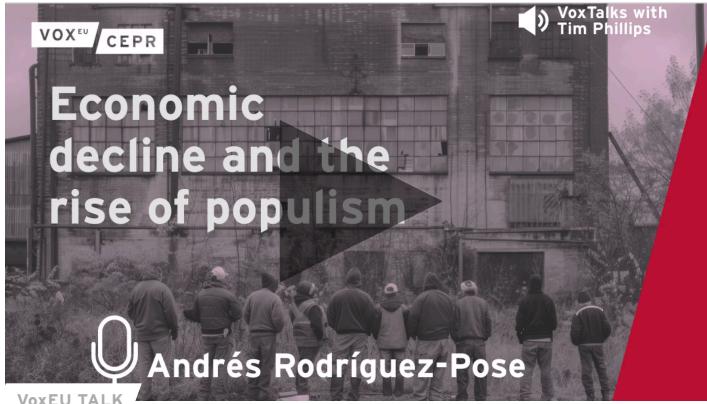


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