MANKIND QUARTERLY
Mankind Quarterly, 67(1), 6-9 2026 Fall Edition
ISSN: 0025-2344

Editorial
The Technological Fix

Gerhard Meisenberg

Modern human societies are unsustainable—and it's not because the climate is changing or artificially intelligent systems decide to exterminate us and take over the world. They are demographically unsustainable. First of all, numbers are important. A lone genius may be able to mobilize his people to conquer an empire, as Genghis Khan did, but a whole civilization requires a critical mass of very bright individuals who work with and against each other: the cognitive elite of a large population with high average intelligence. Victorian Britain had the required numbers (20-35 million population), but classical Athens (110,000-300,000) did not.

We still have large populations today, but according to the World Bank (2026a) practically all economically and intellectually advanced countries of the world have total fertility rates far below the replacement level of 2.1. Broadly, poor countries have high fertility, and rich countries have low fertility. Table 1 shows some examples. The relationship with intelligence is even more striking. East Asian countries have lower fertility than the countries of Europe and North America although they are a bit poorer, but they also have somewhat higher intelligence. These country-level differences suggest that it is high intelligence, not material wealth, that drives nations into childlessness and predictable extinction.

Table 1: Total fertility rate (TFR) of some countries

Country	TFR 2024	PISA avg.	IQ	GDP
Congo, Dem. Rep.	6.0		68.0	807
Nigeria	4.4		71.2	1,224
Saudi Arabia	2.3	387.3	79.6	34,537
Indonesia	2.1	369.3	85.8	5,060
India	2.0		82.2	2,703
Iran	1.7		85.6	3,924
United States	1.6	489.7	97.5	90,027
United Kingdom	1.6	494.0	99.1	57,602
Germany	1.4	482.3	98.8	60,496
Russia	1.4	481.7	96.6	17,547
Japan	1.1	533.0	104.2	35,951
China	1.0		105.8	13,862
South Korea	0.7	523.3	104.6	36,227
Taiwan	0.7	533.0	104.6	42,103

Data sources: *TFR*, World Bank, 2026a; *PISA average*, OECD, 2023; PISA data are averages Math-Reading-Science for 2022 (except Russia, 2018). *IQ*, L&V 2012 IQ in Becker, 2019; *GDP*, per capita GDP in current $US, from World Bank, 2026b.

Also within nearly all countries, those of higher education and intelligence tend to have fewer children than those with less education or lower intelligence (e.g., Jensen et al., 2025; Meisenberg, 2010). The result is a decline in the genetic capacity for educational attainment and intelligence, shown at the molecular level as declining polygenic scores[1] (Beauchamp, 2016; Hugh-Jones & Abdellaoui, 2022; Kong et al., 2017;

[1] Polygenic scores are predictive scores calculated from thousands of common genetic variants that are statistically associated with the predicted trait. The statistical associations are derived from genome-wide association studies.

Sanjak et al., 2018). The inevitable conclusion is that "genotypic intelligence" is declining for the world population as a whole.

Economic efficiency is at the core of modern industrial civilization. Economists use growth regressions to predict annual growth rates of per capita GDP (gross domestic product) or GNP (gross national product), and what they find is striking: Initial poverty (the "advantage of backwardness") and high intelligence are the two conditions that consistently promote economic growth (Meisenberg, 2014; Weede & Kämpf, 2002). China during the last half century is the prime example. If intelligence were unchangeable, all nations would evolve to a stable state where prosperity is commensurate with their average intelligence.

Actually, however, such a stable state cannot last because intelligence does change over time. Our civilization depends on a positive feedback. Since the Industrial Revolution, rising intelligence (the Flynn effect) has driven economic growth and indeed the advancement of all aspects of civilization (Meisenberg, 2014), including the rise of highly effective educational systems. Conversely, these trappings of civilization created environmental advantages that raised the intelligence of the next generation even more, so it could improve the environmental conditions for its own children even more. This trans-generational feedback loop between human intelligence and the civilization it created is the reason why exponential economic growth occurred together with rising intelligence during the last two centuries.

This upward spiral cannot continue once the genetic limits of human intelligence have been reached. Genetic limitations are one likely reason why in many of the most advanced nations, the Flynn effect has practically ended in recent years (Meisenberg & Lynn, 2023)—and economic growth has slowed down accordingly. The process can even go into reverse when declining intelligence degrades the environmental conditions required for its own maintenance: a downward spiral terminating in civilizational collapse. Now add to this the slow workings of genetic selection against high intelligence, and it is evident that this risk is rising slowly but steadily across generations.

There are two possible ways to stem the tide of genetic deterioration. The first is to select the parentage of the next generation, by using gametes from healthy and highly intelligent donors. The second option is to apply selection not to the parents, but to the offspring generation based on genetic test results. In this issue of *Mankind Quarterly*, Chinese scholar Mingrui Wang looks at this second option: produce embryos in vitro, then use microarrays or DNA sequencing to determine their polygenic scores for educational attainment and intelligence, and implant only those embryos whose polygenic scores are above the average of their parents.

Our author is highly sceptical about the effectiveness of polygenic embryo selection. He discusses phenomena such as extreme polygenicity, the effects of rare and ultra-rare variants, and the continuous influx of new mutations in every generation. He emphasizes antagonistic pleiotropy, meaning that a genetic variant that slightly improves intelligence may very well be detrimental to other functions, such as immune defences. Natural selection acting on all traits simultaneously can deal with this, but embryo selection narrowly focussed on intelligence (or any other single trait) cannot.

One limitation is that predictive polygenic scores capture only the effects of common polymorphisms, not those of rare and ultra-rare variants. Most DNA variants in human genomes have practically no phenotypic effects at all. For those that do matter, the rule is that common polymorphisms generally have very small effects whereas rare ones can have larger effects—causing a genetic disease, for example. For this reason, the correlation between a predictive polygenic score for intelligence and actual, measured intelligence cannot be higher than 0.3 to 0.4.

Another important point that our author stresses (though in more carefully chosen words) is that children are, on average, a little sicker and a little stupider than their parents. This follows directly from the fact that every child is born with about 40 to 80 new mutations on top of the multitude of rare variants inherited from the parents. Those new mutations that matter at all are overwhelmingly detrimental, contributing to ill-health and to physical and mental flaws. It has been estimated that intelligence is the most polygenic trait in humans, with variations in about ten thousand genes (50% of all protein-coding genes) affecting it. Because of this enormous mutational target size, mental deficiency is one of the most frequent impairments in pleiotropic genetic diseases. In the absence of any selection for or against intelligence, human intelligence would not stay the same. It would disintegrate slowly due to new mutations that fail to be removed. This is how evolution works. It's an uphill battle, a Red Queen effect where you have to keep running just to stay in the same place. Polygenic embryo selection cannot deal with these new mutations

Mingrui Wang's conclusion is sobering: Polygenic embryo selection alone cannot save the world. He leaves it to the reader to think of better ways to avoid civilizational collapse. There are indeed many options, but the ultimate problem is that people are selfish. Most of those few who understand what is going on have zero interest in saving the world. They couldn't care less about the well-being of future generations. Once they are made aware that methods such as embryo selection or paying women to bear and raise children produced from highly selected donor gametes are possible, they will most likely opt for prohibition of these practices. It doesn't feel right because it is not supported by their evolved human instincts. If it doesn't feel right, it is unethical, consequences be damned.

It can be objected that we don't need human intelligence anymore because we have artificial intelligence to do all the difficult thinking. Really? There is an old question: Would a team of two workers working on a task be more effective if both have an IQ of 100, or would it be better if one has an IQ of 70 and the other has an IQ of 130? The answer is, of course, that it depends on who is the boss: the one with IQ 70, or the one with IQ 130. In a world where the typical human IQ is 80 and the typical robot IQ is 10 million, do you seriously expect that humans will leave all decision-making to the robots? No, they will use them in the service of their own follies. To fight wars, for example. And why should super-intelligent robots, presumably able to re-program themselves, choose to devote their existence to maintaining a zoo of physically and mentally defective humans?

References

Beauchamp, J. P. (2016). Genetic evidence for natural selection in humans in the contemporary United States. *Proceedings of the National Academy of Sciences USA*, *113*(28), 7774–7779. https://doi.org/10.1073/pnas.1600398113

Becker, D. (2019). The NIQ Dataset (V1.3.2) [Chemnitz, Germany]. www.viewoniq.org.

Hugh-Jones, D., & Abdellaoui, A. (2022). Human capital mediates natural selection in contemporary humans. *Behavior Genetics*, *52*(4–5), 205–234. https://doi.org/10.1007/s10519-022-10107-w

Jensen, S., Pesta, B., & Kirkegaard, E. O. W. (2025). International meta-analysis of differential fertility for intelligence. *OpenPsych*. https://doi.org/10.26775/OP.2025.08.06

Kong, A., Frigge, M. L., Thorleifsson, G., et al. (2017). Selection against variants in the genome associated with educational attainment. *Proceedings of the National Academy of Sciences of the United States of America*, *114*(5), E727–E732. https://doi.org/10.1073/pnas.1612113114

Meisenberg, G. (2010). The reproduction of intelligence. *Intelligence*, *38*(2), 220–230. https://doi.org/10.1016/j.intell.2010.01.003

Meisenberg, G. (2014). Cognitive human capital and economic growth in the 21st century. In T. Abrahams (Ed.), *Economic Growth in the 21st Century: New Research* (pp. 49–106). Nova Publishers.

Meisenberg, G., & Lynn, R. (2023). Ongoing trends of human intelligence. *Intelligence*, *96*, 101708. https://doi.org/10.1016/j.intell.2022.101708

OECD (2023). *PISA 2022 Results (Volume I): The State of Learning and Equity in Education*. https://doi.org/10.1787/53f23881-en

Sanjak, J. S., Sidorenko, J., Robinson, M. R., et al. (2018). Evidence of directional and stabilizing selection in contemporary humans. *Proceedings of the National Academy of Sciences USA*, *115*(1), 151–156. https://doi.org/10.1073/pnas.1707227114

Weede, E., & Kämpf, S. (2002). The impact of intelligence and institutional improvements on economic growth. *Kyklos*, *55*(3), 361–380. https://doi.org/10.1111/1467-6435.00191

World Bank (2026a). Gender Data Portal. https://genderdata.worldbank.org/en/indicator/sp-dyn-tfrt-in.

World Bank (2026b). GDP per capita (current US$). https://data.worldbank.org/indicator/NY.GDP.PCAP.CD.