

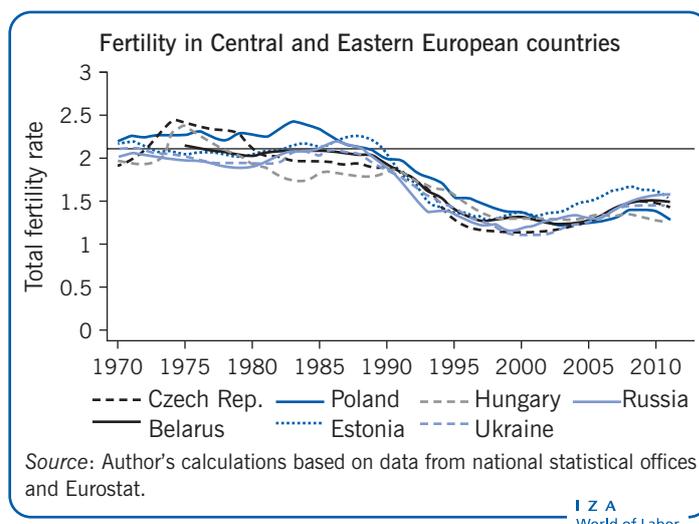
# Can government policies reverse undesirable declines in fertility?

Government policies can have a modest effect on raising fertility—but broader social changes lowering fertility are stronger

Keywords: fertility, pronatalist policies, transition economies

## ELEVATOR PITCH

Since 1989 fertility and family formation have declined sharply in Central and Eastern Europe and the former Soviet Union. Fertility rates are converging on—and sometimes falling below—rates in Western Europe, most of which are below replacement levels. Concerned about a shrinking and aging population and strains on pension systems, governments are using incentives to encourage people to have more children. These policies seem only modestly effective in countering the impacts of widespread social changes, including new work opportunities for women and stronger incentives to invest in education.



## KEY FINDINGS

### Pros

- ⊕ In Central and Eastern Europe, fertility rates are now below population replacement rates.
- ⊕ Countries are also seeing later marriage and childbearing and rising numbers of children born to single women.
- ⊕ Policies encouraging births can modestly increase the number of births, particularly of second and third children.
- ⊕ To stem population loss due to declining fertility, pronatalist policies combined with increased immigration is likely the most effective approach.

### Cons

- ⊖ Recent declines in fertility could reflect postponed childbearing rather than a decline in the average number of children borne per woman.
- ⊖ Until the women of childbearing age in the 1990s reach the end of their childbearing years, the extent of the fertility decline cannot be known.
- ⊖ Policies encouraging births are unlikely to fully counteract economic and social changes that lead to fertility rates below replacement level.
- ⊖ There is no clear evidence for policymakers on what policies are most likely to raise fertility rates at the lowest budgetary cost.

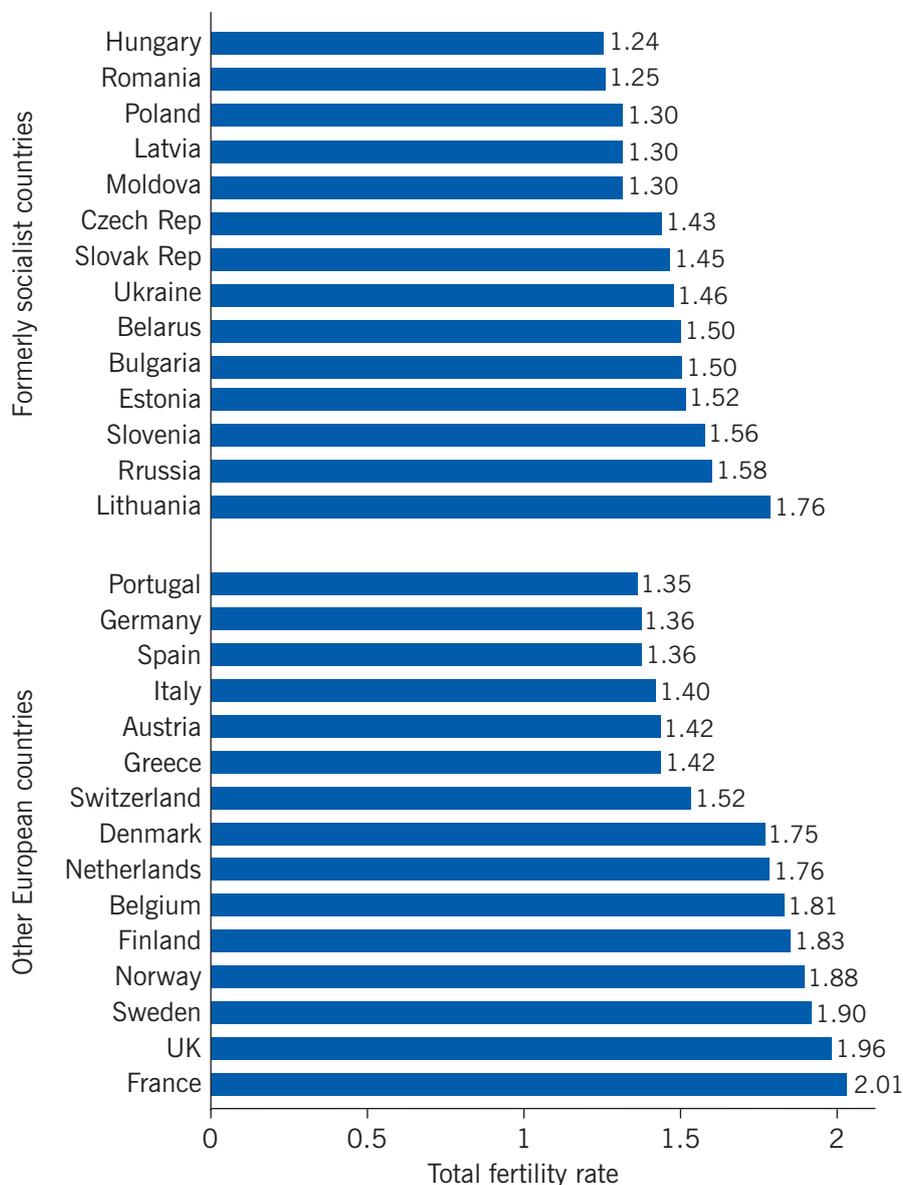
## AUTHOR'S MAIN MESSAGE

Pronatalist government policies can increase fertility rates modestly, but they are unlikely to move fertility rates up to replacement levels in the low-fertility countries of Central and Eastern Europe. Individual incentives to invest in education and pursue a career appear to affect fertility choices more than government policies do. For policymakers trying to stem the population loss and the changes in population age structure resulting from declining fertility, the most effective approach is likely to combine well-crafted pronatalist policies with openness to increased immigration.

## MOTIVATION

Fertility rates in the formerly socialist countries of Central and Eastern Europe, higher than in Western Europe in the late 1970s and throughout the 1980s, declined sharply during the 1990s and are now well below replacement levels (2.1 children per woman) in most countries (see Illustration on p. 1). By 2011 the total fertility rate was even lower in some Central and Eastern European countries than in some very low-fertility Western European countries (Figure 1). While total fertility rates were 1.35 in Portugal, 1.36 in Germany and Spain, they were lower still in Hungary (1.24), Romania (1.25), Poland (1.30), Latvia (1.30), and Moldova (1.30). Policymakers are concerned about the long-term impact of low fertility on the age structure of the population and the solvency of pension systems. Moreover, sustained periods of very low total fertility

Figure 1. By 2011 total fertility was lower in some formerly socialist countries than in other European countries



Source: Author's calculations based on data from national statistical offices and Eurostat.

**Total fertility rate and completed fertility**

The total fertility rate is the average number of children a woman would have through the end of her reproductive life span, given the current levels of age-specific birthrates. The total fertility rate is obtained by adding the age-specific fertility rates for women ages 15–49. The completed fertility rate is the average number of children a woman has in her lifetime.

will radically shrink populations: long-term fertility rates at or below 1.3 children per woman will reduce a country's population by half in less than 45 years [1].

The large and abrupt declines in total fertility in transition countries, despite the many differences in economic policies and conditions across the region, can provide insights into the causes of low fertility and the effectiveness of pronatalist policies. What, if anything, can governments do to stop or reverse the decline in fertility? Do pronatalist policies such as Russia's large "fertility bonus" program initiated in 2006 lead to more births or simply change the timing of fertility decisions?

**Pronatalist policies**

Government pronatalist policies are designed to increase birth rates, often through financial incentives such as birth bonuses, child benefits, and tax credits.

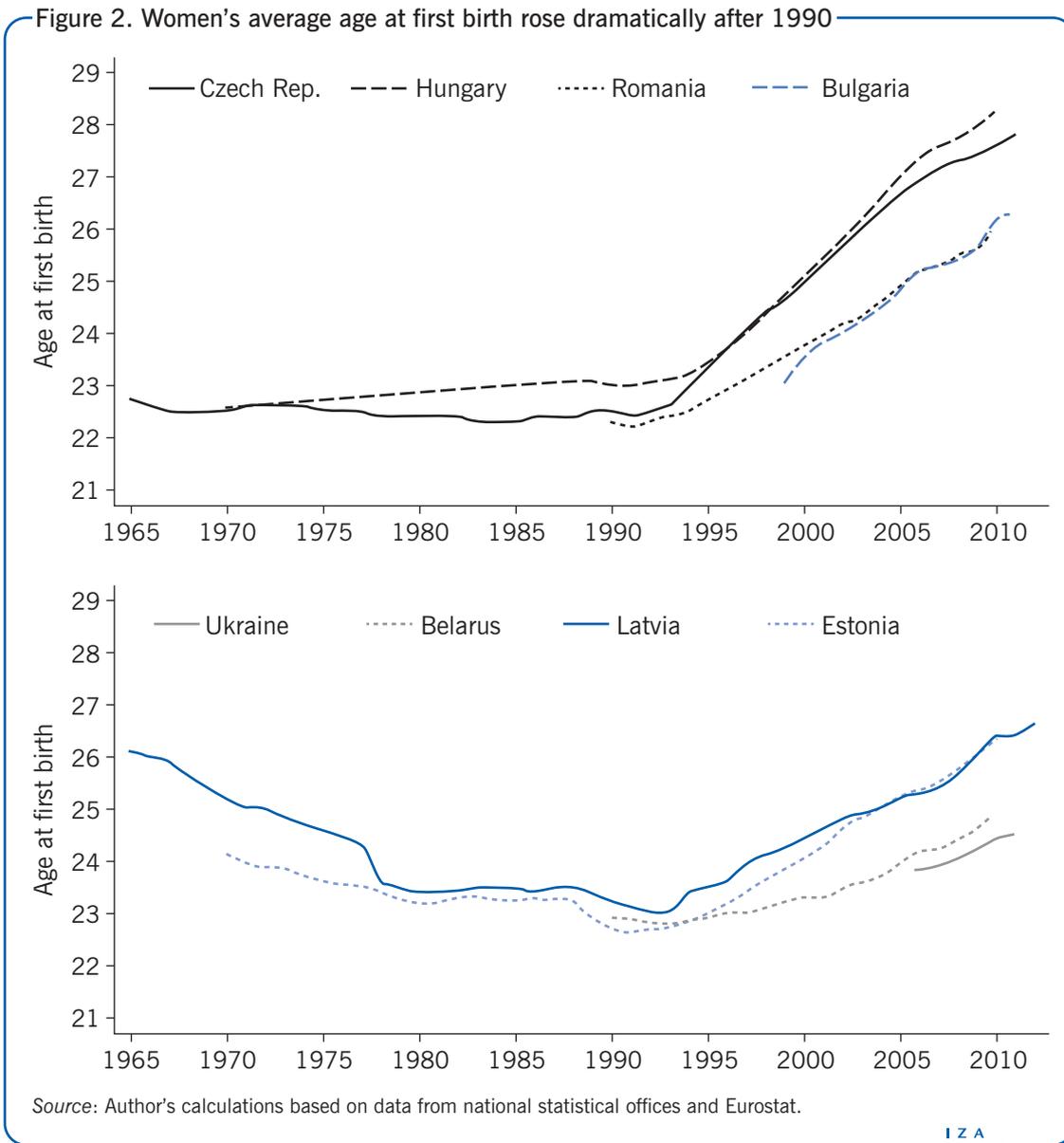
The paper focuses on the experiences of the former Soviet republics of Belarus, Estonia, Latvia, Lithuania, Moldova, Russia, and Ukraine, and the Central and Eastern European countries of Bulgaria, the Czech Republic, Hungary, Romania, the Slovak Republic, and Slovenia. Because of missing or unreliable demographic data, there is no analysis of fertility trends in the countries of Central Asia, the Caucasus, Albania, and the countries of the former Yugoslavia other than Slovenia.

**DISCUSSION OF PROS AND CONS****Why fertility was higher in Central and Eastern Europe than in Western Europe in the 1970s and 1980s**

Patterns of fertility and family formation differed strikingly between Eastern and Western European countries before the end of communism. Women in Central and Eastern European countries married young, at age 21–22 on average, and had their first child within a year or so (Figure 2). Marriage and childbearing were almost universal: the rate of childlessness was near the biological limit of 5–10%. In most countries in the 1970s and 1980s childbearing was highest among women ages 20–24, and total fertility hovered around the replacement level.

**Replacement fertility level**

The replacement fertility level is the total fertility rate needed to keep a country's population constant. It is equivalent to approximately 2.1 children per woman.



In Western Europe, by contrast, women were postponing marriage and childbearing, and their average age at first birth and rates of childlessness were well above those in Central and Eastern Europe. In many Western European countries fertility dipped below the replacement level as early as the 1970s, whereas in Eastern and Central Europe there had been little change from the 1950s through the end of the 1980s.

The reproductive pattern in Central and Eastern Europe before 1989 likely reflected institutional features of the socialist system. Married couples with children received priority in housing, an incentive to marry and have children early [2]. The opportunity cost of early childbearing was fairly low: narrow wage differentials between occupations and limited opportunities for career advancement, especially for women, offered little economic reason to delay marriage and childbearing to invest in education. Policies that lowered the cost of child rearing, including free or low-cost childcare and generous child benefits, also encouraged women to have more children.

With the collapse of the communist system over 1989–1991, the incentives for early marriage, early childbearing, and investment in education changed dramatically. Total fertility plummeted, dropping below levels in the lowest-fertility Western European countries by the late 1990s. The lowest fertility levels were recorded in Bulgaria (1.09 in 1997) and Ukraine (1.085 in 2011), lower than the lowest fertility level previously recorded in a European country during peacetime (1.16 in Spain in 1998). Despite wide differences in economic strategies and economic growth rates, total fertility declined in all countries in the region. For example, the decline in total fertility in Belarus, one of the most gradual and inconsistent reformers, has been nearly identical to the decline in the Czech Republic, one of the rapid and most successful reformers. Across the region, average total fertility dropped from 2.0 to 1.4.

Other demographic changes, occurring with equal swiftness, accelerated the convergence with Western European patterns of fertility and family formation. In particular, birthrates rose among unmarried women, and marriage rates fell [3]. Birthrates among unmarried women rose considerably in most of the formerly socialist countries, even surpassing the high rates in Nordic countries. Estonia now has the highest birthrate among unmarried women, at 59.7% of births in 2011. The rate is also high in Bulgaria at 56.1%. For comparison, Western European countries with high birthrates among unmarried women include France (55.8% of births in 2011), Norway (55.0%), and Sweden (54.3%). Abortion rates have also declined sharply across the region, as access to modern contraceptives has become more widespread and abortion is no longer the primary means of birth control.

### **What caused the fertility decline?**

Credible evidence for the specific causes of the fertility decline is limited, so much of the discussion is speculative. Possible causes include the early collapse in GDP and the rise in economic uncertainty associated with the transitory shock of economic transition. A likely stronger and more enduring cause was the long-term changes in individual incentives, such as increased returns to higher education and the expanding opportunities for individual fulfillment made possible by new economic and political freedoms. All these changes raised the opportunity cost of childbearing [2].

Still unresolved, however, is whether the declines in fertility reflect a true decline in the average number of children a woman will bear in her lifetime (completed fertility) or just a postponement of childbearing. These two effects are difficult to disentangle, especially when fertility rates are falling rapidly [1].

The dramatic increase in women's average age at first birth (Figure 2) indicates that at least some of the fertility decline is due to postponed childbearing. In Hungary, for example, the average age at first birth rose from 22.9 in 1990 to 28.2 in 2010—an increase of 5.3 years in just two decades. In the Czech Republic, the average age at first birth rose from 22.5 years to 27.6 years. This increase in age at first childbearing was astonishingly swift. In Norway, for example, it took 40 years for a similar five-year rise in the average age at first childbearing. In most Central and Eastern European countries the highest fertility rates are now among women ages 25–29, displacing women ages 20–24, who had the highest rates for decades.

But the fertility decline in transition economies likely reflects a true reduction in total fertility as well as fertility postponed. Until the women of childbearing age in the 1990s reach the end of their childbearing years, the precise extent of this change cannot be known, but some early evidence suggests that completed fertility is declining. Russian women born in 1946–1955, whose reproductive years were largely completed before the transition, had an average total fertility of 1.85, according to the 2010 census. Women born in 1966–1970, whose prime reproductive years coincided with the most turbulent period of transition, had an average of 1.64 live births, and women born in 1971–1975 had 1.51 (fertility is not complete for this group).

If completed fertility has declined, what caused it? Economic theory holds that income and fertility are negatively related. Although couples might desire more children as their incomes rise, the demands of child rearing represent a large opportunity cost, particularly for women, whose rising wages in recent decades have boosted the opportunity cost of having children. Meanwhile, as returns to education have risen, so has enrollment in higher education, especially among women, further delaying marriage and childbearing among younger generations. A larger share of women than men now enroll in and complete higher education in Eastern and Central Europe. In Hungary in 2005, for example, 24% of women ages 25–29 had completed higher education, compared with 16% of men. This gender gap has increased markedly since 1990 [3].

It is difficult to establish whether increased education has caused a decline in completed fertility, although analysis shows a correlation between increased education and postponed fertility. That is because decisions about investing in higher education and having children are made jointly. Women who are highly career-oriented, for example, are likely to simultaneously plan both greater investment in education and a smaller family. That makes it difficult to prove or disprove that having more years of education causes a woman to choose to have fewer children.

Despite the difficulty, several recent, well-designed studies have demonstrated a causal relationship between education and fertility by examining the impact of policies that resulted in some cohorts of women receiving more education than other similar cohorts of women who did not. Nigeria's push to increase primary school classrooms created differences in exposure to schooling by region and age. One additional year of female education was found to reduce births among women ages 24 and younger by 0.26 birth [4]. Norway's staggered increase in mandatory education, rising from grade 7 to grade 9, led to postponed births but not to reduced fertility for women with more education [5]. These studies demonstrate that more educated women postpone childbearing, but the research remains inconclusive on the impact on completed fertility, the fertility measure of most interest to policymakers.

Thus, the formerly socialist countries of Central and Eastern Europe have experienced a remarkably rapid change in fertility and family formation since 1989. On many dimensions, the region now looks like Western Europe, with low fertility rates, later marriage and childbearing, and high and rising birthrates among unmarried women. Some of the changes appear to be driven by increased returns to education, but to date there is little research explaining these fundamental shifts in behavior.

## Can pronatalist policies reverse the fertility decline?

The Soviet Union and many communist countries of Central and Eastern Europe had strongly pronatalist policies: maternal leave, child benefits, free or highly subsidized childcare, and priority housing allocation for families with children [6]. In the 1970s and 1980s Bulgaria, Czechoslovakia, Hungary, Romania, the Soviet Union, and other socialist countries implemented policies to encourage families to have more than one child. In Bulgaria, for example, the combined payments for births, child benefits, and paid maternal leave more than doubled the income of a family with three children in the mid-1970s. And in Czechoslovakia in the early 1970s, the government allocated 10% of the annual budget to payments for child benefits, childcare center subsidies, and other policies explicitly intended to benefit families with children. Hungary, Romania, and the Soviet Union also implemented generous programs with similar incentives in the 1970s and 1980s, largely to encourage women to have more than one child.

The effectiveness of these policies has been widely debated. Pronatalist policies are generally thought to have raised birthrates only temporarily, with limited impact on a woman's total number of children. Any conclusions remain speculative, however, because rigorous econometric studies have not been conducted.

Despite budgetary pressures and severe economic recession since the beginning of the transition in 1989–1991, some countries have continued to offer or have introduced new benefits to encourage childbearing (see High cost of pronatalist policies). Hungary provides 1.5 years of paid maternal leave and generous family benefits and childcare subsidies. In 2005 government spending per child amounted to 60.8% of GDP per capita in the Czech Republic and 51.3% in Slovakia, twice the average for high-income countries in the Organisation for Economic Co-operation and Development (26.8%) [7]. Russia launched a maternal capital fund in 2007, offering mothers who have a second or third child 250,000 rubles (about US\$12,000), roughly the average annual income. Early evidence indicates that this costly incentive has increased the birthrate among women ages 25–29 from 78.4 births per 1,000 women in 2006 to 99.8 in 2011. However, it is far too early to tell whether this incentive, scheduled to expire in 2016, is simply encouraging women to have another child earlier, to take advantage of the fund, or whether it will encourage them to have more children, as intended.

Although there are no systematic studies of the effects of these policies on fertility, these generous policies appear to have had limited success in restoring fertility rates to the near-replacement rates that prevailed before the transition. It seems likely that

### High cost of pronatalist policies

Some pronatalist policies were very costly. In the early 1970s, Czechoslovakia allocated 10% of its budget to payments for child benefits, subsidies for childcare centers, and other policies intended to benefit families with children. In Bulgaria in the mid-1970s, the combined payments for child benefits and paid maternal leave more than doubled the income of a family with three children.

David, H. P. "Eastern Europe: Pronatalist policies and private behavior." *Population Bulletin* 36:6 (1982): 1–48.

broader social changes since 1989—gains in individual freedom and opportunity, greater returns to education, work, and entrepreneurship—have had a more powerful impact on fertility decisions and family formation.

### **Is there evidence elsewhere of a causal effect of pronatalist policies on fertility?**

Much like the relationship between education and fertility, it is challenging to establish a causal connection between pronatalist policies and completed fertility. The most convincing studies examine changes in policies that randomly affected some women but not others for reasons unrelated to factors influencing fertility decisions, such as education investments and labor force participation. In addition, the policies have to have been in place long enough to separate impacts on completed fertility from impacts on fertility timing. Few studies meet these criteria. However, three recent quasi-experimental studies come close and provide the most convincing evidence yet on the impact of pronatalist policies on fertility.

The three studies (in Austria, Canada, and Israel) assessed the effect of pronatalist measures that, for seemingly random reasons, were available to some families but not others. In Austria a doubling of paid maternal leave (from one year to two years for a child born on or after July 1, 1990) had a large positive effect on the likelihood of a woman having a second child. Fertility increased 15% within three years of the extension, and the higher rate persisted for at least ten years [8]. The study found no long-run negative impact of extended maternal leave on women's earnings and employment.

Child benefits have also been shown to affect fertility rates. In 1988 Quebec introduced the Allowance for Newborn Children, which paid up to C\$8,000 to families after the birth of a child. The incentive was large and rose with family size. Because the other provinces did not have similar policies, the study could compare people eligible for the benefit in Quebec with a control group of Canadians outside Quebec with similar characteristics who were not eligible for payments [9]. Fertility rose an average of 12% among those eligible for the program and rose to 25% for those eligible for the maximum benefit.

Policies that change the cost of having an additional child have also been shown to have a causal effect on childbearing. Israel changed its child subsidy over 1999–2005, raising and lowering it and adjusting it according to the number of children. The probability of having more than two children was affected by changes in these payments [10]. In particular, lowering the monthly subsidy for an additional child by 2% of average income reduced the probability that a mother with two children would have a third child by nearly one percentage point a year, a fairly strong response. Policies that change the cost of having another child can be an effective way for governments to influence fertility, the study concluded.

### **LIMITATIONS AND GAPS**

Taken together, the recent evidence on the positive causal effects of pronatalist policies on fertility is fairly persuasive. But there are caveats.

- None of the studies had access to information on the completed fertility of the women in the samples. While the evidence strongly suggests real fertility increases rather than a timing effect, some of the observed response might still reflect only a change in timing of births.
- The study of the impact of changing child subsidies in Israel examined only the effect on decisions to have more than two children. The fertility impact might not be relevant for European countries where fertility is well below two children per woman and where the fertility decision of greatest interest to policymakers is whether women decide to have a second child.
- The evidence on the impact of pronatalist policies remains limited. While the studies reviewed here advance the understanding of the effectiveness of such policies, the number of compelling studies is small, and they review only a handful of pronatalist policies in only three countries. Little is known about the impact of other policies on fertility, such as extended paternal leave, and about whether one country's experience applies to others. The evidence base still does not offer clear guidance to policymakers on the specific design of policies that are most likely to raise fertility rates at the lowest budgetary cost.

## SUMMARY AND POLICY ADVICE

The experience of the countries of Central and Eastern Europe combined with recent quasi-experimental research on the impact on fertility of pronatalist policies in other countries indicates that the policies have a modest causal effect on fertility. For policymakers concerned about stemming the population decline and changes in population age structure resulting from declining fertility, well-crafted pronatalist policies appear to change not only the timing of births but, more important, the probability of a birth as well.

However, these policies are unlikely to offset the impacts of broader social and economic changes on women's fertility decisions, such as expanding economic opportunities and changes in incentives for investing in education. These changes appear to have a more profound impact on fertility and family formation than government policies.

### Acknowledgments

The author thanks an anonymous referee and the IZA World of Labor editors for many helpful suggestions on earlier drafts.

### Competing interests

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

© Elizabeth Brainerd

## REFERENCES

### Further reading

Brainerd, E. “The demographic transformation of post-socialist countries: Causes, consequences, and questions.” In: Roland, G. (ed.). *Economies in Transition: The Long-Run View*. Basingstoke, Hampshire, UK: Palgrave Macmillan, 2012; pp. 57–83.

Denisova, I., and J. Shapiro. “Recent demographic developments in the Russian Federation.” In: Alexeev, M., and S. Weber (eds). *The Oxford Handbook of the Russian Economy*. Oxford, UK: Oxford University Press, 2013; pp. 800–826.

Kohler, H., F. C. Billari, and J. A. Ortega. “The emergence of lowest-low fertility in Europe during the 1990s.” *Population and Development Review* 28:4 (2002): 641–680.

### Key references

- [1] Billari, F. C. “Lowest-low fertility in Europe: Exploring the causes and finding some surprises.” *The Japanese Journal of Population* 6:1 (2008): 2–18.
- [2] Sobotka, T. “Fertility in Central and Eastern Europe after 1989: Collapse and gradual recovery.” *Historical Social Research* 36:2 (2011): 246–296. Online at: [http://www.oeaw.ac.at/vid/download/sobotka/Sobotka\\_Fertility%20collapse%20and%20recovery%20CEE\\_HSR2011.pdf](http://www.oeaw.ac.at/vid/download/sobotka/Sobotka_Fertility%20collapse%20and%20recovery%20CEE_HSR2011.pdf) [Accessed March 14, 2014].
- [3] Brainerd, E. “The demographic transformation of post-socialist countries: Causes, consequences, and questions.” In: Roland, G. (ed.). *Economies in Transition: The Long-Run View*. Basingstoke, Hampshire, UK: Palgrave Macmillan, 2012; pp. 57–83.
- [4] Osili, U. O., and B. T. Long. “Does female schooling reduce fertility? Evidence from Nigeria.” *Journal of Development Economics* 87:1 (2008): 57–75. Online at: <http://www.sciencedirect.com/science/article/pii/S0304387807000855> [Accessed March 14, 2014].
- [5] Monstad, K., C. Propper, and K. G. Salvanes. “Education and fertility: Evidence from a natural experiment.” *The Scandinavian Journal of Economics* 110:4 (2008): 827–852.
- [6] David, H. P. “Eastern Europe: Pronatalist policies and private behavior.” *Population Bulletin* 36:6 (1982): 1–48.
- [7] Thévenon, O. “Family policies in OECD countries: A comparative analysis.” *Population and Development Review* 37:1 (2011): 57–87.
- [8] Lalive, R., and J. Zweimüller. “How does parental leave affect fertility and return to work? Evidence from two natural experiments.” *Quarterly Journal of Economics* 124:3 (2009): 1363–1402.
- [9] Milligan, K. “Subsidizing the stork: New evidence on tax incentives and fertility.” *The Review of Economics and Statistics* 87:3 (2005): 539–555.
- [10] Cohen, A., R. Dehejia, and D. Romanov. “Financial incentives and fertility.” *The Review of Economics and Statistics* 95:1 (2013): 1–20.

**The full reference list for this article is available from the IZA World of Labor website (<http://wol.iza.org/articles/can-government-policies-reverse-undesirable-declines-in-fertility>).**