The Godfather:
Religious Leadership and Georgian Baby Boom

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Abstract

In 2023, women from over half of the countries on the planet are having fewer than two children. If sustained over time, this may lead to a shrinking global population. Economic measures to boost fertility are expensive and might be ineffective. Can non-economic incentives solve the demographic crisis? In 2007, Ilia II – the spiritual leader of Georgia's Orthodox Christians – promised to personally baptize and become godfather to every child born to couples with at least two children. Leveraging the Synthetic Difference-in-Differences approach developed by Arkhangelsky et al. (2021) to compare Georgia with other former Soviet states, I examine the effect of such religious incentive on fertility. I find that Ilia II's baptism initiative effectively boosted Georgia's fertility above the replacement level. The baby boom initiated by Ilia II cannot be explained by the short-term birth timing shift; instead, it persisted over the next 15 years.

Keywords: Fertility, Religion, Leadership, Synthetic Difference-in-Differences

JEL Classifications: J13, Z12, P36, J18, C54

> what makes population decline so implacable; once it sets in, it's virtually impossible to stop, because every year there are fewer women of child-bearing age than there were the year before.
>
> — Darrell Bricker and John Ibbitson, *Empty Planet*

> We are very close to the threshold of non-renewal where the people dying are not replaced by new-borns. That means we are a dying country.
>
> — Beatrice Lorenzin, Italy's Health Minister

1. Introduction

In 2023, 131 countries have fertility rates below two. If sustained over time, the below-replacement fertility rate may cause a shrinking population (Bricker and Ibbitson, 2019). In the long run, the demographic transition may significantly affect economic growth: growth often relies on innovation by people, and population decline could pose challenges for sustaining productivity growth (Jones, 2022). Inspired by Gary Becker (1960)'s economic analysis of fertility, many countries have provided financial incentives to boost fertility. After reviewing evidence on these policies, Thévenon and Gauthier (2011) conclude that "[a]lthough these policies do seem to have an impact on fertility, their magnitude is limited." A parallel body of literature, including Lehrer (2011) and Lesthaeghe (2014), argues that "tastes" – including religion, culture, and preferences that Gary Becker assumed fixed – can influence fertility, but systematic evidence on the use of these non-economic factors to encourage childbearing remains limited.

In 2007, Ilia II – the respected and trusted head of the Georgian Orthodox Church since 1977 – announced that he would personally baptize and become godfather to every third and subsequent child born to to couples who were married in the Church. From January 2008 to July 2024, Ilia II held four mass baptisms every year and had more than 48,000 godchildren. Ilia II's baptism initiative has been linked to an increase of birth rate in Georgia, where 83.4% of people follow the Orthodox faith. As shown in Figure 2, Georgia and its former Soviet neighbor

Armenia had a similar below-replacement fertility level between 2000 and 2007. However, from 2008 to 2022 Georgia's fertility rebounded above the replacement level; in contrast, Armenia's fertility has been hovering at a low point.

In this paper, I examine the effect of Ilia II's baptism initiative on Georgia's fertility. I leverage the recent Synthetic Difference-in-Differences (SDID) approach developed by Arkhangelsky et al. (2021) and compare fertility rates of Georgia with these of other former Soviet states. These former Soviet states including Georgia, Armenia and Azerbaijan belonged to the same country for most parts of the twentieth century. Because of extensive nation building activities of the Soviet Communist Party, these countries are similar economically, socially, and culturally today. Additionally, similar to the conventional synthetic control approach (Alberto Abadie and Hainmueller, 2010), SDID assigns different weights to rest of the Soviet states such that their synthetic fertility trend is similar to that of Georgia before the treatment. Besides, similar to conventional difference-in-differences approach, SDID also assigns different weights to years such that states in the control group would follow the similar fertility trend after the treatment.

I find that after Ilia II's baptism initiative, Georgia's fertility rate increased by 0.24 annually until 2022. Considering that the average fertility rate between 1990 and 2007 was 1.78, Ilia II elevated the fertility by 13.5%. This was a pivotal change, because it shifted the fertility from the below replacement to the above replacement level. More importantly, such change cannot be explained by the short-term birth timing shift. Because Ilia II continuously held mass baptisms four times a year, the increased fertility could be observed from 2008 to 2022.

This paper contributes to the literature on determinants of fertility decisions. Since Gary Becker (1960)'s seminal analysis on economic incentives of fertility, there is a rich set of related empirical studies (e.g. Galor and Weil, 2000; Cohen et al., 2013). However, non-economic factors including culture and religion have been largely ignored. Beach and Hanlon (2022) and Blanc (2024) study how cultural factors could explain the fertility decline during the Industrial Revolution, but one thing is still missing: would cultural factors motivate more child-bearing and solve demographic challenges that will become pressing in the twenty-first century? This paper provides the first systematic evidence on how a religious leader steered a country away extinction risks.

It is also closely related to the literature on leadership. Leadership has been

shown pivotal for social movements and collective actions (Dippel and Heblich, 2021; Cagé et al., 2023; Bai et al., 2023), as they can coordinate social expectations and form social consensus (Acemoglu and Jackson, 2015). I complement these works by showing that leadership can be important to solve the existing demographic challenge.

This paper is structured as follows. Section 2 presents the background information on Georgia and Ilia II. Section 3 lists data sources. Section 4 analyzes the effect of Ilia II's baptism initiative on fertility. Section 5 concludes.

2. Background

2.1 Georgia

As illustrated in Map 1, Georgia is a country in Eastern Europe and West Asia. It has four neighboring countries: Armenia to the south, and Azerbaijan to the southeast, Russia to the north and northeast, and Turkey to the southwest. Together with Armenia, Azerbaijan, Belarus, Estonia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, Georgia was one of the republics of the former Soviet Union from 1922 and 1991. Georgia is an Orthodox-majority country, with 83.4% of population belonging to the Georgian Orthodox Church.

Figure 2 shows that Georgia experienced a gradual fertility decline from 1960 to 2007. Starting at around 3 births per woman in 1960, it decreased to approximately 2 births per woman by 1980. After a period of relative stability, it continued to decline until the early 2000s. Before Ilia II started his baptism initiative, Georgia's fertility had been already below the replacement level.

2.2 Patriarch Ilia II

Ilia II has been the Patriarch of the Georgian Orthodox Church, the most senior religious position in the country since 1977. During his tenure, the Church regained its influence and prestige that were taken away by the communists.

Ilia II is respected and trusted by Georgians. He participated in protests against Soviet rule in Tbilisi on April 9, 1989. Later, during Georgia's civil war in the 1990s,

he urged opposing factions to resolve the conflict peacefully. His actions demonstrated a consistent stance for Georgian independence and national reconciliation during turbulent times. A 2008 survey conducted by the International Centre on Conflicts and Negotiation in Tbilisi revealed that Ilia II was the most trusted figure in Georgia. The poll indicated an overwhelming 94.2 percent of respondents placed their highest confidence in him, highlighting his significant influence and respected status among the Georgian people.

2.3 Ilia II's Baptism Initiative and Its Effects on Fertility Decisions

In 2007, Ilia II announced that he would personally baptize any child born to a family that already has at least two children. This announcement was motivated by his concerns about the fertility decline in Georgia.

Anecdotal evidence suggests that the baptism initiative affected fertility decisions of Georgian parents.In an interview with Giorgi and Pati Bluashvili by BBC, they said that they had their fourth child Giviko "because of the Patriarch's incentive ... To have a child baptised by the Patriarch is so very special ... If his Holiness baptises your child it means he becomes his or her godfather and that is such an honour."[1] The Bluashvili case can be idiosyncratic. To substantiate the effect, one needs to provide systematic evidence.

3. Data

To examine the effect of Ilia II's baptism initiative on fertility by comparing Georgia to the rest of Soviet states, I need a data set with fertility rates of these countries over time. I obtain such data from World Bank's *Health Nutrition and Population Statistics*, which provides country-level fertility rates from 1960 to 2022. I restrict the data set to the 15 former Soviet states.

[1]Source: http://news.bbc.co.uk/2/hi/europe/7964302.stm

4. Empirical Analysis

The estimation method follows the Synthetic Difference-in-Differences (SDID) developed by Arkhangelsky et al. (2021). Similar to Synthetic Control (SC) approach Alberto Abadie and Hainmueller (2010), SDID would construct a synthetic Georgia from the rest of former Soviet states such that fertility rates of the real and synthetic Georgia follows the similar trend before the Ilia II's initiative. The dot size in Figure 3A indicates weights assigned to each control country. Countries including Armenia, Azerbaijan, Belarus, and Lithuania receive higher weights, whereas Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan receive lower weights.

Similar to conventional Difference-in-Differences (DID) approach, SDID assigns time weights such that fertility rates of the control group follow similar trends before and after the treatment. Figure 3B demonstrates that years closer to 2007 are assigned with higher weights.

Figure 3B shows the fertility rate of the real and synthetic Georgia from 1960 to 2022. Before the Ilia II's baptism initiative in 2007, both followed the similar fertility trend. However, after 2007 the real Georgia displayed upward trend in fertility, while the synthetic one's fertility first grew mildly and ultimately declined. This suggests the causal effect of Ilia II's baptism initiative on fertility in Georgia.

Table 1 shows SDID estimates of treatment effects. From column (1) to (5), the data start from 1960, 1970, 1980, 1990, and 2000, respectively. On average, Ilia II's baptism initiative increased the annual fertility rate by 0.26 percentage points, with 10-15% of the pre-treatment fertility level.

The result is robust to conventional SC approach. Figure 4 shows the upward fertility after 2007 in Georgia, despite the fact that the fertility level in the synthetic one is the same.

5. Conclusion

This study demonstrates the potentially significant impact of non-economic incentives on fertility rates, as evidenced by the case of Georgia following Patriarch Ilia II's baptism initiative. The sustained increase in Georgia's fertility rate above

replacement level over a 15-year period suggests that religious and cultural incentives can be effective tools in addressing demographic challenges.

The success of this religious incentive in Georgia, when compared to other former Soviet states using the synthetic difference-in-differences approach, highlights the importance of considering context-specific, non-economic measures in fertility policies. While economic incentives remain important, they may be prohibitively expensive or ineffective in some situations.

My findings have important implications for policymakers grappling with declining birth rates and aging populations. They suggest that a more holistic approach to fertility policy, one that incorporates cultural and religious elements alongside economic measures, may be more effective in addressing the looming demographic crisis in many countries.

However, it is crucial to note that the effectiveness of such measures may vary significantly across different cultural and religious contexts. Further research is needed to explore the potential of similar non-economic incentives in other countries and to understand the long-term societal impacts of such initiatives.

In conclusion, as the global population faces the prospect of decline, innovative approaches that go beyond traditional economic incentives may play a crucial role in shaping future demographic trends. The Georgian case provides valuable insights into the potential of leveraging cultural and religious factors to influence fertility decisions.

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Figure

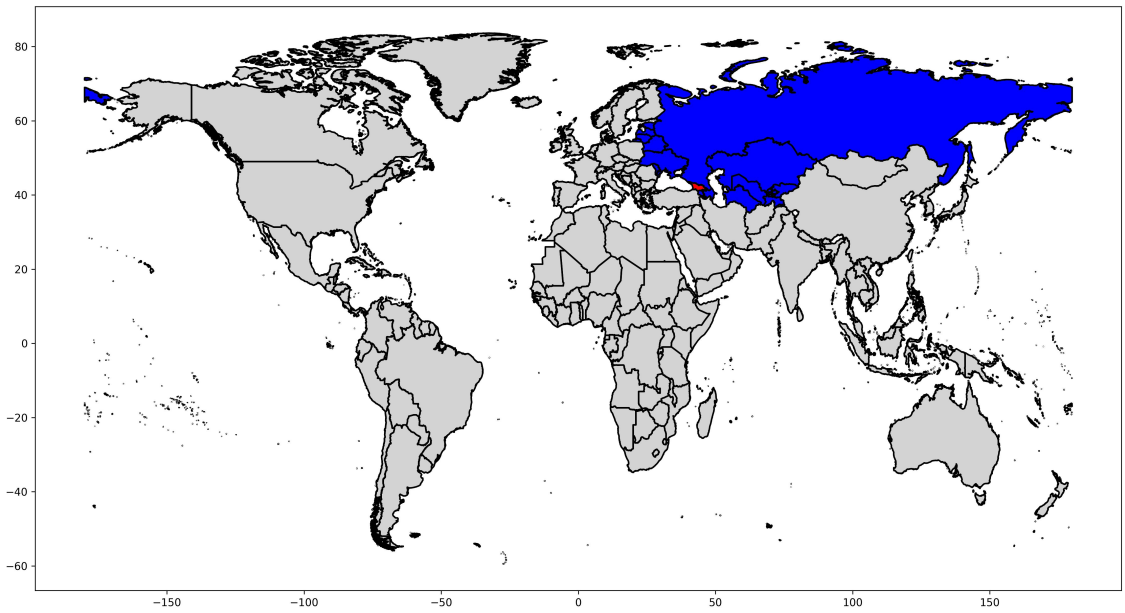

Figure 1: Georgia and Countries around the World

Notes: The figure shows three types of countries: Georgia (red), former Soviet states except Georgia (blue), and countries which are not former Soviet states (gray).

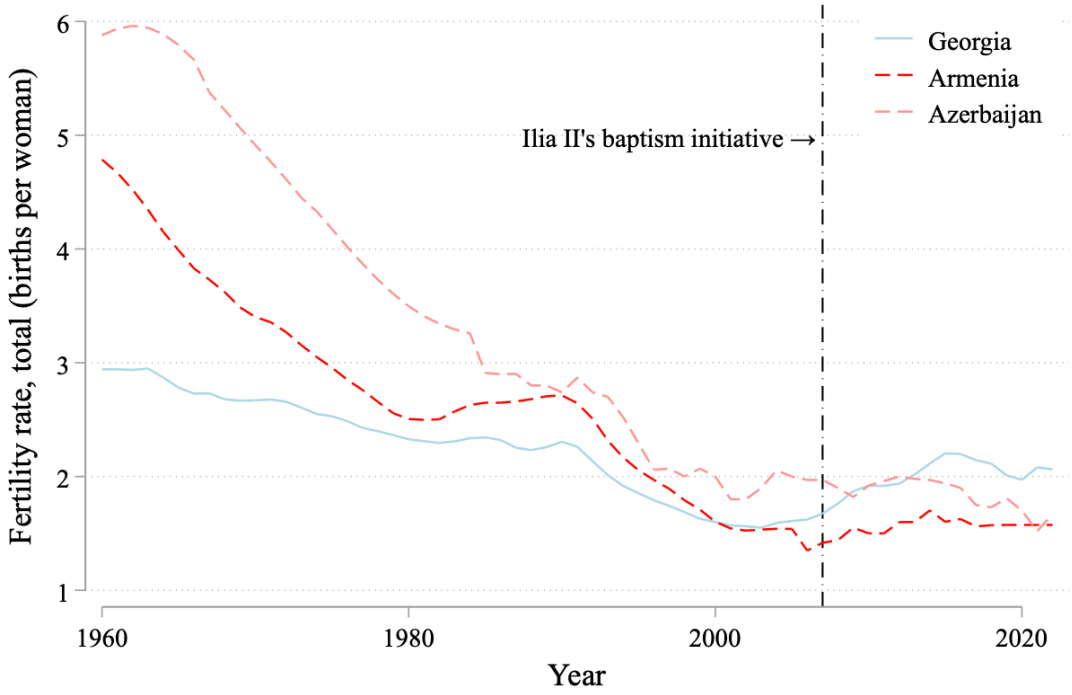

Figure 2: Total Fertility Rates of Georgia, Armenia, and Azerbaijan

Notes: The figure shows total fertility rates (y-axis) of Georgia (blue) and its Soviet neighbors Armenia (dark red) and Azerbaijan (light red) from 1960 to 2022. The black vertical line represents 2007, when Ilia II promised to personally baptize any child born to parents that already has at least two children.

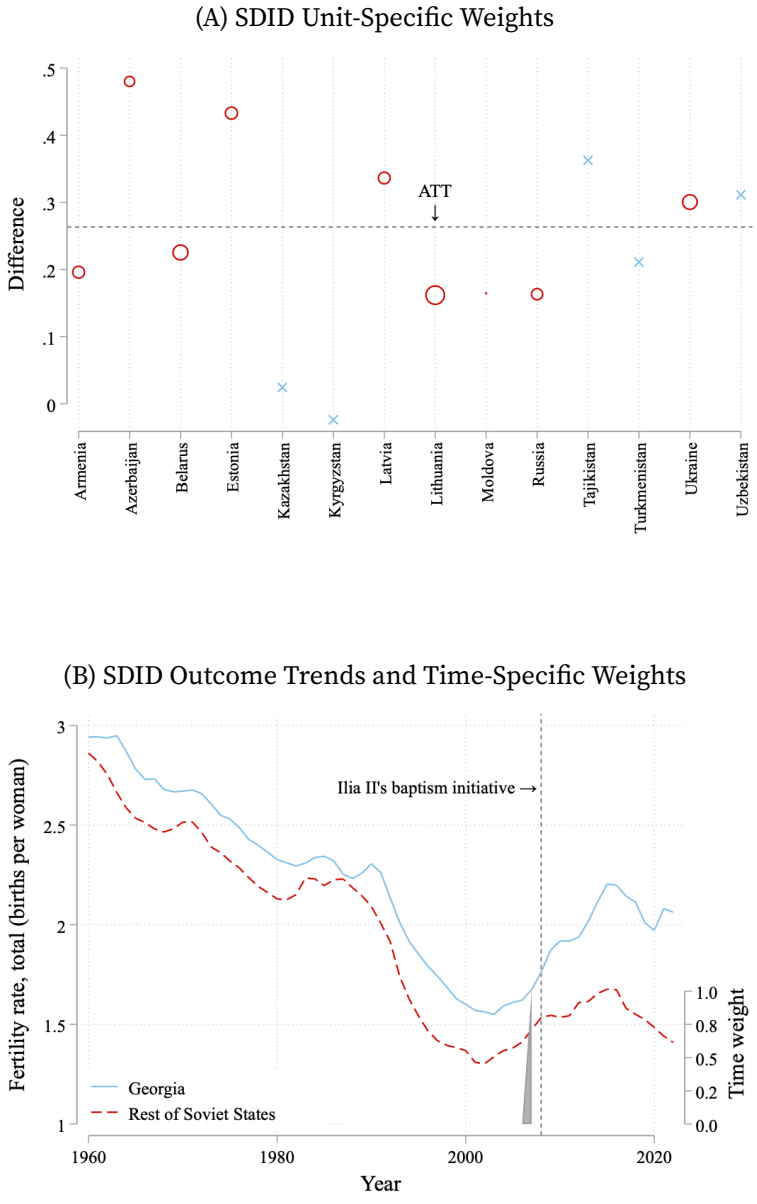

Figure 3: SDID Illustrations

Notes: Panel A reports the country-by-country adjusted outcome difference $\hat{\delta}_{tr} - \hat{\delta}_i$ under Synthetic Difference-in-Differences (SDID) framework (Arkhangelsky et al., 2021), with country weights indicated by dot size and the average treatment effect indicated by a horizontal line. Observations with zero weight are denoted by an $\times$-symbol. Panel B shows trends in total fertility over time for Georgia and the relevant weighted average of control countries, with SDID time weights at the bottom of the graphs. Control countries include all former Soviet states except Georgia.

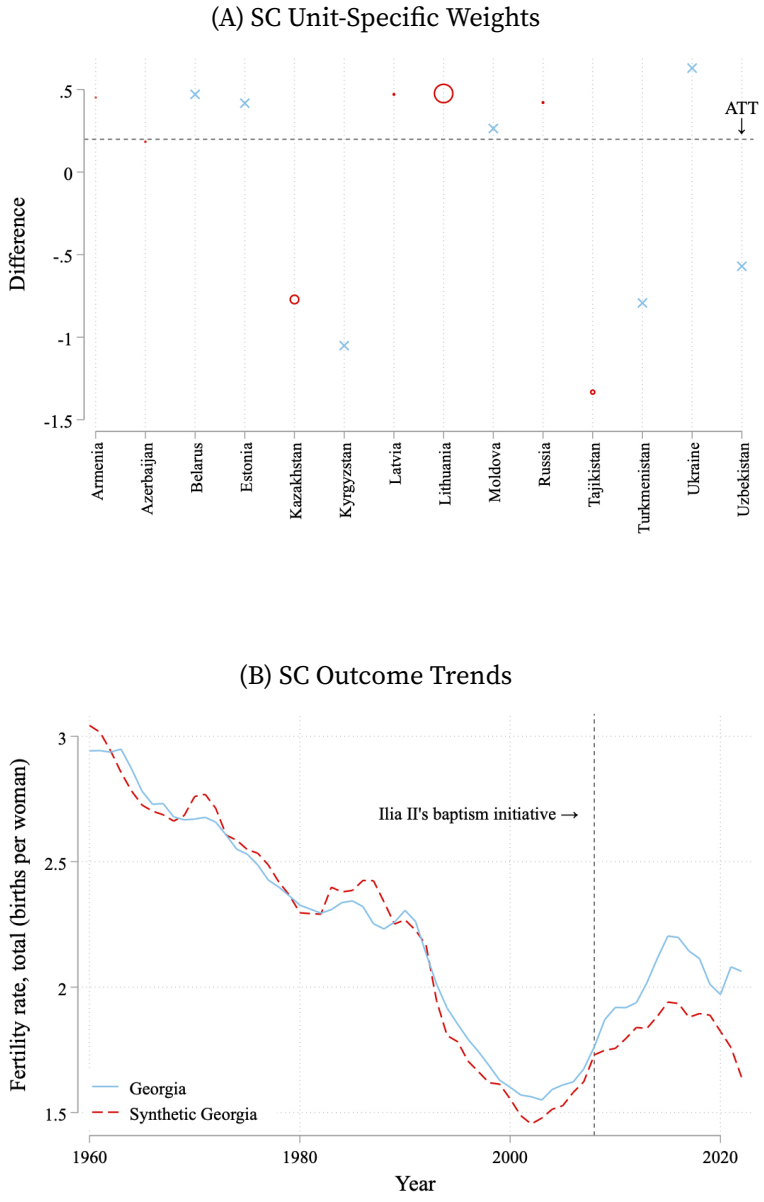

Figure 4: SC Illustrations

Notes: Panel A reports the country-by-country adjusted outcome difference $\hat{\delta}_{tr} - \hat{\delta}_i$ in Arkhangelsky et al. (2021) (based on Alberto Abadie and Hainmueller (2010)), with country weights indicated by dot size and the average treatment effect indicated by a horizontal line. Observations with zero weight are denoted by an $\times$-symbol. Panel B shows trends in total fertility over time for Georgia and the synthetic Georgia. The synthetic Georgia is constructed by the rest of former Soviet states.

Tables

Table 1: Effects of Ilia II's Baptism Initiative on Georgian Fertility

	DV is Fertility Rate				
	(1)	(2)	(3)	(4)	(5)
Georgia	0.26**	0.25**	0.25**	0.24*	0.24*
	(0.11)	(0.13)	(0.12)	(0.13)	(0.13)
Years	1960-2022	1970-2022	1980-2022	1990-2022	2000-2022
Pre-Treat Mean DV (Georgia)	2.26	2.12	1.97	1.78	1.60
Observations	945	795	645	495	345

Notes: This table shows effects of Ilia II's baptism initiative on Georgian fertility rate by leveraging Synthetic Difference-in-Differences (SDID) approach (Arkhangelsky et al., 2021). The dependent variable is total fertility rate (births per woman). The control group include former Soviet states except Georgia. The panel data end in 2022. From column (1) to (5), the data start from 1960, 1970, 1980, 1990, and 2000, respectively. Standard errors follow Arkhangelsky et al. (2021). The significance levels are indicated as follows: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.