Fertility Transition in Romania and Moldova: Exploring Similarities and Demographic Differences

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Fertility in Romania and Moldova: Exploring the Dynamics, Determinants and Policy Impact (FERM)

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Study objectives

1. To conduct a comparative analysis of fertility dynamics in Romania and the Republic of Moldova, with emphasis on the transition from early childbearing patterns to delayed fertility models.

2. To examine fertility trends from a longitudinal perspective, focusing on changes in reproductive behavior at both cohort and period levels between 1971 and 2023.

3. To identify the specific stages and characteristics of the fertility transition in each country, including divergences and convergences in timing and intensity.

4. To assess the degree of fertility postponement and recuperation, through indicators such as the postponement index, mean age at first birth, and cohort fertility among women who have completed their reproductive period.

The theoretical framework and the concept of "fertility transition"

- *Fertility transition* marks the shift from high, natural fertility to low, controlled fertility, driven by modernization, healthcare, education, and gender equality. According to Demographic Transition Theory, fertility decline is part of broader socio-economic development.

- *The postponement and recuperation model (Sobotka)* highlights delayed childbearing past age 30 and the extent to which births are recovered later in life.

- This broad trend has been studied using the notions of fertility postponement (fertility decline across younger ages) and subsequent recuperation (a compensatory fertility increase at higher reproductive ages).

Methodology

Data and methods:

•The study is based on a comparative analysis of vital statistics provided by the National Bureau of Statistics of the Republic of Moldova and the National Institute of Statistics of Romania, regarding the number of births and their distribution by the mother's age (in five-year intervals for Romania) and by birth order, for the period **1971–2023.**

•The theoretical model proposed by Tomáš Frejka, which outlines four phases of the fertility transition, was applied to provide an analytical framework for understanding fertility postponement and recuperation by reproductive age.

•In order to explain the differences in recuperation attainment between cohorts and countries, we use the methods proposed by Sobotka, Zeman, Lesthaeghe and Frejka. **The benchmark cohort** is the first cohort to register a rise in the mean age at first birth sustained over at least five successive cohorts. This cohort serves as a country-specific reference for measuring deviations in fertility timing and quantum, offering a more objective standard than using a common reference across countries.

•In this study, we use as benchmark the 1960 cohort for Romania and 1970 for Moldova.

Methodology
The model proposed by T. Frejka for postponing / recuperation fertility:

1. **Declining total period fertility rate (TPFR), (phase 1)**: Young women (aged 15-28) postpone the birth, for about 10 years, thus their fertility is declining. At this time, fertility rates for women aged 29-49 do not change and are stable, because these are the women of older cohorts that do not yet have births to recuperate, however, towards the end of this phase there may be an incipient childbearing recuperation. At the end of this phase, the TPFR is at its lowest level.

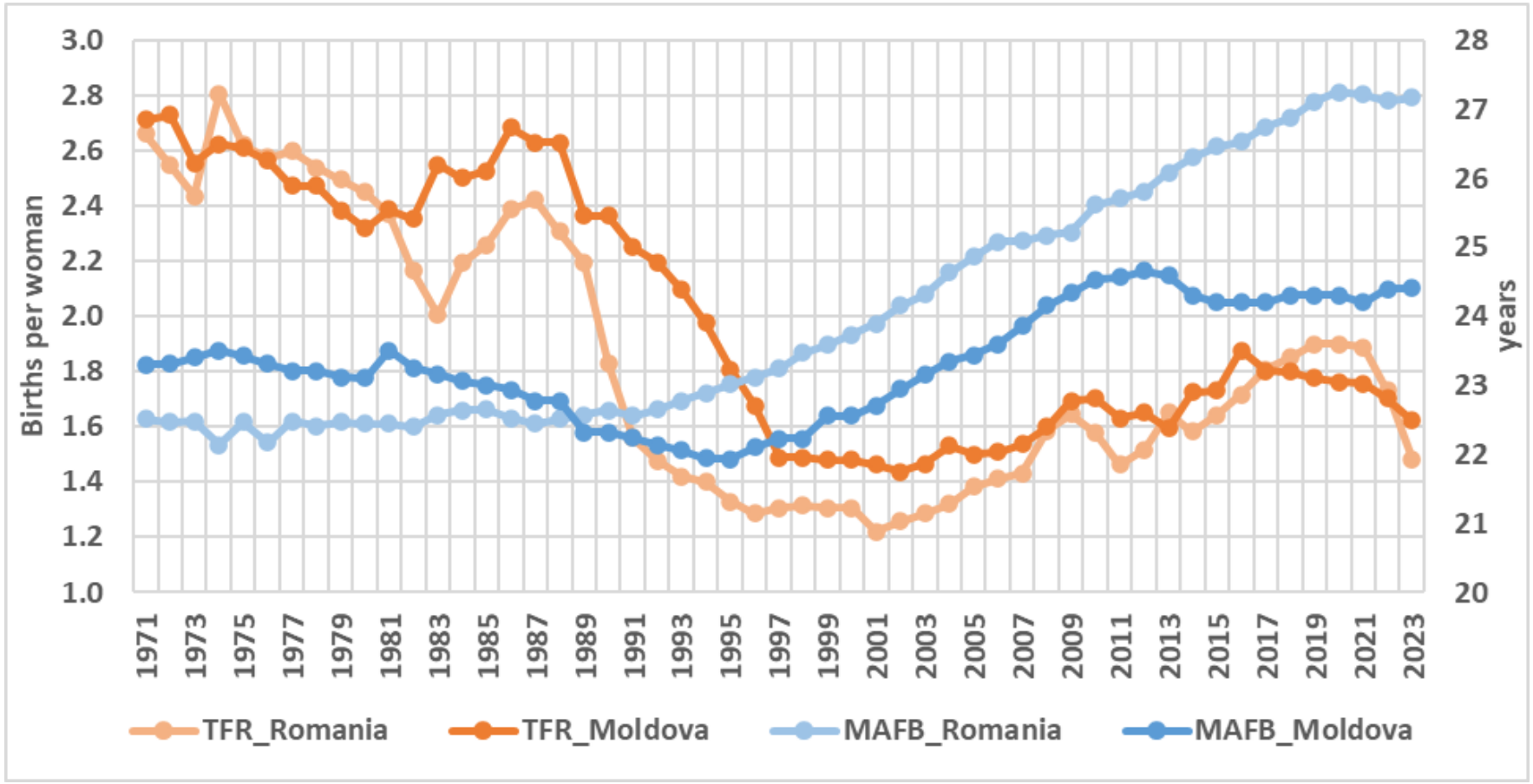
2. **Initial TPFR increase (phase 2)**: Childbearing postponement of young women continues, possibly at a slower rate. TPFR begins to increase because the cohorts of older women recuperate their deferred births that go beyond the continuous postponement of births in young ages. TPFR is usually increasing in phase 2, but there can be periods during which the TPFR trend may be more or less stable.

3. **Final TPFR increase (phase 3)**: Fertility of young women stabilizes over time, while of the older continues to increase, stimulating TPFR increase.

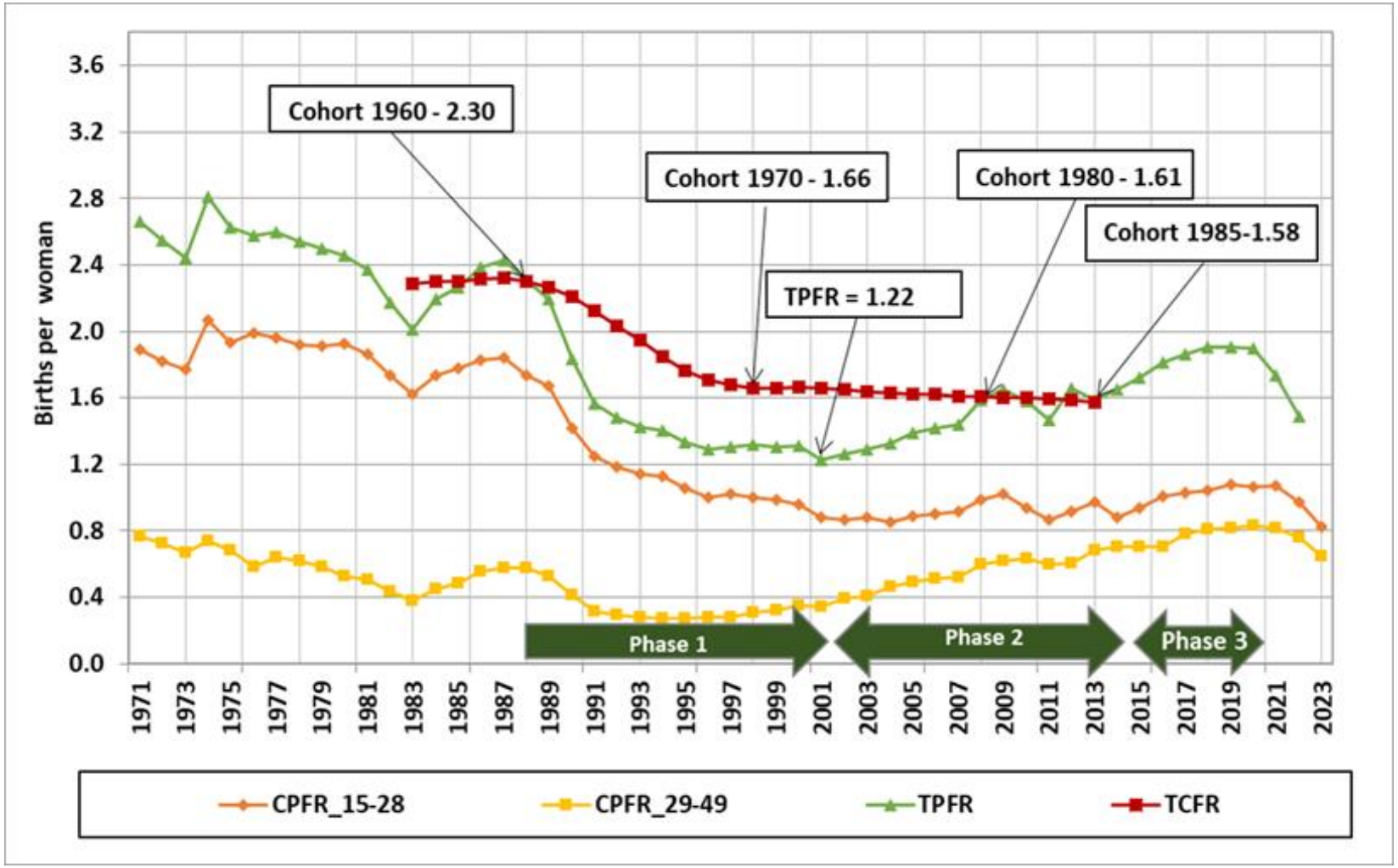
4. **Stabilized TPFR (phase 4)**: Childbearing recuperation has ended and there is no childbearing postponement among young women. The total period and cohort fertility rates settle at roughly the same level.

General Demographic Context

Total Period Fertility Rate and Mean Age at First Birth in Moldova and Romania



Phases of the Fertility Transition, T. Frejka's Model, Romania

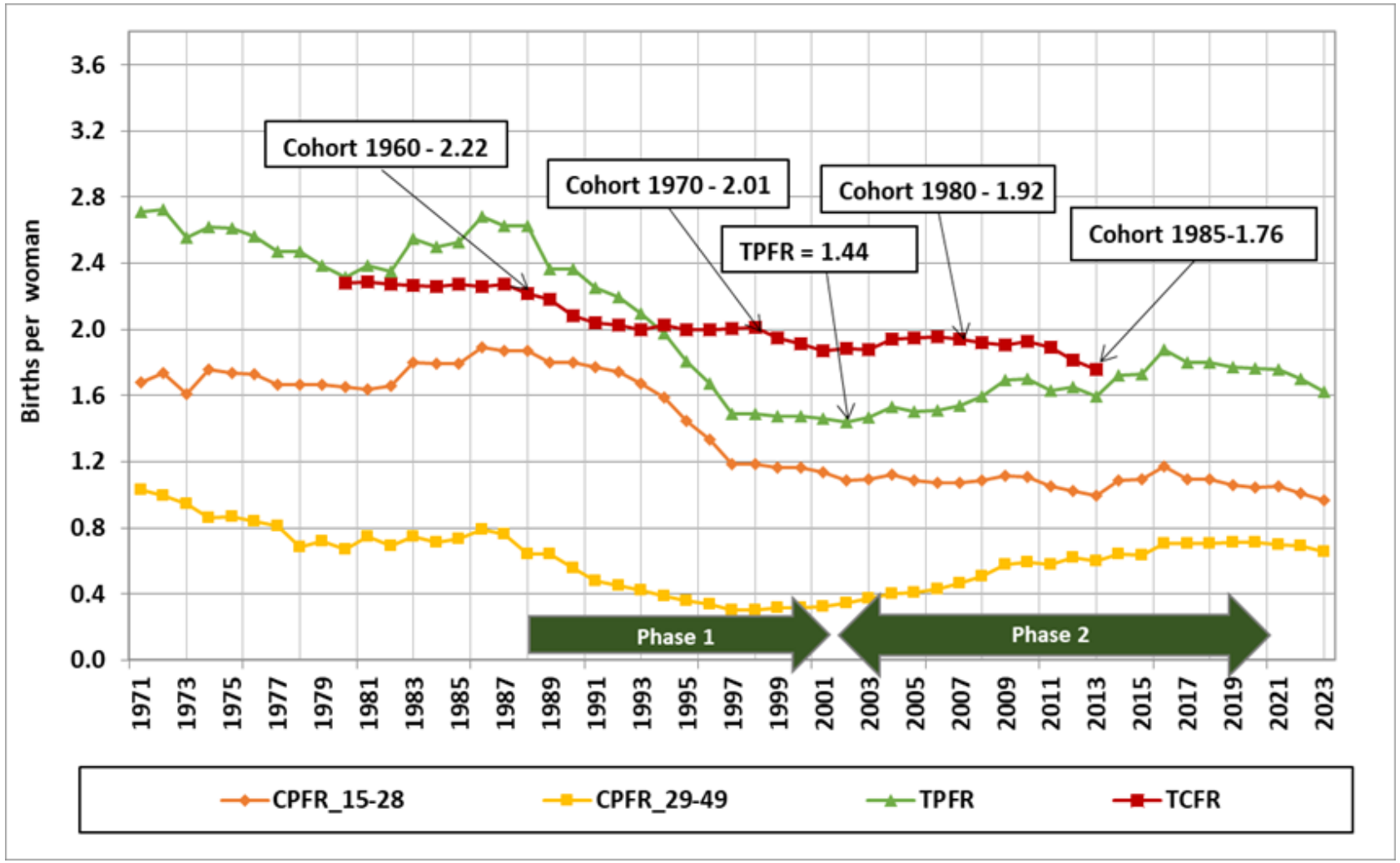


Phase 1 (1988–2001): TFR dropped significantly, 1.22 children per woman in 2001.

Phase 2 (2002-2012): Marked by a slow recovery of TFR, with a slower decline in ASFR among younger women (15–28) and a beginning increase in ASFR among older women (29–49).

Phase 3 (2013–2019): Continued the upward trend from Phase 2, with TFR rising to 1.90 in 2020. There was no further postponement among younger women, while older age groups continued recuperating postponed births.

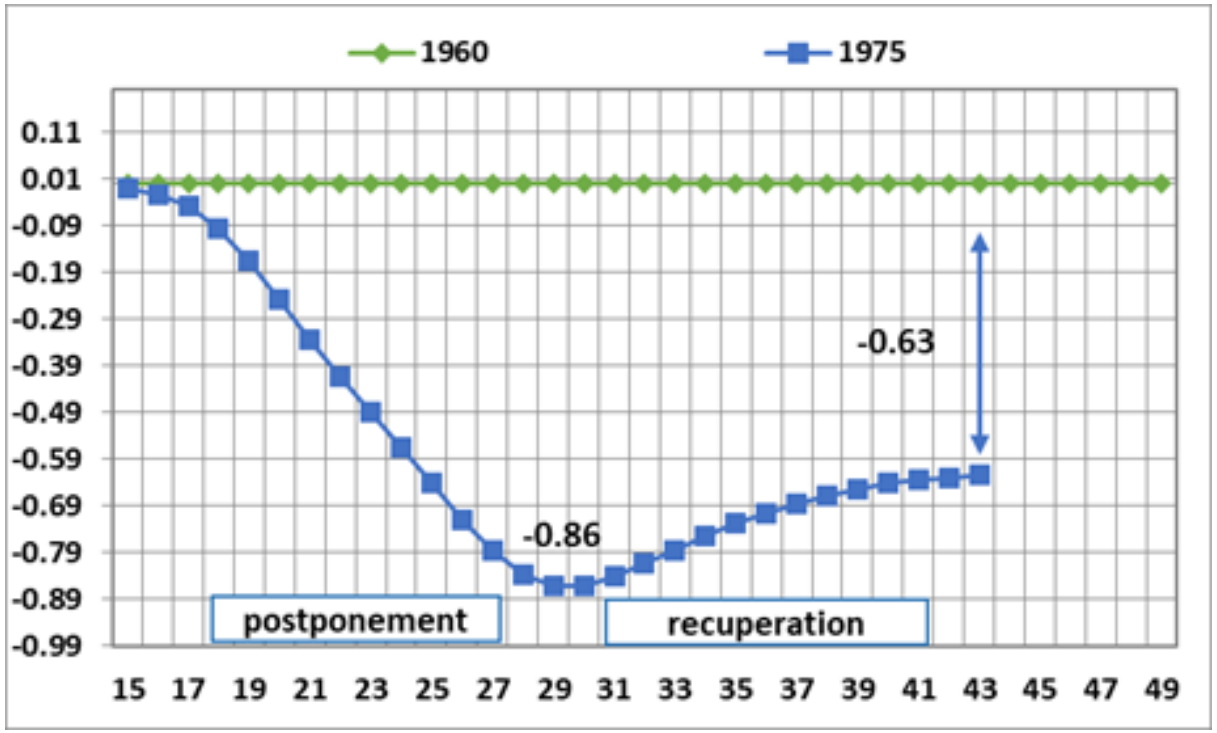
Phases of the Fertility Transition, T. Frejka's Model, Moldova



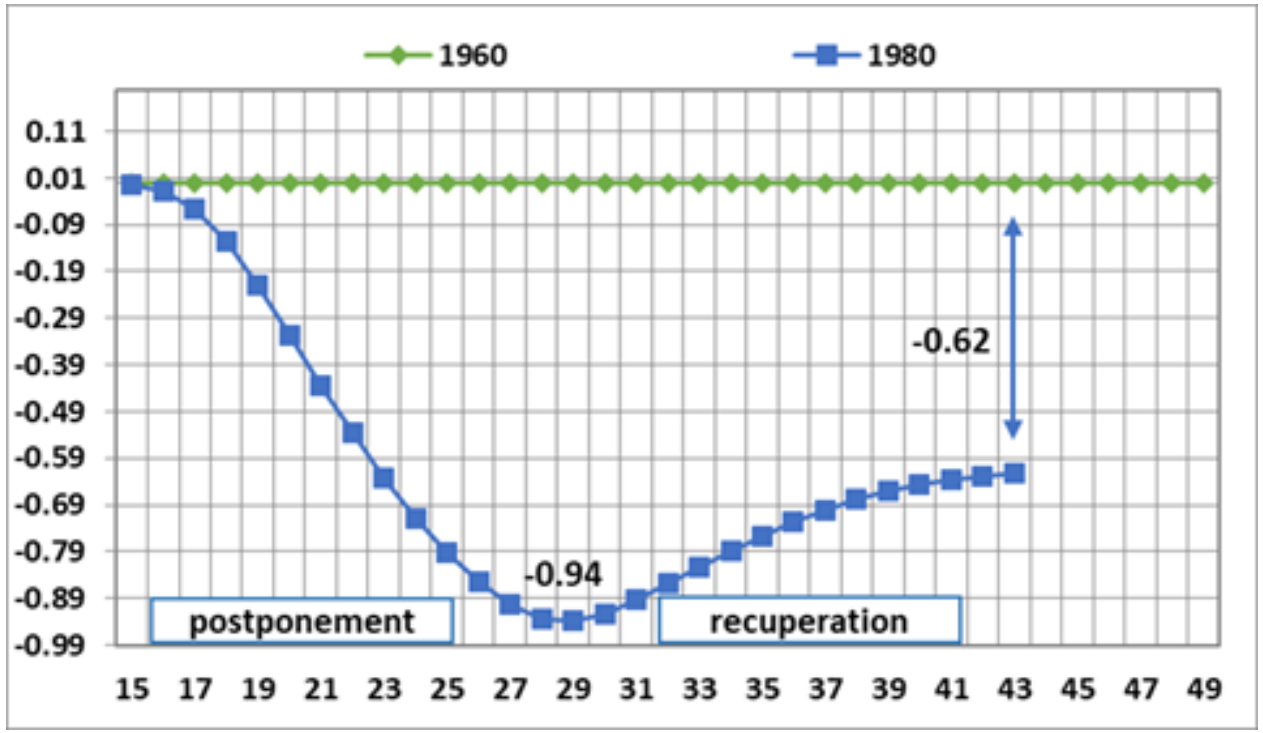
Phase 1 (1990–2002): Marked by a rapid fertility decline among young women (15–28). The TFR - 1.44 children per woman.

Phase 2 (2003–2015): Continued postponement of births among young women, though at a slower pace, while older women (29–49) showed signs of recuperation, reflected in increasing ASFR. TFR stabilized around 1.6–1.65. Toward the end of this phase, a decline in older women's fertility was noted, linked to earlier realization of reproductive intentions. The Cumulative Period Fertility Rate (CPFR) among older women remained stable—a distinctive feature for Moldova.

Differences in CASFRs between female cohorts born in 1960 and 1975/1960 and 1980, Romania

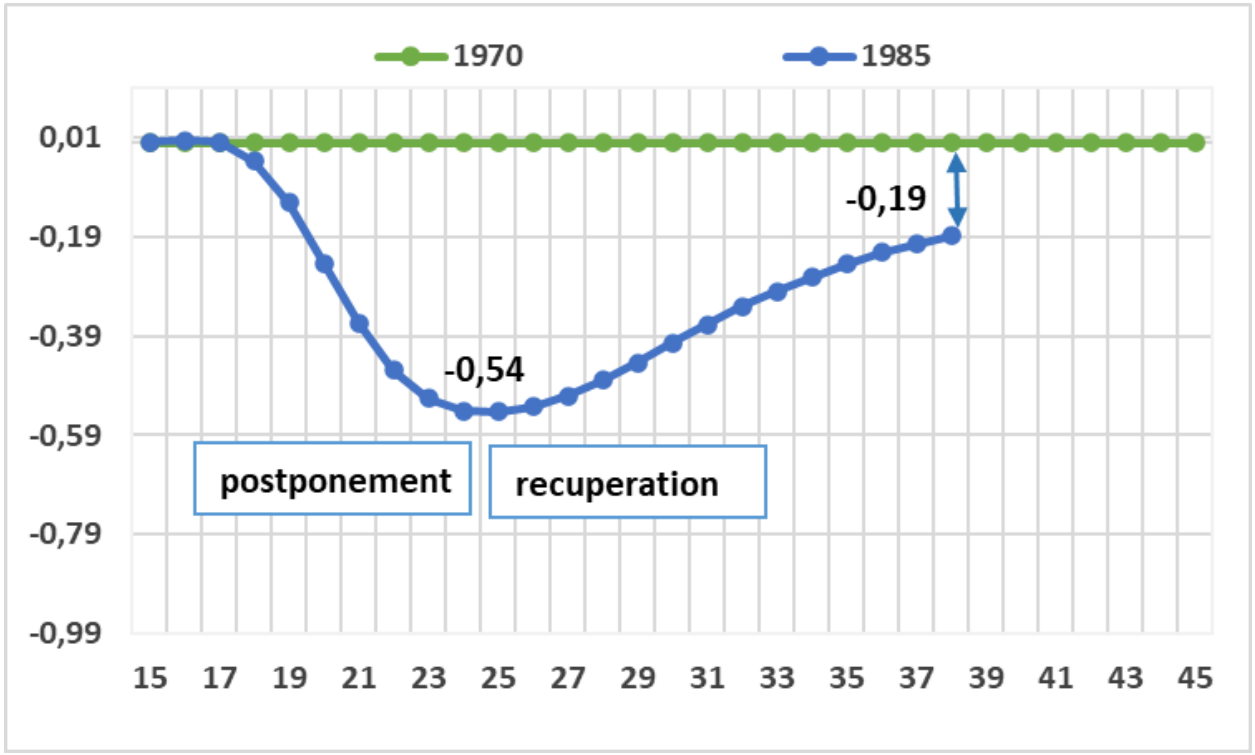


Maximum fertility decline (ages 15–29):
–0.86 children per woman
Fertility recovery (ages 30–49): **+0.23** children per woman
RI = 27% of postponed births recovered

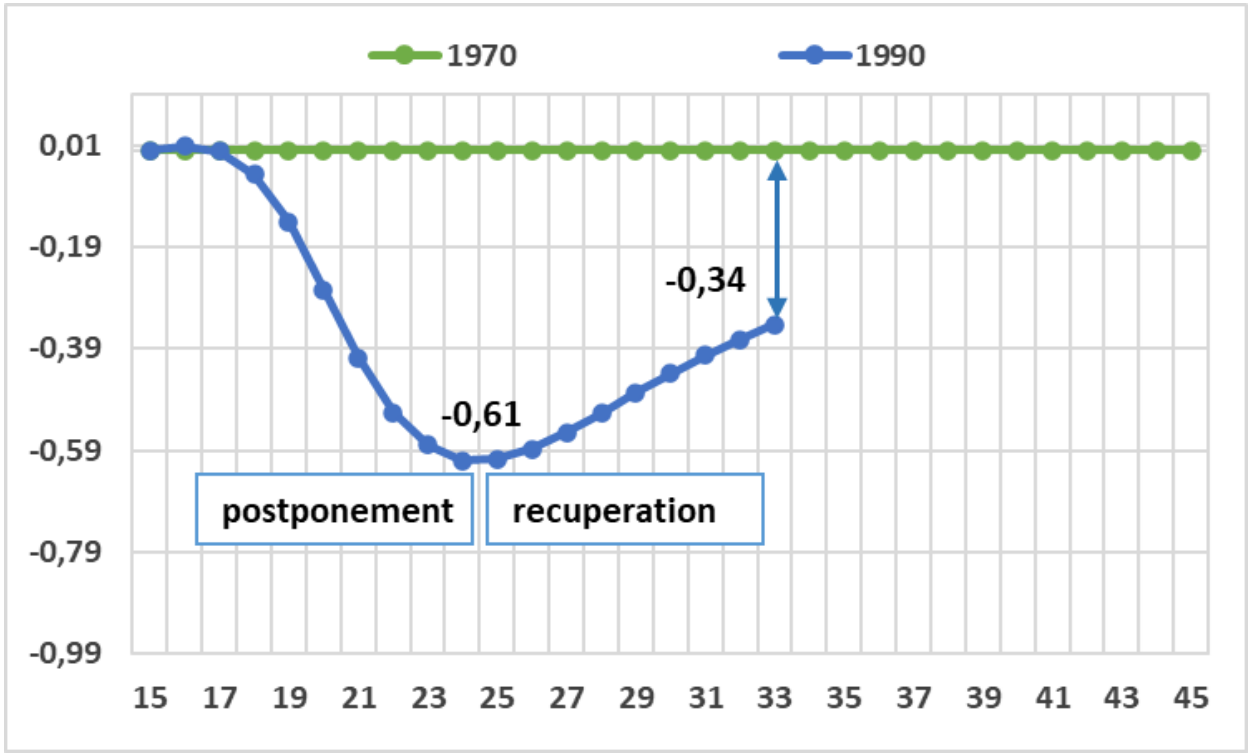


Maximum fertility decline (ages 15–29):
–0.94 children per woman
Fertility recovery (ages 30–49): **+ 0.32** children per woman
RI = 34% of postponed births recovered

Differences in CASFRs between female cohorts born in 1970 and 1985/1970 and 1990, Moldova

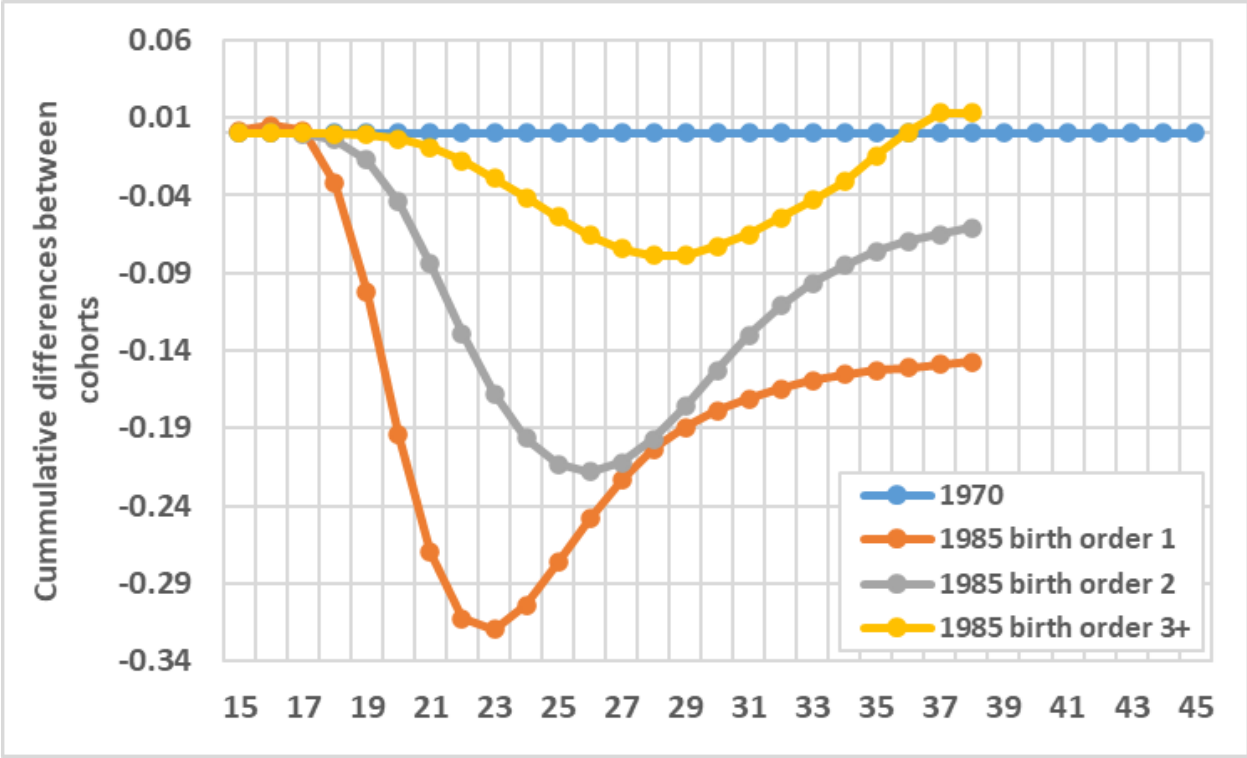


Maximum fertility decline (15–24):
–0.54 children per woman
Fertility recovery (ages 25–38): **+0.35** children per woman
RI=64.8%



Maximum fertility decline (15-24):
–0.60 children per woman
Fertility recovery (ages 25–33): **+0.22** children per woman
RI=36.7%

Cumulative differences by birth order between the cohorts of women born in 1985 compared to the reference cohort of 1970, Moldova, children per woman

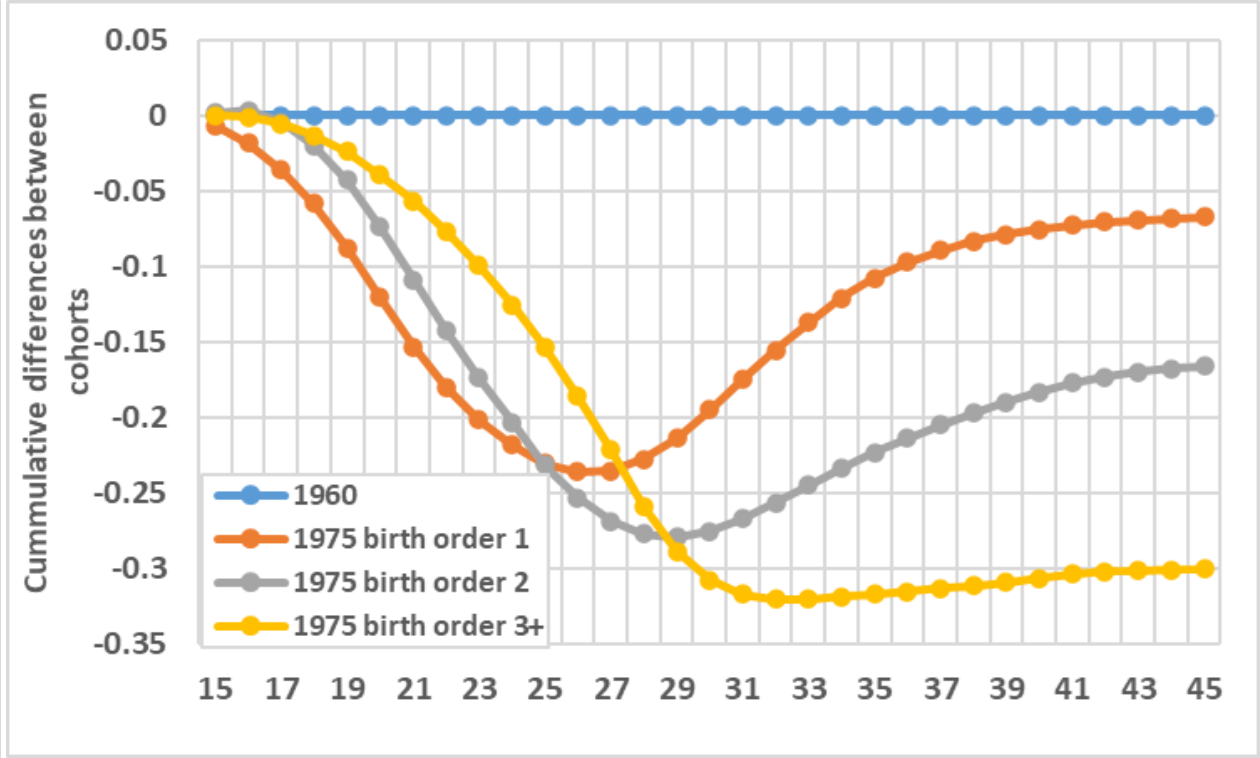


Birth Order 1 Maximum postponement (22–23): **–0.32** , Final difference: **–0.13**, indicating a recuperation of +0.19 children , **RI1=59%**

Birth Order 2 Maximum postponement (26–27): **–0.21**, Final difference: **–0.06**, suggesting a recuperation of +0.15 children , **RI2 =71%**

Birth Order 3+ Moderate early postponement **-0.07**, followed by full and even overcompensated recuperation **By age 37+**, the cumulative fertility difference turns positive **(+0.01) Indicates complete recovery** and slight increase in third and higher-order births

Cumulative differences by birth order between the cohorts of women born in 1975 compared to the reference cohort of 1960, Romania, children per woman

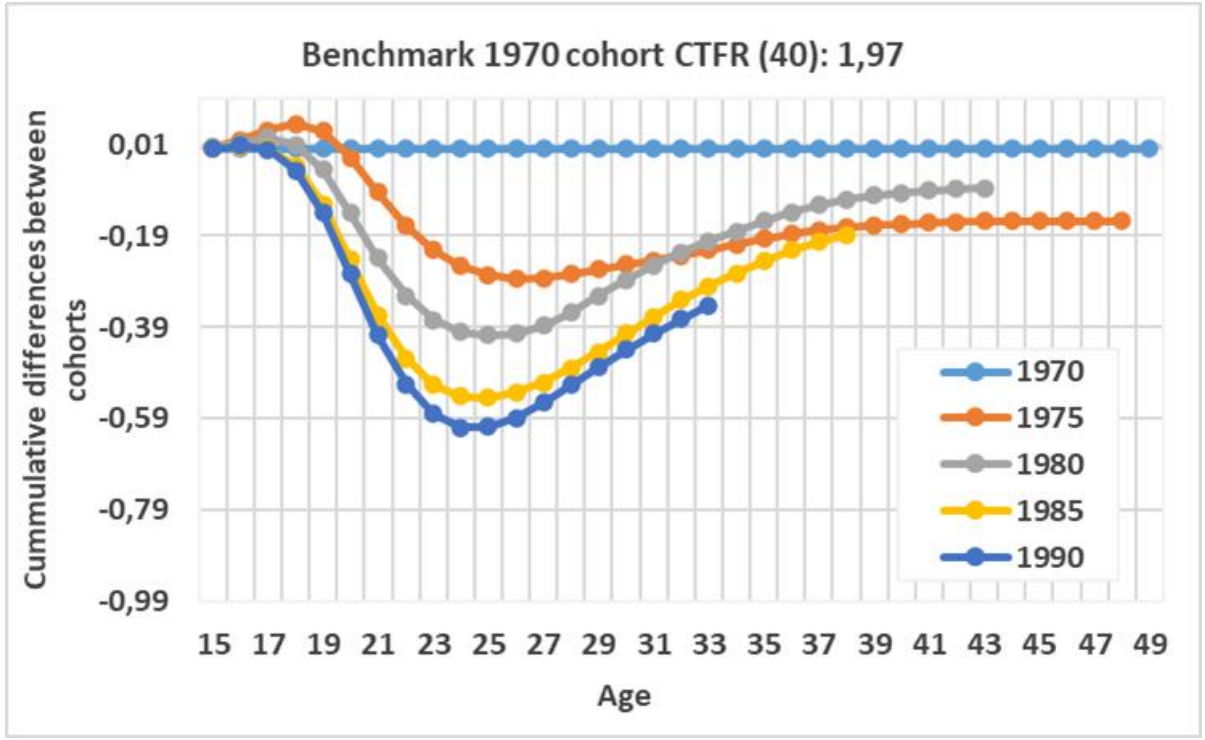


Birth Order 1 Maximum postponement (23 years): **–0.26**, Final difference (45): **–0.06**, meaning a recuperation of +0.20 children, **RI1=77%**

Birth Order 2 Maximum postponement (27 years): **–0.25,** Final difference: **–0.12**, indicating a recuperation of +0.13 children, **RI2=52%**, **reflecting a partial recovery of second births**

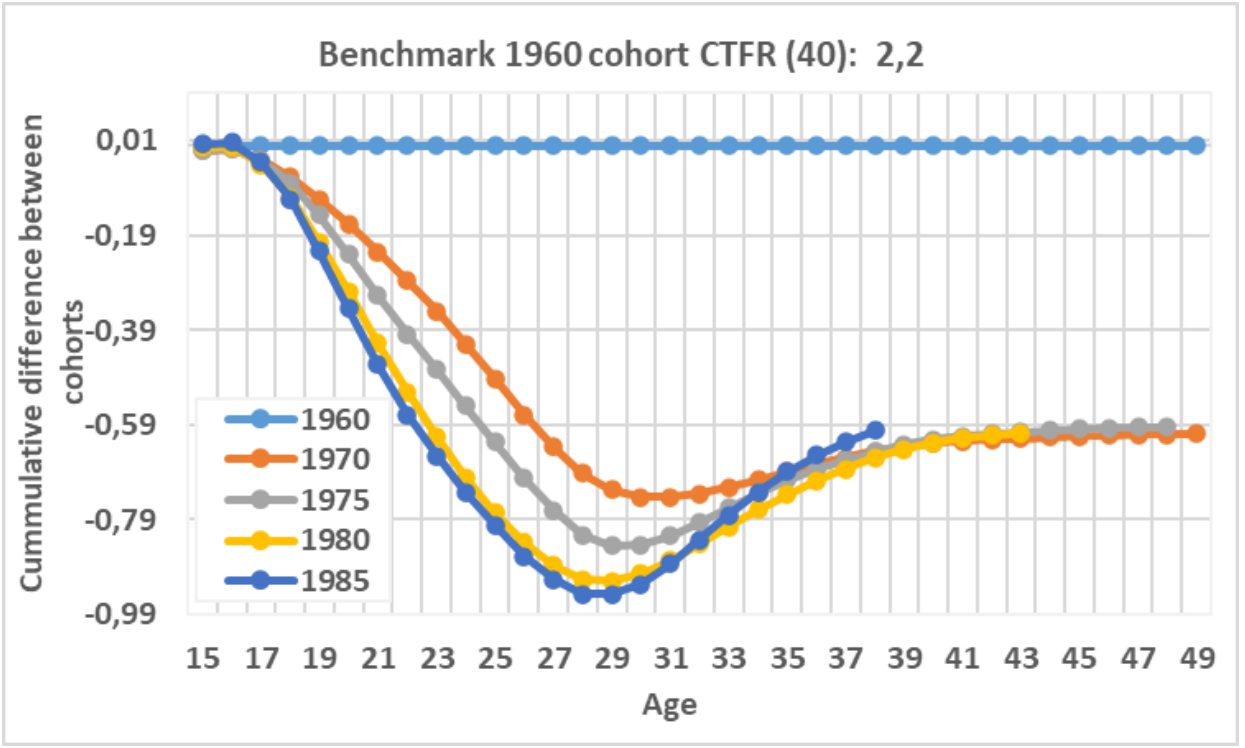
Birth Order 3+ Maximum postponement (26 years) : **–0.31,** Final difference: **–0.30**, implying negligible recuperation (+0.01), **RI3=3%**, **showing virtually no recovery in higher-order births**

Cumulative Differences in Age-Specific Fertility Rates, Reference Cohort 1970, Moldova



Later cohorts increasingly delay childbearing, with the 1990 cohort showing the greatest fertility postponement (−0.60 children at age 24). Although partial recovery occurs after age 30, none close the gap with the 1970 cohort. The onset of fertility postponement in Moldova occurred later and with a lower intensity than in Romania.

Cumulative Differences in Age-Specific Fertility Rates, Reference Cohort 1960, Romania



Partial recuperation occurs in older cohorts (1970, 1975), though none return to the fertility levels of the 1960 reference. The 1985 cohort shows limited recuperation, ending around –0.65 by age 49. Recuperation tends to stabilize around age 35–40, suggesting some birth rescheduling but incomplete recovery.

Conclusions

1. Both Romania and the Republic of Moldova experienced a sharp decline in fertility in the late 1980s and early 1990s, marking the beginning of the first phase of the fertility transition in nearly the same period. Romania advanced to the second and third phases of the transition, marked by a faster pace of fertility recuperation at older ages. In contrast, the Republic of Moldova remained in the second phase, reflecting an intermediate fertility transition profile, characterized by a slower recuperation rate.

2. Romania experienced an earlier and stronger fertility rebound starting with the 1960 cohort, marked by rising maternal age and significant recuperation. Moldova's transition began later (1970 cohort), with slower, lower-intensity postponement and a stabilization—rather than recuperation—among older women. This divergence highlights both temporal and structural differences in the fertility transition pathways of the two countries within the post-socialist context.

3. Overall, Moldova preserves high-parity fertility, while Romania's fertility is reduced due to sustained deferral and non-recovery of larger families. These findings underscore the demographic importance of analyzing fertility by parity.

4. Fertility transition in both countries reflects not only demographic dynamics but also significant social transformations, emphasizing the need for public policies tailored to the specific demographic patterns of each country.

Thank you for your attnetion!