COMPARATIVE INSIGHTS OF FERTILITY TRANSITION IN ROMANIA AND MOLDOVA

Grigoraș Ecaterina – Gagauz Olga – Popescu Raluca

Abstract

This study examines the fertility transition in Romania and the Republic of Moldova, two Eastern European countries with shared cultural roots but divergent post-1990 trajectories. Using the postponement–recuperation framework (Frejka et al.), it examines the timing and intensity of childbearing, assessing the extent of fertility postponement and recuperation across completed cohorts using vital statistics (1971–2023). Both countries experienced a sharp fertility decline in the late 1980s–1990s, marking the onset of the transition. Romania reached a TFR of 1.22 (2001), and Moldova reached 1.44 (2002). Romania progressed more rapidly, showing a stronger recovery in births at older ages, while Moldova remains at an intermediate stage. Despite persistent adherence to the two-child norm, childbearing has shifted to later ages, first births around 30, second by 35. Cohort fertility stabilized at 1.8–1.9 children per woman, indicating partial recuperation. In Moldova, the 1985 cohort recovered 59% of postponed first births and 71% of second births by age 44, whereas Romania showed higher recuperation, particularly for higher-order births. Overall, both countries exemplify distinct variants of the post-socialist fertility transition, converging toward delayed parenthood but differing in pace and outcomes, underscoring the need for policies supporting the realization of fertility intentions.

Keywords: key word, key word, key word (3-5)

JEL Code: JEL J13, J11, J18, JO15

Introduction

Romania and the Republic of Moldova represent two societies with shared historical and cultural origins but divergent demographic trajectories shaped by distinct political contexts. During the socialist period, Romania functioned as an independent state with its own demographic policies, while Moldova, as part of the Soviet Union, followed centrally planned

directives that influenced reproductive behavior and family structures (Philipov, Spéder, & Billari, 2017).

After 1990, both countries underwent profound transformations following the collapse of socialism, yet along separate paths. Romania's European integration promoted institutional modernization and gradual fertility postponement, whereas Moldova's transition was marked by economic instability, large-scale emigration, and persistent demographic decline (Grigoraș, 2024).

Despite a common adherence to the two-child norm, both societies exhibit delayed parenthood and declining fertility. Their comparison highlights how differing post-socialist transitions have shaped family behaviour and the tempo of fertility change in Eastern Europe (Zeman et al., 2018; Beaujouan & Compans, 2022).

In recent decades, there has been a universal increase in the age at which women in low-fertility countries have their first child. Mothers who have their first child later typically have fewer children overall. If there is no increase in fertility rates among older women, this delay in childbearing contributes to a decline in fertility rates for entire cohorts (Beaujouan, 2023). Fertility postponement, delays in births at younger ages, can be followed by partial recuperation at older ages; the balance of these forces shapes cohort fertility (CTFR). Clarifying parity-specific postponement is important for identifying whether declines stem from delayed entry into parenthood (first births) or from curtailed progression to second, third, and subsequent births. This perspective aligns with the Frejka–Sobotka benchmark approach (Frejka & Sobotka, 2011; Bongaarts & Sobotka, 2012), widely used to assess postponement and recuperation in cohort fertility analyses across Europe.

1 Data and Methods

This study is based on vital statistics provided by the *National Bureau of Statistics of the Republic of Moldova (NBS)* and the *National Institute of Statistics of Romania (NIS)* for the years 1970–2023, including the number of live births and their distribution by mother's age and birth order. To ensure international comparability and accuracy, fertility indicators were calculated using country-specific population estimates of women aged 15–49, following European statistical standards.

For Moldova, age-specific fertility rates were computed using the *de facto* population—excluding individuals residing abroad for more than 12 months (Penina, 2015). For Romania, the analysis relies on the long time series from NIS, which since 2002 applies

the *resident population* concept consistent with EU and UN definitions, including all persons with habitual residence in the country.

Cohort fertility was reconstructed by converting period fertility data into longitudinal indicators using the Lexis diagram approach. Births recorded in calendar year t to mothers aged a were assigned to the corresponding birth cohort ($t–a$), allowing a "cross-sectional to longitudinal" transformation of data. This reconstruction enables a detailed examination of cohort fertility dynamics, postponement, and recuperation over more than five decades.

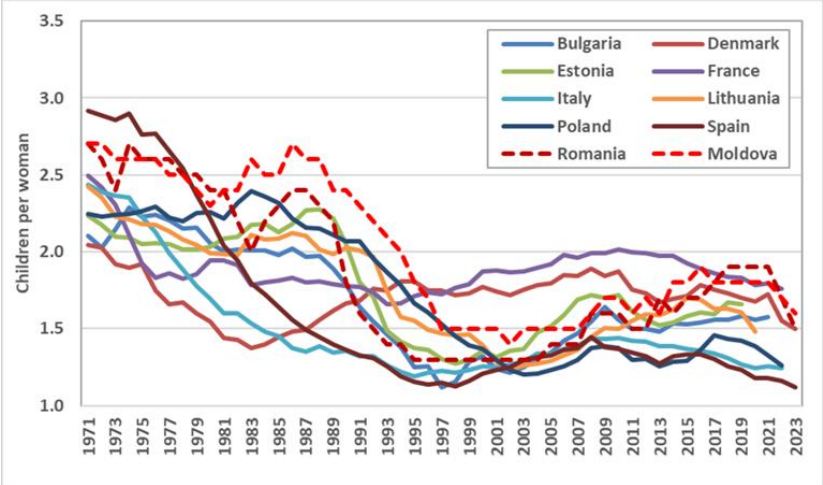
2 Main results

The figure illustrates the evolution of the total fertility rate (TFR) between 1971 and 2023 for a group of representative European countries, including Romania and the Republic of Moldova, compared with selected countries from Central, Southern, and Northern Europe.

In the 1970s and 1980s, most countries displayed fertility levels above the replacement rate (2.1 children per woman). In Eastern Europe (Romania, Bulgaria, Poland, Lithuania, Estonia), the transition toward low fertility occurred rapidly, especially after 1990, following the collapse of socialist regimes and the onset of economic restructuring. Romania and Moldova experienced a sharp fertility decline, reaching historical lows of 1.2–1.4 in the early 2000s—among the steepest transitions in the region (Zeman et al., 2018; Sobotka, 2017).

After 2010, fertility trends stabilized, and in several countries—such as France and Denmark—TFR remained at higher levels (1.7–1.9), supported by strong welfare systems and consolidated gender equality (Esping-Andersen & Billari, 2015; Goldscheider et al., 2015). By contrast, Southern (Spain, Italy) and Eastern European countries (Poland, Bulgaria) continued to record levels below 1.5, reflecting persistent economic insecurity and the delayed completion of the "second gender revolution" (Beaujouan & Compans, 2022; Testa, 2014).

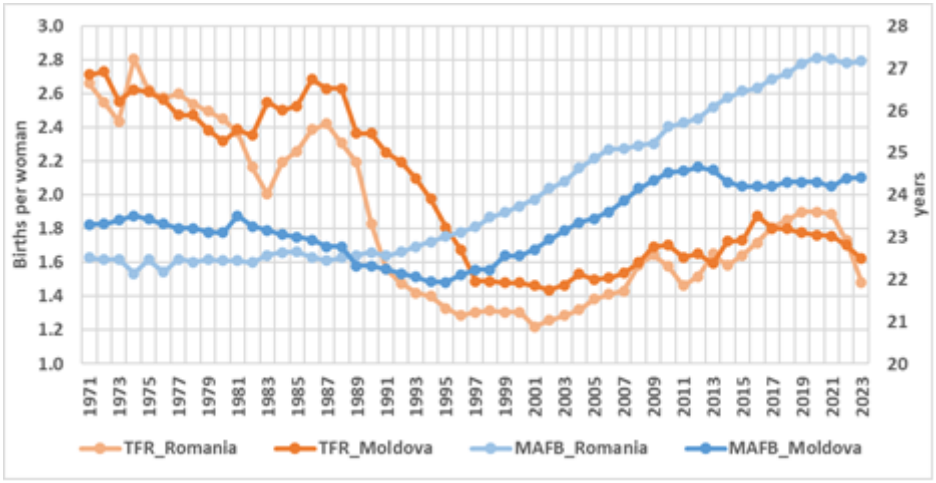
Fig. 1: Trends in Total Fertility Rates in Selected European Countries, 1971–2023



Source: Human Fertility Database (HFD), 1971–2023.

The evolution of fertility in Romania and the Republic of Moldova shows several distinct stages, reflecting annual variations in the total fertility rate (TFR) and the mean age at first birth over the period 1971–2023 (Fig. 2). These period trends illustrate how fertility levels and the timing of childbearing have shifted in response to social, economic, and institutional transformations in both countries. In Romania, the mean age at first birth increased from 22.6 years in the 1990s to 27.2 years in 2023, reaching one of the highest values in the region, although still below the European Union average of around 30 years. In Moldova, although the upward trend is evident, the values remain lower: from about 22.3 years in the 1990s, the mean age at first birth rose to 24.2 in recent years, reaching 24.4 years in 2023, roughly three years less than in Romania. This difference highlights that the early fertility pattern persisted longer in Moldova, while Romania more rapidly adopted the Western model of delayed childbearing. Scholarly studies confirm that, despite the general trend toward postponed motherhood, young mothers in Moldova continue to contribute significantly to the fertility structure, indicating the persistence of a distinctive reproductive model compared with other Eastern European countries.

Fig. 2: Total fertility rate, Mean age at first birth, period of time 1971–2023, Moldova, Romania



Source: National Bureau of Statistics (NBS) of the Republic of Moldova and National Institute of Statistics (NIS) of Romania, 1971–2023.

In Romania, the total fertility rate (TFR) reached 1.5 in 2023, while in the Republic of Moldova it stood at 1.6. This convergence in fertility levels suggests the presence of common factors, such as economic insecurity, youth migration, and shifting value orientations toward family and career (Sobotka, 2011). This situation reflects a lag behind the so-called "second gender revolution" (Esping-Andersen, 2009; Goldscheider et al., 2015), in which the modernization of reproductive behavior is not supported by an equitable redistribution of gender roles within the family and by effective public policies that reconcile work and family life. In both countries, traditional cultural models persist, with childcare responsibilities borne mainly by women, while men's involvement in domestic activities remains limited. This structural imbalance, combined with limited access to childcare services and a rigid labor-market organizational culture, reduces couples' ability to realize their fertility intentions, thereby contributing to the persistence of low birth rates (Testa, 2012; Voicu & Tufiș, 2014).

Romania and Moldova are classified among countries with low, but not ultra-low, fertility, recording in 2023 a total fertility rate (TFR) of approximately 1.5 in Romania and 1.6 in Moldova. These levels place them above the averages of several Central and Southern European countries such as Poland (1.3), Spain (1.2), and Italy (1.2), yet below those observed in France (1.8) and Denmark (1.7). Thus, within the regional context, Romania and Moldova occupy an intermediate position, reflecting a demographic transition process similar to that of other Eastern European countries, characterized by delayed childbearing, rising socio-economic uncertainty, and a decline in the realization of reproductive intentions.

The postponement of fertility represents one of the most significant transformations of reproductive behavior in post-socialist Europe. This process, reflected in the delay of childbirth to later ages, is closely linked to changes in family formation patterns, educational expansion, and increasing female participation in the labor market. However, the degree and timing of postponement, and the extent to which fertility is recuperated at older ages, differ across countries and cohorts. Analyzing fertility postponement by birth order provides deeper insight into whether fertility decline results from delayed entry into parenthood (first births) or from limiting family size (second and third births).

The postponement transition occurred at different times in Romania and Moldova. To estimate fertility recuperation, reference cohorts were selected following Frejka and Sobotka's (2011) methodology, which requires identifying the first cohort showing a sustained increase in the mean age at first birth, born in a quinquennial year, and with complete fertility data up to age 40. In Romania, the benchmark cohort is that of 1960, marking the onset of fertility decline at younger ages driven by pre-transition structural and ideological changes. In Moldova, the 1970 cohort serves as the reference, having reached reproductive maturity before the dissolution of the USSR and reflecting a traditional fertility pattern. Comparison with cohorts born in 1975–1985 highlights the impact of socio-economic transition on delayed childbearing and declining fertility.

Cohort comparisons between 1960 and 1975 show that the maximum postponement for first births occurs around age 23, with a decline of −0.26 children per woman. By age 45, the deficit narrows to −0.06, indicating that 77% of postponed first births were recovered, suggesting behavioral adaptation and partial recovery. For second births, the maximum gap appears at age 27 (−0.25), and by the end of the reproductive period, half of the decline (52%) is compensated. In contrast, third and higher-order births show a nearly permanent loss: the deficit (−0.31) remains almost unchanged (−0.30) by age 45, implying only 3% recuperation.

This pattern highlights a structural shift in reproductive behavior, toward limiting family size and consolidating the two-child norm, typical of advanced stages of the fertility and value transition (SDT). Thus, while first births are delayed, higher-order births are increasingly foregone, indicating a transition from postponement to renunciation.

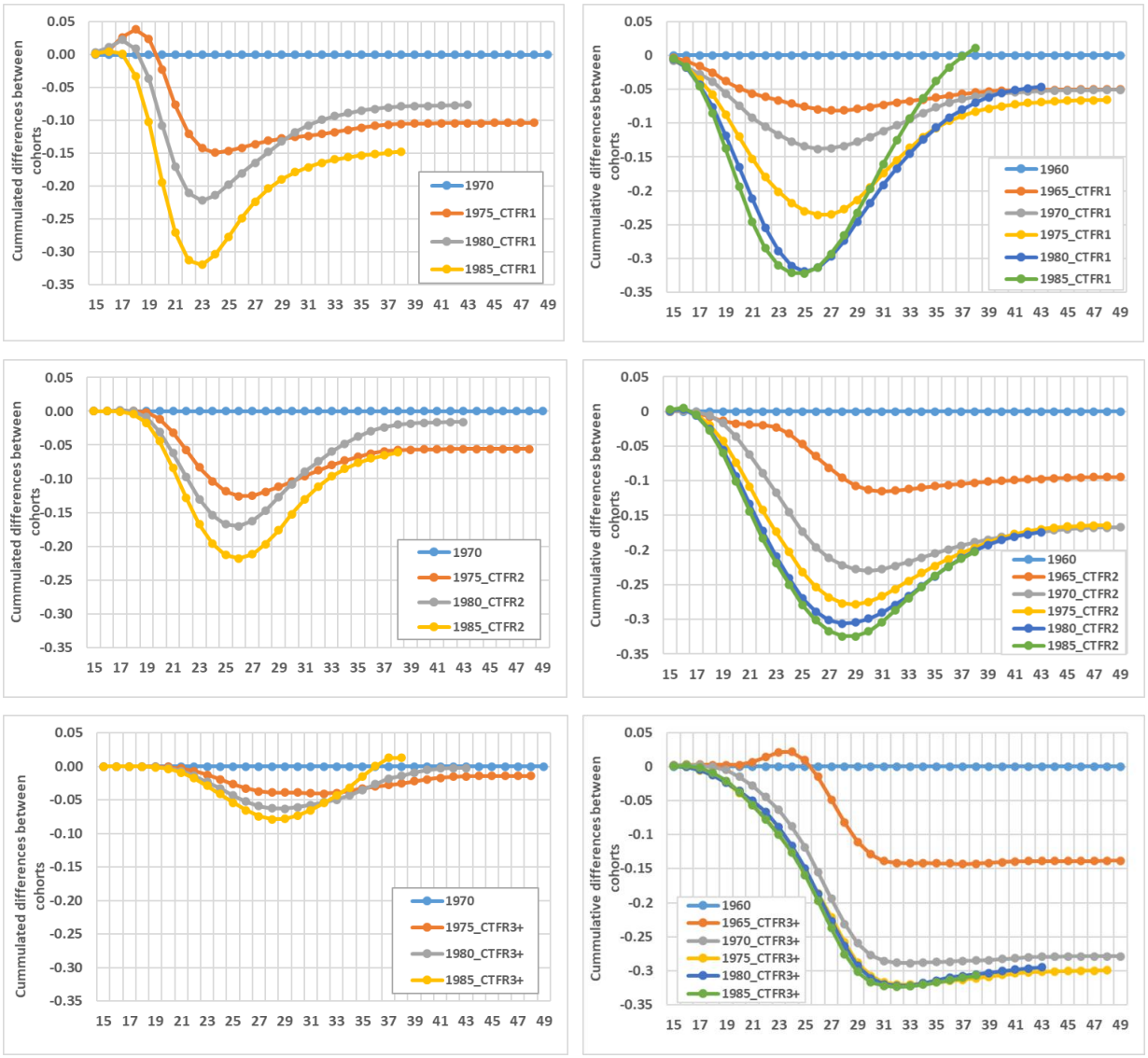
For Moldovan women, the most significant cumulative fertility deficit for first births occurs at age 23 (−0.32), with partial recuperation to −0.13 by age 45, corresponding to a recuperation index (RI_1) of 59%. For second births, postponement peaks at age 26–27 (−0.21), followed by a stronger recovery: the final deficit of −0.06 implies an RI_2 of 71%,

showing that second births are more effectively compensated than first births. For third and higher-order births, the initial decline (−0.07) is entirely offset; by the late 30s, the cumulative difference becomes slightly positive (+0.01).

Thus, Moldova displays a heterogeneous recovery pattern: first births are only partly compensated, second births show substantial recuperation, and higher-order births are fully recovered within younger cohorts (notably those born around 1985). While Romania demonstrates strong postponement but limited recuperation, especially for higher parities, Moldova exhibits a more balanced recovery pattern, with younger cohorts increasingly catching up at later ages. Understanding parity-specific postponement and recuperation is therefore essential to identify which birth orders contribute most to fertility decline and to design family policies that support progression to the second and third child.

In Romania, the benchmark cohort born in 1960 reached a completed cohort fertility rate (CTFR) of 2.2 children per woman, while subsequent cohorts (1975–1985) experienced a marked postponement of childbearing, particularly at ages 20–29. The maximum fertility gap approaches −0.4 children per woman, indicating a pronounced delay in early-age fertility. Partial recuperation occurs after age 30, yet remains insufficient to restore earlier fertility levels, with the CTFR stabilizing near 1.8–1.9, slightly above the "very low fertility" threshold of 1.75 proposed by Myrskylä et al. (2013). This pattern confirms a structural shift toward smaller family sizes and later births, typical of advanced fertility transitions in Central and Eastern Europe.

Fig. 3: Fertility Postponement and Recuperation by Birth Order, Moldova and Romania

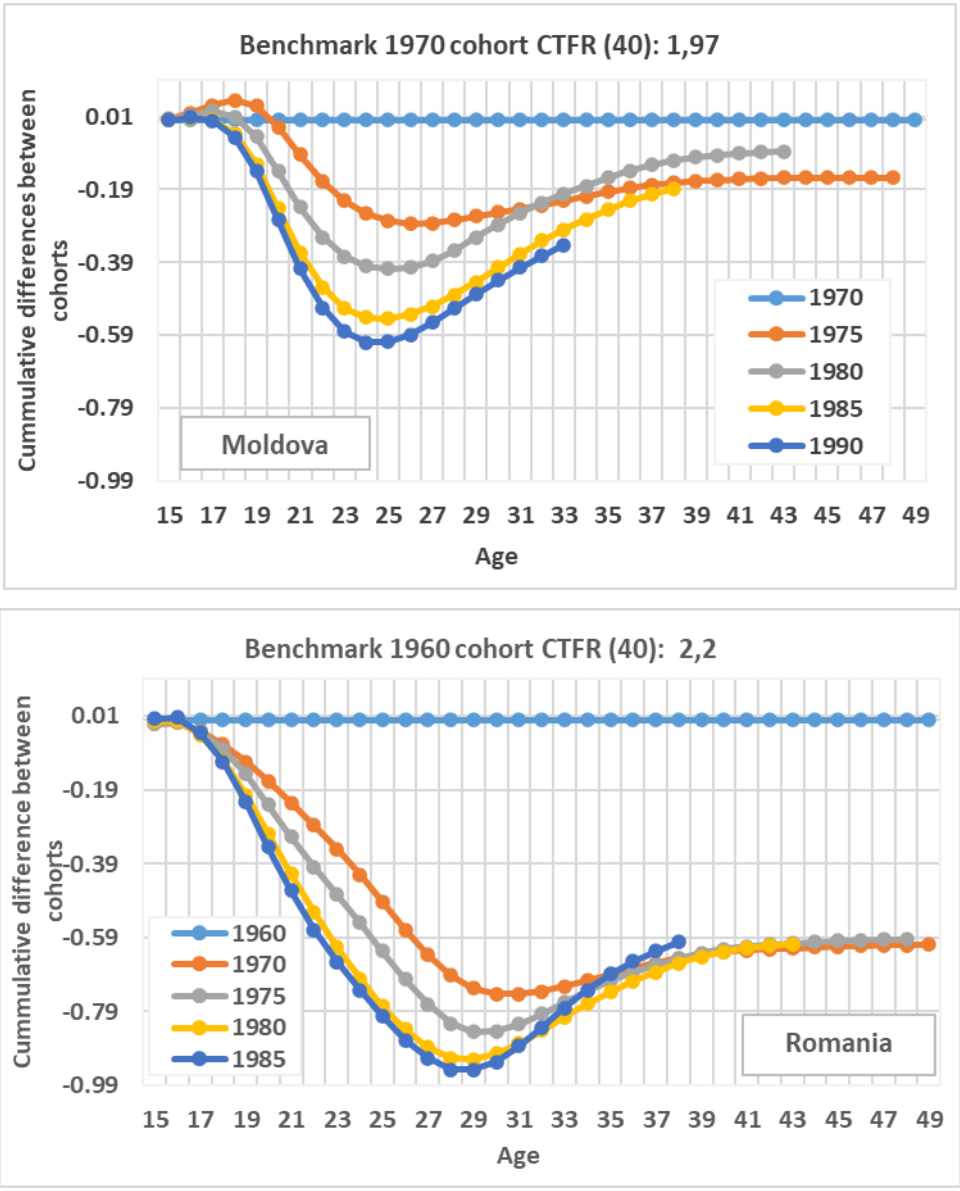


Moldova **Romania**

Source: Reconstruction of cohort fertility based on data from the National Bureau of Statistics (NBS) of the Republic of Moldova and the National Institute of Statistics (NIS) of Romania for the period 1971–2023.

In Moldova, the reference cohort born in 1970 exhibits a CTFR of 1.97, placing the country close to the low-fertility boundary but still above the very low fertility threshold. Cohorts born after 1980 show a shallower but longer postponement, with the cumulative fertility decline reaching about −0.3 before age 27, followed by a moderate recuperation after 30. The recovery appears more effective than in Romania, suggesting that while childbearing is delayed, part of the postponed fertility is realized later in life. However, the stabilization of CTFR around 1.8–1.9 implies that fertility recuperation remains incomplete.

Fig. 4: Cumulative Differences in Age-Specific Fertility Rates, Benchmark Cohort 1960 - Romania, 1970 - Moldova



Source: Reconstruction of cohort fertility based on data from the National Bureau of Statistics (NBS) of the Republic of Moldova and the National Institute of Statistics (NIS) of Romania for the period 1971–2023.

Overall, both countries demonstrate persistent postponement without full recuperation, positioning them among low-fertility but not ultra-low-fertility regimes. The Romanian pattern reflects a deeper and earlier postponement, linked to faster socio-economic transformation and the diffusion of Western family norms, whereas Moldova shows a more gradual shift, influenced by prolonged economic uncertainty and slower value change. These findings confirm that the fertility decline below 1.75 children per woman represents a critical

demographic threshold, signaling the consolidation of late and limited fertility across post-socialist societies.

Conclusion

Romania and the Republic of Moldova exemplify two trajectories of the fertility transition in post-socialist Eastern Europe. Both countries have shifted from high and state-regulated fertility—particularly restrictive in Romania before 1989—to a low-fertility regime increasingly shaped by individual and couple-level decisions. The common features of this transition include declining fertility quantum and the postponement of childbearing, reflecting broader socio-economic and cultural modernization processes.

Despite shared structural trends, the timing and intensity of these changes differ. Romania experienced an earlier and more pronounced postponement of first births, with limited recuperation at later ages, while Moldova's transition has been slower and more heterogeneous, maintaining elements of early fertility yet showing stronger recuperation for second and third births. These differences stem from distinct political histories, institutional frameworks, and value orientations toward family and gender roles.

Both societies now face the dual challenge of population ageing and decline, typical of low-fertility contexts. The key policy issue is not to reverse demographic change through strict pronatalism, but to support individuals in realizing their reproductive intentions while ensuring gender equality and economic stability. Policies that improve access to childcare, housing, and flexible work arrangements can mitigate constraints but remain insufficient without a supportive social and institutional environment.

In conclusion, Romania represents a more advanced phase of the fertility transition, converging toward Western European patterns of late parenthood, whereas Moldova remains in an intermediate stage where traditional and modern reproductive behaviors coexist. Understanding these nuanced pathways is crucial for designing context-sensitive demographic strategies that enhance demographic resilience and sustain family well-being in both countries.

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Contact

Grigoras Ecaterina, PhD in sociology, coordinate researcher

Academy of Economic Studies of Moldova, National Institute for Economic Research,

grigoras.ecaterina@ase.md / egrigoras88@gmail.com

Gagauz Olga, Dr. Habil., Associate Research Professor, National Institute for Economic Research, Academy of Economic Studies of Moldova

gagauz.olga@ase.md

Popescu Raluca, Professor, PhD,

Faculty of Sociology and Social Work, University of Bucharest

raluca.popescu@sas.unibuc.ro