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Surfing the Demographic Wave: How Ageing and Migration Are Shaping Interest Rates

Meri Papavangjeli | Bank of Albania

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Abstract

Interest rates have declined over the past decades. While accommodative monetary policies have played a role in this decline, it cannot be fully understood without considering the role of demographic shifts. This paper presents an illustrative theoretical model incorporating key life cycle characteristics observed in the data, providing a framework to quantify the effects of demographic dynamics on real interest rates. Demographic transition help explain about 20% of the decline of real interest rates seen in Albania over the recent years. The primary drivers of this decline include increased savings due to longer life expectancy and a shrinking workforce, which reduces capital demand and, consequently, interest rates. These demographic trends will continue to exert downward pressure on natural real interest rates in the coming years, keeping them closer to the zero lower bound and limiting the effectiveness of monetary policy. This effect may be further amplified by accommodative policies aimed at addressing ongoing global uncertainties.

Disclaimer: This policy brief is based on Bank of Albania Working Paper 06 (102) 2025. The views expressed herein are of the author and do not necessarily represent the views of the Bank of Albania.

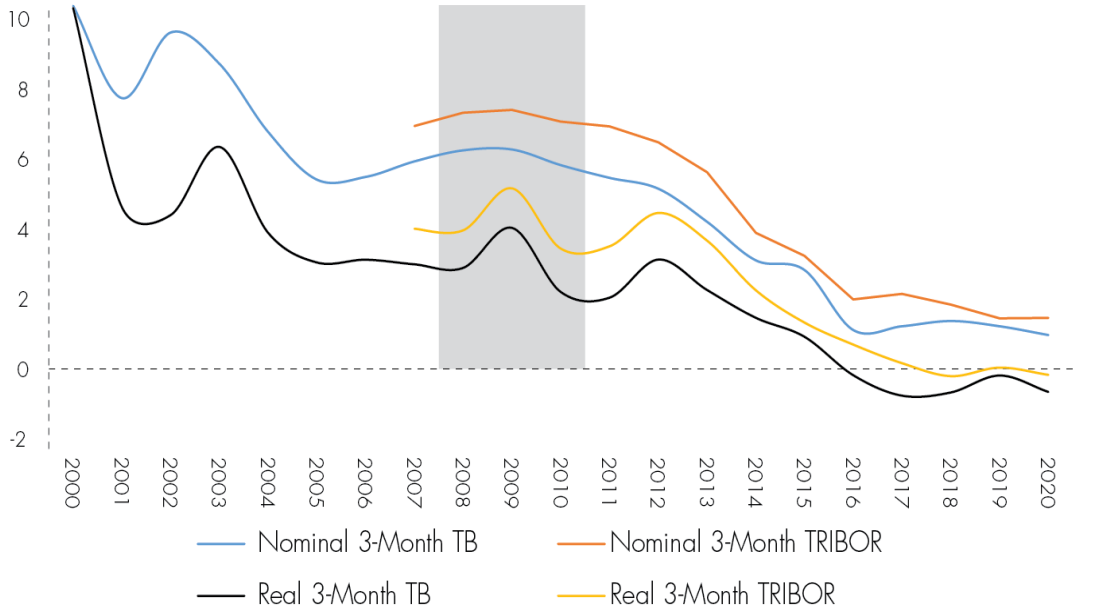
Background

In recent years, central banks have been confronted with a series of unprecedented challenges, ranging from the global financial crisis and the COVID-19 pandemic to escalating geopolitical tensions. On top of these, the uncertainty triggered by rising tariffs, supply chain disruptions, and shifting global trade policies, has added further complexity, directly influencing inflation and growth. In response, some central banks have started cutting interest rates again to support economic activity and encourage investment. Central banks now find themselves navigating a more intricate environment, where traditional policy approaches must adapt to these changing dynamics. Compounding these economic pressures are significant demographic shifts, such as aging population and migration patterns (Dörflinger and Loichinger, 2024).

The decline in real interest rates, a trend observed over the past few decades, has been particularly pronounced following the global financial crisis (GFC). In its aftermath, interest rates fell to historically low levels, approaching zero in developing nations and dipping below zero in many advanced economies. While accommodative monetary policies have played a role in this decline, the question remains whether they alone can explain the trend. Notably, monetary policy expansion started before the GFC, further contributing to the reduction in interest rates (Eggertsson et al., 2017). Interest rates in Albania mirrored this global trend, as shown in Figure 1.

However, the decline in interest rates cannot be fully understood without considering the significant role of demographic shifts. These demographic factors influence savings, investment, and labor force participation, directly impacting the natural interest rate. As central banks continue to navigate current heightened global uncertainties, understanding how these demographic changes influence the natural interest rate is crucial for aligning monetary policy with evolving economic conditions (Kiley, 2020). With these pressures in mind, it is likely that interest rates will remain low for the foreseeable future, further constrained by both economic disruptions and demographic trends.

Figure 1. Short-term interest rates evolution over time



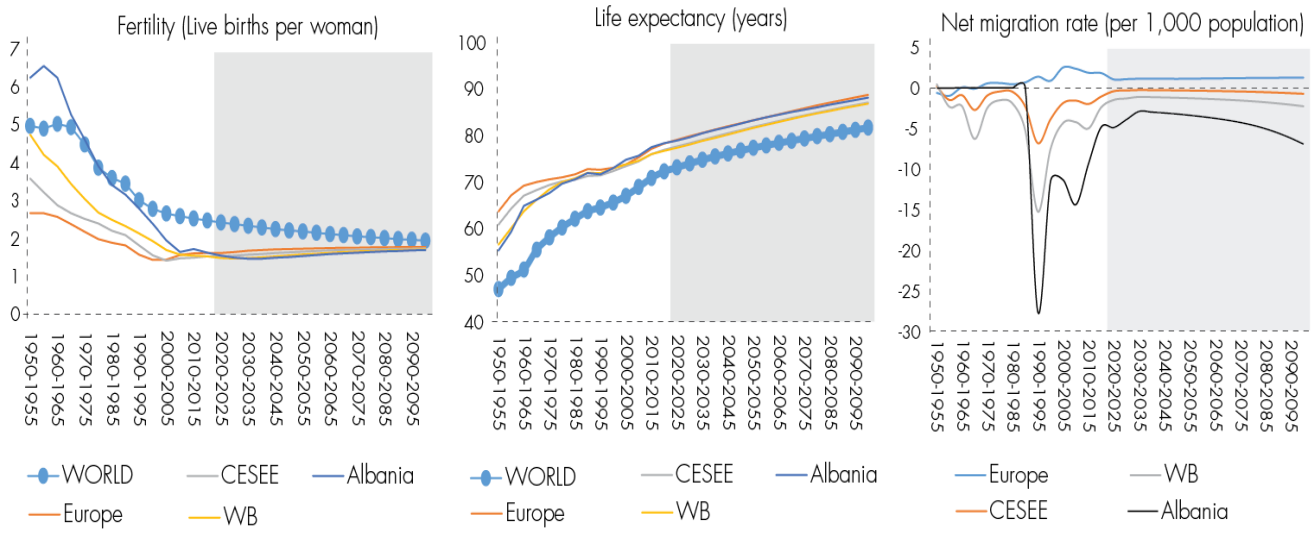
Source: Bank of Albania.
Note: The shaded area corresponds to the GFC period.

Main demographic trends in Albania

As birth rates decline and life expectancy increases, many countries, particularly in the developed world, are experiencing a shrinking workforce and rising dependency ratios. Meanwhile, high levels of migration are altering the labor force dynamics, particularly in developing economies, where the outflow of young and skilled workers can create labor shortages and hinder economic growth. This migration trend weakens the workforce and depletes human capital, limiting potential for innovation and productivity growth. These demographic shifts and labor market changes are shifting consumption and saving patterns, creating supply-demand imbalances, which, in turn, exert downward pressure on interest rates.

Albania's population has been shrinking in recent years, a trend fuelled by lower birth rates, rising longevity, and high levels of emigration (see Figure 1). The average age of Albania's population has increased by around 10 years since the 1990s, reflecting a broader trend of demographic aging. Fertility rates have halved over the past several decades, with births per woman dropping by around 50%, mirroring a global trend. Meanwhile, improvements in healthcare and nutrition have driven a steady rise in life expectancy. In addition, Albania has a rich history of migratory outflows, having transitioned from a communist economy to an open market system, with approximately one-third of its population emigrating over the past 25 years. The increasing outflow of skilled, educated young people, is a growing concern, as it represents the loss of some of the country's most valuable human capital, affecting long-term socioeconomic development (King, Gëdeshi, 2020).

Figure 2. Fertility, life expectancy and net migration

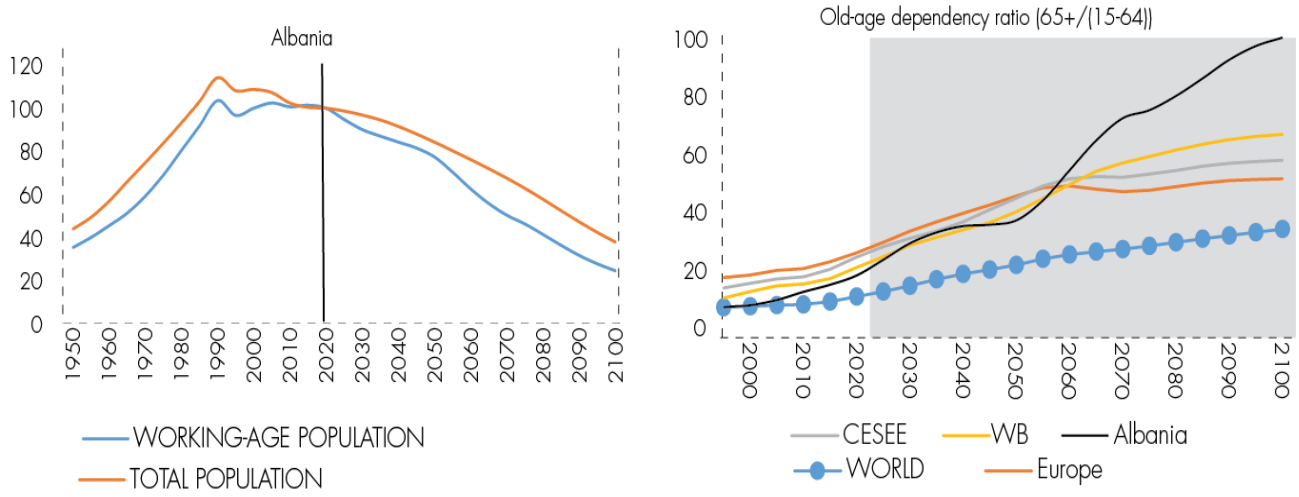


Source: UN projections

Figure 3 shows that after 2020, the country's working-age population is expected to decline at a much faster rate than the total population. One of the primary concerns is the potential for labor shortages, particularly in critical sectors that rely on skilled labor. As the working-age population shrinks, fewer people will be available to participate in the labor market. This could lead to a slowdown in economic growth, with less human capital available to drive productivity and innovation.

While Albania's dependency ratio is currently lower than that of Western Balkans (WB) and Central, Eastern, and Southeastern European (CESEE) region, it is expected to rise rapidly in the coming decades. This increase will put a strain on the country's pension system and public finances, as a smaller working-age population will have to support a larger elderly population. In the future, Albania's dependency ratio may even surpass the European and global averages if these trends persist.

Figure 3. Working-age population and dependency ratio

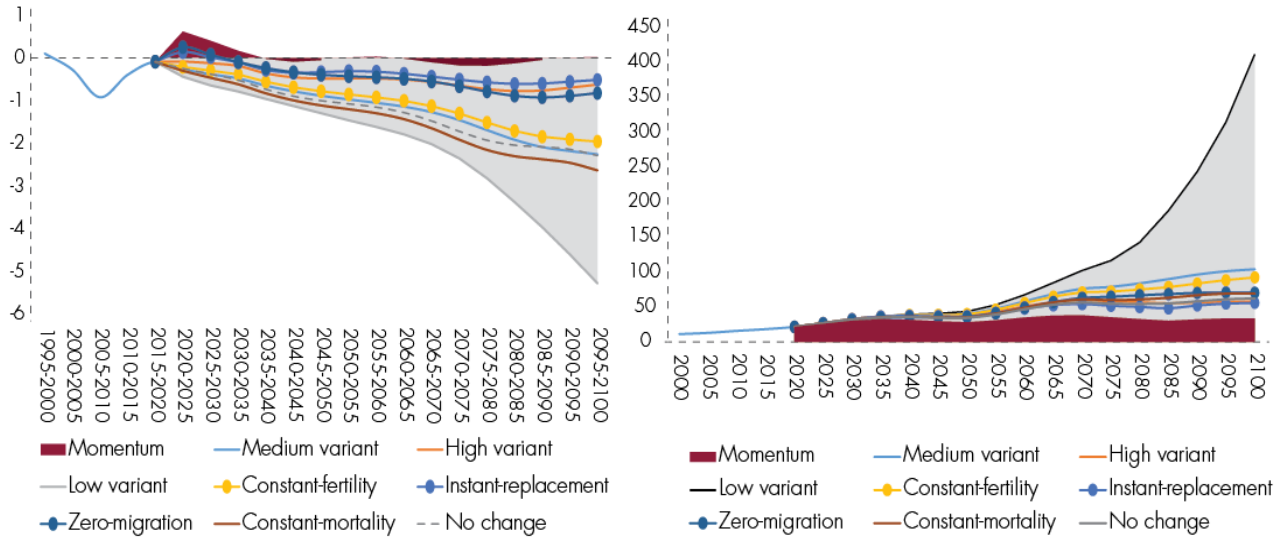


Source: INSTAT and UN

Demographic scenarios

This paper presents a theoretical model that incorporates key life-cycle characteristics observed in the data, providing a framework to quantify the effects of demographic dynamics on real interest rates. Building on the framework established by Gertler (1999), the model analyzes the macroeconomic implications of life-cycle decisions under overlapping generations. The model is particularly suited for examining the dynamics of consumption, savings, and capital accumulation in the context of uncertain mortality and retirement risks. For the empirical analysis, we consider actual data for the period 2000-2020 and UN projections till 2100, incorporating all possible scenarios provided by the United Nations for population growth and the dependency ratio. These scenarios are integrated into the model, each with varying assumptions about fertility, mortality, and migration, showing how different demographic factors may influence the future population dynamics and dependency ratio in Albania. The United Nations (2020) projections suggest that the downward trajectory of Albania's population will persist in the coming years, regardless of whether the outlook is optimistic or pessimistic. This is illustrated in Figure 4.

Figure 4. Population growth and dependency ratio in Albania



Source: INSTAT and UN

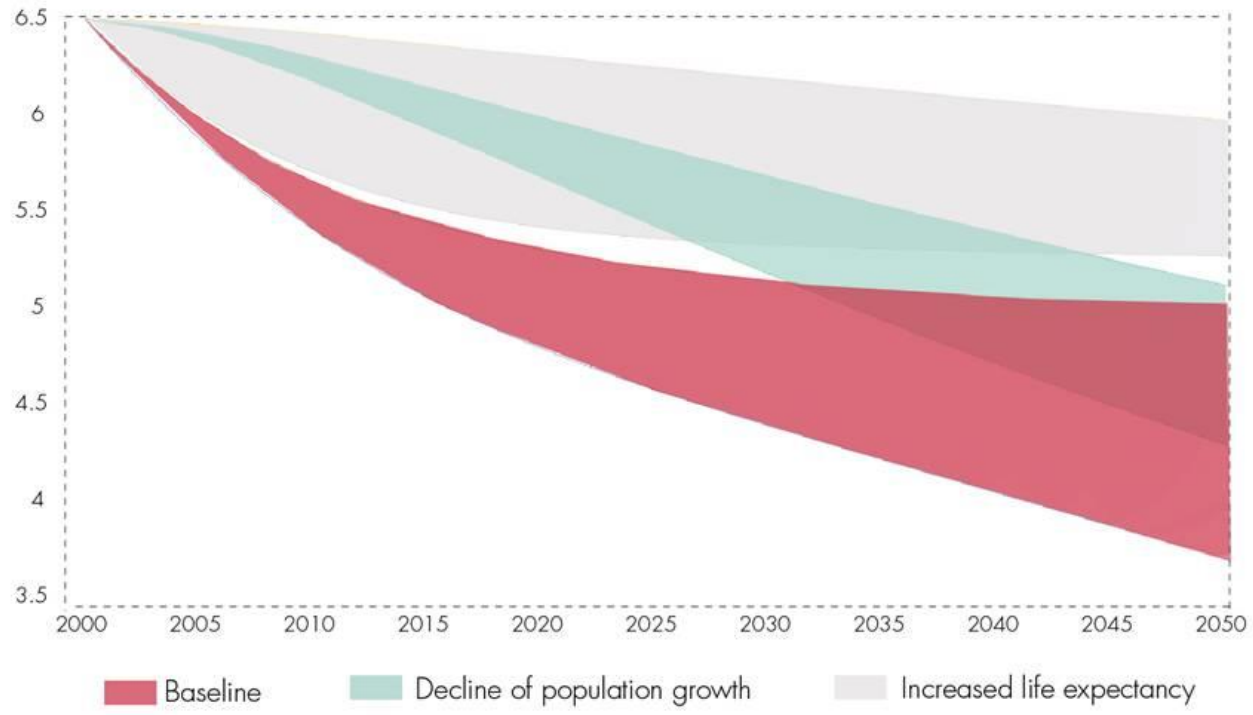
Due to similarities among scenarios, the proceeding empirical analysis is limited to four main scenarios: the Momentum and Low Variant scenarios, the Medium Variant, and the High Variant. This simplifies the interpretation and focuses on the most relevant outcomes based on varying fertility rates and migration patterns assumptions, reflected in the population growth and dependency ratios. These selected scenarios provide a comprehensive view of how population dynamics could unfold under different assumptions, without overcomplicating the analysis.

Results

Figure 5 summarizes the main findings of the analysis, illustrating the relationship between demographic changes and real interest rates. Three scenarios are considered: 1) the baseline scenario (red area) where both population growth declines and life expectancy increases, 2) the population growth decline scenario (green area) where only population growth slows down while life expectancy remains unchanged, and 3) the life expectancy increase scenario (gray area) where life expectancy rises while population growth stays steady. The results are presented in shaded areas to reflect the full range of possible effects on interest rates, capturing both the maximum and minimum impacts based on all the UN scenarios for demographic changes in Albania, which have been incorporated into our model.

Across all demographic scenarios, the trajectory of the real interest rate exhibits a gradual decline, lowering by approximately 1 to 2.5 percentage points over the observed period. The demographic changes account for roughly 20% of the overall observed decrease in interest rates throughout the period 2001-2020. The model projects a continued gradual reduction in the real interest rate over the next 80 years, aligning with the discussed demographic trends. Recent studies also support a downward trend in real interest rates due to demographic transition, including works by Papetti (2019) and Bielecki et al. (2020) for Europe; Gagnon et al. (2021) for the U.S., and Fu and Wang (2024) for China.

Figure 5. Impact of population growth slowdown and increased life expectancy on real interest rates

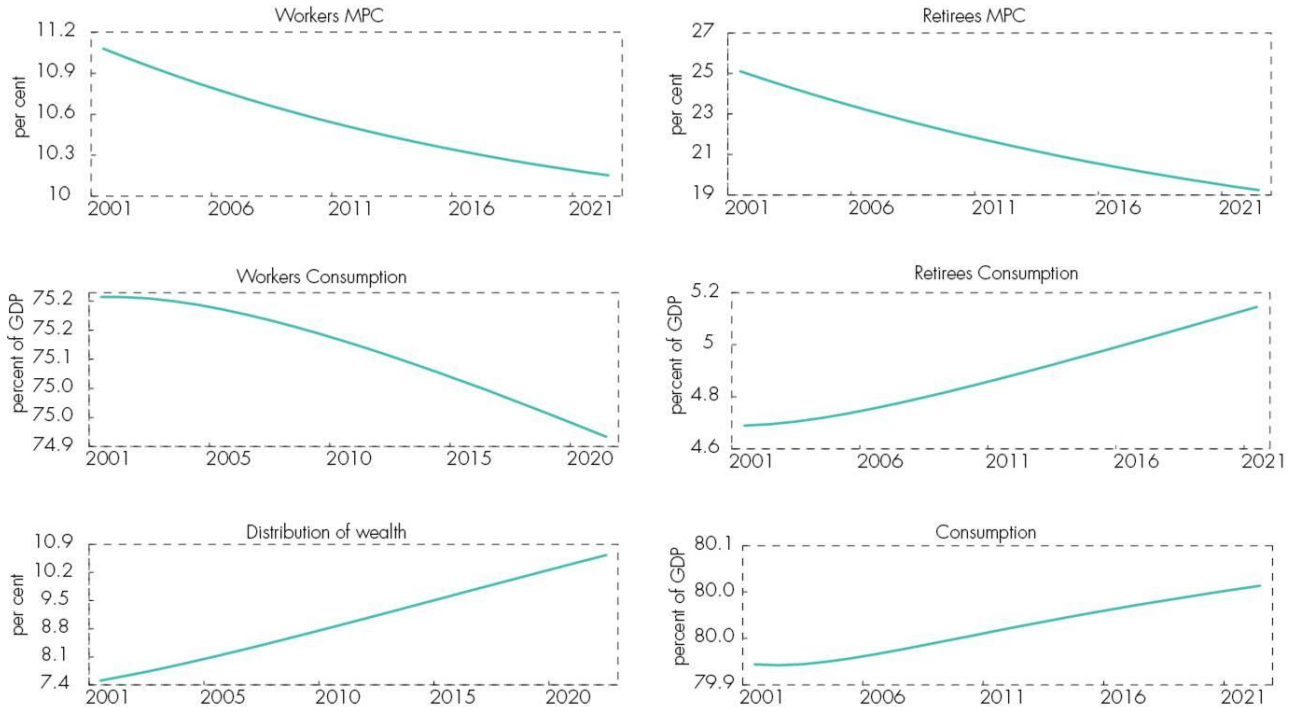


Source: Model's simulation

The graphical results show that the primary driver behind the decrease in interest rates varies between the periods from 2000 to 2050 and from 2050 to 2100. For the observed period 2000-2020 and from 2020 to 2050, the effect of increased life expectancy (survival probability) dominates over the decline in population growth. During this period, the grey area, representing increased life expectancy, plays a larger role in lowering interest rates compared to the green area representing population growth effects, during the early years, possibly due to advancements in healthcare and longevity. From 2050 to 2100, the influence shifts. The grey area flattens out, indicating that the effect of heightened life expectancy becomes negligible, while the green area, representing the effects of population growth decline, continues to show a steady downward trajectory in interest rates. In this latter period, population growth becomes the dominant factor driving the further reduction in interest rates.

Figure 6 presents the effects of the demographic transition on key economic indicators, distinguishing the effects observed between workers and retirees. Retirees exhibit a slightly higher marginal propensity to consume, albeit experiencing a more rapid decline compared to workers. The marginal propensity to consume for retirees drops by about four percentage points, while workers experience a smaller decline of one percentage point. This implies that retirees accumulate assets at a relatively faster pace than workers, thereby facilitating a distribution of wealth that tilts in their favor. Despite the swifter decline in the marginal propensity to consume among retirees, their accumulation of wealth translates into an increased level of consumption compared to workers. Consequently, the aggregate consumption-to-GDP ratio exhibits a gradual increase throughout the observed period, albeit a relatively modest one of around one percentage point.

Figure 6. Impact of population growth slowdown and increased life expectancy on real interest rates



Source: Model's simulation

The demographic transition creates two opposing effects on real interest rates. As life expectancy increases, individuals tend to save more in anticipation of needing more money in the future. This creates downward pressure on real interest rates, causing the cost of borrowing money to decline. On the other hand, higher probability of survival and slower population growth increases the dependency ratio. Retirees have a higher propensity to consume (around 14 percentage points higher, as shown in Figure 6, and lower propensity to save than workers. Less capital is available for investment, which tends to push interest rates up to balance the supply and demand for capital. However, the second effect is counterbalanced by the former, resulting in an overall outcome of by lower real interest rates, as shown in Figure 6.

Additionally, we consider the impact of raising the retirement age, a critical policy response for governments dealing with aging populations, rising life expectancy, and shrinking workforces. Our analysis evaluates the effect of raising the retirement age from approximately 63 years (45 years of working life) to 65 years (47 years of working life), under the moderate fertility scenario assumptions. With a higher retirement age, interest rates decline slightly less compared to the baseline. This can be explained by the fact that an increased retirement age reduces capital per worker, as the same amount of capital is now spread across a larger workforce. This reduction in capital per worker raises the marginal product of capital, exerting upward pressure on real interest rates. As a result, this effect helps mitigate the downward pressure on interest rates caused by demographic changes.

Final remarks

This paper presents a theoretical model that incorporates key life cycle characteristics observed in the data, offering a framework to quantify the impact of demographic dynamics on real interest rates. The empirical findings indicate that demographic transition and net migratory flows account for approximately 20% of the overall decline in real interest rates since 2001 in Albania. The primary drivers of this decline are increased savings, driven by longer life expectancy, and a shrinking workforce, both of which reduce capital demand and, consequently, interest rates. Additionally, the analysis suggests that policy measures, such as raising the retirement age, can only marginally alleviate these effects on interest rates.

The model projects that these demographic trends will continue to exert downward pressure on interest rates in the coming years, keeping them close to the zero lower bound and limiting the effectiveness of monetary policy in stimulating the economy (Vlieghe, 2022).

The resulting decline in real interest rates stimulates consumption and investment, contributing to increased inflation (see for instance Skufi et al., 2025). This heightened demand creates upward pressure on the factors of production, resulting in higher wages and longer working hours. Moreover, a shrinking workforce and growing number of retirees can complicate inflationary pressures by reducing the labor supply, raising production costs, shifting consumption patterns, and creating supply-demand imbalances in the economy.

In response, the central bank may need to reassess its inflation targets, potentially allowing for temporary increases in inflation to create more space for accommodative monetary policies. This would provide the central bank with greater flexibility to manage economic conditions and maintain stability in the face of ongoing demographic challenges.

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About the author

Meri Papavangjeli is a Senior Economist in the Research Department of the Bank of Albania. Before joining the bank, she was working as a Fiscal Expert at the Ministry of Finance and a Professor Assistant of Macroeconomics at the University of Tirana. Her research focuses on macro-financial issues, particularly in emerging economies, and on the design and impact of macroeconomic policies.

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SUERF Secretariat
c/o OeNB, Otto-Wagner-Platz 3A-1090 Vienna, Austria
Phone: +43 1 40 420 7206
E-Mail: suerf@oenb.at
Website: https://www.suerf.org/