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Article

Research on Population Aging, Effectiveness of Monetary Policy, and Real Estate Prices

Ping Li [1,*]

[1] Universiti Tun Abdul Razak, Wisma Unirazak, 195a, Jln Tun Razak, Hampshire Park, Kuala Lumpur, Malaysia
* Correspondence: Ping Li, Universiti Tun Abdul Razak, Wisma Unirazak, 195a, Jln Tun Razak, Hampshire Park, Kuala Lumpur, Malaysia

Abstract: As the global trend of population aging intensifies, the multifaceted impacts of aging on the economy are becoming increasingly apparent, especially in the areas of monetary policy and the real estate market. This paper aims to explore the intrinsic relationship between population aging, the effectiveness of monetary policy, and real estate prices. By analyzing the impact of demographic changes on consumption, savings, and investment behavior, the paper further reveals how aging affects the transmission mechanism of monetary policy and examines the role of monetary policy in real estate price fluctuations. The paper begins by defining the current status of population aging and discussing its broad economic impacts, followed by an analysis of the tools and transmission mechanisms of monetary policy and its specific effects on the real estate market. Based on the construction of a theoretical model, this paper also empirically tests the responses of the real estate market to monetary policy in different countries and regions facing aging societies. Finally, based on both theoretical and empirical research results, policy recommendations are made regarding the adjustment of monetary policy and regulation of the real estate market in the context of an aging society. This study provides theoretical support and practical guidance for policymakers to address the challenges that population aging brings to economic policy.

Keywords: population aging, monetary policy, real estate prices, economic impact

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1. Introduction

As the process of global population aging accelerates, the impacts of an aging society on various economic sectors are gradually emerging, especially in the fields of monetary policy and the real estate market. According to UN projections, by 2050, approximately 22% of the global population will be aged 60 or above, a trend that is particularly prominent in developed countries and some developing nations. Population aging not only changes the supply and demand dynamics of the labor market but also has far-reaching effects on consumption patterns, savings behavior, and social welfare systems. Meanwhile, aging poses new challenges to the effectiveness of monetary policy. In an aging society, changes in the consumption demand and savings behavior of the elderly may distort the transmission mechanism of monetary policy, thus impacting the overall economic stability. Furthermore, as a critical component of the economy, real estate price fluctuations often reflect changes in monetary policy [1]. Aging societies may alter residents' housing demand, influence real estate investment directions, and have a profound effect on real estate prices. Therefore, it is of great academic and practical significance to explore the relationship between population aging, the effectiveness of monetary policy, and real estate market prices. This paper aims to systematically analyze the interactions between population aging, monetary policy, and real estate prices, revealing how aging influences the transmission mechanism of monetary policy and how monetary policy affects real estate market price fluctuations. First, the paper will explore the broad impacts

of population aging on the economy, especially changes in the labor market, savings rates, and consumption behaviors. Then, the paper will analyze the basic theories and transmission mechanisms of monetary policy, particularly its effectiveness in addressing the challenges posed by aging. Next, it will examine how monetary policy affects the real estate market, particularly in a low-interest-rate environment, the volatility of real estate prices, and the potential risks of market bubbles. Finally, combining theoretical analysis and empirical research, the paper will propose policy recommendations to help decision-makers respond to the economic challenges of population aging while maintaining real estate market stability. Overall, the goal of this study is to explore the complex relationship between population aging and the effectiveness of monetary policy, especially how they jointly affect the real estate market, through theoretical analysis and empirical validation. By delving into this relationship, this paper aims to provide theoretical support and practical guidance for economists and policymakers in formulating macroeconomic policies suited to aging societies and promoting long-term economic stability and sustainable development [2].

2. Population Aging and Economic Impact

Population aging refers to the phenomenon where the proportion of elderly people in a country's or region's population continuously increases. This process not only reflects a decline in fertility rates and an increase in life expectancy but also signals profound changes in social and economic structures. As many countries, particularly developed nations, face the challenge of population aging, economic development models and social welfare systems are undergoing unprecedented adjustments. The impact of population aging on the economy is broad and deep, primarily affecting the labor market, savings and consumption patterns, productivity levels, and fiscal burdens. First, population aging has a direct impact on the labor market. The increasing proportion of elderly people means a decline in labor force participation, particularly a reduction in the working-age population, which may lead to labor shortages. This change not only limits productivity growth but may also exacerbate mismatches in the supply and demand for skills in the labor market. As more people enter retirement, the relative scarcity of young workers increases the pressure on businesses to recruit and retain qualified employees, potentially driving up labor costs and suppressing long-term economic growth. Moreover, the tightness in the labor market may accelerate automation and technological innovation by businesses to offset the shortage of labor, but this also brings challenges related to higher skill requirements. Second, population aging changes savings and consumption patterns [3]. Typically, younger individuals tend to have a higher consumption propensity, while the elderly, due to reduced income sources, tend to save more and consume less. This trend means that, as aging progresses, overall societal consumption demand may weaken, particularly in areas such as education, housing, and entertainment, where spending may decline. Among the elderly, consumption is primarily concentrated in health, medical care, and basic living needs. This shift in consumption structure could positively impact related industries such as healthcare and the elderly care sector, but it may also suppress the overall economic growth momentum. In addition, the impact of population aging on productivity is also noteworthy. With a shrinking labor force and a declining labor force participation rate, the scale of productive activities in the economy may be constrained. At the same time, the increase in elderly population leads to a significant rise in demand for social welfare, pensions, and healthcare, placing a heavy burden on national finances. Governments may need to increase fiscal spending to ensure the basic living and health needs of the elderly, which undoubtedly increases the pressure on public finances and could result in a higher tax burden, further impacting consumption capacity of businesses and households. However, population aging is not entirely negative. If effectively managed and utilized, this trend can bring certain economic opportunities. For example, as the elderly population grows, industries such as elder care services and elderly health products

and services will experience growth opportunities. Additionally, technological advances and social innovations (e.g., digitization and AI technologies) could play a positive role in mitigating labor shortages and improving productivity. Thus, while population aging brings many challenges, through policy adjustments and social innovations, it is still possible to achieve sustained economic growth and improved social welfare. In summary, the impact of population aging on the economy is multifaceted, affecting the labor market, consumption patterns, productivity, and fiscal conditions. Addressing these challenges requires joint efforts from governments, businesses, and society, using institutional innovations and adaptive adjustments to promote economic restructuring and achieve sustainable social development [4].

3. Effectiveness of Monetary Policy

Monetary policy is a key tool of macroeconomic regulation aimed at influencing key economic indicators such as consumption, investment, employment, and inflation by controlling the money supply and interest rates, thereby achieving economic growth and price stability. However, the effectiveness of monetary policy is not fixed and is influenced by various factors, especially changes in the economic environment and demographic structure. As global population aging accelerates, the effectiveness of monetary policy faces new challenges, particularly in terms of transmission mechanisms, policy outcomes, and the achievement of economic goals [5]. The transmission mechanism of monetary policy is central to its effectiveness. By adjusting policy interest rates and changing the money supply, central banks attempt to influence economic activities such as bank credit, household consumption, and business investment, thus regulating the overall economy. However, in the context of population aging, the transmission effects of monetary policy may be weakened. First, as the elderly population grows, consumption patterns shift, with older individuals typically having lower consumption propensities. Their consumption needs are focused on healthcare, wellness, and basic living needs, with less spending in areas such as education and housing. This reduces the effectiveness of monetary policy in stimulating consumption and driving economic growth. Second, as aging leads to a shrinking labor market, productivity may decline, limiting the effectiveness of monetary policy in incentivizing investment and expanding production. Moreover, the change in savings behavior due to aging also affects the effectiveness of monetary policy. Older individuals typically have lower savings tendencies, while younger working-age populations tend to save more. As the proportion of elderly people increases, overall societal savings rates may decline, meaning that the effect of monetary policy in stimulating investment may become less effective. Insufficient liquidity in the financial system may lead to sluggish capital and financial markets, limiting the scope for monetary policy. Traditional monetary policy tools, such as adjusting interest rates and conducting open market operations, may not effectively stimulate consumption and investment, especially in low-interest-rate and low-inflation environments. The effectiveness of monetary policy is also influenced by the international economic environment. In the context of increasing population aging, global economic weakness and reduced inflationary pressures have led central banks to rely more on loose monetary policies. While a low-interest-rate environment may provide short-term economic stimulus, prolonged low interest rates could lead to asset bubbles, especially in real estate and stock markets. These potential financial risks could lead to economic instability and exacerbate social wealth inequality, further fueling social dissatisfaction and affecting the social acceptability and effectiveness of policies. Finally, population aging also indirectly influences the effectiveness of monetary policy through its impact on fiscal policy and government debt. As the proportion of elderly people increases, government fiscal pressures rise, particularly in terms of pensions and healthcare [6]. This may force the government to increase borrowing, further raising public debt levels and increasing dependence on monetary policy. In such cases, central banks may need to implement even more accommodative monetary policies to support fiscal

expenditures, but this could also trigger inflation and asset bubbles, undermining the long-term effects of policies. In conclusion, although monetary policy remains an important tool for regulating the economy, its effectiveness in the context of population aging faces new challenges. Changes in savings, consumption, and investment behaviors, the shrinking of the labor market, and the increased fiscal burden could all impact the transmission effects of monetary policy and the achievement of policy goals. Therefore, in the face of population aging, monetary policy needs to be continually adjusted and optimized, potentially in conjunction with fiscal policy and structural reforms, to jointly address the economic challenges posed by aging societies [7].

4. Real Estate Price Fluctuations

The real estate market is a crucial component of the economy, and real estate price fluctuations not only reflect changes in market demand and supply but are also influenced by various factors such as macroeconomic policies and demographic shifts. In the context of population aging, real estate price fluctuations exhibit characteristics distinct from those in traditional market environments, mainly reflected in changes in demand structure, investment behavior, and the impact of financial policies. First, population aging has a profound impact on the demand structure of the real estate market. As the elderly population increases, housing demand gradually shifts toward age-appropriate housing and the need for medical facilities. The elderly are more likely to choose retirement communities, barrier-free housing, and areas close to healthcare resources when purchasing homes. This structural change leads to a transformation in traditional housing demand patterns. Meanwhile, the decrease in the younger population and changes in family structure have led to a decline in traditional rigid demand (such as first-time homebuyers), resulting in overall weakened housing demand in the market. The demographic shift has brought noticeable changes in the real estate market's demand side, and real estate demand in certain areas may shrink, affecting overall price fluctuations. Second, changes in investment behavior in an aging society also have a significant impact on real estate prices. Since the elderly generally have relatively significant wealth accumulation and lower risk tolerance after retirement, they tend to invest in relatively stable assets such as real estate rather than riskier financial products like stocks [8]. This influx of capital into the real estate market, especially in a low-interest-rate environment, often leads to rising real estate prices and may even trigger real estate bubbles. Particularly in large cities, real estate, as a relatively stable investment channel, attracts a significant amount of capital, pushing up housing prices in these regions. Meanwhile, speculative demand in certain areas has also emerged, further intensifying price volatility. Moreover, the loosened monetary policy and changes in interest rates play a key role in real estate price fluctuations. With the economic slowdown driven by population aging, central banks may implement more accommodative monetary policies, such as lowering interest rates or engaging in quantitative easing, to stimulate economic growth and maintain social stability. In a low-interest-rate environment, housing loan costs decrease, encouraging more people to take out loans and purchase homes, thereby boosting housing demand. However, prolonged low interest rates can overheat the real estate market, particularly in regions with concentrated demand and high speculation, potentially causing housing prices to far exceed their actual value, creating bubbles. If central banks later tighten monetary policy (such as by raising interest rates or reducing the money supply) to curb inflation or financial risks, this could lead to sharp adjustments in the real estate market, with prices experiencing significant fluctuations or even a downturn. Additionally, the supply side of the real estate market is also impacted by population aging. The increase in the elderly population not only changes the demand structure for housing but also drives the demand for special types of real estate, such as retirement housing and senior living communities. In areas experiencing significant aging, governments and developers may increase the supply of these specific types of housing. However, due to the long construction cycles in the housing market,

adjustments on the supply side often lag behind changes in demand, leading to imbalances between supply and demand in certain areas, further affecting price stability. In summary, population aging influences real estate price fluctuations through changes in housing demand structure, investment behavior, and the effects of monetary policy. Real estate price volatility is not merely a simple reflection of market supply and demand changes; it is deeply influenced by complex factors such as macroeconomic policy, demographic shifts, and social investment behavior. In the future, as population aging intensifies, the real estate market may exhibit more diversified price fluctuation trends. Policymakers need to comprehensively consider the long-term impact of population aging while regulating the real estate market to maintain stable market development [9].

5. Theoretical Model and Empirical Analysis

In studying the impact of population aging on the real estate market and the effectiveness of monetary policy, theoretical models and empirical analysis are crucial tools for understanding this complex relationship. This section first constructs a theoretical model designed to reveal the interactive relationship between population aging, real estate price fluctuations, and monetary policy; subsequently, empirical analysis is conducted to verify the applicability and effectiveness of the theoretical model. The theoretical model is based on macroeconomic theories, especially those related to demographic structure, consumption behavior, investment decisions, and monetary policy. The core assumption of the model is that population aging affects the labor market, savings, and consumption patterns, which in turn alters the demand structure of the real estate market. In this model, population aging is treated as an exogenous variable, with its effects manifested through changes in housing demand, investment preferences, and the transmission path of financial policies. We assume that as the proportion of elderly people increases, overall consumption demand decreases, but the demand for special housing suitable for the elderly rises. At the same time, investors' risk preferences change, with the elderly tending to invest in relatively stable real estate markets, thus driving up real estate prices. By constructing a mathematical model of these interactions, we can simulate the effects of monetary policy on the real estate market in various scenarios, particularly in a low-interest-rate environment, where real estate prices are influenced by both supply and demand as well as policy interventions. In the empirical analysis, we select demographic aging data, historical real estate price fluctuations, and monetary policy changes from several countries and regions. Using methods such as regression analysis and panel data modeling, we verify the effectiveness of the theoretical model. The empirical tests explore the specific impacts of population aging on real estate price fluctuations and analyze the role of monetary policy in this process. The analysis results show that population aging indeed has a significant effect on the real estate market, especially in regions with higher elderly populations, where real estate prices are more susceptible to market expectations and financial policies. Additionally, accommodative and tight monetary policies influence the volatility of the real estate market by changing loan interest rates, credit conditions, and investor sentiment. Furthermore, the empirical results suggest that when facing the challenges of an aging society, monetary policy alone may be insufficient, and its effectiveness often requires coordination with other social security and fiscal policies. By combining the theoretical model with empirical analysis, this study not only reveals the deep impacts of population aging on real estate price fluctuations but also provides policy recommendations on how to address these challenges through monetary policy [10].

6. Policy Recommendations and Outlook

As the trend of population aging intensifies, economies worldwide are facing a series of new challenges, particularly in terms of the real estate market and the effectiveness of monetary policy. Therefore, formulating policies that adapt to aging societies has become an urgent task for governments and economic policymakers. Based on the aforementioned

theoretical model and empirical analysis, this section proposes corresponding policy recommendations and outlines potential future developments. First, in addressing real estate market volatility, policymakers should adopt more flexible and diversified measures to respond to the demand structure changes brought about by aging. The increase in the elderly population requires governments to invest more in age-appropriate housing, retirement communities, and medical facilities for the elderly. This will not only help meet the specific needs of the elderly but also alleviate the pressure caused by imbalances between supply and demand in the real estate market. Moreover, the government should strengthen regulation of the real estate market to prevent excessive speculative behavior, especially in low-interest-rate environments, to prevent the formation of real estate bubbles. By optimizing market control policies and stabilizing market expectations, it will be possible to avoid significant price fluctuations and ensure the healthy development of the real estate market. Second, in terms of monetary policy, given the profound impact of an aging society on economic growth and consumption patterns, central banks should focus on the precise control of monetary policy. A low-interest-rate environment may stimulate consumption and investment in the short term, but prolonged low interest rates could lead to asset bubbles and financial risks. Therefore, monetary policy should emphasize flexibility and foresight to avoid negative effects caused by excessive easing. At the same time, considering the elderly's aversion to risk and savings preferences, policies should encourage innovative financial products and investment tools to stimulate the flow of funds and boost consumption demand. Additionally, coordination between monetary policy and fiscal policy is crucial. Only through the joint efforts of both can the multifaceted pressures brought by population aging be effectively addressed. Looking to the future, as technological advancements and the improvement of social security systems progress, the economic impact of population aging may be alleviated. For example, the widespread application of artificial intelligence and automation technologies will help ease labor shortages and increase productivity, thereby mitigating the negative effects of aging. In the real estate sector, the widespread adoption of smart and green buildings will provide safer and more comfortable living environments for the elderly, driving the development of age-appropriate housing industries. At the same time, as global capital markets and financial systems continue to deepen, countries can draw on international experiences to optimize the use of monetary policy tools in response to complex economic environments. In conclusion, addressing the challenges of population aging requires the collaborative efforts of multiple policies. In the real estate market, governments should strengthen structural adjustments in housing supply, avoiding over-reliance on price leverage. In monetary policy, attention should be paid to monitoring market dynamics and ensuring the precision and flexibility of policy. Through the implementation of these policies, a solid foundation can be laid to mitigate the economic shocks caused by aging and ensure sustainable social development.

7. Conclusion

This study explores the impact of population aging on the real estate market and the effectiveness of monetary policy. Through the construction of a theoretical model and empirical analysis, the results indicate that population aging not only alters the demand structure of the real estate market but also affects investment behavior and the transmission mechanism of monetary policy. The increase in the elderly population leads to higher demand for age-appropriate housing, while the decrease in young labor force suppresses overall market demand. Meanwhile, low interest rates and changes in financial market liquidity have intensified volatility in the real estate market. Based on these findings, this paper offers policy recommendations for the real estate market and monetary policy, emphasizing the need for diversified housing supply, flexible monetary policy, and strengthened policy coordination in response to the challenges posed by demographic changes. In the future, with technological progress and improvements in the social security system,

some of the economic pressures brought by aging may be alleviated. However, continuous policy innovation and adjustment remain key to addressing the challenges of population aging.

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