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Population Aging, Consumption Transformation, and Economic Growth: A Demand-Side Perspective

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Abstract. With the continuous deepening of global population aging, population structure has become a key factor affecting long-term economic growth. This article examines the correlation between aging and economic growth from consumption structure transformation, and reviews relevant theoretical mechanisms and empirical findings. Under the life cycle hypothesis, it first analyzes age-based consumption differences and their impacts on overall demand. Given rising life expectancy, traditional theory is extended to highlight the elderly's surging demand for healthcare and wellness services, whose influence keeps rising. It also sorts out existing studies on how the silver economy, service sector expansion and technological innovation fuel new growth drivers. Overall, population aging exerts mixed effects on economic development. A shrinking labor force and lower participation rates curb growth, while aging boosts consumption upgrading, advances industrial restructuring and creates new opportunities. Focusing on consumer demand, this paper connects demographic changes, consumption upgrading and economic adjustment. It enriches related research and offers practical policy references for aging societies.

Keywords: Population Aging, Consumption Structure Transformation, Economic Growth, Silver Economy, Service Sector

1. Introduction

With the continuous development of medical technology and the increase in life expectancy, population aging has become more and more obvious around the world. In many countries, the proportion of elderly people is rising quickly, and the population structure is gradually becoming an important factor that affects long-term economic growth [1, 2]. Because of this, the economic impact of population aging has attracted a lot of attention in both academic research and policy discussions.

When discussing the relationship between aging and the economy, most existing studies mainly focus on the supply side. They usually pay attention to labor supply, production efficiency and savings. These studies generally believe that aging will reduce the size of the working population and lower labor participation, which may slow down economic growth. However, there are relatively fewer studies that focus on the demand side, especially how demographic changes influence consumption behavior and overall demand.

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From the perspective of consumer behavior, the life-cycle hypothesis is often used to explain consumption decisions. This theory suggests that individuals arrange their consumption and savings over their lifetime in order to keep consumption relatively stable [3, 4]. In general, people save during their working period and spend their savings after retirement.

However, with people living longer and living standards improving, the consumption behavior of the elderly has changed compared with what traditional theory suggests. Elderly people today are more willing to spend on healthcare and different kinds of services. This change is also related to differences in income levels and consumption preferences across age groups [5-7].

At the same time, these changes in consumption are promoting the development of healthcare, elderly care and other service industries, and also contributing to the growth of the silver economy. Some studies point out that these structural changes may interact with technological progress and automation, and further influence long-term economic development [8, 9].

Based on this background, this paper reviews the theories and existing studies on population aging, consumption structure transformation and economic growth, and mainly focuses on the demand-side perspective. It discusses how demographic changes affect consumption and industrial adjustment, and tries to provide a more comprehensive understanding of the economic impact of population aging.

2. Population aging and consumption structure transformation: theoretical mechanisms

2.1. Life-cycle hypothesis

The life cycle hypothesis is a core theory used to explain people's consumption behavior. It suggests that individuals plan their consumption and savings based on their total income over the whole life, so as to keep consumption relatively stable. Under this idea, people do not rely only on current income, but make arrangements in advance, dividing income into different periods of life and maintaining a balance between income and expenditure.

On this basis, later studies further point out that consumption and saving behavior will change at different life stages. In the early stage of life, people tend to spend more on education, housing and durable goods, and may depend on borrowing or family support. In the middle stage, income becomes more stable, so people are more likely to save. In the later stage, individuals gradually reduce savings and increase spending, especially on medical care and daily services [5, 6].

These differences are reflected not only in how much people consume, but also in how they consume. As people move through different life stages, their income level, health condition and family structure will change, and their consumption priorities will also change accordingly. For example, younger households pay more attention to long-term development, while older households focus more on health and quality of life. Once the population age structure changes, these individual differences will be reflected at the overall level. With the increase in the proportion of elderly people, social consumption demand will gradually shift from durable goods to healthcare, elderly care and various service consumption [5-7]. As this demographic change takes place over a long period, the adjustment of consumption structure will also continue in a gradual way.

2.2. Extension of life-cycle theory in the era of longevity

The average life expectancy is continuously increasing, which brings new challenges to the traditional life cycle theory. In early theories, it is generally assumed that consumption will gradually decline after retirement. However, this assumption does not fully match the actual

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situation in an aging society. Especially in regions with higher income levels and better medical conditions, the difference between theory and reality becomes more obvious.

Firstly, with the extension of human lifespan, the period after retirement becomes much longer. People need to maintain their daily consumption for a longer time. Retirement is no longer a short stage, but may last for decades, which has a deeper influence on individual consumption decisions. Under such a condition, people tend to make more long-term arrangements in advance, so as to keep their consumption relatively stable after retirement, rather than sharply reducing their spending.

This change further leads to an increase in demand for various life services, including healthcare, leisure, entertainment and health-related consumption. In reality, most elderly people do not simply cut down their expenses in order to save money, but try to maintain their original standard of living. Therefore, the idea that consumption will continuously decline after retirement is no longer fully applicable in an aging society [5, 6].

Secondly, as age increases, expenditure on healthcare and long-term care also rises significantly, and gradually becomes an important part of household consumption, which is more obvious in developed countries [1, 5]. With the increase of age, the probability of chronic diseases becomes higher, and the demand for regular medical services continues to grow. As a result, the frequency of medical visits increases, and the related expenses also rise accordingly.

In addition, uncertainties related to health conditions and life expectancy also play an important role. Individuals need to reserve part of their income to deal with unexpected medical costs and long-term care needs, which makes the arrangement of consumption and savings more complicated. Under such circumstances, some new factors need to be considered in the life cycle framework, such as precautionary savings and risk prevention.

Therefore, in order to better explain consumption behavior in an aging society, the life cycle theory needs to be further extended by incorporating factors such as health risks, medical expenditure and uncertainty of lifespan. These adjustments make the theory closer to reality and help to more accurately reflect the current consumption patterns of residents.

2.3. Transformation of elderly consumption structure

With the continuous development of population aging, the consumption structure of the elderly is also showing gradual changes. This change is not only caused by demographic factors, but is also related to the increase in income levels, the improvement of healthcare systems, and the overall development of social conditions.

In traditional situations, the consumption of the elderly is mainly concentrated on basic living needs such as food and clothing. This type of consumption is relatively stable and mainly reflects the need to maintain basic living standards. However, in recent years, this pattern has gradually changed.

With the increase of income and the improvement of health awareness, the proportion of expenditure on healthcare, elderly care services and other related services is continuously rising. In many cases, elderly individuals are more willing to spend on maintaining physical and mental health, and also pay more attention to improving their quality of life [5, 6].

This kind of change reflects a gradual shift from basic consumption to service-oriented and health-related consumption. It not only affects individual consumption behavior, but also has an influence on the overall structure of social demand. As the proportion of service consumption continues to increase, the trend of structural transformation becomes more obvious [7].

At the same time, this transformation does not only appear in high-income countries. In some developing countries, with the growth of income levels and the deepening of population aging,

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similar changes can also be observed, although there are differences in the speed and extent of adjustment.

With the continuous increase in demand for healthcare and related services, industries such as medical care, elderly care and wellness services are also expanding, which further promotes the development of the silver "economy" [1, 8, 9]. In this process, population aging is not only a demographic change, but also an important factor influencing industrial structure and economic transformation.

3. Population aging, consumption transformation, and economic growth: empirical evidence

3.1. Population aging and consumption structure changes

A large number of empirical studies have shown that consumption patterns are different across age groups. As people become older, the proportion of spending on healthcare and various services gradually increases, while the share of expenditure on education, housing and durable goods tends to decline [5, 6]. This kind of pattern has been observed in many countries and over a long period of time.

At the macro level, changes in population structure are often accompanied by changes in the overall consumption structure. Evidence from different countries shows this clearly. In societies with a higher level of aging, healthcare and social services take up a larger proportion of total consumption. The importance of education and housing becomes relatively lower [1, 6]. This indicates that demographic structure plays an important role in shaping the overall consumption pattern of a country.

From the perspective of households, related studies support this conclusion. Micro-level evidence shows that elderly households usually allocate a higher share of their income to medical care. This is because their healthcare needs increase. It is also because they are more willing to spend on health-related services [5, 6].

In addition, in high-income countries, healthcare expenditure has shown a continuous upward trend. Population aging is generally considered to be an important factor behind this change [10]. As income levels continue to rise, people pay more attention to health and longevity. This further strengthens the trend. It also promotes the shift of consumption toward healthcare and related services.

3.2. Silver economy and service sector expansion

With the continuous increase in demand for healthcare, elderly care and other related services, the service sector is also expanding, and the silver economy is gradually developing. This development is not only related to demographic changes, but also reflects the change in people's consumption preferences. Existing studies show that with the increase of income levels and the extension of life expectancy, individuals pay more attention to investment in health, which promotes the development of healthcare-related industries [1, 5]. This type of demand is not limited to medical treatment, but also includes preventive care, rehabilitation and long-term care services. At the same time, population aging is often accompanied by a gradual shift toward a service-oriented economic structure. As consumption demand increasingly moves toward services, the proportion of the service sector in overall economic activities also tends to rise [1, 7]. This process is closely related to changes in production structure and the reallocation of resources across different sectors. In addition, population aging may also lead to some changes in technology. As the size of the labor

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force decreases, firms have stronger incentives to adopt automation and more advanced technologies in order to reduce their dependence on labor [8, 9]. In some cases, such adjustments can help improve productivity and further promote structural transformation.

3.3. Population aging and economic growth dynamics

Overall, population aging has both constraining and enabling effects on economic growth. The net impact depends on how economies adapt to demographic change, including institutional settings, technological capacity, and policy responses [11].

The overall impact of population aging on economic growth has been widely discussed in existing studies, but there is still no unified conclusion. Different studies often reach different results, which are related to their research methods, assumptions and data used.

On the one hand, population aging may have a negative influence on economic growth. As the proportion of elderly population increases, the size of the labor force gradually decreases, and the labor participation rate may also decline. Under such conditions, economic growth may slow down. Some empirical studies have shown that a higher level of aging is often associated with lower economic growth and slower productivity growth [1, 2, 10]. This effect may be more obvious in economies that rely more on labor-intensive industries.

On the other hand, population aging may also bring some new driving forces for economic growth. With the development of structural transformation, the expansion of the service sector and the adjustment of technology, the negative impact caused by labor shortage can be partly reduced. At the same time, the increase in demand for healthcare and elderly care services creates new market opportunities and promotes the development of related industries [1, 7].

For example, when facing a shortage of labor, firms may increase investment in automation and advanced technologies in order to improve production efficiency and reduce dependence on labor [8, 9]. In this way, part of the negative impact caused by the decline in labor supply can be offset. This also shows that demographic pressure may promote technological progress and structural adjustment to some extent.

Overall, population aging has both negative and positive effects on economic growth. The final impact depends on how the economy responds to demographic change, including institutional arrangements, technological development and policy support [11].

4. Literature review and future research directions

A review of existing studies shows that population aging affects economic growth in several ways. These include labor supply, savings behavior, and consumption structure [1, 2]. Most studies focus on the supply side. The demand side is often ignored.

First, many studies look at the direct impact of aging on the labor market and economic growth. They mainly focus on labor participation and productivity. Under this view, aging reduces labor supply. It also slows down productivity growth. But fewer studies look at consumption. There is limited discussion on how demographic change affects demand. Also, how this further changes industrial structure is not well studied. In reality, changes in consumption structure matter. They influence demand composition. They also affect the development of different sectors [5–7].

Second, the silver economy has received more attention in recent years. But most studies are still descriptive. There is little systematic analysis. It is still unclear how elderly consumption leads to measurable changes. Especially in the expansion of the service sector and economic growth.

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Because of this, the mechanism is not clear. People still do not fully understand how consumption structure transformation affects macroeconomic outcomes [1, 8].

In addition, some recent studies mention structural transformation and technological change. These factors also shape the economic effects of aging. For example, automation may reduce labor shortages. It can ease some negative effects. At the same time, resource reallocation across sectors can change productivity. But the link is still unclear. The connection between supply-side adjustment and demand-side change has not been fully explored [7, 9].

Therefore, future research should combine consumption structure with the silver economy. This may help build a more complete framework. It is also important to connect micro and macro levels. Linking household behavior with structural change may help explain the impact of aging on economic growth. It can provide a clearer understanding of its economic effects.

5. Conclusion

In conclusion, the impact of population aging on economic growth is complex. It is not simply negative or positive. It comes from different factors. There are both constraints and possible opportunities.

On the one hand, population aging may slow down economic growth. The labor force becomes smaller. The participation rate also declines. This can affect economic performance. When the working-age population shrinks, growth faces limits. This is more obvious in labor-intensive economies.

On the other hand, population aging can also create new sources of growth. Life expectancy keeps increasing. Income levels are also rising. The consumption of the elderly is changing. More spending goes to healthcare, elderly care, and services. This shift in demand supports the service sector. It also helps structural transformation.

In addition, population aging affects both supply and demand. Changes in consumption influence how resources are allocated. At the same time, less labor supply pushes firms to adjust. Many firms turn to automation and new technologies. These changes can reduce the impact of labor shortages. Productivity may also improve.

Therefore, policies need to be more balanced. A long-term view is needed. It is not only about labor market pressure. It is also about new opportunities. Governments can support healthcare, elderly care, and service industries. Under these conditions, the silver economy may become an important driver of transformation.

At the same time, this study still has limitations. It mainly uses existing literature. There is no empirical analysis. So the conclusions should be treated carefully. Also, differences between countries are not fully discussed. This includes institutions and consumption patterns. These factors may affect how the conclusions apply.

In future research, more empirical work is needed. Data analysis can help test the relationship more clearly. Comparative studies across countries are also useful. They can show how different systems and structures shape the economic effects of aging.

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