

World Economy Brief

December 9, 2020 | Vol. 10 No. 36 | ISSN 2233-9140

The Effects of Demographic Change on Current Account and Foreign Asset Accumulation

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I. Introduction

Korea has recorded a current account surplus since the Asian financial crisis in 1998, and this long-lasting current account surplus of Korea is mainly due to trade surplus. The current account balance is the sum of the trade balance (net export) and income balance. According to the national account identity, the trade balance is the difference between domestic saving and investment. Demographic changes can affect consumption and saving decisions of households and investment of firms. In Korea, where the working-age population is high, demographic motivation such as household savings in preparation for retirement helps the current account surplus. With the world-fastest demographic change, there is a possibility that the current account surplus will decrease or turn into a current account deficit in the future.

In the open economy, the current account surplus is the mirror image of the net foreign assets accumulation. It also contributes to the current account through income balance in the forms of profit, dividends, and interests of foreign investment. Developed countries such as Japan and Germany save considerable net foreign assets, which helps stabilize the current account. Korea started recording positive net foreign assets in 2014, and its size has rapidly increased. Under Korea's rapid demographic change, it is necessary to construct a positive feedback-loop structure between the current account surplus and net foreign assets.

This study aims to establish policy guidance by looking at the long-term trend of demographic changes and its impacts on foreign variables such as the current account and net foreign asset positions.

II. Demographic Change and Its Impact on Current Account

We investigate the long-term effects of demographic changes on current account and net foreign assets. Along with economic developments, there are three stages of demographic changes:



(1) high birth rate and high mortality rate, (2) high birth rate and low mortality rate, and (3) low birth rate and low mortality rate. Population growth and aging occur in the process.

According to the UN World Population Prospects (2019), population aging is on progression and will accelerate worldwide, driven by dropping fertility rates and soaring in life expectancy. Population aging has already intensified in many advanced economies such as Japan and Western Europe, and it is now the most dramatically changing in East Asian countries, where it has developed into an urgent issue of social concern. Korea entered into an ultraaged society in 2018 and is expected to reach the world's highest level beyond Japan in the 2040s.

Figure 1. Ratio of Elder Population



Note: In the case of Korea, the solid line depicts the projection of Statistics Korea, and the dotted line depicts the median projection of the UN. Source: UN World Population Prospects (2019); Statistics

This rapid aging of the population will change the economic fundamentals. As the individual's consumption and saving behavior and labor supply decision differ by age group, the distribution of population changes will have macroeconomic impacts, including aggregate savings and investments and economic growth and current account. If the proportion of the workingage population (typically, 15 to 64 years old) rises, then it increases the labor force in the economy, so does production, thereby promoting economic growth (so-called demographic bonus). From Modigliani's life cycle hypothesis, typical economic agents save at their working-age for their retirement to smooth out lifetime consumption. Thus, population aging potentially works to reduce saving and current account balance of the economy.

This has been the case with Korea. The proportion of the working-age population passed its peak, with 73.4% of the total population in 2012. It still maintains high (72.7% in 2019). This high share of the working-age population contributes to the long-lasting current account surplus in the Korean economy. However, as Korea's population aging continues to progress and its baby boomer generation retires, the demographic structure will continuously reduce the current account surplus.

The accumulation of net foreign assets in the process of population aging may be important for a sustainable economy. If net foreign assets are sufficiently cumulated, then the increase of income account may be an alternative factor in maintaining the current account surplus. In ad-

Korea (2019)

vanced economies, income surplus often compensates for the deficit in trade surplus. While industrial restructuring was carried out in the direction of shrinking the manufacturing sector, due to increases in labor costs as the aging of the population progressed, advanced economies invest their capital overseas. In Japan, the trade account surplus has continuously decreased, even recording a deficit in 2011-15, but the nation continues to have a current account surplus due to its considerable income surplus.

Figure 2. Current Account of Japan



Source: IMF, Balance of Payments.

III. Analysis of Demographic Changes on Current Account

We conduct two analyses to investigate the effects of demographic changes on current account and its implications for the Korean economy. First of all, we revisit the empirical analysis for the current account determinant. We construct country-year panel data including several demographic variables and estimate the effects of those variables on current account. Based on the median projection of demography in Korea (UN, 2019), we forecast the dynamics of the future current account changes in Korea. Secondly, we construct and calibrate a simple overlapping generation (OLG) model for small open economy to capture the effect of demographic changes in the Korean economy.

Using 146 country panel data for 1980-2018, we analyze the determinants of the current account by closely following Chin and Prasad (2003), Kim and Kim (2017), and the External Balance Assessment (EBA) of the IMF. We find that the current account balance is statistically significantly affected by demographic factors, net foreign assets, GDP per capita, domestic credit, VXO, trade openness, and fiscal balance. The estimated coefficient of youth and old dependency ratio may be statistically insignificant depending on the model, but they are estimated negatively related to the current account. According to the benchmark model (Column 1 of Table 1), 10%p increases of young and old dependency ratios lead to 0.5%p and 1.6%p decreases in the current account balance. Life expectancy has no significant effects on improving the current account (Column 2 of Table 1), but the aging speed has positive effects and partially offsets the negative effect of the old dependency ratio on the current account (Column 3 and 4 of Table 1). The youth and old dependency ratio capture the static effects from the difference in saving propensity by age group of the economy, whereas life expectancy and aging speed capture the dynamic effects of saving propensity of economic agents that reflect future viability.

Table 1. Empirical Results	(Fixed-effect	Panel	Regression	I)
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Model	(1)	(2)	(3)	(4)
	-0.047	-0.058	-0.055	-0.039
Youth Dependency (YD)	(0.040)	(0.040)	(0.039)	(0.040)
	-0.162*	-0.199**	-0.361***	-0.132
Old Dependency (OD)	(0.098)	(0.099)	(0.102)	(0.098)
		-24.36**		
Life Expectancy		(10.10)		
			5.594***	
Aging Speed 1			(1.022)	
Aging Speed 2				0.211***
Aging Speed 2				(0.077)
(YD) ²				
(OD) ²				
Net Foreign Assets	0.008	0.010*	0.004	0.006
(% of GDP)	(0.005)	(0.005)	(0.005)	(0.005)
GDP per capita	-11.35***	-10.62***	-13.57***	-14.22***
(relative to the US)	(2.911)	(2.911)	(2.851)	(3.075)
GDP Gan	0.002	0.002	0.002	0.001
GDI Gap	(0.002)	(0.002)	(0.002)	(0.002)
Trading Partner GDP Gan	0.025	0.002	0.024	0.017
	(0.038)	(0.039)	(0.037)	(0.038)
Oil Price X	0.207	0.108	0.416	0.020
Oil Importing Country	(0.590)	(0.589)	(0.574)	(0.590)
Domestic Credit	-0.035***	-0.037***	-0.048***	-0.041***
	(0.009)	(0.009)	(0.009)	(0.009)
VXO	-6.509***	-5.496***	-8.775***	-6.173***
Trade Openness Fiscal Balance	(2.051)	(2.083)	(2.031)	(2.040)
	0.045***	0.046***	0.049***	0.040***
	(0.011)	(0.011)	(0.011)	(0.011)
	0.462***	0.445***	0.493***	0.453***
	(0.057)	(0.057)	(0.055)	(0.056)
Real Effective	0.150	0.068	0.457	-0.209
Exchange Rates	(1.186)	(1.180)	(1.151)	(1.185)
Constant	24.83***	24.11***	31.81***	27.86***
oonstant	(7.619)	(7.585)	(7.497)	(7.646)
R-squared	0.336	0.344	0.377	0.346
Observations	532	532	532	532
Number of Countries	57	57	57	57

Source: Authors' calculation.

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To predict Korea's current account changes due to the demographic changes, we also construct a small open overlapping generation (OLG) model. The population structure is calculated using the median population projection of the UN World Population Prospects (2019). Based on the population structure, we derive entry and exit rates by age cohort. We assume a small open economy so that the domestic interest rate is determined by the global interest rate and the risk premium, which is a function of the net foreign asset. This implies that capital can freely move abroad at the given interest rate. According to the calibration results, the current account surplus will continuously decrease due to Korea's demographic changes, and it will reverse to a deficit in 2045. In the calibration, individual economic agents accumulate assets during the working-age to smooth consumption, and overall macro variables such as labor-capi-

tal income ratio and capital accumulation change as the distribution of the demographic structure changes over the year. This analysis was limited to demographic structure changes only in Korea. If we consider the global trend of population aging, the impact of the population structure on Korea's current account balance may be overestimated.

IV. Policy Implications

Korea has become an advanced country by taking advantage of the open economy that helps to sustain high growth. However, the Korean Won has limited international compatibility, and its value is mainly determined by the supply and demand for foreign exchange. Thus, it is important to sustain the current account surplus to ensure stability in the foreign exchange market and prepare for financial turmoil.

The current account surplus of Korea mainly comes from its export-driven trade surplus. The current account surplus can be interpreted as foreign savings for future consumption, which is ultimately accumulated in a net foreign asset position. Net foreign assets can contribute to the current account surplus with income balances such as dividends and interest. Korea has maintained its current account surplus since 1998 but only entered into a net foreign assets surplus country in 2014. Given the rapid demographic change, it is important to establish a virtuous cycle of current account surplus and net foreign asset accumulation. KIEP



Figure 3. Prediction of Current Account of Korea