

Implications of Global Recession and Structural Changes for the Korean Economy

HAN MinSoo Associate Research Fellow, International Macroeconomics Team, Department of International Macroeconomics and Finance (mshan@kiep.go.kr)

World and Korean Economy after the Global Recession

The global economy still remains on a slow growth path. Following a period of incipient, short recovery right after the end of the 2009 recession, the global economy has continued to exhibit slow growth since 2015. Among the other final demand components of GDP, weak investment growth and trade slowdown are particularly visible in the global economy.

Korea still faces severe headwinds from the weak growth recovery. Since Korea's growth path has tended to converge to that of the global economy since 2003, Korea's recent growth moderation partly reflects a still-weak global economy. A closer look at Korea's final demand components suggests that a recovery in the domestic investment is offset by a weak growth in consumption and a notable slowdown in trade. Therefore, the proximate cause of growth slowdown in Korea differs from that of global growth slowdown. Without the boost provided by external demand for Korea's products, the Korean economy is likely to lose

its momentum in robust growth. Along with weak growth in domestic consumption, Korea's substantial export disruption might lead to a further slowdown in the Korean economy in the future.

There are common and structural global factors behind the convergence of the Korean economy to the slow growth path of the global economy. Among others, the recent policy-oriented works have analyzed the four structural and policy changes of aging population, rising income inequality, the implementation of China's rebalancing, and trade protectionism. Motivated by the previous works, we have quantified the effects that aging and rising inequality in China, Japan, the U.S. and Korea, China's thirteenth Five-Year Plan, and Brexit have on the Korean economy and analyze the mechanism through which the structural changes affect the Korean economy.

Structural and Policy Changes

Aging Population

Both the age dependency ratio of the old-aged

population over working-aged population and share of population ages 65 and above increased in China, Japan, Korea and the U.S. from 1990 to 2014. During the same time, the fertility rate declined. Treating the historical average changes as the predicted changes in the aging proxies, and assuming a linear relationship between the aging proxies and the aggregate variables, we predict the future change in consumption, investment, and employment arising from aging. To quantify the effect of aging on the Korean economy, we plug the predicted path of three aggregate variables arising from aging into the Global Model Workstation (GMW) by Oxford Economics.

The model predicts that even though aging in Korea itself is the main driver to decrease Korea's GDP, the effect from aging in the other three countries is significant as well. For example, the model predicts that Korea will have 4.4 percent smaller GDP than benchmark in 2020 due to aging in all four countries. On the other hand, Korea is predicted to have 3.3 percent smaller GDP from aging only in Korea.

To further our understanding about the mechanism through which the aging population affects Korea's GDP, we decompose the change in GDP into the changes in private domestic demand, export, and import. We find that aging tends to reduce all three aggregate demand components, private domestic demand, export, and import. Among them, the effect through private domestic demand is the most important channel. Because import tends to decline more than export, net export somewhat offsets the negative effects of aging through private domestic demand channel.

Rising Income Inequality

Over the last decades, all top income shares tend to increase in China, Japan, Korea, and

the U.S. For example, the average annual growth rates of the top 10 percent, top 1 percent, and top 0.1 percent from 1995 to 2012 in Korea are 0.92, 0.31, and 0.14 percent respectively. To quantify the effect of rising inequality on the Korean economy, we rely on a similar procedure to that of aging.

Despite the opposing forces at work between the negative effect on consumption and employment and the positive effect on investment, the negative effect of rising inequality outweighs its positive effect. Therefore, the overall effect of rising inequality on Korea's GDP is negative. In particular, the model predicts that in both cases for rising inequality in Korea only and in all four countries, GDP tends to decline by 0.6% and 1% respectively in 2020.

Again we apply a decomposition framework to the demand side of Korea. At least two implications stand out from the decomposition. First, the main driver of the negative effect of rising inequality on Korea's GDP is through private domestic demand. As rising inequality has negative effect on Korea's GDP, private domestic demand also tends to decline. On the other hand, the contribution by export is positive and partly offsets the negative effects of rising inequality. In particular, we normalize the change in GDP to -1. Then the contribution by private domestic demand changes from -1.929 in 2016 up to -6.970 in 2018 and finally down to -1.949 in 2020. Over the same period of time, net export changes from 0.929 in 2016 up to 5.963 in 2018, and finally down to 1.027 in 2020. We conjecture that bigger increase in investment might cause growth to pick up through an increase in export because an increase in top 1 percent income shares tends to increase investment.

China's Thirteenth Five-Year Plan

Due to the variable restriction in GMW, however, we cannot address all guidelines in China's Thirteenth Five-Year Plan through GMW. Therefore, our analysis focuses only on the implementation of parts of the guidelines, which we can perform using GMW. In addition, to construct counterfactual scenarios, we assume that China successfully carries out the tasks in China's Plan.

The model predicts that China's Plan has a positive effect on Korea's GDP. For example, the model predicts that Korea's GDP increases by 0.8% in 2020 relative to benchmark. The same decomposition framework of Korea's GDP reveals that China's implementation has positive consequences through all demand components. Notably, in the beginning positive effects from China's Plan go through external channel such as net export, while over time the contribution of private domestic demand continues to increase while that of external demand declines.

Trade Protectionism from Brexit

Lastly, we put numbers on the medium and long run consequences of Brexit. At first glance, our results do not seem to be consistent with the standard gain from trade liberalization. For example, Korea can sometimes lose from an FTA with the United Kingdom. Instead, raising trade barriers against the United Kingdom sometimes benefits Korea's growth. Although we are not able to prove it analytically, we conjecture that our seemingly counterfactual results arise from the interaction between capital accumulation and market access versus the substitution effect. In particular, ending an FTA with a certain country might benefit our other trading partners if we import goods from them instead of the original exporter. Such a substitution effect might be

large enough to give us back the benefit, especially if the other new trading partners are fast-growing economies.

Equally importantly, however, we do not argue that our results are against the general trend in gain from trade liberalization. Instead, we argue that our results confirm the overall gains from trade liberalization again. Depending on factors such as a country's input-output linkages with other countries, moving up and down in global value chains, and whether a country and its trading partners are growing, a country could either gain or lose from an FTA with a specific country.

Policy Implications

Based on our quantitative results, we propose the following policy recommendations. First, all our results support the important role played by domestic demand. Both rising inequality and aging population affect Korea's GDP primarily through the private domestic demand channel. In the beginning of the implementation of China's Five Year Plan, the external sector is the main driver of boosting an economy. Over time, however, the channel through which domestic demand affects Korea's GDP outweighs external channels such as net export. Therefore, we should treat the domestic issues of aging and rising inequality as important factors. Furthermore, our results show that it can sometimes be more effective to implement policies that target such domestic variables.

Second, the policy to address aging population through raising the fertility rate should take into account the trade-off between current employment and investment and the number of future working-aged population. We show that an increase in fertility rate has negative

consequences for employment and investment. The result is consistent with our intuition that if women have more children, they are less inclined to supply labor, thus leading to a decline in employment. At the same time, because production factors, labor and capital, are complementary in general, a decrease in employment would lead to investment slowdown. On the other hand, raising the fertility rate implies an increase in the future working-aged population. Again due to complementarity between production factors, this can boost investment and pick up growth in the future. Therefore, implementation of policies to address aging should be based on the optimal growth of population and take into account the trade-off between its short run and long run effects.

Third, a single index for income inequality is limited in fully representing all changes in inequality, and the aggregate effect of rising inequality is better captured by tracking down changes in the entire income distribution instead. Populations within the different income groups might play a different role and the aggregate consequences might depend on the entire income distribution. For example, one of our results illustrate that the population within the top 1 percent income group tends to have positive consequences on employment and investment. In the absence of detailed data, however, we cannot pinpoint which section of the population would benefit domestic demand. Instead of targeting a single index for inequality, therefore, policy tools to address rising inequality should be grounded by more sophisticated analysis.

Finally, after Brexit and more recently the presidential election in the United States, trade protectionism, which is partly fueled by rising income inequality, has been one of the recent incipient trends. Our results show that trade

protectionism should have negative consequences on the global economy. However, equally importantly, depending on factors such as a country's input-output linkages with other countries, moving up and down in global value chains, and whether a country and its trading partners are growing, a country could either gain or lose from an FTA with a specific country. Given that the gain from trade liberalization may not be bilateral in practice, a careful approach to quantify the effect of trade liberalization should be necessary before the implementation of an FTA with a certain country.

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