

## Update and Extension of Korea's Top Income Shares

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Methodological Notes

- 1) This update extends the Korea's top income shares up to 2016, which is four recent year addition to the series we submitted before. In addition, it adds the estimates for the periods of 1941-42 and 1976-78 based on the newly discovered tax statistics.
- 2) The data and methodology are identical to that used by Kim and Kim(2014) with following modulations.
- 3) The control total of population is the number of adults aged 20 and above. The data on population since 2000 is updated by using new series published by the Statistics Korea.
- 4) The control total of income is also updated by using the newly published series by the Bank of Korea which changed the whole series of national accounts since 1953 with the adoption of the 2008 SNA.
- 5) The wages and salaries in national accounts since 2010 seem to be underestimated and thus corrected as follows. The data on withholding tax on earned income started to cover the non-taxpayers and daily labor income earners in addition to taxpayers. Thus, the sum of these three groups in tax statistics corresponds to the wages and salaries in national accounts. In 2009, the earned income from tax data accounts for 95% of wages and salaries in national accounts. The difference between the two would be the earning of workers not covered by the tax data. However, the difference reduced over time and the earned income from tax data becomes greater than wages and salaries in national accounts by 6% in 2016. The figures in the income tax data are not the estimates of a sample survey, but data on income that was actually reported and became the object of taxation (or tax exemption) by the National Tax Service in complete enumeration. It implies the underestimation bias of wages and salaries in national accounts. The growth rate of wages and salaries in national accounts is also lower than those from the surveys reported by the Ministry of Employment and Labor and the Statistics Korea after 2010. This indicates that the underestimation bias in the national accounts has been cumulative since 2010. This bias could to be corrected in the next revision of national accounts. Until then, the bias is corrected for this update by replacing the growth rates of wages and salaries in national accounts since 2010 by those of earned income from tax data. For detail information, see Kim(2018, pp. 2-5).
- 6) Because the data on income tax for 1995-2004 are reported in terms of tax base, the tax deduction should be added to get the total income. Kim and Kim(2014) used the conversion rate between total income and tax base by income bracket in 2005 to compute the total income for 1995-2004 from tax base. This update improved the assumption made to reflect the change in income deduction system. See Kim(2018, pp. 5-6).
- 7) The interpolation method in Kim and Kim(2014) used Pareto interpolation following Piketty and Saez(2003). Instead, this update uses Generalized Pareto Curves method suggested by Blanchet, Fournier, and Piketty (2017).
- 8) While the CPI was used when converting the income in current prices into constant prices, now the GDP deflator is used.
- 9) As a result, the control total of income is corrected for the whole estimation period and that of population is corrected after 2000, which changes the whole series of top income shares. The series of threshold and average income are also corrected because of the change in income data and interpolation method. For instance, the income share of top 1% shows the difference between the old and new estimates in the late half of the 1990s and after 2010 (as shown in the

- Figure 6 of Kim(2018)). It is because of the corrections made as mentioned in 4), 5), and 6). To mention more about 4), the financial income of households increased because of the hike of interest rate during the economic crisis in the late 1990s but it included the investment income managed by the insurance companies, which is now separately categorized as “investment income disbursements” in 2008 SNA. This investment income is ultimately imputed to households but cannot be considered as the financial income of households in the current year. When this investment income was excluded, the control total of income decreased as much as 4% in the late half of the 1990s. It also made difference in the new and old estimates.
- 10) The composition of income of top x% (wages, interest, dividends, business income) is updated up to 2016.
  - 11) Raw income tax data for 1998-2016 can be obtained from the website of the National Tax Service ([https://www.nts.go.kr/info/info\\_05.asp](https://www.nts.go.kr/info/info_05.asp)).

## References

- Blanchet, Thomas, Juliette Fournier, and Thomas Piketty(2017), “Generalized Pareto Curves: Theory and Applications”, WID.world Working Paper 2017/3.
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