Income Inequality in Korea, 1958-2013.

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1. Introduction

This paper studies the top income shares from 1958 to 2013 in Korea using tax return.

2. Data and Methodology

In recent years, a methodology for studying income concentration using long time series tax return data has been established following Piketty (2001), who in turn builds on the seminal work by Kuznets (1953). Our data on income distribution mainly from the income tax return statistics published annually by the Korean tax administration starting in 1958. These statistics generally provide the number of taxpayers, the amount of income reported by taxpayers and the amount of income tax paid by income brackets.

Income is defined as taxable income before deductions of income and payroll taxes paid by individuals. It includes all income components reported in tax returns, namely, salaries and wages, bonuses, unincorporated business income, farm income, self-employment income, dividends, interest, rents, and other small items. Realized capital income gains are excluded from our definition of income.

The tax unit has been ‘individual’ from 1958, whereby spouse was taxed separately on their incomes. Our top income groups are defined relative to the total number of adults (age 20 and above) in Korea in each year based on official population statistics. Because of high exemption points, only a small fraction of individuals filed income tax returns in 1950s and 1960s. For this reason we provide estimates of the top 10% income share for entire periods.

Assuming that top incomes are approximately Pareto distributed, standard interpolation techniques can be used to calculate the income shares for various top fractiles, such as the top 10% (P90-100) or the top 1% (P99-100).

We estimate a top income share by dividing the amount of income accruing a top income group by total personal income computed from National Accounts.

We estimate the composition of income accrued to the top income 1% group, combining the statistics of various incomes. Because the composition statistics are not available for most
periods before 2000’s, we provide the estimates of the composition of income for 1961 and 2013 only.

Finally, we compute top wage shares using a similar methodology. Wage income in our definition includes wages, salaries, bonuses, allowances, and taxable part of noncash compensation, but excludes retirement benefits. Top groups are defined relative to the total number of employees. Our estimates of the total wage income denominator are based on the total salaries from national accounts excluding non-taxable part of noncash compensation.

3. The Basic Facts

3.1. Top Income Shares in Korea, 1958-2013

The basic series of top income shares are presented in Table ??.

Figure 1 shows the evolution of the top decile income share in Korea over the period 1958-2013. The share of the top decile increased substantially to 38.5 percent in 1979 from around 19 percent from early 1960s. Then it remained stable at around 35 percent during 1980s and 1990s. The top decile share has surged (a rise of almost 10 percent points) since the 2000s and reached 47 percent by 2011, the highest level on record. The evidence suggests that the income inequality in Korea increased dramatically along with rapid economic growth.

Figure 2 breaks down the top decile into the top percentile, the next 4 percent (top 5 percent excluding the top 1 percent), and the second vingtile (top 10 percent excluding the top 5 percent). It shows that the shares of top percentile, the next 4 percentile, and the second vingtile move together since 1980s. This pattern is contrast with that of the U.S. in which most of the changes in the top decile are due to dramatic changes in the top percentile (Piketty and Saez, 2003).

3.2. Top Wage and Top Business Income Shares

Figure 3 display the wage share and business income share of top percentile. The self-employment income is not included in wages but include in business income. The wage and
business income series are based on the individual, which is an advantage as opposed to total tax unit wages in the United States.

This Figure shows that the trends of wage and business income share are very similar to that of income shares. Not surprisingly, the business income share is more volatile than the wage share.

3.3. Composition of Top Incomes

Examining the composition of top incomes offers important hints to the understanding of the evolution of top income shares. In the United States, Piketty and Saez (2003) showed that individuals in the top percentile were overwhelmingly rentiers deriving most of their income from wealth holdings (mainly in the form of dividends) before World War II. In contrast in 1998 more than half of the very top taxpayers derive the major part of their income in the form of wages and salaries. They argued that “thus, today, the working rich have overtaken the coupon-clipping rentiers”. However, Wolff and Zacharias (2009) pointed out what happened is that “the two groups now appear to co-habitate the top end of the income distribution” based on using the Survey of Consumer Finances.

Korean tax laws distinguish mainly three sources of income: labor (wage and salaries), property (interest earnings, dividends, and land rents), business (including estate rents). Figure 3 shows the income composition for different fractiles in the years 1961 (Panel A), 1985 (Panel B), and 2013 (Panel C). Korean tax laws changed in 1962 from a system of taxation on each income source separately to a system of taxation on individual total income beyond certain amount. The tax return statistics did not contain the sources of income for individuals over the 1970s and 1980s. Therefore the…

Panel A shows that the share of wage income in a declining function of income and the share of business income is an increasing function of income. The share of property income is fairly flat. Thus, individuals in fractiles 90-95, P95-99, and P99-99.99 (top one percent excluding the top 0.01 percent) rely mostly on labor income, while individuals in the top 0.01 percentile derive most of their income in the form of business income. Therefore, individuals in the top percentile were not rentier capitalists in 1961.
This pattern of income composition has been preserved over the entire periods. One difference is that individuals in the top 0.01 percentile derive most of their income in the form of labor income or property income (mostly dividends) in 2013.

3.4. International Comparisons

In Figure 4 the long-run development of top percentile income shares in a number of developed countries is shown alongside that of Korea. Figure 5 display the top decile income shares. The top decile income share in Korea shows a more pronounced pattern. Korea starts from the low level of top income shares in 1950s to reach very high level in 2000s following the United States. The compact growth of Korean economy over the century generates a compact increase of income inequality.

Looking at the figure, all countries experience a similar development with large decrease in top income shares by 1960s. This pattern is consistent with Kuznets’ hypothesis. Income equality follows an inverse-U shape along with development process, first rising in the early stage of industrialization and the declining in the mature state of industrialization. For example, in France, the employees in manufacture sectors accounted for 33% of total employment outnumbering the employees in agricultural sector in 1950. In Korea, manufacture sector accounted for 21.6% of total employment while agricultural sector accounted for 34% in 1980. It is the time the income inequality decreased when Korea transformed to industrialized economy.

The figures shows that developed countries experience a divergence after 1980. Western English speaking countries display a clear U-shape over the century. Continental central European countries and Japan display an L-shape over century. Today Korea follows Western English speaking countries.

4. Explanations to the evolution of Korean top income shares
This section discusses factors that can contribute to our understanding of the evolution of the top income shares presented above. First, we examine the roles of factors shares. Second, we study the effects of the Korean progressive taxation on top income shares.

4.1. The roles of factors shares

If we were to assume that the very top of the income distribution consists of mainly of wealth holders, while the rest of the population consists mainly of wage earning workers, fluctuations in factor shares should explain fluctuations in income shares. Where however people receive both earned and capital income, the fluctuations in income shares crucially depends on their joint distribution. Figure 5 shows the changes in the capital shares (defined as net value added, minus wages and salaries, minus imputed labor income of self-employed) as a share of net value added, and the evolution of the top 5% income shares. The series are somewhat correlated over the whole period (0.52). Between 1975 and 1997 the correlation is 0.52, while it increases to 0.69 between 1998 and 2013.

In order to see the impact of changes in factor shares on the income distribution, following Meade (1964), I make a simple approximation. Let $a$ and $b$ be the share of all earnings and all capital income, respectively, received by a certain income group. Then the total income share of this group is given by

$$a \cdot \text{(factor share of earnings)} + b \cdot \text{(factor share of capital income)}$$

Taking on the yearly value of factor share displayed in Figure 5 above, I can get the top 1% share of capital income. Figure 6 shows the evolution of the top 1% wage share and top 1% capital share along with top 1% income share. The figure shows that the top 1% capital share is more volatile that the top 1% wage share.

The capital income consists of business income and property income. In order see the impact of each component of capital income, I calculate business top income share and property top income share. The results show that the property top income share fluctuates little since 2000, while the business top income share moves together with the top income share. This indicates that the evolution of top income share since 2000 is driven by the evolution of business income, not by property income. The business income is called mixed income, because it
contains both labor and capital income. Therefore, it is difficult to conclude that the evolution of top income share is driven by factor shares in Korea.

Discussion on the factor shares presumes that the workers consist of one group with homogenous interest. However, the interest of top wage earners such as managers and the professionals (doctors, financial dealers and traders, so on) are different from that of blue collar workers. If wages of top wage earners whose interest is consistent with capitalists increase more rapidly than that of blue collar workers, the wage inequality increases while factor shares remain constant. This explanation is well fit to the evolution of top income share in Korea.

4.2. The role of taxation

Many previous studies, following Piketty (2003), have shown that top incomes are sensitive to changes in top marginal income shares. For example, Saez and Veall (2005) showed Canadian top income shares were negatively correlated with Canadian marginal income tax rates, with elasticities of income with respect to the net-of-tax rates for the top percentile being about unity. In the case of Sweden, Roine and Waldnstrom (2008) showed the tax elasticities range from about 0.3 in the 99th percentiles, to 0.5-0.6 in the 99.9th percentile.

In the case of Korea, Figure 7 depicts the statutory marginal tax rates along with top 1% income shares over time. Looking at the Figure, I cannot find a close correlation between top income tax rate and top income share. The top tax rates remained constant by 1970 while the top income increased sharply over this period. The exactly same phenomenon can be seen since 1998, which implies that the top income tax rates cannot explain the evolution of the top income share in Korea.

To get a better picture of the role of taxation for Korean top income shares, I estimate tax elasticities.

\[
\ln(S_t) = \beta_0 + \beta_1 \ln(1-MTR_t) + \beta_2 t + \beta_3 t^2 + u_t
\]

where \( S \) denote top percentile income share, \( (1-MTR) \) the net-of-tax rate (one-minus the marginal tax rate), \( t \) a linear time trend and \( u \) a random error. The estimated
coefficient of $\beta_1$ is -0.244 (standard error 0.82) for the period of 1950-2013. Progressive taxation hence does not seem to explain the evolution of Korean top income shares.

4.3. The Role of Trade

The neoclassical H-O model leads to the “Stopler-Samuelson” conclusion that opening up of trade will raise the relative return of the relatively abundant factor. Because in developing countries this factor is labor relative to capital, it must follow that opening up will narrow income inequality. This distributional prediction of H-O model meshed with the great policy debates of the time, especially around the significance of the East Asian experience. These economies, including Korea, were known to delivering a ‘growth with equity’ miracle in a regime of trade openness. The Ease Asian experience was crucial to informing the debate and to persuading the international financial institutions and many developing country governments to open up their economies in the 1980s and 1990s. (See, Kanbur, 2015)

Korean Economy can be characterized by a small open economy in which trade have a great impact. Figure 8 depicts the evolution of the trade to GDP ratio and top 1% income share from 1970. This figure shows that the two series move very closely together from 1980 implying the openness and inequality are positively related in Korea, which is contrast to the prediction by H-O model. The miracle of ‘growth with equity’ in Korea is an illusion based on wrong statistics.

Mishet et al. (2007) trace multiple channels by which increased trade may increase inequality. First, the increase in trade or outsourcing of intermediate goods would reduce manufacturing employment, as import-competing industries are more employment-intensive that export industries. Second, lower prices made possible by trade have reduced the value of the marginal product of many domestic workers. Third, globalization has diverted in investment from domestic facilities to foreign direct investment. Feenstra and Hanson (2003) find that the trade has an impact on the wage gap between high-skilled and low-skilled workers that is similar to the created SBTC

Studies in Korea on the effect of trade on inequality via labor market are mixed. Moreover, these explanation of the roles of trade on inequality hardly explain the correlation between the trade to GDP ratio and top income shares during 1980s and 1999s. In the next section, I
suggest a possible explanation on this correlation.

4.4. Proposed Explanation

As shown above, the top wage share follows closely follow the top income share in Korea. Therefore, we need to consider possible explanation in terms of earned income.

The dominant paradigm in labor economics explains rising wage dispersion in terms of skill-biased technological change. While this literature offers insights about the premium to college education, the skill-bias explanation has little say directly about why the top percentile has increased. Moreover, this explanation is not consistent to Korea’s experience where the college premium has been decreasing since 1980.

There are number of theories that are directly relevant to top earnings. One such set of theories is those dealing with a positive correlation with profits and wages. The textbook model of a competitive labor market implies that firms are wage-takers whose profitability will not affect the wage that they offer to homogeneous employees. Slichter (195) argues, however, that a competitive model fail to explain the empirical evidence that apparently homogenous types of employees earn significantly different amounts in different industries.

There are some other ways to think about the theory of pay and profits. The first is a bargaining framework in which rents are divided between the firm and its employees. The second is a contract model in which risk-sharing occurs. Under each of these, there may be a link from profitability to pay. The key elements of this rent sharing or risk-sharing are union bargaining over wages, particularly in the presence of product market rents. (Blanchflower et al. 1996 ; Arai, 2003).

If firm’s ability determines a level of pay, the distribution of profit affects the distribution of wage. Because the Korea is a small open economy, the export and import represent firms’ profitability. As the trade to GDP ratio increases, the large firms’ profitability increases, which in turn the concentrations of both profit and wages increase.

The other set of theories is those dealing with executive remuneration in a hierarchical structure. The model by Simon (1957) and Lydall (1959) generates an approximately Pareto tail to the earnings distribution. As many previous studies shown, wages, especially positional
wage premium paid to supervisors, depend strongly on hierarchical position and the span of control on wages. In the study on the top wage share in Korea, Hong (2015) shows that the top wage share is closely related with the relative wage premium paid to managers.

The power of workers is important at bargaining in a hierarchical structure. The trade union represents the power of workers. Figure ?? displays the trade union density and wage top decile share since 1963. The relation between the trade union density and top wage shares is very different across economic regime. The top wage share has been increasing while trade union density has been increasing before 1980 under state capitalism regime. After 1980 from which the Korean economy transform into a market-driven capitalism, top wage share and the union density shows a clear negative relationship. During late 1980s in which the union density sparked highly, the top wage share has been dropped until 1995 when a new government began to introduce many labor market policies against workers based on so called neo-liberalism. After 1997, the top wage share, and hence top income share increased while the bargaining power of workers was decreasing.

The polarization of business income played a great role of the concentration of income distribution after 2000. Among top business income earners are doctors, lawyers, patent attorneys, and accounts. The polarization of business income is due to the generalization of the mode of capitalistic production in private business sectors. The business persons with professional skills extend their business areas to firm-clients from personal services. As a result, the size of business firm increased, and hence the business income for experts grows rapidly.

5. Conclusion

(to be done)
<Figure 1> Top Decile Income Shares, 1958-2013

<Figure 2> Income Shares of P90-95, P95-99, and P99-100, 1958-2013
<Figure 3> Top Percentile Shares of Income, Wages, and Capital Income, 1958-2013

(note) ‘Capital Income’ is the sum of business income and property income.
Figure 4: Income Composition within the Top Decile 1961, 1985 and 2013
<Figure 5> Top Percentile Shares in Developed Countries and Korea, 1913-2013

<Figure 6> Top Decile Shares in Developed Countries and Korea, 1917-2013
<Figure 7> Capital Share of value added and P95-100, 1975-2013

<Figure 8> Top Marginal Tax Rates (left axis) and P99-100 (right axis), 1958-2013
<Figure 9> Trade to GDP Ratio (left axis) and P99-100(right axis), 1970-2013