GLOBALIZATION, INCOME INEQUALITY, AND DEINDUSTRIALIZATION: THE CASE OF SOUTH KOREA

By Yiagadeesen (Teddy) Samy

Abstract

This paper examines the evolution of income inequality in South Korea over the period 1965 to 2011 using a fairly new dataset, namely the Standardized World Income Inequality Database (SWIID). The author hypothesizes that it is possible to make sense of the evolution of income inequality in South Korea through an examination of structural changes in the economy, with industrialization and deindustrialization playing a crucial role. Building on the seminal contribution by Simon Kuznets, as long as growth and industrialization are positively correlated, a standard Kuznets relationship is obtained. When growth is accompanied by deindustrialization, income inequality declines initially and then increases again after a minimum point has been reached. The association of growth with deindustrialization that is driven by globalization is thus a key element behind the evolution of income inequality. Time-series estimates confirm the existence of a statistically significant and robust relationship in the South Korean case whereby income inequality followed a cyclical pattern with two turning points, thus confirming the hypothesis. The author then draws out the policy implications of the analysis with a particular attention to the role of the increasingly important service sector for the South Korean economy.

Key words: *income inequality, industrialization, service sector, deindustrialization, South Korea*

Introduction

Although income distribution has for long been a subject of interest among economists, much of the earlier focus was mostly on the relationship between growth and income inequality.[1] The availability of data across countries and over time in more recent years has led to a renewed interest in understanding the causes and evolution of income inequality, even if problems of comparability and coverage continued to persist. In *Capital in the Twenty-First Century*, Thomas Piketty writes that "It is long since past the time when we should have put the question of inequality back at the center of economic analysis…For far too long, economists have neglected the question of distribution…"[2] The attention that Piketty's book has attracted, and recent events such as the Occupy Wall Street movement, have clearly put inequality back on the agenda. This is perhaps long overdue since growth and poverty reduction have occupied center stage for most of the past two decades, with the Millennium Development Goals playing a key role.

There is also now a growing consensus that inequality will need to be addressed in the post-2015 development agenda because of its implications for not only social but also political phenomena. Spearheading this change is the World Bank, which recently departed from the traditional practice of focusing on per capita income growth rates to a new focus on improving income growth of the poorest 40 percent in each country.[3] But the recognition that inequality has been increasing in several OECD countries in recent years, as well as in high-growth economies such as China and India, is not new and neither is the acceptance that inequality can have negative side effects. Comparatively, although Latin

Dr. Yiagadeesen (Teddy) Samy is an Associate Professor and the Associate Director (MA Program) at the Norman Paterson School of International Affairs, Carleton University, and a Distinguished Research Associate with the North-South Institute, both in Ottawa, Canada. His paper is the sixty-eighth in KEI's Academic Paper Series. As part of this program, KEI commissions and distributes approximately ten papers per year on original subjects of current interest to over 5,000 Korea watchers, government officials, think tank experts, and scholars around the United States and the world. At the end of the year, these papers are compiled and published in KEI's On Korea volume. For more information, please visit **www.keia.org/aps_on_korea**.

American countries remain among the most highly unequal in the world, inequality has fallen in Latin America since the turn of the century.

Notwithstanding the never-ending debate about whether policies should focus more on growth than inequality, or vice-versa, there is enough evidence that people care about their absolute as well as relative standing, and that inequality matters. In particular, inequality of income tends to be associated with unequal access to other factors conducive to development such as education, health, and institutional quality (as measured through government efficiency, corruption, political stability, regulatory burden, rule of law and democracy).[4] There is also a strong association between longer growth spells and more equality in the distribution of income,[5] and in that sense, inequality can be harmful for growth.

An examination of the evolution of inequality in South Korea is particularly timely since its distribution of income has worsened in recent years, leading to a shrinking of the middle class from 75.4 percent in 1990 to 67.5 percent in 2010.[6] South Korea was ranked fifth out of 12 Asian economies that saw income inequality increase in the 1990s and 2000s.[7] It is now very common for news outlets, analysts, and policy-makers in South Korea to discuss income inequality, namely that the widening income gap should be narrowed and a shrinking middle class expanded.[8] Some have talked about the great U-turn in inequality trends, lamenting the fact that redistribution policies were not enough to overcome the rapid increase in income inequality.[9] Others have stressed the importance of not only income inequality, but also inequality across regions and types of workers, and educational gaps between different classes.[10] Lee Ju-yeol, the Bank of Korea governor, has recently argued that narrowing income inequality was important in supporting the economy[11] while President Park Geun-hye pledged to rebuild the middle class and increase its size during her 2012 campaign.[12]

It is also interesting to look at the evolution of inequality in a context where South Korea's growth performance since the 1960s has been very impressive (see Table 1), allowing it to escape the so-called middle-income trap. Over the period 1961 to 2012, real GDP growth averaged 6.8 percent with only two years of negative growth (1980 and 1998), and per capita GDP (in constant 2005 US$) increased more than fourteen times. South Korea's GDP per capita went from about one-tenth of that of the United States in 1961 to about one-half in 2012.[13]

While the causes of this remarkable long-run growth performance have been extensively studied, the jury is still out when it comes to explaining the recent increase in inequality in South Korea's case and elsewhere. In fact, several reasons have been advanced to account for rising inequality in the South Korean case, including dualistic labor markets, macroeconomic variables, urbanization, the impact of technological change, demographics, and globalization (through trade and foreign direct investment). However, the supporting evidence in terms of pinning down the significance and the channels through which these different variables operate over time is not very strong. Furthermore, even if textbook trade-based explanations through Stolper-Samuelson[14] effects may fit the South Korean case, they cannot be reconciled with rising inequality in other countries such as China and India that have also liberalized trade and where the skilled vs. unskilled wage gaps have increased.

The objective of this paper is thus to examine the causes of this recent increase in inequality, and more broadly, to analyze the pattern of inequality in South Korea since the mid-1960s. While much of the recent attention on inequality in advanced economies has been on top income shares calculated from income tax data, this paper's focus is on the overall distribution of income. However, it is important to point out that since growth in inequality in many countries in the last three decades has been driven by top wage incomes, which are under-represented in household surveys, measures of inequality tend to underestimate the extent of inequality.[15] Figures A and B in the appendix illustrate how South Korea compares with other OECD countries in the top percentile of the income distribution.

It is clear from Figure A that South Korea's share of top market income is not as extreme as those of countries such as Canada, the UK, and the U.S. However, this share has increased, and the gap between South Korea and other OECD countries has decreased in recent years (see Figure B). When it comes to the overall distribution of income in South Korea measured by Gini coefficients, it increased very quickly in the early 1960s and 1970s, declined in the 1980s until the 1990s, and began

Table 1: South Korea's Growth Performance, 1961-2012	
Time Period	Average Growth Rate
1961-69	8.3%
1970-79	8.3%
1980-89	7.7%
1990-99	6.3%
2000-09	4.4%
2010-12	4.0%

Source: Author's calculations, World Development Indicators (WDI) Database, World Bank

to increase again in the late 1990s as the country went though the Asian financial crisis. Again, the comparison with the United States is interesting because while income inequality was lower in the United States than in South Korea from the 1960s to the mid-1980s, the situation has since reversed. In the last few years, income inequality in the United States has been higher than in South Korea by around 5 percentage points, even as inequality in the latter was also increasing. Building on the seminal contribution by Simon Kuznets, the author hypothesizes that it is possible to make sense of the evolution of inequality in South Korea through an examination of structural changes in the economy, with industrialization and deindustrialization playing a crucial role.

Growth and Inequality: A Brief Review

It is impossible to talk about growth and inequality without referring to Kuznets's (1955) inverted-U hypothesis, namely that inequality first worsens and then improves as a country develops.[16] When income levels are very low, income inequality is also low as people are living at, or close to, subsistence level. Consistent with the Lewis-type model of development, as income levels increase with growth, people migrate from the traditional (rural/agricultural) sector where incomes are low to a modern (urban/industrial) sector where wages are higher.[17] Kuznets provided several reasons for the pattern of increasing, and then decreasing, inequality; the explanation which is often cited in the literature is the shift of population in a dual-economy model. Initially, physical capital and human capital are heavily concentrated among a few owners who receive high returns for them. Over time, capital accumulation and diffusion lead to a decline in its rate of return and the skilled/unskilled wage differential declines. Kuznets's conjecture was based on an examination of a few developed countries (the U.S., the UK, and Germany) for which he had limited time series data that indicated a declining trend in inequality; increasing inequality was demonstrated through theory and a numerical simulation.

The Kuznets hypothesis has over the years generated a voluminous amount of theoretical and empirical literature. All the subsequent theoretical explanations, either through two-sector models or dynamic general equilibrium models, have focused on the nature of structural change.[18] For example, Robinson derived the inverted U-hypothesis from a two-sector model with different sectoral income distributions and where

> **"Indeed, the expansion of the service sector and the huge gap in labor productivity growth of industry and services has contributed to the increase in inequality in recent years."**

the population of one of the sectors increases monotonically over time.[19] Greenwood and Jovanovic generate the Kuznets pattern through the development of financial markets. In particular, financial markets are almost non-existent in the early stages of development. Initially, as the economy grows, only the rich benefit from joining financial markets because of high-fixed costs. In the intermediate stage of the growth cycle, savings rates and income inequality both increase and as the economy matures further, people with less wealth also join the financial network so that inequality declines while growth increases.[20]

Empirical studies, relying on both cross-sectional and time-series data, have been very controversial. Not only has the existence of the relationship hypothesized by Kuznets been questioned but so has been its universal validity for different countries and regions, as well as over time. Although Kuznets was mostly concerned with the evolution of inequality over time and based his analysis on historical data for a few industrialized countries, starting in the 1970s, the early studies that tried to test his hypothesis were only able to do so using cross-country data. Several of them found evidence in support of the inverted-U hypothesis while a few were more cautious about its validity.[21] Many middle-income countries located mostly in Latin America had higher levels of inequality (which probably had more to do with their own characteristics than what Kuznets had hypothesized) than in low- or high-income countries, and cross-sectional data was thus consistent with the Kuznets inverted-U hypothesis.

It is important to point out that these studies were not direct tests of the Kuznets hypothesis as they did not consider the growth of income within countries. To the extent that other factors affect the income distribution levels in each country, it is possible for country characteristics, rather than the Kuznets conjecture, to be responsible for the observed cross-sectional pattern. And this is precisely what happened when cross-country panel data became available in the 1990s. Once country fixed effects were

controlled for, researchers could no longer find any support for the Kuznets relationship.[22] Furthermore, studies that relied either on time-series or panel data have instead found a U-shaped relationship between per capita income and inequality.[23] The failure to marshal consistent evidence in support of the Kuznets hypothesis is summarized aptly by Kanbur as follows:

"In fact, in a strange way the framework set out by the orig-inators may have by now become a straightjacket which in-hibits fresh thinking, as every new attempt to model devel-opment and distribution does so with at least half an eye on whether or not the model can, in principle, generate an inverted-U relationship between inequality and devel-opment, while most empirical work keeps returning to the question of whether or not there is an inverted-U pattern to be discerned in the data."[24]

Theoretical Framework

Given the empirical evidence reviewed above, and building on Kuznets's original insight, I hypothesize that in order to understand the relationship between per capita income and income inequality in the South Korean case, one needs to incorporate two important structural transitions into the analysis: first, the transition from agriculture to industry (which yields an inverted-U relationship), and second, the transition from industry to services (which yields a straight-U relationship). This would also explain why earlier studies that focused on the transition from agriculture to manufacturing with a limited time span found evidence to support Kuznets's conjecture while later studies with a longer time span that also captured the transition from manufacturing to services found evidence supporting a U-shaped relationship (see previous section).

The implication of the hypothesis is that to the extent that globalization (through trade and capital flows) leads to growth, the latter's impact on inequality is more complicated than what Kuznets had originally argued. I further argue and demonstrate that the key explanation rests with the association of growth with industrialization. As long as growth and industrialization are positively correlated, the standard Kuznets relationship is obtained. When that correlation is negative, that is, when growth is accompanied by deindustrialization—the decrease in the share of industry in relative terms—the Kuznets relationship "flips" and inequality declines initially and then increases again after a minimum point has been reached.

Given the existence of two turning points rather than one, the above hypothesis can be formulated for estimation as follows:

$$INEQ_t = \beta_0 + \beta_1 lnY_t + \beta_2(lnY_t)^2 + \beta_3(lnY_t)^3 + \varepsilon_t \qquad (1)$$

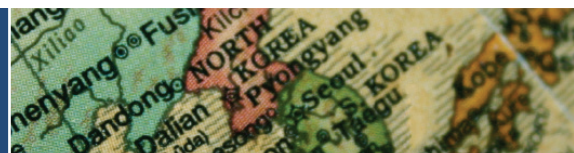where INEQ refers to a measure of inequality (the Gini coefficient), lnY refers to the natural logarithm of per capita income as a proxy for the level of economic development, t refers to time (years) and ε_t is the normal disturbance term with the usual properties. The author expects $\beta_1 > 0$, $\beta_2 < 0$ and $\beta_3 > 0$.

Data and Analysis

Data on income inequality comes from the most recent version of the Standardized World Income Inequality Database (SWIID) put together by Frederick Solt, which standardizes income inequality data from a range of sources in order to maximize their comparability while also ensuring the widest possible coverage across countries and over time.[25] Even if the focus is only on one country here, the benefit of SWIID is that it overcomes the problem of comparability related to how income is defined, different survey methodologies used over time and across countries. It also allows one to go back sufficiently far in time to have enough observations to capture longer-term changes in inequality for time-series analysis. The Gini coefficient considered in the analysis is a 'net' measure based on disposable (post-tax, post-transfer) income. In the South Korean case, the correlation between this 'net' measure and the market (pre-tax, pre-transfer) income measure is 0.72, indicating that some redistribution is taking place. This is an issue that we will return to in the conclusion. Data for per capita income is obtained from the World Development Indicators database of the World Bank. Examining a specific case is superior to cross-country analyses because this is precisely what Kuznets had in mind. Early empirical studies that adopted a purely cross-sectional approach are limited because countries with different income levels and structural characteristics are being lumped together to understand a dynamic phenomenon for a particular country.

The statistical estimations for this paper are conducted using EViews. In order to avoid spurious regressions, all the time series considered for estimation were first tested for stationarity using both visual inspection (of the plots of the variables over time, and their associated correlograms) and augmented Dickey-Fuller unit root tests (with an intercept, and with a trend and an intercept). The null hypothesis of a unit root for all the time-

series in levels could not be rejected but their first differences were stationary. Hence, the regression results reported in Table 2 are based on the first-differences of the variables (except for *FDI* which was stationary in levels). As seen in column 2 of Table 2, the estimated β's according to equation (1) are significant at the 1 percent level and with the right signs. This estimated equation has a better fit (higher adjusted R^2 and F-statistic) than a standard Kuznets relationship (column 1 of Table 2).

Globalization, through trade and investment, is often mentioned as a driving force behind inequality, but its impact is controversial. Consider the textbook Heckscher-Ohlin model with two countries, two goods and two factors of production. According to the Heckscher-Ohlin theorem, a country will export the good that uses its abundant factor intensively and import the good that uses its scarce factor intensively. With the opening of trade, owners of a country's abundant factor gain from trade while owners of the scarce factor lose from trade based on the Stolper-Samuelson theorem.[26] Globalization will thus have opposite effects on inequality in each country but these effects may change as factor proportions change over time. To the extent that Korea is more abundant in labor than capital, the Stolper-Samuelson theorem applies and trade openness should lead to a decline in inequality.[27] Although the significance of trade as an important explanatory factor for inequality has been discounted for several reasons,[28] the author is only interested here in knowing whether its inclusion affects the main hypothesis of the paper. The author thus considers trade openness (exports plus imports as a percentage of GDP) as an additional explanatory variable in column 3 of Table 2.

Two additional measures of globalization are considered in columns 4 and 5: foreign direct investment as a percentage of GDP, whose impacts on inequality have also found to be inconclusive in the literature, and the KOF Index of Economic Globalization. The KOF Index considers both trade and investment volumes, and trade and capital restrictions.[29] The impact of FDI on inequality is complicated because it depends on which sector of the host economy is targeted. For instance, if FDI is directed at the high-skill sectors, skilled workers will benefit in terms of increased wages, thus raising wage inequality. However, FDI could reduce inequality if it enables a country to specialize in less-skilled activities.[30]

As shown in Table 2, only foreign direct investment has a positive impact on inequality while the two other variables (trade openness and the KOF index) are not. These results are robust to the inclusion of an additional variable for demographic

Table 2: Estimation Results

| Explanatory Variables	1	2	3	4	5
Constant	-0.002 (0.002)	-0.002 (0.002)	-0.002 (0.002)	-0.003** (0.002)	-0.002 (0.002)
ln GDP per capita	0.804*** (0.274)	11.735** (3.875)	9.614** (3.694)	8.216*** (2.462)	15.254*** (3.030)
(ln GDP per capita)^2	-0.043** (0.016)	-1.299*** (0.439)	-1.061** (0.416)	-0.919*** (0.274)	-1.702*** (0.349)
(ln GDP per capita)^3	-	0.048*** (0.016)	0.039** (0.016)	0.034*** (0.010)	0.063*** (0.013)
Trade openness	-	-	0.0001 (0.000)	-	-
FDI	-	-	-	0.004*** (0.001)	-
KOF Index	-	-	-	-	0.001 (0.000)
Adjusted R^2	0.35	0.45	0.45	0.22	0.55
No. of observations	41	41	41	35	38
DW	2.38	2.86	2.81	2.02	2.18
F-Stat.	8.097	9.043	7.653	2.881	12.291
(p-value)	(0.000)	(0.000)	(0.000)	(0.031)	(0.000)

Note: Except where otherwise indicated, figures in parentheses are robust standard errors. *, **, *** indicate 10, 5 and 1 percent level of significance respectively; data covers 1965-2011 period but a few years in the 1960s and 1970s had to be omitted due to a lack of data.

shifts, namely the percentage of the population aged 65 and above as a percentage of the total population. The results are also robust to the inclusion of the different explanatory variables in various combinations.[31]

What is more important, however, is that the main hypothesis of the paper, namely the signs and significance of the GDP per capita variables are not affected by the inclusion of these new variables. The author thus observes that while the evolution of inequality from the early 1960s to the late 1990s is consistent with the Kuznets (1955) inverted-U hypothesis, recent years have been characterized by an increase in inequality, producing a U-shaped pattern since the early 1980s. Figure 1 (with the natural log of per capita GDP on the horizontal axis) illustrates what this estimated relationship looks like, with two turning points, the first in the early 1980s, and the second in the early 2000s. When combined together, the evolution of inequality has thus followed a cyclical pattern consistent with those observed in the case of other advanced economies.[32]

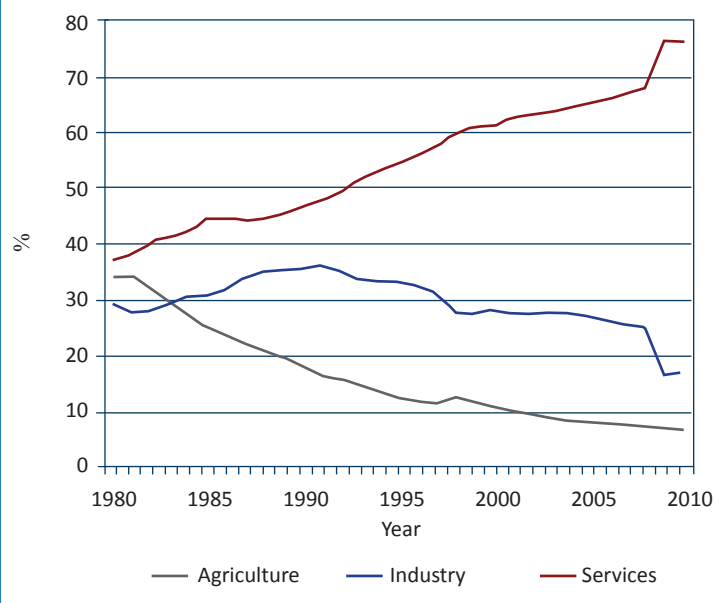**Figure 1: An Augmented Kuznets Relationship, South Korea, 1965-2011**
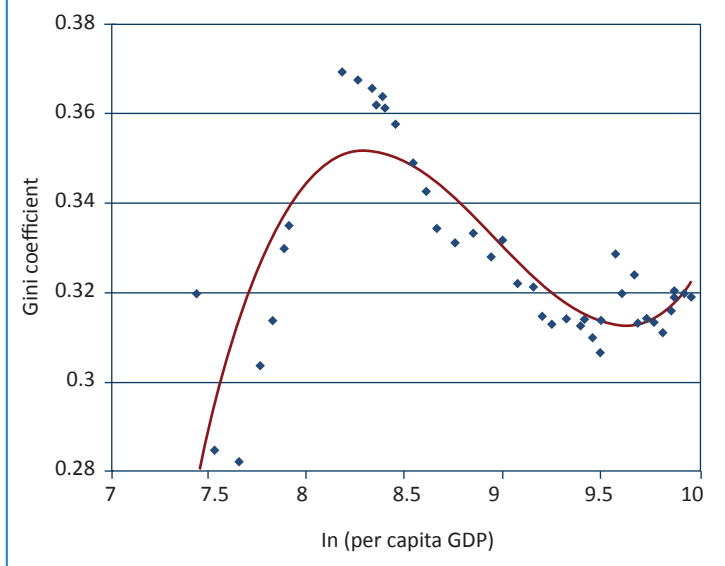
What about the role of globalization through trade liberalization or increased foreign direct investment for example? The results reported above, together with a review of existing studies,[33] indicate that while globalization probably has an impact on inequality in South Korea, it cannot fully explain the evolution of inequality in various countries at the same time. Consider for example the role of trade liberalization. While its impact is consistent with growing inequality in wealthy countries and declining inequality in Latin America, it cannot fully explain why inequality is growing in countries such as China and India where unskilled labor is relatively abundant. The author argues that the relative importance of a country's industrial sector is the key to explaining these discrepancies and that it is possible to make sense of the above results and the evolution of inequality in South Korea through an examination of structural changes, with industrialization and deindustrialization playing a crucial role. In particular, the relationship between growth and inequality is conditional on the role of industrialization in a country's growth matrix. Looking at Figures 2 and 3, one can see that South Korea went through a process of industrialization and is currently in a process of deindustrialization.

One can see the process of deindustrialization unfolding by examining sectoral GDP shares and sectoral employment shares. In the case of sectoral GDP shares (Figure 2), first the GDP share of agriculture continuously declines over time. Second, at the beginning of industrialization, the GDP share of industry increased much more rapidly than the GDP share of services. Finally, in the

late 1980s/early 1990s, the latter started to increase rapidly while the former began to stagnate and even declined for a few years from the mid-1990s to early 2000s. Although the GDP share of industry has plateaued in the last few years, its share relative to the service sector is lower than in the mid-1990s. In the case of sectoral employment shares (Figure 3), as the industrialization process begins, the employment share of agriculture decreases. As industrialization continues, the employment shares of both industry and services increase. In the period of deindustrialization, the share of industry in employment begins to stagnate and declines while the share of services in employment continues to increase. In fact, in the South Korean case, the share of industry in employment went from a peak of 36 percent in 1991 to 17 percent in 2010, while the corresponding numbers for the services sector were 48 percent and 76 percent respectively.[34] However, one should not necessarily equate deindustrialization with the failure of a country's manufacturing sector, and thus as a negative phenomenon. Instead, it can be seen as a natural process of development during which living standards continue to rise – and South Korea is a good illustration of this phenomenon – and where the growth of productivity is faster in manufacturing than it is in services.[35] To be sure, the overall manufacturing sector continues to play an important role in the South Korean economy.

Figure 2: Structural Change, South Korea, 1965-2011

Agriculture, value added (% GDP)
Industry, value added (% GDP)
Services, value added (% GDP)
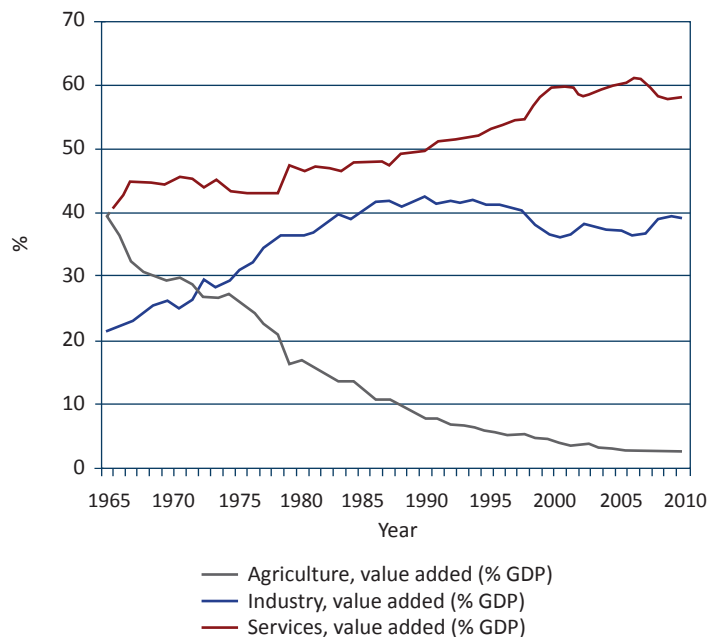
Figure 3: Sectoral Employment Share, South Korea, 1980-2010

Source: Constructed using data from the World Development Indicators (WDI) Database, World Bank. Data for employment shares are available as of 1980 only.

As long as growth and industrialization are positively correlated, as was the case in South Korea from 1965 until the early 1990s, the standard Kuznets relationship provides a good description of the relationship between development and inequality. Consistent with Kuznets's model, industrialization induces increasing returns to basic levels of education initially and then decreasing returns as supply of education is expanded. However, when growth is accompanied by deindustrialization, as is the case in South Korea beginning in the early 1990s and continuing in the early 2000s, inequality declines at first and then increases again after a turning point has been reached. In particular, deindustrialization reduces the demand for skilled labor and lowers the returns to basic levels of education, thus leading to a decline in inequality initially. Over time, as more and more workers move to the service sector, where wages tend to be more dispersed, inequality increases.

Indeed, the expansion of the service sector and the huge gap in labor productivity growth of industry and services has contributed to the increase in inequality in recent years.[36] Value added in the services sector increased from 49.5 percent in 1990 to 58.2 percent in 2010 (see Figure 2), but labor

productivity in that sector is lower than in the industrial sector and as a result the service sector performs relatively poorly. The link with globalization would thus lie in its implications for industrialization, and the consequences for income inequality. On a scale of one to one hundred, South Korea's KOF Index of Economic Globalization[37] (see previous section) increased from 32.8 in 1970 to 59.9 in 2011, while its economy transformed itself significantly (see Figures 2 and 3).

Conclusion

The main objective of this paper was to make sense of the evolution of income inequality in South Korea. The author argued that the South Korean case can be reconciled by extending Kuznets's (1955) original argument about structural changes in the economy by considering the additional transitioning to a service-oriented economy during the process of economic development. The empirical analysis for the period 1965-2011 confirmed the existence of a statistically significant "cubic" hypothesized relationship between per capita income and income inequality, and thus the existence of two turning points. The author also argued that the key element explaining this finding is the role of industrialization in a country's growth matrix. In the case of South Korea, rapid deindustrialization led to underemployment in the service sector as workers found it difficult to find new employment and had to settle for marginal services sector jobs,[38] which partly explains why the latter tends to underperform relative to the manufacturing sector. While structural transformations loom large in this analysis and are confirmed by statistical tests, there may be other factors at play (such as trade and FDI – see Table 2). However, the author hopes to convince readers that structural changes, building on the seminal contribution by Kuznets, provide a useful framework to examine the evolution of inequality. The author does not think, and certainly does not want to imply, that countries are doomed in the sense of having to accept increasing inequality as an inevitable outcome of the development process. Instead, this paper points towards the need to better manage these structural pressures.

The findings in this paper thus have important policy implications. First, the South Korean case may not be unique as it faces the same challenges that other countries encounter as they integrate into the global economy. Often cited as a model for development, South Korea's current experience may hold lessons for emerging

economies going through major structural changes. The latter, to the extent that they are driven by globalization, lead to inevitable 'swings' in income inequality, and these need to be managed. There is thus a need in terms of future research to examine whether the patterns observed in the South Korean case are also happening elsewhere, especially as other economies gravitate from middle- to high-income status. Second, it is clear that redistribution to deal with inequality in South Korea is going to be a challenge because of low taxation and public social expenditure. At 26 percent, tax revenue as a percentage of GDP was the fourth lowest among OECD countries in 2011.[39] Public social expenditure (9.6 percent of GDP in 2009) in the country is well below the OECD average (22.1 percent of GDP in 2009) and the estimates for 2010 to 2012 indicate a similar trend.[40]

Both taxation and social spending reforms will thus need to be examined while taking into account future demographic shifts (in particular the aging of population[41]) and making sure these reforms do not negatively affect growth. Finally, and related to the first point above, South Korea's experience is not very different from other high-income countries that went through the processes of industrialization and deindustrialization. One major difference, however, is that although the share of services has increased at the expense of agriculture and industry, its contribution to productivity growth has not been as strong. It is thus important to think about ways of making the service sector more dynamic and productive by, for example, investing in higher value-added services.

Appendix

Figure A: Share of Top Percentile in Market Income Across OECD Countries, 2011
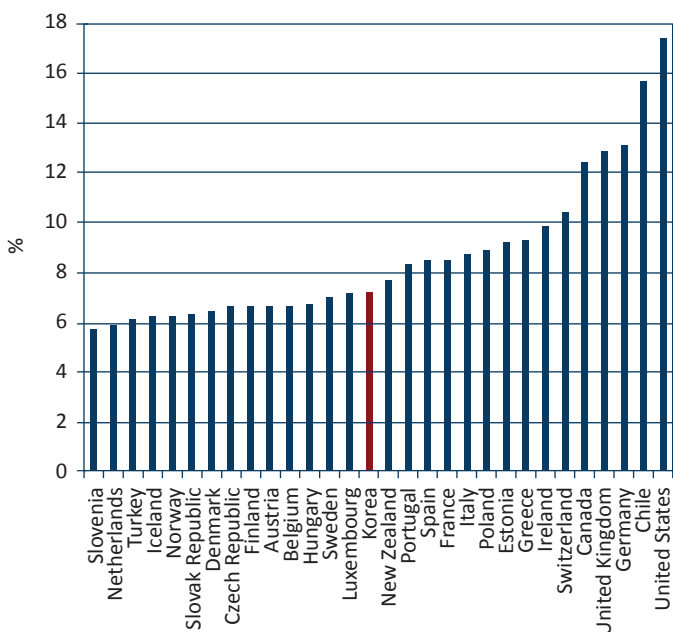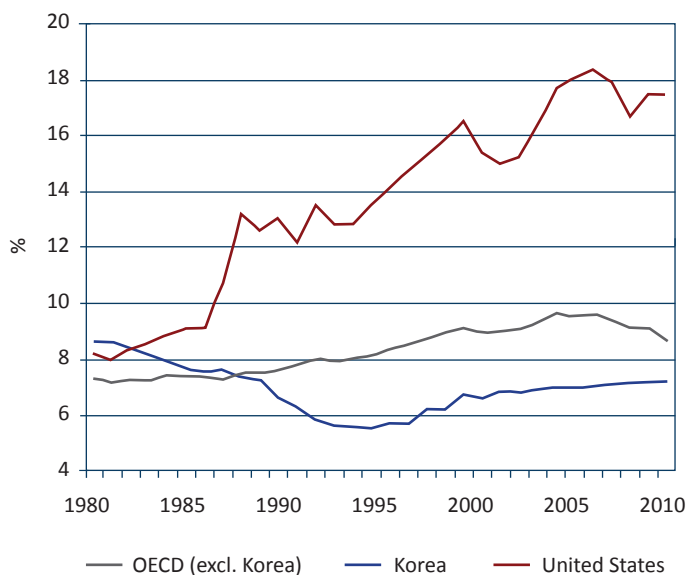

Figure B: Share of Top Percentile in Market Income, 1980-2011

Note: Both figures are constructed using data from SWIID (see endnote 18). The data used in the above graphs is an estimate of the share of market income (pre-tax, pre-transfer) that is reported by tax filers on their tax returns.

Endnotes

1   Simon Kuznets, "Economic Growth and Income Inequality," *American Economic Review* 45 (1955): pp. 1-28. For the remainder of this paper, the terms "inequality" and "income inequality" will be used interchangeably.

2   Thomas Piketty, *Capital in the Twenty-First Century* (Cambridge: Harvard University Press, 2014), p. 16. The book was first published in French in 2013, and has already achieved best-seller status.

3   World Bank, "Inequality in Focus," Vol. 2 No. 3, Poverty Reduction and Equity Department (October 2013).

4   William Easterly, "Inequality Does Cause Underdevelopment: Insights from a New Instrument," *Journal of Development Economics* 84 (2007): pp. 755-776.

5   See Andrew Berg and Jonathan Ostry, "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" IMF Staff Discussion Note (April 8, 2011) and Andrew Berg, Jonathan Ostry and Jeromin Zettelmeyer, "What Makes Growth Sustained?" IMF Working Paper WP/08/59 (March 2008).

6   OECD Economic Surveys: Korea, OECD Publishing (June 2014).

7   Juzhong Zhuang, Ravi Kanbur and Changyong Rhee, "Rising Inequality in Asia and Policy Implications," Asian Development Bank Institute Working Paper Series No. 463 (February 2014).

8   "Income Inequality: Deregulation Should Not Take Priority Over Fairness," *The Korea Herald* (March 2014). Available at: http://m.koreaherald.com/view.php?ud=20140323000117&ntn=0 (accessed on July 13, 2014).

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11   "BOK Chief Cautious About Rate Cut," *The Korea Times* (June 2014). Available at: http://www.koreatimes.co.kr/www/news/biz/2014/07/488_159167.html (accessed on July 14, 2014).

12   Hagen Koo, "Inequality in South Korea," East Asia Forum (July 2014). Available at: http://www.eastasiaforum.org/2014/07/01/inequality-in-south-korea/ (accessed on July 14, 2014).

13   Author's calculations based on data from the World Development Indicators (WDI) database of the World Bank.

14   The Stolper-Samuelson theorem states that an increase in the price of a good will lead to an increase in the return of the factor that is used intensively in the production of that good, and a fall in the return of the other factor. As trade is opened, owners of a country's abundant factor gain from trade while owners of the scarce factor lose. So, for example, a country that is unskilled labor-abundant will see the wage gap between unskilled and skilled labor decline as trade is liberalized. See Wolfgang Stolper and Paul Samuelson, "Protection and Real Wages," *Review of Economic Studies* 9(1), 1941: pp. 58-73.

15   Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez, "Top Incomes in the Long Run History," *Journal of Economic Literature* 49(1), 2011: pp. 3-71.

16   Ibid 1.

17   Arthur Lewis, "Economic Development With Unlimited Supplies of Labor," *The Manchester School* 22(2), 1954: pp. 139-91. The dual-sector Lewis model explains the process through which development takes place through industrialization as surplus labor from the traditional agricultural sector is transferred to the modern industrial sector.

18   For an extensive review of this literature, see Yiagadeesen Samy and Jean Daudelin, "Globalization and Inequality: Insights from Municipal Level Data in Brazil," *Indian Growth and Development Review* 6(1), 2013: pp. 128-147.

19   Sherman Robinson, "A Note on the U Hypothesis Relating Income Inequality and Economic Development," *American Economic Review* 66(3), 1976: pp. 437-440.

20   Jeremy Greenwood and Boyan Jovanovic, "Financial Development, Growth, and the Distribution of Income," *Journal of Political Economy* 98, 1990: pp. 1076-1107.

21   Examples of studies that found support for the Kuznets hypothesis include Felix Paukert, "Income Distribution at Different Levels of Development: A Survey of Evidence," *International Labor Review* 108, 1973: pp. 97-125; Montek S. Ahluwalia, "Inequality, Poverty and Development," J*ournal of Development Economics* 3, 1976: pp. 307-342; Gustav Papanek and Oldrich Kyn, "The Effect on Income Distribution of Development, the Growth Rate and Economic Strategy," *Journal of Development Economics* 23, 1986: pp. 55-65. Others such as Sudhir Anand and Ravi Kanbur, "The Kuznets Process and the Inequality-Development Relationship," *Journal of Development Economics* 40, 1993: pp. 25-52 did not find significant evidence for the Kuznets hypothesis.

22   See for example: Klaus Deininger and Lyn Squire, "New Ways of Looking at Old Issues: Inequality and Growth," *Journal of Development Economics* 57, 1998: pp. 259-87; Andreas Savvides and Thanasis Stengos, "Income Inequality and Economic Development: Evidence from the Threshold Regression Model," *Economics Letters* 69, 2000: pp. 207-212.

23   See for example: Rati Ram, "Kuznets's Inverted U-Hypothesis: Evidence from a Highly Developed Country," *Southern Journal of Economics*, 57(4), 1991: pp. 1112-23.

24   Ravi Kanbur, "Income Distribution and Development," Department of Agricultural, Resource, and Managerial Economics Working Paper 98-13, Cornell University, p. 6: (November 1998).

25   Frederick Solt, "Standardizing the World Income Inequality Database," *Social Science Quarterly* 90(2): 231-242 (June 2009). Data available at http://myweb.uiowa.edu/fsolt/swiid/swiid.html.

26 Ibid 14.

27 See Hae-Young Lee, Jongsun Kim and Beom Cheol Cin, "Empirical Analysis on the Determinants of Income Inequality in Korea," *International Journal of Advanced Science and Technology* 53, 2013. The authors find that trade openness, contrary to expectations, increases inequality while foreign direct investment has no impact. However, their measure of inequality considers urban household incomes, and they consider a standard Kuznets relationship in their estimations (which is not significant).

28 Ibid 18.

29 See http://globalization.kof.ethz.ch/.

30 For example, Branko Milanovic, "Can We Discern the Effect of Globalization on Income Distribution? Evidence from Household Surveys," *The World Bank Economic Review* 19: 21-44 (2005) finds that the effect of trade openness on income inequality depends on a country's income level and that FDI has no impact on income distribution.

31 Even though the variables in Table 2 are nonstationary in levels, it is possible that a linear combination of these variables is stationary or cointegrated if a long-run, or equilibrium, relationship exists among them. A Johansen test for cointegration confirmed the presence of two cointegrating vectors at the 5 percent level of significance. However, although the short run relationships showed up with the right signs, both the short-run and long-run relationships were not significant, providing further confirmation of the cyclical relationship between per capita income and income inequality.

32 See Romie Tribble Jr, "A Restatement of the S-Curve Hypothesis," *Review of Development Economics* 3(2), 1999: pp. 207-214.

33 Ibid 27. See also Sumie Sato and Mototsu Fukushige, "Globalization and Income Inequality in the Short and Long Run: The Case of South Korea 1975-1995," *Journal of Asian Economics* 20(1): pp. 62-68 (January 2009).

34 This process of industrialization and deindustrialization is extensively documented for several Asian economies, including South Korea, in Donghyun Park and Kwanho Shin, "The Service Sector in Asia: Is It An Engine of Growth?" Asian Development Bank Economics Working Paper Series No. 322 (December 2012).

35 Robert Rowthorn and Ramana Ramaswamy, "Deindustrialization – Its Causes and Implications," IMF Economic Issues No. 10, 1997.

36 See Donghyun Park and Kwanho Shin, "Performance of the Services Sector in Korea: An Empirical Investigation," Working Paper Series WP 12-60, Peterson Institute for International Economics (October 2012).

37 Ibid 29.

38 Ibid 36.

39 Data obtained from the OECD at http://www.oecd.org/ctp/tax-policy/revenue-statistics-ratio-change-latest-years.htm.

40 Data obtained from the OECD Social Expenditure Database at: http://www.oecd.org/social/expenditure.htm#socx_data. By comparison, public social expenditure as a percentage of GDP in the US was almost ten percentage points higher at 19.2% in 2009.

41 See Elizabeth Hervey Stephen, "Bracing for Low Fertility and a Large Elderly Population in South Korea," Korea Economic Institute Academic Paper Series (April 2012).

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