# Democracy, cognitive skill, and top 1% income share in the 21st century

Eiji Yamamura[*]

*Department of Economics, Seinan Gakuin University, 6-2-92 Sawaraku, Nishijin,*

*Fukuoka 814-8511, Japan*

**Abstract**

Studies to date have shown that income concentration for the top 1% income share, the super-rich, has increased conspicuously in the 21st century. However, there is insufficient knowledge on how political factors and types of human capital influence income concentration. Using cross-country data from this century, I provide empirical evidence that shows that democracy and cognitive skill are negatively correlated to the top 1% income share.

*Keywords:* Democracy; Cognitive skill; Top 1% income share

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[*] Tel: 81-92-823-4543. Fax: 81-92-823-2506. E-mail: yamaei@seinan-gu.ac.jp

Highlights

- Cross-country data from the 21st century were used to examine top 1% income share.

- Democracy was found to reduce the top 1% income share.

- Cognitive skill was also found to reduce the top 1% income share.

# 1.	Introduction

Piketty (2014) triggered significant controversy about the concentration of wealth in a market economy. Not only have policymakers and economists paid a great deal of attention to the issue of inequality, but this has become a leading and hotly debated topic across the world. Piketty (2014) argued that income inequality has become increasingly concentrated among a handful of individuals during the 21st century. This phenomenon sharply contradicts the Kuznets curve; the inverted U-shape hypothesis advocated by Kuznets (1955) concerning changes of economic inequality.

According to Piketty (2014), the concentration of wealth is considered the primary outcome of capitalism. This can undermine democratic values and increase conflict between rich and poor groups, resulting in social unrest (Acemoglu and Robinson 2000). The large externality caused by concentration of wealth cannot be overlooked. Conversely, it is widely acknowledged that the market mechanism (capitalism) has substantially contributed to society-wide increases in wealth. The market mechanism both positively and negatively influences society. It is necessary to consider how to reduce the negative effects and increase the positive ones. For this purpose, by using cross-country data this paper attempts to assess democracy and human capital in relation to the share of total income in a country received by the top 1% of individuals in the 21st century.

# 2.	Data and Model

Definitions and basic statistics of variables used in this paper are provided in Table 1. Economic policy, such as income redistribution, is formed through political processes. Citizens' participation in this process evidently influences income concentration.

Productivity of less-educated people increases when they obtain education. Therefore, income concentration is thought to depend on democracy and human capital. Other socioeconomic factors are also considered to influence income concentration. To ascertain the determinants of the top 1% share income, the estimated function takes the following reduced form:

$$Top\ income\ share_i = \alpha_0 + \alpha_1 Democracy_i + \alpha_2 Cognitive\ skill_i + \alpha_3 Fractionalization_i + \alpha_4 GDP_i +$$

$$\alpha_5 Legal\_UK_i + \alpha_6 Legal\_GE_i + \alpha_7 Legal\_FR_i + \alpha_8 Catholic_i + \alpha_9 Protest_i + u_i,$$

Each country is represented by $i$. The dependent variable is *Top income share*. The World Top Incomes Database compiled by Alvaredo et al. (2014) provided the data for the top 1% income share from the 20th century[1]. I restrict the focus to income concentration after from 2000. Therefore, in this paper, the average value of the top 1% income share in each country from 2000 is calculated and then used for estimation[2],[3]. A list of countries included in the sample can be found in the Appendix. The main independent variables of interest are the degree of *democracy* and *cognitive skill*. Higher *democracy* values indicate a country's higher level of democracy. Similarly, higher *cognitive skill* values indicate a higher such level for the country's citizens.

Democracy is thought to make society more transparent and decrease illicit profits. Cognitive skill acquired through education is important to increase earnings for individuals who have grown up in low income households. Both of these factors can lead to a decrease in inequality. Therefore, *democracy*, *cognitive skill* and *schooling* are

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[1] The covered period varies by country. In some countries, such as Denmark and Norway, data can be obtained from the full 20th century. However, data for Columbia and China can be obtained only from the 1980s or 1990s.

[2] Due to limitations of data availability in Alavaredo et al. (2014), the number of years used for calculating the average top 1% income share varies according to the country.

[3] Atkinson and Piketty (2007) showed how the top 1% income share in each country was calculated.

expected to be inversely correlated with the share of income among the top 1%. Additionally, I include several socioeconomic control variables: Alesina and Glaeser (2004, Chapter 6) provided evidence that ethnic fractionalization is negatively related to social welfare spending. They interpret it as "human beings are just less sympathetic to people who are different from them" (Alesina and Glaeser 2004, p. 177). From this, income redistribution policy is unlikely to be preferred in ethnic fractionalized country. Hence, the top 1% income share increases. To examine this, ethnic fractionalization is included. To grasp the degree of economic development, per capita GDP is included. Dummies for legal origins and proxies for religion are included for capturing institutional and social features.

## 3. Results

Estimation results are reported in Table 2. Owing to data limitations, only 25 countries are represented. Table 2 shows that *democracy* has a negative coefficient and is statistically significant level in all columns. This indicates there is less income concentrated in the top 1% income group in more democratic countries. Likewise, *cognitive skill* also has a negative coefficient and is statistically significant in all columns. The results provide empirical evidence that the higher the cognitive skill among a country's citizens, the less that income is concentrated in the top 1% income group. However, *schooling* is not statistically significant in any columns, so years of schooling do not affect the degree of concentration. The estimation results indicate that democracy and cognitive skill improved by education can be regarded as an effective tool for restraining concentration of wealth in the hands of a few wealthy individuals. *Fractionalization* has the predicted positive sign but it is not statistically significant in

any columns.

## 4. Conclusions

Using cross-country data, this paper examines the influence of political and institutional factors and cognitive skill of citizens on the top 1% income share. This paper provides empirical evidence that democracy and cognitive skill are negatively correlated to the amount of income in the top 1%. This implies that fostering democracy and increasing cognitive skill acquired by citizens play a key role in maintaining stability of modern society by reducing negative externality caused by extreme income inequality.

**References**

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**Table 1.** Descriptive statistics

| Variables | Definition | Mean | Standard deviation |
|---|---|---|---|
| *TOP Share*[a] | Average top 1% income share after 2001 in each country (%) | 11.1 | 3.47 |
| *Democracy*[b] | Degree of democracy Value range from 0 (less democratic) to 11 (democratic) | 8.27 | 2.76 |
| *Cognitive skill*[c] | IQ value of Lynn in 2002 [c] Method of calculation is provided in Russell and Cohn (2012) | 96.8 | 6.54 |
| *Schooling*[a] | Average years of schooling in 2000 | | |
| *Fractionalization* [e] | Ethnic fractionalization $$1 - \sum_{ethnicities} \frac{\text{population in ethnicity}}{\text{total population}}$$ | 0.19 | 0.21 |
| *GDP*[a] | Per capita income in 2000 (in thousand US dollars) | 25.9 | 12.1 |
| *Legal_UK*[b] | This is 1 if a country is UK legal origin, otherwise 0. | 0.36 | --- |
| *Legal_GE*[b] | This is 1 if a country is German legal origin, otherwise 0. | 0.12 | --- |
| *Legal_FR*[b] | This is 1 if a country French legal origin, otherwise 0. | 0.36 | --- |
| *Catholic*[b] | Share of Catholic citizens in 1980 (%). | 39.4 | 37.0 |

Notes: a) Sourced from Alvaredo et al. (2014)

b) Sourced from website of Andrei Shleifer. http://www.economics.harvard.edu/faculty/shleifer/dataset (accessed February 2010)

c) Sourced from Russell and Cohn (2012)

d) Sourced from Morrison and Murtin (2009). Available at www.fabricemurtin.com

e) Sourced from website of Marta Reynal-Querol. http://www.econ.upf.edu/~reynal/data_web.htm. accessed Jan 10, 2012).

**Table 2.** Determinants of top 1% income share (OLS Model)

|  | (1) | (2) | (3) |
|---|---|---|---|
| *Democracy* | −0.60* | −0.47* | −0.51* |
|  | (−2.09) | (−1.81) | (−1.99) |
| *Cognitive skill* | −0.25* | −0.28* | −0.24* |
|  | (−1.85) | (−1.90) | (−1.92) |
| *Schooling* | 0.52 | 0.93 | 0.53 |
|  | (0.71) | (1.01) | (0.80) |
| *GDP* | 0.03 | −0.03 | 0.04 |
|  | (0.71) | (−0.21) | (0.32) |
| *Fractionalization* | 0.25 | 1.75 | 1.08 |
|  | (0.11) | (0.71) | (0.44) |
| *Legal_UK* | 3.46 | 1.85 | 3.39** |
|  | (1.29) | (0.78) | (2.22) |
| *Legal_GE* | 3.86* | 2.08 | 3.32** |
|  | (1.85) | (1.34) | (2.93) |
| *Legal_FR* | 1.07 | 0.61 | 2.59 |
|  | (0.57) | (0.27) | (2.30) |
| *Catholic* | 0.002 | 0.03 |  |
|  | (0.06) | (1.19) |  |
| *Europe dummy* | 1.06 |  |  |
|  | (0.45) |  |  |
| *America dummy* | 5.67*** |  |  |
|  | (3.19) |  |  |
| *Asia dummy* | −0.77 |  |  |
|  | (−0.34) |  |  |
| *Constant* | 30.8 *** | 29.9*** | 29.5*** |
|  | (3.60) | (3.48) | (3.60) |
| Adjusted R-square | 0.62 | 0.22 | 0.21 |
| Obs. | 24 | 24 | 24 |

*Notes*: Values in parentheses are t-statistics obtained by robust standard error. *, **, and *** indicate significance at 10%, 5%, and 1% levels, respectively.

**Appendix**

| Number | country |
|---:|---|
| 1 | Argentina |
| 2 | Australia |
| 3 | Canada |
| 4 | Denmark |
| 5 | Finland |
| 6 | France |
| 7 | Germany |
| 8 | Indonesia |
| 9 | Ireland |
| 10 | Italy |
| 11 | Japan |
| 12 | Malaysia |
| 13 | Netherlands |
| 14 | New Zealand |
| 15 | Norway |
| 16 | Portugal |
| 17 | Singapore |
| 18 | South Africa |
| 19 | Spain |
| 20 | Sweden |
| 21 | Switzerland |
| 22 | UK |
| 23 | USA |
| 24 | Uruguay |