

# Increasing Wealth Inequality under Capitalism

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Seongcheol Paeng, Ph.D. & Daniel Park, Ph.D.

# Abstract

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- This paper explores whether wealth concentration in capitalist countries is increasing as Karl Marx, Thomas Piketty, and many scholars say. We suggest a statistical model because they did not provide statistical evidence. We argue that capitalist countries experience wealth concentration through utilizing the OECD countries' data. The OECD countries' top 1% share ratio increased 2.44% from 1995 to 2022 with a 99% confidence level according to our t test's result. Also, the average top 1% share increases every year, and some of them are significant through using panel data analysis. We conclude that capitalism has the property to enhance wealth concentration.

# Motivation & Background

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- Some countries explore the Moon and Mars for future residency.
- This is because we should prepare for end of the Earth due to unexpected nuclear war, meteorite collision, environmental crises, etc.
- Same reasons are in capitalism because capitalism is not a safe enough institution to protect human beings.
- Many people are living under capitalism, so we should predict whether capitalism is sustainable.
- If it is not safe enough, then we should find an alternative institution.
- Positive scholars: Adam Smith, Friedrich Hayek, and Milton Friedman
- Negative scholars: Karl Marx, Thomas Piketty, Naomi Klein, and Joseph Stiglitz

# Research Question & Hypothesis

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- Research Question: Is capitalism a determinant of increasing wealth inequality?
- Hypothesis: Wealth inequality in well developed capitalist countries increases over time.

# Literature Review

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- Smith (1776) says free market brings about economic growth and prosperity through mechanism of the invisible hand, division of labor, and self-interest and competition. He recognized economic inequality, but he was optimistic about the free market.
- Marx (1867) suggests that capitalism increases wealth inequality through exploitation of labors. The owner of the means of production claims unpaid surplus value that was produced by the labors.
- Friedrich (1945) maintains that economic inequality is inevitable to enjoy freedom and prosperity. Economic inequality is an acceptable trade-off for enhancing people's freedom and pursuing their own goals.
- Kuznets (1955) argues that as a country is growing, economic inequality increases at the front, but it decreases at the end.
- Friedman (1962) says "A society that puts equality before freedom will get neither. A society that puts freedom before equality will get a high degree of both."
- Stiglitz (2013) argues that economic inequality is self-perpetuating because the rich people exploit political or legislative capability for their sake.

# Literature Review

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- Piketty (2014) insists that if the rate of return on capital is greater than the growth rate, then economic wealth concentration follows.
- Saez and Zucman (2020) argue that the share of the top 1% rose from 10% to 19% during 1978 and 2018. The share of the top 0.1% increases from 7% to about 18% in the United States.
- Antonelli et al. (2019) suggest the model of capitalism is a determinant of income inequality through using data from 1995 to 2010.
- Patnaik (2015) insists that wealth inequality increases over time due to ‘centralization of capital’ and ‘primitive accumulation of capital’.
- Bresser-Pereira (2014) points out that economic inequality is not always increasing. It is increasing, decreasing, or constant depending on the social or economic conditions.
- Rapaczynski (2024) mentioned that rising economic inequality is caused by features of the capitalist system. He suggests providing high-school graduating students with a certain amount of capital as a solution.
- Klein (2015) argues that capitalism exacerbates economic inequality, environment, social justice because it favors rich people and elite politicians.

# Contributions

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- Despite numerous scholars warning about the growing wealth inequality under capitalism, no one had proven it with data. Therefore, this paper is the first to demonstrate the inherent contradictions of capitalism using data.
- This paper is warning to our society that our society is not safe enough under capitalism.
- This paper presented the fundamental reason why economists must propose alternatives to capitalism.

# Models of Capitalism and Inequality

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- $Wealth\ Inequality_{i,t} = \alpha_0 + [\alpha_1 ExSocialist_i + \alpha_2 WesternEurope_i + \alpha_3 Scandinavian_i + \alpha_4 CentralEurope_i + \alpha_5 Asian_i + \alpha_6 AngloSaxon_i] + [Growth_{i,t} + Inflation_{i,t} + Unemployment_{i,t} + FDI_{i,t}] + u_i + \epsilon_{i,t}$
- Dependent Variable: Wealth Inequality (top 1% share ratio) from the World Inequality Database
- Independent Variables: Years from 1995 to 2022
- Control Variables: Regional dummy variables (Ex-Socialist, Western Europe, Scandinavian, Central Europe, Asian, Anglo Saxon), Growth rate, Inflation rate, Unemployment rate, FDI (Foreign Direct Investment) from the World Bank
- $u_i$  is time invariant country specific unobserved effects
- $\epsilon_{i,t}$  is random disturbances

# Descriptive Statistics

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Variable	Obs	Mean	Std. Dev.	Min	Max
Ex-Socialist	1064	.105	.307	0	1
Western Europe	1064	.132	.338	0	1
Scandinavian	1064	.105	.307	0	1
Central Europe	1064	.105	.307	0	1
Asian	1064	.053	.223	0	1
Anglo-Saxon	1064	.132	.338	0	1
Year	1064	2008.5	8.082	1995	2022
p99p100 Inequality	1064	.262	.081	.121	.558
Growth Rate	1062	2.751	3.384	-14.839	24.616
Inflation	1064	4.007	7.606	-4.448	89.113
Unemployment	1064	6.395	3.629	1.201	25.441
Gross graduation	529	37.229	13.175	4.621	72.401
Completion rate upper secondary	159	74.549	17.095	32.63	96.11
FDI	1057	2.665e+10	6.765e+10	-3.593e+11	7.338e+11

# Correlations

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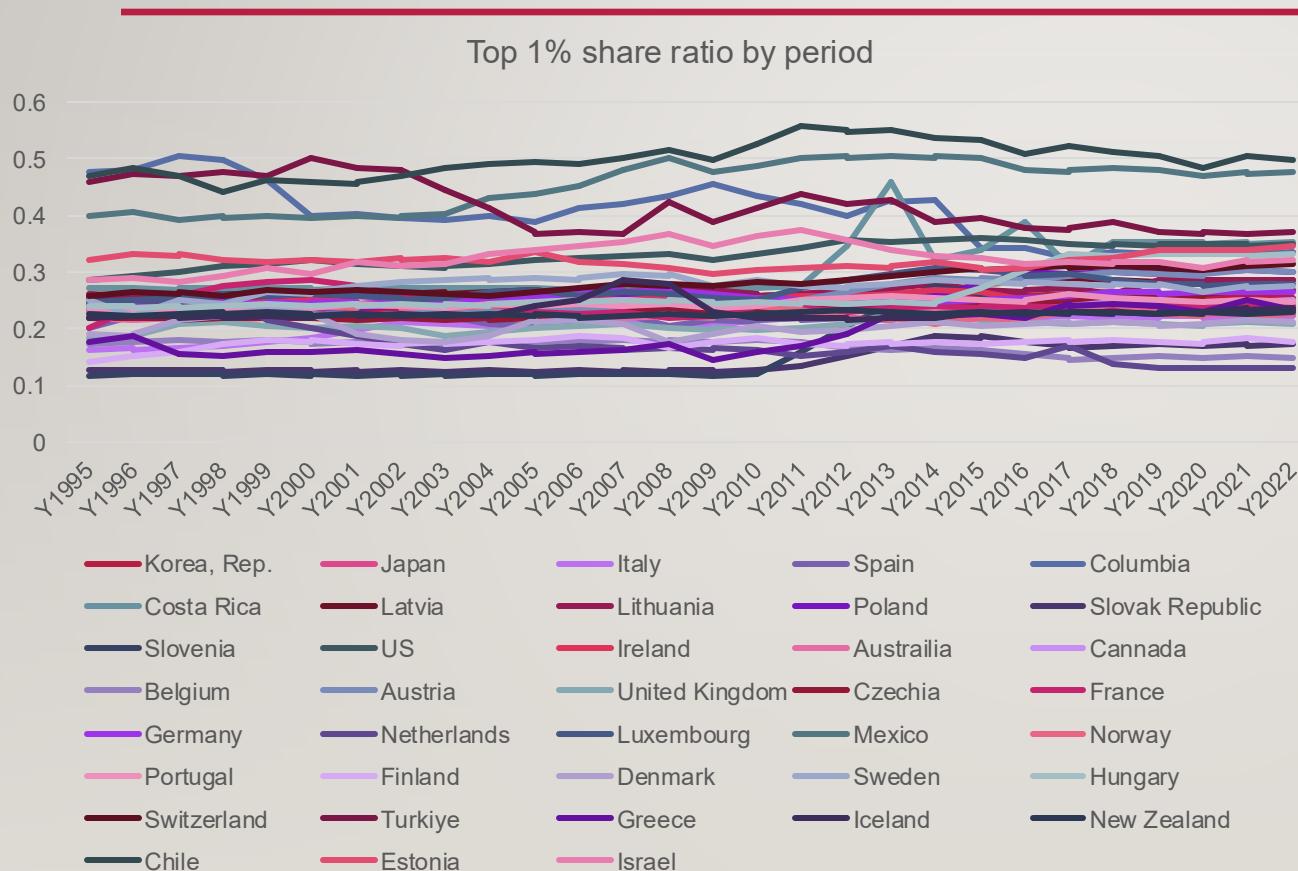
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) p99p100worldin~a	1.000											
(2) exsocialist	-0.238	1.000										
(3) westerneurope	-0.094	-0.111	1.000									
(4) scandinavian	-0.243	-0.183	-0.109	1.000								
(5) centraleurope	-0.114	-0.147	-0.088	-0.144	1.000							
(6) asian	-0.054	-0.093	-0.055	-0.091	-0.073	1.000						
(7) anglosaxon	0.028	-0.113	-0.067	-0.111	-0.089	-0.056	1.000					
(8) growthrateperi~d	0.054	0.065	0.099	-0.095	-0.152	0.057	-0.049	1.000				
(9) inflationconsu~a	0.199	0.070	-0.097	-0.148	-0.118	-0.045	-0.109	0.126	1.000			
(10) unemploymentr~e	-0.144	0.117	0.206	-0.176	-0.004	-0.197	-0.192	-0.101	-0.021	1.000		
(11) foreigndirect~i	0.095	-0.063	0.126	-0.064	0.132	-0.033	0.304	0.026	-0.064	-0.089	1.000	
(12) edupri	0.064	-0.038	-0.034	0.084	0.122	0.080	-0.125	0.026	-0.146	0.019	0.026	1.000

# Cluster

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Cluster 1 Ex-Socialist	Cluster 2 Western Europe	Cluster 3 Scandinavian	Cluster 4 Central Europe	Cluster 5 Asian	Cluster 6 Anglo-Saxon
Czech Republic, Hungary, Poland, Slovakia	France, Ireland, Netherlands, Portugal, Spain	Denmark, Finland, Norway, Sweden	Austria, Belgium, Germany, Italy	Japan, Korea	Australia, Canada, UK, USA, Switzerland

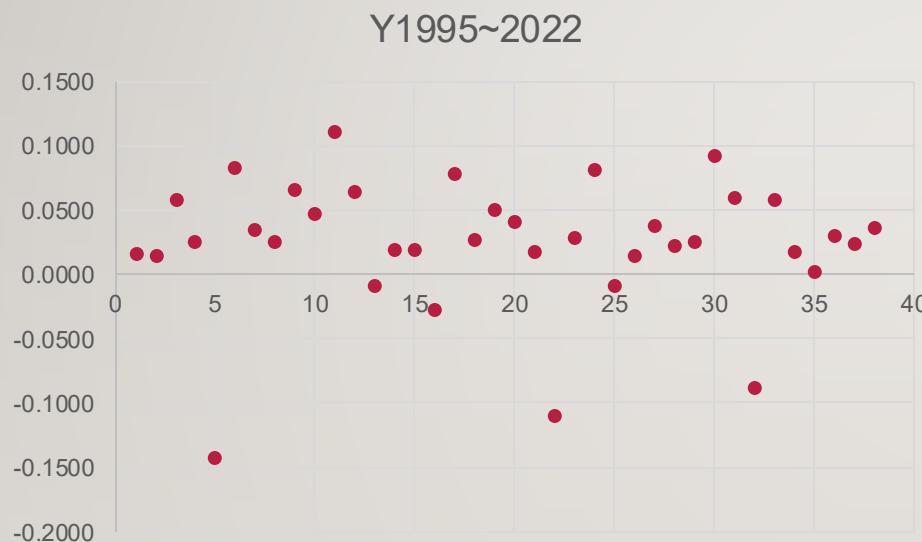
# Top 1% share ratio by period



- Most top 1% share ratios in the OECD countries increase over time.

# Increases in Economic Inequality For 27 Years

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- Top 1% share increased ratio from 1995 to 2022 in OECD countries
- Top 1% share ratio had increased 2.44% from 1995 to 2022 with a 99% confidence level.

# Top 1% share ratio increase by period

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Periods	Mean	t Value	p Value
1995~2000	0.0069*	1.6957	0.0983
1995~2005	0.0066553	1.3036	0.2004
1995~2010	0.0114342**	2.2401	0.0312
1995~2015	0.0243553***	3.1229	0.0035
1995~2020	0.0197667**	2.5658	0.0145
1995~2022	0.0244316***	2.9774	0.0051

# Panel Data Analysis

- Top 1% share increases every year, but some of them are significant and others are not.
- We conclude that wealth inequality increases over time.

VARIABLES	(1) No Region	(2) No Growth	(3) No Inflation	(4) No Education	(5) Only Year	(6) All
1996.year	0.0355 (0.0291)	0.0174 (0.0247)	-0.00241 (0.0257)	0.00520 (0.0160)	0.00381 (0.0186)	0.0164 (0.0255)
1997.year	0.0186 (0.0314)	0.00281 (0.0270)	-0.0304 (0.0273)	0.00973 (0.0161)	0.00581 (0.0186)	0.00125 (0.0276)
1998.year	0.0486 (0.0297)	0.0237 (0.0256)	-0.0161 (0.0253)	0.0150 (0.0162)	0.00737 (0.0186)	0.0236 (0.0261)
1999.year	0.0698* (0.0274)	0.0340 (0.0236)	-0.0116 (0.0227)	0.0206 (0.0162)	0.00816 (0.0186)	0.0342 (0.0242)
2000.year	0.0587* (0.0275)	0.0270 (0.0237)	-0.0164 (0.0230)	0.0135 (0.0162)	0.00690 (0.0186)	0.0263 (0.0242)
2001.year	0.0610* (0.0280)	0.0252 (0.0242)	-0.0185 (0.0235)	0.0182 (0.0162)	0.00516 (0.0186)	0.0253 (0.0247)
2002.year	0.0721*** (0.0279)	0.0310 (0.0241)	-0.0169 (0.0231)	0.0194 (0.0161)	0.00412 (0.0186)	0.0313 (0.0247)
2003.year	0.0723* (0.0290)	0.0311 (0.0252)	-0.0196 (0.0240)	0.0208 (0.0161)	0.00310 (0.0186)	0.0313 (0.0257)
2004.year	0.0702* (0.0277)	0.0329 (0.0241)	-0.0154 (0.0229)	0.0200 (0.0161)	0.00509 (0.0186)	0.0363 (0.0245)
2005.year	0.0775** (0.0281)	0.0365 (0.0245)	-0.0127 (0.0233)	0.0203 (0.0162)	0.00666 (0.0186)	0.0363 (0.0249)
2006.year	0.0716* (0.0281)	0.0324 (0.0245)	-0.0166 (0.0233)	0.0178 (0.0162)	0.00891 (0.0186)	0.0316 (0.0249)
2007.year	0.0735** (0.0281)	0.0328 (0.0245)	-0.0155 (0.0234)	0.0180 (0.0163)	0.0126 (0.0186)	0.0321 (0.0249)
2008.year	0.0658* (0.0279)	0.0223 (0.0240)	-0.0172 (0.0238)	0.0239 (0.0164)	0.0136 (0.0186)	0.0232 (0.0248)
2009.year	0.101*** (0.0301)	0.0408* (0.0246)	-0.00700 (0.0254)	0.0431** (0.0176)	0.00718 (0.0186)	0.0449* (0.0271)
2010.year	0.0868** (0.0280)	0.0385 (0.0243)	-0.0125 (0.0230)	0.0325** (0.0162)	0.0114 (0.0186)	0.0391 (0.0249)
2011.year	0.0958** (0.0274)	0.0493* (0.0238)	0.000536 (0.0226)	0.0324** (0.0162)	0.0157 (0.0186)	0.0497** (0.0244)
2012.year	0.109*** (0.0277)	0.0585* (0.0239)	0.00884 (0.0228)	0.0423*** (0.0163)	0.0198 (0.0186)	0.0596** (0.0247)
2013.year	0.129*** (0.0276)	0.0766** (0.0239)	0.0238 (0.0224)	0.0523*** (0.0163)	0.0282 (0.0186)	0.0775** (0.0246)
2014.year	0.126*** (0.0276)	0.0742** (0.0241)	0.0194 (0.0223)	0.0497*** (0.0163)	0.0265 (0.0186)	0.0748** (0.0246)
2015.year	0.120*** (0.0276)	0.0671** (0.0242)	0.0104 (0.0221)	0.0448*** (0.0163)	0.0244 (0.0186)	0.0674** (0.0247)
2016.year	0.116*** (0.0276)	0.0597* (0.0242)	0.00424 (0.0223)	0.0431*** (0.0164)	0.0231 (0.0186)	0.0605** (0.0247)
2017.year	0.110*** (0.0271)	0.0583* (0.0237)	0.00614 (0.0221)	0.0402** (0.0162)	0.0239 (0.0186)	0.0586** (0.0242)
2018.year	0.114*** (0.0270)	0.0648** (0.0234)	0.0134 (0.0219)	0.0445*** (0.0162)	0.0249 (0.0186)	0.0654** (0.0240)
2019.year	0.112*** (0.0271)	0.0599* (0.0236)	0.00667 (0.0221)	0.0427*** (0.0163)	0.0236 (0.0186)	0.0598** (0.0243)
2020.year	0.131*** (0.0288)	0.0628** (0.0239)	0.0102 (0.0238)	0.0576*** (0.0176)	0.0209 (0.0186)	0.0666** (0.0261)
2021.year	0.0966** (0.0269)	0.0554* (0.0233)	0.00618 (0.0221)	0.0312* (0.0163)	0.0249 (0.0186)	0.0540** (0.0238)
2022.year	0.0808** (0.0283)	0.0463* (0.0244)	0.0165 (0.0247)	0.0164 (0.0160)	0.0244 (0.0186)	0.0460* (0.0250)
exsocialist		-0.0829** (0.00773)	-0.0863*** (0.00788)	-0.0803*** (0.00733)		-0.0830*** (0.00775)
westerneurope		-0.0628** (0.0117)	-0.0726*** (0.0119)	-0.0750*** (0.00711)		-0.0633*** (0.0118)
scandinavian		-0.0924** (0.00829)	-0.103*** (0.00828)	-0.0765*** (0.00769)		-0.0914*** (0.00847)
centraleurope		-0.0739** (0.00958)	-0.0851*** (0.00975)	-0.0777*** (0.00775)		-0.0726*** (0.00990)
asian		-0.0746** (0.0136)	-0.0860*** (0.0137)	-0.0542*** (0.0102)		-0.0742*** (0.0137)
anglosaxon		-0.0495** (0.0123)	-0.0632*** (0.0123)	-0.0521*** (0.00769)		-0.0482*** (0.0125)
inflationconsumerpricesannualwor	0.00548***	0.00297***		0.00272***		0.00306***
	(0.000662)	(0.000614)		(0.000317)		(0.000625)
unemploymentatebysexandageilomo	-0.00234***	-0.00379***	-0.00413***	-0.00126*		-0.00369***
	(0.000769)	(0.000726)	(0.000759)	(0.000655)		(0.000750)
foreigndirectinvestmentnetinflow	0**	0***	0***	0***		0**
	(0)	(0)	(0)	(0)		(0)
edupri	0.00181*** (0.000627)	0.00233*** (0.000547)	0.00217*** (0.000571)			0.00234*** (0.000562)
growthrateperiodonperioddecld	0.00206*		0.000274	0.00208**		0.000461
	(0.00109)		(0.00103)	(0.000861)		(0.00101)

# Conclusion

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- Wealth inequality in most of the OECD countries increases based on the results of the t-test and panel data analysis.
- Top 1% share ratio in the OECD countries increases 2.38% with 99% confidence.
- Top 1% share ratio in the OECD countries increases every year from 1995 to 2022 in the panel data analysis.
- Some of them are statistically significant.
- Capitalism is not safe enough to protect human beings due to increasing wealth inequality, so we should find some alternative institutions.

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