Increasing Wealth Inequality Under Capitalism

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Abstract

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.

Introduction

Some countries explore the Moon and Mars for future residence. This is because we should prepare for the end of the Earth due to unexpected nuclear war, meteorite collision, environmental crises, etc. The same reasons are in exploring 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 sustainable enough, then we should find an alternative institution.

There are many scholars who mentioned capitalism and economic inequality. 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 and its problems such as undermining social harmony and increasing political instability, but he was optimistic about the free market because economic inequality is natural and even beneficial. Marx (1867) suggests that capitalism increases wealth inequality through exploitation of laborers. The owner of the means of production claims unpaid surplus value that was produced by the laborers. 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. Fridman (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. Piketty (2014) insists that if the rate of return on capital is greater than the growth rate, then economic wealth concentration follows. 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. Patnaik (2015) insists that wealth inequality increases over time due to 'centralization of capital' and 'primitive accumulation of capital'. Klein (2015) argues that capitalism exacerbates economic inequality, environment, and social justice because it favors rich people and elite politicians. Antonelli et al. (2019) suggest the model of capitalism is a determinant of income inequality through using data from 1995 to 2010. Saez and Zucman (2020) argue that the share of the top 1% rose from 10% to 19% during 1978 and 2018 in the United States. The share of the top 0.1% increases from 7% to about 18%. 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. There are numerous papers that show the relationship between capitalism and wealth inequality, but there is no paper that reveals a statistical relationship.

This paper suggests a statistical model that reveals the relationship between capitalism and wealth inequality. There are some contributions through revealing the relationship. First, this paper warns our society that our society is not safe enough under capitalism. If there is an increasing trend in wealth inequality under capitalism, we should find an alternative institution. Otherwise, human beings cannot survive due to increasing wealth inequality. Second, this paper shows that capitalism is known as an institution that is efficient, but it is not fair. Most well-developed countries are capitalist because capitalism is an efficient and productive institution. However, since wealth inequality is increasing, capitalism is not a fair institution. Third, this paper shows the end of capitalist countries. Most capitalist countries' people enjoy prosperity, but their ends will not be the same because of increasing wealth inequality. Fourth, this paper shows characteristics regarding neither underdeveloped nor developing countries, but the OECD

countries. The OECD countries are known as well-developed economies. Thus, this paper

contributes to investigating well-developed countries' capitalist properties. Fifth, this paper let us

know why haters against capitalism are increasing. Recently, Korean movies like Squid Game

and Parasite hit the world. The contents are how losers under capitalism are experiencing

tragedy. A great number of people felt similar tragedy, and thus the movies won the famous

awards like Academy Award, Golden Globe Award, and Emmy Award. Sixth, this paper shows

that wealth inequality is increasing regardless of the return of capital and labor. Piketty (2014)

mentioned wealth inequality is increasing when the return of capital is greater than the return of

labor, but wealth inequality is increasing under capitalism regardless of the return of capital and

labor.

Model

We construct a statistical model to explore the relationship between capitalism and
wealth inequality. This model estimates the Group Random Effects and Time Fixed Effects.

$$y_{it} = \alpha + \beta_1 x_{it} + \beta_2 z_i + \mu_t + e_{it} \quad (1)$$

The dependent variable (y_{it}) is wealth inequality (top 1% share's ratio) in the 38 OECD
countries from the World Inequality Database. The independent variable (μ_t) is year dummy
variable from 1995 to 2022. Some of the control variables are cluster dummy variables (z_i) such
as Ex-Socialist, Western Europe, Scandinavian, Central Europe, Asian, and Anglo Saxon; and
the other control variables (x_{it}) are growth rate, inflation rate, unemployment rate, FDI (Foreign
Direct Investment), and completion rate of primary education level from the World Bank
database. According to Antonelli (2019), we introduce the cluster dummy variables. e_{it} are the
error term.

Table 1 Clusters Dummy Variables

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

Data

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
p99p100	1064	.262	.081	.121	.558
Growth	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
FDI	1057	2.665e+10	6.765e+10	-3.593e+11	7.338e+11
EduPrimary	659	98.596	5.078	70.417	134.546
ExSocialist	1064	.105	.307	0	1
WesternEurope	1064	.132	.338	0	1
Scandinavian	1064	.105	.307	0	1
CentralEurope	1064	.105	.307	0	1
Asian	1064	.053	.223	0	1
AngloSaxon	1064	.132	.338	0	1

Table 2 shows a data description. P99p100 variable is top 1% share's ratio, and its minimum is 12.1% and its maximum is 55.8%; the mean value is 26.2%; its standard deviation is 8.1% among the 1,064 observations. Growth variable means yearly growth rate from the 38 OECD countries. Its mean value is 2.751%; the standard deviation is 3.384%; and its minimum value is -14.839% and the maximum value is 24.616%. Inflation variable also means yearly inflation rate. The average value is 4.007%, and its standard deviation is 3.384%. The minimum value is -4.448% and the maximum value is 89.113%. Unemployment variable is unemployment rate from 1.201% to 24.616%. The mean value is 6.395% and its standard deviation is 3.629%.

FDI variable is the Foreign Direct Investment based on net inflows by current US$. The maximum value is $733.8 billion, and the minimum value is -$359.3 billion. The mean value is $26.65 billion, and its standard deviation is $67.65 billion. EduPrimary variable means Primary completion rate, total (% of relevant age group). Its mean value is 98.596% and its standard deviation is 5.078%. The mimimum value is 70.417% and the maximum value is 134.546%. ExSocial, WesternEurope, Scandinavian, CentralEurope, Asian, and AngloSaxon are dummy variables. 10.5% out of the OECD countries are Ex-socialist countries, 13.2% are Western European countries, 10.5% are Scandinavian countries, 10.5% are Central European countries, 5.3% are Asian countries, and 13.2% are Anglo-Saxon countries.

Table 3 Matrix of correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) p99p100	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) growth	0.054	0.065	0.099	-0.095	-0.152	0.057	-0.049	1.000				
(9) inflation	0.199	0.070	-0.097	-0.148	-0.118	-0.045	-0.109	0.126	1.000			
(10) unemployment	-0.144	0.117	0.206	-0.176	-0.004	-0.197	-0.192	-0.101	-0.021	1.000		
(11) fdi	0.095	-0.063	0.126	-0.064	0.132	-0.033	0.304*	0.026	-0.064	-0.089	1.000	
(12) eduprimary	0.064	-0.038	-0.034	0.084	0.122	0.080	-0.125	0.026	-0.146	0.019	0.026	1.000

Note: *Weak **Medium ***Strong ****Very Strong

According to Table 3, p99p100 variable has a weak negative correlation with exsocialist and sacandinavian dummy variable. FDI variable is weakly correlated to anglosaxon dummy variable. FDI and anglosaxon variable have a weak correlation.

Data Analysis

Table 4 Group Random Effects and Time Fixed Effects Panel Model

VARIABLES	(1) No Cluster	(2) No Growth	(3) No Inflation	(4) No Education	(5) Only Year	(6) All
1996.year	0.0355	0.0174	-0.00241	0.00520	0.00381	0.0164

	(1)	(2)	(3)	(4)	(5)	(6)
	(0.0291)	(0.0247)	(0.0257)	(0.0160)	(0.0186)	(0.0255)
1997.year	0.0186	0.00281	-0.0304	0.00973	0.00581	0.00125
	(0.0314)	(0.0270)	(0.0273)	(0.0161)	(0.0186)	(0.0276)
1998.year	0.0486	0.0237	-0.0161	0.0150	0.00737	0.0236
	(0.0297)	(0.0256)	(0.0253)	(0.0161)	(0.0186)	(0.0261)
1999.year	0.0698**	0.0340	-0.0116	0.0206	0.00816	0.0342
	(0.0274)	(0.0236)	(0.0227)	(0.0162)	(0.0186)	(0.0242)
2000.year	0.0587**	0.0270	-0.0164	0.0135	0.00690	0.0263
	(0.0275)	(0.0237)	(0.0230)	(0.0162)	(0.0186)	(0.0242)
2001.year	0.0610**	0.0252	-0.0185	0.0182	0.00516	0.0253
	(0.0280)	(0.0242)	(0.0235)	(0.0162)	(0.0186)	(0.0247)
2002.year	0.0721***	0.0310	-0.0169	0.0194	0.00412	0.0313
	(0.0279)	(0.0241)	(0.0231)	(0.0161)	(0.0186)	(0.0247)
2003.year	0.0723**	0.0311	-0.0196	0.0208	0.00310	0.0313
	(0.0290)	(0.0252)	(0.0240)	(0.0161)	(0.0186)	(0.0257)
2004.year	0.0702**	0.0329	-0.0154	0.0200	0.00509	0.0324
	(0.0277)	(0.0241)	(0.0229)	(0.0161)	(0.0186)	(0.0245)
2005.year	0.0775***	0.0365	-0.0127	0.0203	0.00666	0.0363
	(0.0281)	(0.0245)	(0.0233)	(0.0162)	(0.0186)	(0.0249)
2006.year	0.0716**	0.0324	-0.0166	0.0178	0.00891	0.0316
	(0.0281)	(0.0245)	(0.0233)	(0.0162)	(0.0186)	(0.0249)
2007.year	0.0735***	0.0328	-0.0155	0.0180	0.0126	0.0321
	(0.0281)	(0.0245)	(0.0234)	(0.0163)	(0.0186)	(0.0249)
2008.year	0.0658**	0.0223	-0.0172	0.0239	0.0136	0.0232
	(0.0279)	(0.0240)	(0.0238)	(0.0164)	(0.0186)	(0.0248)
2009.year	0.101***	0.0408*	-0.00700	0.0431**	0.00718	0.0449*
	(0.0301)	(0.0246)	(0.0254)	(0.0176)	(0.0186)	(0.0271)
2010.year	0.0868***	0.0385	-0.0125	0.0325**	0.0114	0.0391
	(0.0280)	(0.0243)	(0.0230)	(0.0162)	(0.0186)	(0.0249)
2011.year	0.0958***	0.0493**	0.000536	0.0324**	0.0157	0.0497**
	(0.0274)	(0.0238)	(0.0226)	(0.0162)	(0.0186)	(0.0244)
2012.year	0.109***	0.0585**	0.00884	0.0423***	0.0198	0.0596**
	(0.0277)	(0.0239)	(0.0228)	(0.0163)	(0.0186)	(0.0247)
2013.year	0.129***	0.0766***	0.0238	0.0523***	0.0282	0.0775***
	(0.0276)	(0.0239)	(0.0224)	(0.0163)	(0.0186)	(0.0246)
2014.year	0.126***	0.0742***	0.0194	0.0497***	0.0265	0.0748***
	(0.0276)	(0.0241)	(0.0223)	(0.0163)	(0.0186)	(0.0246)
2015.year	0.120***	0.0671***	0.0104	0.0448***	0.0244	0.0674***
	(0.0276)	(0.0242)	(0.0221)	(0.0163)	(0.0186)	(0.0247)
2016.year	0.116***	0.0597**	0.00424	0.0431***	0.0231	0.0605**
	(0.0276)	(0.0242)	(0.0223)	(0.0164)	(0.0186)	(0.0247)
2017.year	0.110***	0.0583**	0.00614	0.0402**	0.0239	0.0586**
	(0.0271)	(0.0237)	(0.0221)	(0.0162)	(0.0186)	(0.0242)
2018.year	0.114***	0.0648***	0.0134	0.0445***	0.0249	0.0654***
	(0.0270)	(0.0234)	(0.0219)	(0.0162)	(0.0186)	(0.0240)
2019.year	0.112***	0.0589**	0.00667	0.0427***	0.0236	0.0598**
	(0.0271)	(0.0236)	(0.0221)	(0.0163)	(0.0186)	(0.0243)
2020.year	0.131***	0.0628***	0.0102	0.0576***	0.0209	0.0666**
	(0.0288)	(0.0239)	(0.0238)	(0.0176)	(0.0186)	(0.0261)
2021.year	0.0966***	0.0554**	0.00618	0.0312*	0.0249	0.0540**
	(0.0269)	(0.0233)	(0.0221)	(0.0163)	(0.0186)	(0.0238)
2022.year	0.0808***	0.0463*	0.0165	0.0164	0.0244	0.0460*
	(0.0283)	(0.0244)	(0.0247)	(0.0160)	(0.0186)	(0.0250)
ExSocialist		-0.0829***	-0.0863***	-0.0803***		-0.0830***
		(0.00773)	(0.00786)	(0.00733)		(0.00775)
WesternEurope		-0.0628***	-0.0726***	-0.0750***		-0.0633***
		(0.0117)	(0.0119)	(0.00711)		(0.0118)
Scandinavian		-0.0924***	-0.103***	-0.0765***		-0.0914***
		(0.00829)	(0.00828)	(0.00769)		(0.00847)
CentralEurope		-0.0739***	-0.0851***	-0.0777***		-0.0726***
		(0.00958)	(0.00975)	(0.00775)		(0.00990)
Asian		-0.0746***	-0.0860***	-0.0542***		-0.0742***

	(1)	(2)	(3)	(4)	(5)	(6)
		(0.0136)	(0.0137)	(0.0102)		(0.0137)
AngloSaxon		-0.0495***	-0.0632***	-0.0521***		-0.0482***
		(0.0123)	(0.0123)	(0.00769)		(0.0125)
Inflation	0.00548***	0.00297***		0.00272***		0.00306***
	(0.000662)	(0.000614)		(0.000317)		(0.000625)
Unemployment	-0.00234***	-0.00379***	-0.00413***	-0.00126*		-0.00369***
	(0.000769)	(0.000726)	(0.000759)	(0.000655)		(0.000750)
FDI ($Billion)	0.000130**	0.000209***	0.000225***	0.000125***		0.000208***
	(6.61e-05)	(6.23e-05)	(6.35e-05)	(3.50e-05)		(6.24e-05)
EduPrimary	0.00181***	0.00233***	0.00217***			0.00234***
	(0.000627)	(0.000547)	(0.000571)			(0.000562)
Growth	0.00206*		0.000274	0.00208**		0.000461
	(0.00109)		(0.00103)	(0.000861)		(0.00101)
Constant	-0.0122	0.0491	0.129**	0.266***	0.248***	0.0454
	(0.0660)	(0.0569)	(0.0574)	(0.0144)	(0.0131)	(0.0589)
Observations	657	659	657	1,055	1,064	657
R-squared	0.172	0.373	0.349	0.317	0.012	0.374

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 shows the group random effects and time fixed effects in the panel model. The top 1% share increases every year, but some of them are significant and others are not. There is no significant negative impact of the years on the top 1% share. Recent years have more significant and bigger impact on the top 1% share. Ex-socialist, Western European, Scandinavian, Central European, Asian, Anglo-Saxon countries have strongly negative impact on the top 1% share. Inflation, FDI, Primary Education have a significant positive impact on the top 1% share. Growth rate has a weak positive impact on the top 1% share. The unemployment rate has a strongly negative impact on the top 1% share. Therefore, we conclude that wealth inequality increases over time.
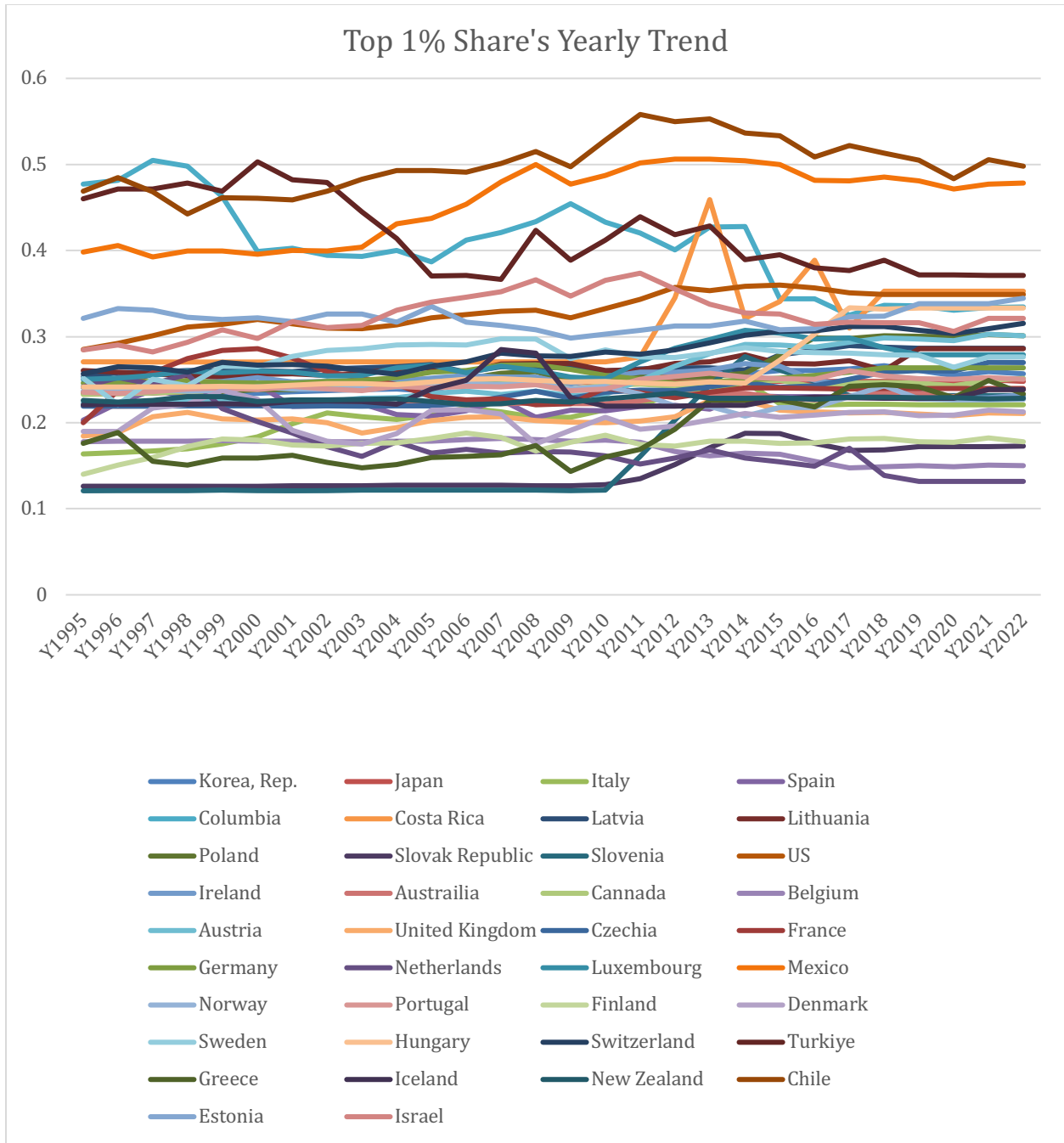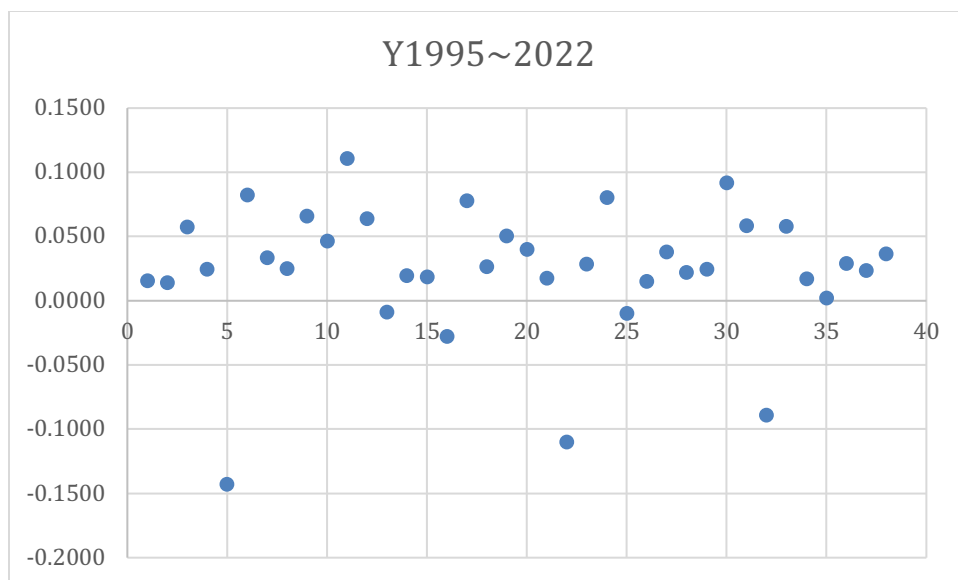
Figure 1 Top 1% Share's Yearly Trend

Figure 2 Top 1% Share's Increase From 1995 to 2022

Table 5 t Test

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

Figure 1 shows the top 1% share's yearly trend graphically. Some trends increase, but others decrease over time. Overall, the trends are increasing. Figure 2 shows the difference between the top 1% share ratio in 2022 and the top 1% share ratio in 1995 in the OECD countries. Most countries present positive increase in the top 1% share ratio except for the 6 countries. Table 5 indicates t test that the null hypothesis is that there is no increase in the top 1%

share ratio. We can reject the null hypothesis except the period 1995~2005. The t test result insists that the top 1% share ratio increased 2.44% from 1995 to 2022 with a 1% significance level. Both the panel data analysis and the t test conclude that the OECD countries experience wealth concentration under their capitalism, and it is increasing every year.

Conclusion

Wealth inequality in most of the OECD countries increases based on the results of the t-test and panel data analysis. The top 1% share ratio in the OECD countries increases 2.44% with 99% confidence. The average 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. We conclude that the top 1% share ratio keeps increasing under capitalism.

After the economic collapse of communist countries, most communist countries transformed their economic institution that allows the free market. Thus, people think capitalism is the only institution that let people thrive, but capitalist countries have also suffered from lots of problems such as growing wealth inequality and increasing welfare costs. Therefore, capitalism is not safe enough to protect human beings due to increasing wealth inequality, so we should find some alternative institutions.

Many capitalist countries, including the United States, are divided between the left and the right, leading to ongoing conflict. The left, citing growing wealth inequality, demands excessive welfare systems, which in some cases has led nations into bankruptcy. On the other hand, the right tends to ignore this increasing wealth disparity, insisting that inequality is simply a natural state of the world and something we must accept. Both the left and the right have their flaws. The left correctly identifies the growing inequality within capitalism but seeks all solutions through welfare policies. As a result, many countries have gone bankrupt due to excessive welfare spending. Meanwhile, the right disregards the issue and insists that capitalism is our only future. This has led some nations to the point where severe wealth inequality has crippled further development. At this point, the path forward must be to dissect capitalism, preserving its efficiency while creating a new system that can address and resolve wealth inequality.

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