The Threat of Communism during Cold War: a constraint to income inequality?*

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Abstract

Did the threat of communism influence income distribution in developed capitalist economies during the Cold War? This article addresses this question by testing whether income inequality in OECD countries was related to events linked to the spread of communism – revolutions, USSR invasions - around the world. We argue that the threat of the spread of communism was acted as an incentive for the elites and governments to keep inequality at low levels. This paper provides a contribution to the recent literature on inequality, which stresses the importance of domestic institutions and the two World Wars but fails to address the role of the Cold War in distributing income. We find a robust relationship between income inequality and the distance to communist events. The results suggest, as reinforced by some cases studied, that the spread of communism fostered deals between domestic elites and workers that redistributed the gains from capital in favor of labor. Finally, we show that these effects were reinforced by strong unions and the presence of relevant communist parties.
Keywords: Inequality, External Threat, Cold War, State Capacity.

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1 Introduction

Inequality is one of the most important and controversial topics of our times. It has converted into a central issue not only among socialists and anti-globalizers, but also the general public, the media, politicians from diverse affiliations and academics. Many authors have diverted from Lucas' mainstream approach to inequality (Lucas, 2002). According to Stiglitz (2014) (p.6) "of the tendencies that have marked modern macroeconomics, the most seductive and poisonous is the failure to pay due attention to inequality".

Rising inequality explains the renewed interest in the subject.[1] Piketty (2014) shows that inequality has increased across the developed world since the 1980s. Several possible explanations arise in this context. Timmer et al. (2014) explain the recent surge in inequality as a result of technological innovation and globalization. Piketty et al. (2014) argue that technology cannot explain differences in inequality across continental Europe and Anglo-Saxon countries. The authors explore the role of institutions such as tax policy in conditioning inequality. Atkinson et al. (2011) stress the role of the World Wars of the twentieth century in destroying massive stocks of capital. In order to finance the wars and to repay the national debts, post-war governments reached a consensus to increase tax rates, which played a role in distributing income.

The literature highlights the role of the world wars in reducing inequality, but it does not explain why it remained at low levels in the three decades that followed 1945. We argue that this literature misses a relevant event that marked the post-war period: the global rise of communism.

The Cold War created a context favorable for the appearance of common-interest states, which Besley and Persson (2013) define as consensus among different interest groups that enables the state to increase fiscal capacity in order to protect the status-quo. The ruling elites must have accepted to lose power to reach this consensus. As Przeworski (2009) and Conley and Temimi (2001) show in the context of franchise extension, this only happens when politically excluded groups impose a credible threat. In their study on the relation between revolutions and franchising in Europe between 1820 and 1938, Aidt and Jensen (2014) observe that elites were more likely to expand franchising the closer the threat, either domestically or abroad. New common-interest states make society more equal both in terms of power and wealth. It represents a change in *de facto* institutions addressed by Acemoglu and Robinson (2006). This paper extends this argument to the context of demo-

[1] This renewed interest is translated into several books recently published on the theme. See, e.g, Piketty (2014), Atkinson (2015), Scheve and Stasavage (2016) and Milanovic (2016).

cratic countries under the credible external threat of communism during the Cold War.

In order to test this hypothesis empirically, we construct a variable that captures the effects of communist threats around the world. The variable is defined as the sum of years with communist-related events weighted by the inverse of the distance between the capital of the country where the events happened and the capitals of each OECD country.[2] We compiled the list from Frankel (1992) and Schwartz (1997), two handbooks on the Cold War. The Cuban Revolution in 1959 and the Red Army invasion of Prague in 1968 are famous examples of such events. We regress this variable on a panel of OECD countries to test whether the threat of communism represented a force that lead to the creation of common-interest states.

The famous telegram that the US envoy in Moscow George Kennan sent to the Secretary of State in 1946 motivates this article. In the cable Kennan highlights the geographically expansionist perspective of the communist threat. He predicted that the USSR would intend to "advance official limits of the Soviet Power (...) to certain neighboring points conceived of here as being of immediate strategic necessity, (but) other points may at any time come into question, if and as concealed Soviet political power is extended to new areas." For Kennan, the issue of whether the Western block would prevail in face of the communist threat "depends on the health and vigor of our own society," which he defines as "the community spirit of our own people."

This article has similarities to the work by Aidt and Jensen (2014), but we focus on the distribution of income in the postwar rather than the distribution of political power in the nineteenth century. Our results extend the work by Madsen et al. (2017), which uses communism as an instrument on the relation between equality and state capacity. Madsen et al. (2017) list a number of channels through which communism distributed income but do not test them. In contrast, we focus on the mechanism of the causal relation between communist threats and inequality: the Cold War empowered labor organizations, making it easier for unionists to bargain for higher salaries with their employers in deals facilitated by policymakers. Obinger and Schmitt (2011) and Petersen (2013) have highlighted this mechanism qualitatively. We support it quantitatively, showing that under the threat of communism, top income shares were associated with high union density, the presence of communist parties in the Parliament and more labor activity, as measured by workers in labor disputes and general strikes.

The article is organized in six sections, including this introduction. Section II addresses a

[2] Campante et al. (2014) analyze how isolated (from the population) capital cities are associated to less accountability.

conceptual discussion on the evolution of inequality and assesses how external threats may shape its dynamics. Section III reviews the historical literature and presents case studies. Section IV describes the data. Section V presents the empirical strategy, and Section VI analyses the results, including robustness checks. Section VII concludes the article.

2 Conceptual discussion

Inequality has been increasing in developed countries since the 1980s. This trend has attracted a great deal of interest among academics as well as the greater public. Economists have debated the causes of income concentration and identified a number of drivers of this process. In their seminal article, Katz et al. (1999) stress the role of technology and labor market globalization in the rise of income concentration in rich countries. Globalization narrowed down the technological gap between developed and developing economies. It also reduced trade barriers, which enabled relatively poor new industrial economies to access large consumer markets abroad. This process shifted low-skilled labor industries to less developed countries. As a consequence, the share of capital and high-skilled labor increased and the demand for low-skilled labor fell in developed economies (Timmer et al., 2014).

Some authors highlight the role of institutions in this process. Piketty et al. (2014) assert that tax policy reforms raised inequality. The authors develop a model that lead to three different elasticities between tax rates and wages. The first one is the traditional effort elasticity, according to which higher marginal tax reduces the incentives for hardworking. The second elasticity is related to avoidance efforts. When marginal taxes are high, individuals have a greater incentive to search for other forms of income sources, such as capital gains and stock options. Finally, higher taxes make top earner less likely to bargain for additional income.

Alvaredo et al. (2013) find a strong and positive association between personal earnings and capital income. They infer that networking makes rich-born individuals more likely to get better paid jobs.[3] Moreover, top executives are more able to accumulate wealth. Roine et al. (2009) conclude that financial development and GDP growth significantly increased top incomes vis-à-vis other income levels.[4] Similarly, de Haan and Sturm (2017) affirm that financial liberalization has an influence on inequality.

[3]There is a growing literature on social networks and inequality. See, e.g., DiMaggio and Garip (2011).

[4]Philippon and Reshef (2012) show that financial deregulation is associated to higher wages for financial employees in the U.S.

Most of the literature focuses on inequality in the recent period, starting from the 1980s. However, inequality grew so much *because* it was low to start with. Hence, the understudied question of why societies remained relatively equal in the post-war is as valid as the hot question of why they became unequal lately.

Only a few authors have specifically studied the causes of low inequality in the post-war. Piketty et al. (2014) presents the destruction of capital during the two world wars and the rise in tax marginal rates in the post-war as the main explanations for the fall in top income shares. Similar point appears in Atkinson et al. (2011), who also stresses the role the equalization of earned income. Goldin and Margo (1992) refer to this process as 'the Great Compression'. McCarty et al. (2016) find a positive correlation between inequality and political polarization in the United States since the post-war. Duca and Saving (2016) propose that lower inequality make it easier for political groups to build consensus, which reduces polarization and enables the design of policies that distribute income such as the rise in tax marginal rates. That happened in the postwar and does not in current American politics. On this subject, Scheve and Stasavage (2016) argue that the political argument for taxing the rich comes from the understanding that people must be treated as equals. However societies are more prone to understand this as more taxation to the rich when compensatory arguments - compensation for unequal treatment in other dimensions - become more important. In this sense, Scheve and Stasavage (2016) show that arguments favoring more taxation to the rich have risen after the First World War and has been an important reason until some years after the Second World War (especially in the United States).

Omitted variable bias, however, may compromise these results. This may be the case of marginal tax effects. It is possible that a common variable has reduced the political power of the elites, leading to an increase in marginal taxes and to a fall in top income shares.[5]

This article addresses this omitted variable problem by assessing whether the Cold War had an influence in the fall in inequality. The most important military rivalry of the 20th century, the Cold War conditioned the world order from 1945 to 1989. Maier (2010) asserts that the potential worldwide spread of communism played a decisive role in the configuration of forces among western countries.

Our hypothesis is the following: the more national elites were under the threat of communist revolutions, more the state introduced policies that reduced top income shares. This hypothesis derives from relevant social science and historical literature. Madsen et al. (2017) discuss the role of communist threats to inequality during the broader period be-

[5] Piketty et al. (2014) are aware of this methodological problem. In order to address this issue, they propose a micro-approach by assessing how CEO's behaved when taxes rose in a panel of countries.

tween the 1870s and 2013.

Madsen et al. (2017) use communism as an instrumental variable when assessing the impact of inequality on state and fiscal capacity. The authors list some possible mechanisms, such as the growing influence of communist parties in parliaments of OECD countries and the rise of unions, but they do not test them. Our article tests these possible channels.

Without appraising the Cold War specifically, scholars have studied the processes of income concentration and distribution. According to Boix (2015), elites that seek higher relative wealth rather than absolute wealth are likely to block investment in education to gain from rents from human capital concentration, even though it reduces national income. More inclusive elites tend to be more willing to pay taxes that finance public education, which promotes growth and reduces inequality.

The question is what makes the elite more inclined to distribute income through taxation. Scheve and Stasavage (2016) argue that the political argument for taxing the rich depends on the belief that people must be treated as equals, for progressive taxation would compensate underprivileged members of the society. The authors show that the public support to taxes on top income cohorts appeared after the First World War and gained importance in the postwar.[6] Persson and Besley (2009) and Besley and Persson (2010) show that states raised taxes, predominantly income and wealth taxes, in periods of armed conflicts. Scheve and Stasavage (2012) reach similar conclusion when studying inheritance taxes. Aghion et al. (2012) find that governments invest more in primary education in times of wars. In line with this strand of literature, Scheidel (2017) argues that violence is one of the key forces that is drives inequality down.

Przeworski (2009) and Conley and Temimi (2001) show that ruling elites only agree to expand franchising when politically excluded groups impose a credible threat. Along the same lines, Aidt and Jensen (2014) find a positive relation between revolutions and franchising in Europe between 1820 and 1938. The authors observe that the elites in each individual country responded to civil unrest that took place not only within their borders, but also in neighboring countries. Elites were more likely to expand franchising the closer the threat, either domestically or abroad. Aidt and Leon (2016) show that a related dynamic occurred in Africa from 1990 to 2007: incumbents responded to an increase in the threat of a conflict by providing democratic concessions.

[6] Scheve and Stasavage (2016) discuss three ways to treat people as equals: (i) equal treatment; (ii) ability to pay; and (iii) compensatory arguments. According to the authors, compensatory arguments - that tax more the rich to compensate for unequal treatments in other dimensions - rise in war times with the argument of bringing equalization related to the war sacrifice.

This social science literature provides a useful insight for the study of Cold War and inequality. At first the threat of revolutions pressured the elites to distribute power; once franchise became universal, they had to distribute income. The earlier stage happened in Europe before the Second World War. By the time the Cold War begun, the European elites had nothing but their own income to share.

3 Related Historical literature

While social scientists relate wars to income distribution but miss the Cold War, the historians that study the Cold War almost entirely miss the role of income distribution in preventing the spread of communism. The historical literature focuses on international politics, which is natural given the nature of that conflict. The few scholar who draw parallels between the Cold War and inequality do so incompletely or indirectly.

Kirshner (1998) asserts that western policymakers distributed wealth during the post-war because inequality prevented the application of an "optimum foreign policy". He argues that unequal economies grow less, compromising the capacity of states to spend in defense and diplomacy. Besides downplaying the impact of inequality on domestic stability, the author does not test his argument empirically.

The relation between the Cold War and inequality appears indirectly in Petersen (2013), for whom the expansion of welfare state was an anti-communist strategy in Western Europe but not in the United States. His work is a useful starting point, although it does not explain the differences between the two sides of the Atlantic. We provide a justification: the United States is relatively insular and thus it was less vulnerable to communism than Western Europe.

A number of studies have related the Cold War to issues indirectly linked to inequality in the United States. Yet this literature is inconclusive. On the one hand, Dudziak (2011) argues that the threat of communism forced the US government to re-evaluate its approach to civil rights. The laws that discriminated African-Americans fostered anti-Americanism around the world, particularly among left-wingers, and compromised the country's role as the leader of the "free world". On the other hand, Schrecker (1998) states that the union laws launched under Mccarthyism weakened labor movements, making unions more docile and less likely to pressure for higher wages. Along the same lines, Brown (1997) asserts that the emergence of Mccarthyism explains why the private sector plays a greater role in healthcare, education and social programs in the USA than in Europe.

Historians that study post-war Europe openly reject any relation between the Cold War and low inequality. Wegs (1991) claim that social classes stopped playing a significant role in Western Europe's politics after the end of the Second World War. In a related analysis, Whyte (1981) and Billiet (1996) argue that religion was more important than classes in European post-war elections. Conway (2004) affirms that inequality was virtually irrelevant and the Cold War was nothing more than a "straightjacket".

Perhaps historians have found that issues involving classes were unimportant in post-war Europe because European governments kept the gap between classes narrow to prevent the threats of communism from disturbing the domestic *status quo*. Obinger and Schmitt (2011) present a discussion on regime competition and the expansion of social welfare states that is consistent to the arguments present in this paper.[7] By testing the role of the Cold War in the fall in inequality, this article provides an original contribution to that historical literature. The article also contributes to social science literature that studies wars and state capacity and to the recent empirical literature on the dynamics of inequality.

Case studies

The historical literature does not relate Cold War to income distribution directly at a global perspective, but country-specific studies identify mechanisms through which the threat of communism improved the working class' wealth, income, and standard of living from the 1950s to the 1970s.

During the immediate postwar, the United States pushed for a US-style collaborative labor relations in occupied Germany. Workers were underrepresented in the process of wage bargaining and nominal wages failed to keep up with inflation in the second half of the 1940s (Eisenberg, 1983). Inspired by the communist propaganda from Eastern Germany, "wildcat strikes" (independent from the trade unions) erupted across the country in the early 1950s (Silver et al., 1995). The Cold War conditioned a response from West Germany's policymakers after the occupation. Obinger and Lee (2013) argue that the government emulated East German policies such as subsidies to basic good, to which it added unemployment benefits. A second round of socialist-inspired wildcat strikes broke up in the late 1960s (Silver et al., 1995). The government responded by expanding the welfare state and changing laws on industrial relations to improve the power of shop-floor workers in negotiations over wages and benefits. According to Hedin (2016), this new set of regulations set by the West Ger-

[7] Bisin and Verdier (2017) discuss the role of cultural integration on the provision of welfare and redistribution.

man government followed the example of laws that had first been in Eastern European countries such as Yugoslavia and Poland.

Hedin (2015) describes a similar process in Sweden, where communist political and labor leaders promoted wild cat strikes in the late 1960s. The government responded by passing laws that strengthened the power of unions to negotiate wages. The policies were well-received by both left and right-wing parties. The change fostered the development of the Swedish system that effectively promoted equality, which became known as "democratic socialism".

According to Petersen (2013), the competition with the communist party over votes and unions in Denmark empowered the social-democrats in supporting the expansion of welfare state in Congress. That was behind the approval of the bill that universalized the public pension system in 1956.

The United States reduced the power of workers in wage negotiations in South Korea and Japan under the post-war occupation. The socialist-inspired Korean unions collaborated with the authorities while the United States sought for a joined solution with the USSR over the future of postwar East Asia. As the early events of the Cold War made that partnership impossible, the unions became increasingly more hostile towards the employers as well as the US occupation (Jung, 1989). Obinger and Lee (2013) point out that the Americans responded to this adverse context by promoting a wide land reform. This measure worked as a response to a similar reform in North Korea, which was highly advertised by unionists and socialists on the southern side of the border.

US occupation was more intrusive in Japan, where communists were excluded from unions. Labor movements were decentralized, with wage bargaining taking place at the firm level (Suzuki, 2015).[8] Although unions became docile and weak, socialist politicians won seats in Congress in the 1950s, threatening the alignment with the west in the context of the Cold War. Gilson and Roe (1999) argue that an collusion uniting officials, large entrepreneurs and unions promoted new labor regulations that guaranteed life-time employment, which increased wages and reduced the risk of strikes.

These cases do not prove that the Cold War distributed income in OECD countries. Yet they do show that the competition between the western and eastern blocks was not restricted to guns, a point that appears in Obinger and Schmitt (2011). Rivalry also included policies designed to isolate radical left-wingers domestically and to promote social harmony, an important condition to avoid revolutions and maintain political stability. Such policies

[8]Japan has only signed the ILO Convention that concerns the freedom of association and the right to organize in 1965, 15 years after its entry into force.

worked as instruments of income distribution from the very rich (land and factories owners) to the poorer (peasants and workers).

4 Data description and descriptive statistics

This article tests the following hypothesis: national elites of developed countries redistributed income in the post-war to avoid communist revolution in the context of the Cold War. As an empirical strategy, we run a panel of 17 OECD countries, from 1950 to 1990. This section describes the variables and sources used in this exercise.

The dependent variable is a measure of income inequality based on top income shares. We use data on top income shares (0.1%, 1% and 10%) from the World Wealth and Income Database.[9] We chose to regress top income shares rather than Gini Index for two main reasons. Firstly, we test the claim that the threat of communism reduced the elite's share of national income. Secondly, top incomes are available for longer periods with reasonably confidence, especially in developed countries.[10]

The main independent variable captures the distance between the capital of each OECD country and the location of 41 relevant events that indicate the spread of communism, such as coups, revolutions, military contention and invasions. Table 1 lists these events, providing their respective year, locations and a brief description. We have compiled the list from Frankel (1992) and Schwartz (1997), two handbooks on the Cold War.

[9] http://wid.world/

[10] In the appendix, we provide results for Top 0.1%, and 10% and Gini inequality index.

Table 1: Communist-led Violent Events of the Cold War

Year	Country	Description
1945	Poland	USSR captures Warsaw
1945	Austria	USSR captures Vienna
1946	North Korea	Kim Il Sung takes office in North Korea
1946	China	Forces led by Mao win civil war
1946	Greece	War between royalists and communists
1947	Bulgaria	Bulgaria aligns with USSR
1948	Czechoslovakia	Communist coup is Czechoslovakia
1948	East Germany	USSR announces the Berlin Blockade
1948	East Germany	USSR blockades West Berlin
1948	East Germany	Soviet troops fire into demonstrators in East Berlin
1948	China	Communist forces reach Beijing
1949	China	Mao takes office
1950	South Korea	North Korea invades South Korea
1950	China	China invades Tibet
1950	North and South Korea	China enters Korean War
1953	East Germany	USSR supresses anti-Communist rioting in East Berlin
1954	Vietnam	Communist forces defeat French Army in Vietnam
1954	Vietnam	Communist forces take Hanoi
1955	North and South Korea	Military clashes start between North and South Vietnam
1956	Poland	Communist forces repress riots in Poznan
1956	Hungary	USSR invades Hungary
1958	Taiwan	China bombards the contested islands of Quemoy and Matsu
1959	Cuba	Forces led by Castro take over Havana
1960	East Germany	East Germany impedes access to East Berlin
1961	East Germany	East German builds the Berlin wall
1962	Laos	Parts of Laos fall to communist Pathet Lao
1962	Cuba	USSR provides arms to Cuba
1968	Vietnam	The Viet Cong launches the Ted Offensive
1968	Czechoslovakia	USSR invades Czechoslovakia
1969	North Korea	Fire between US and North Korean troops
1969	Libya	Qaddafi establishes the socialist Arab Republic of Libya
1970	Cambodia	Communists forces reach Phnom Penh
1975	Cambodia	Khmer Rouge takes over in Cambodia
1975	Vietnam	The Viet Cong takes Hanoi
1975	Laos	Vietnamese-backed Pathet Lao takes over in Laos
1978	Afghanistan	Afghan Communist Party takes Kabul
1979	Nicaragua	Sandinistas take Managua
1979	El Salvador	Left-wing uprising in El Salvador
1979	Afghanistan	USSR invades Afghanistan
1981	Poland	Government imposes martial law following strikes
1989	China	Government supresses demonstration in Tiananmen Square

Sources: Frankel (1992) and Schwartz (1997)

The events may be divided into three phases. The first phase starts in 1945, when the Red Army takes Warsaw, and finished with the USSR suppressing a revolt in East Berlin in

1953. The communist block is consolidated during this rather turbulent period, when on average two events happened per year. The second phase of the Cold War was restricted to Eurasia, with about half of the events happening in each one of these two continents. The third phase is marked by the global expansion of communism. It starts with the uprising of communists against the French in Vietnam and finishes with the war in El Salvador, respectively in 1954 and 1979. Most of the events happened in Asia, but Latin America became a relevant region. Yet the invasion of Czechoslovakia in 1968 had relevant implications for the Cold War in Europe, which continued to stage the conflict. The last ten years of the Cold War (1980-1989) constitute the final phase. It characterizes the decadence the European communist block and the continuation of the authoritarian regime in China. The fall of the USSR and its satellite states explains the reduced number of events.

Our main variable of interest is defined in a similar way as in Aidt and Jensen (2014):

$$Cold\ War\ Event_{it} = 1000 * \sum_{i \neq j} W_{ij} * CR_{jt}(1)$$

where CR_{jt} is the number of violent communist events that occurred at country j in period t and W_{ij} is the geographical distance - in kilometers - between the capitals of countries i and j. Thus, $Cold\ War\ Event_{it}$ captures two assumptions we test in this exercise: (i) the spread of communism during post-war represented an external threat to Western elites; (ii) this threat was unevenly distributed across the world. The importance of using geographic distance lies in the hypothesis that information about events spreads according to the distance (Aidt and Jensen, 2014) and that the governments and elites that ruled the countries felt that external threats represented potential domestic challenges that might happen with the spread of communism.

Madsen et al. (2018) use cultural distance to communism proxied by linguistic similarities between countries. However, Karl Marx wrote in German and lived in Britain, and yet revolutions happened in countries that spoke Russian, Mandarin and Spanish. We believe that the distance between countries is a more appropriate and simple measure of the communist external threat. Yet, we test for cultural proximity as a robustness check.[11]

In addition to the communist threat variable, we also test whether domestic groups of interest have pushed for communism. This is captured by two variables: (i) the share of communist parties in Parliament; and (ii) the presence of left-wing parties in the executive. The former, *communist vote share*, is a measure of the electoral importance of communist

[11] Results are presented in our online appendix.

parties in legislative elections. It is calculated as the share of seats obtained by communist parties through each electoral cycle between 1945 and 1990. The data was collected from each country's congress websites. We also test an alternative variable related to the political domestic environment: following Scheve and Stasavage (2009), we use a dummy variable *Left Executive* that equals one if the country had a president or prime minister from a left-wing party. We also test for a cumulative measure of these two variables since policy effects may be enhanced with party control built over time. We borrow this idea from Huber and Stephens (2014).

Strong trade unions may also have pressured for income distribution. This argument appears in Atkinson (2015), although the author has not provided robust evidence on it. We test for the role of labour institutions by using a measure of density of trade unions from 1945 to 1990. The data is from Golden et al. (2014). We use two additional measures of labor intensity when testing for mechanisms: workers in labor disputes (as a share of population) and the number of general strikes. The sources for these two variables are, respectively, the Comparative Welfare States Dataset and the Cross-National Time-Series Data Archive.[12]

Besides the variables described above, we use covariates in order to control for other factors that may have affected top income shares. Boix (2015) asserts that European elites distributed income in the post-war by allowing the state to spend in education. We control for human capital with a variable that expresses the percentage of high school graduates in the population. The data is from Barro and Lee (2013).[13] Atkinson et al. (2011) draw attention to the effects of globalization in income distribution. We control for this by including the variable *Trade Openness*, defined as the ratio between trade flow and GDP (Roine et al., 2009).

Boix (2003) found a negative correlation between inequality and the degree of democratization of polities. Along the same lines, Acemoglu et al. (2015) propose that elites in equalitarian countries are less threatened to distribute power. Once the poor are franchised, they tend to pressure the government to spend in distributive policies such as the construction of the welfare state, unleashing a virtuous cycle of equality and democracy. Yet there is no consensus on this topic. Teorell (2010) finds no correlation for the period that begun in the 1970s, and Haggard and Kaufman (2012) show that many unequal countries democ-

[12] See http://www.lisdatacenter.org/resources/other-databases/ and https://www.cntsdata.com/

[13] According to Barro and Lee (2013), the years of schooling in advanced countries from 1950 to 1990 went from 6.22 to 9.56 years. Furthermore, the share of population aged 15 and over with the secondary complete accrued from 12.7 to 25.9 in the same group of countries. Thus, we believe this is a more appropriate variable to measure human capital and its effects on the middle class than the share of the population that has completed the tertiary. However, we present results with the share of population that has completed the tertiary in our appendix.

ratized since the 1980s. We control for democracy by introducing the Polity IV index, from Marshall et al. (2011), in the model. to account for the assumption that democracy may reduce inequality (Acemoglu et al., 2015). We also control for total and non-military public expenditures, as proxies for welfare expenditure, which may also distribute income (Obinger and Schmitt, 2011).

Finally, we introduce top marginal tax rates, a common variable in the literature (Piketty et al., 2014). We are aware that income tax rates may lead to bad control problems due to endogeneity (Acemoglu et al., 2015). For this reason, we run a separate set of regressions with this variable. In addition to that, we do not include income or income per capita as independent variables, for these are arguably correlated with state capacity (Persson and Besley, 2009).

Table 2 presents descriptive statistics for the variables used in the main sample.

Table 2: Summary Statistics

VARIABLES	(1) mean	(2) sd	(3) min	(4) max	(5) N
Share Top 1%	7.966	1.980	3.828	12.45	139
Cold War Event	0.355	1.105	0	7.814	139
(Ln) Union Density	3.627	0.407	2.160	4.398	121
Communist Party Share of Seats	3.495	7.185	0	32.80	139
Left Executive	0.501	0.418	0	1	126
Polity IV Index	9.854	0.659	5	10	138
Percentage of Secondary Complete	19.70	12.68	1.134	52.83	139
Trade Openness	33.64	17.15	3.380	90.17	139
(Dummy) War Risk	0.296	0.442	0	1	139

Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990. Sample includes 17 OECD countries: Australia, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom

5 Empirical Strategy

This section details the empirical strategy of the article and interprets the results. We run a fixed-effect model on a panel of 17 OECD countries covering the period from 1950 to 1990. The data is in a five years average basis. The benchmark specification is defined by equation (2):

$$Inequality_{it} = \beta_1 * Cold\ War\ Event_{it-1} + \beta_2 * X_{it} + \lambda_t + \mu_i + \mu_i * Trend_t + \varepsilon_{it} (2)$$

where $Inequality_{it}$ refers to the different measures of inequality utilized in this paper. Benchmark variable for *Inequality* is the top percentile income share for each country i at time t. The first term in the right-hand side, $Cold\ War\ Event_{it-1}$, is the measure defined above that captures the effects of communist events as an external disciplining device to inequality in western countries. The variable is defined at the beginning of the period and thus is indexed as *t-1*. X_{it} is a vector of control variables containing additional political and economic forces that may explain top income inequality. λ_t is period-fixed effects, μ_i is the country fixed-effect, $\mu_i * Trend_t$ is the country specific trend and ε_{it} is the model error term.

The model relies on the identification strategy that β_1 captures the effects of the spread of communism on income inequality, controlling for other possible channels from political economy and allowing for country and period fixed effects, besides control specific trends. As the countries in the sample were not directly affected by communist invasions or revolutions, there is limited room for endogeneity problems. The United States is a possible exception. It was the only western country that played a key role and directly influenced the course of the Cold War. The leaders of the eastern bloc responded to US military and diplomatic decisions. That interaction defined the spread of communism around the world and leaves room for endogeneity: the US government could have shaped to some extent the global war against communism to deal with social issues related to inequality at home.[14] For this reason, the United States has been excluded from the sample.

6 Results

Table 3 presents results with country and period fixed effects and includes economic controls in order to account for human capital and openness effects. Table 3 is divided in two panels. Panel A displays results where the dependent variable is the share of the top percentile in the income distribution. Panel B displays results with the natural logarithm transformation of the share of top 1%. Results from columns (1) to (4) consider the sample period of 1950-1990. From columns (2) to (4), we consider specifications with, respectively, country fixed effects, country specific linear trends and country specific quadratic trends, since each country might have their own dynamic of inequality (and this might be non-

[14] Berger et al. (2013) discuss how CIA interventions during the Cold War period had trade benefits to the USA.

linear). Columns (5) and (6) present models with the sample ranging from 1950 to 2005. We do so to investigate the effects of the model after the demise of Communism.

Table 3: Effects of Cold War on Inequality: Economic Controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Dep. Variable: Top 1%					
Cold War Event$_{t-1}$	-0.087***	-0.080**	-0.068**	-0.088*	-0.220**	-0.189***
	(0.028)	(0.034)	(0.030)	(0.043)	(0.088)	(0.065)
Percentage of Secondary Complete		-0.041**	-0.032	-0.028	-0.017	-0.029
		(0.019)	(0.021)	(0.028)	(0.033)	(0.030)
Trade Openness		-0.046*	-0.034	-0.030	0.000	0.008
		(0.025)	(0.037)	(0.049)	(0.042)	(0.041)
	Panel B: Dep. Variable: Top 1%					
Cold War Event$_{t-1}$	-0.009**	-0.017***	-0.007*	-0.011*	-0.027**	-0.026***
	(0.004)	(0.005)	(0.004)	(0.006)	(0.011)	(0.008)
Percentage of Secondary Complete		-0.007**	-0.004	-0.004	-0.004	-0.005
		(0.003)	(0.003)	(0.004)	(0.005)	(0.004)
Trade Openness		-0.004	-0.002	-0.002	-0.000	0.003
		(0.003)	(0.005)	(0.006)	(0.006)	(0.006)
Observations	117	117	117	117	168	168
Country FE	Y	Y	Y	Y	Y	Y
Period FE	Y	Y	Y	Y	Y	Y
Country-Specific Linear Trend	Y	N	Y	N	Y	N
Country-Specific Quadratic Trend	N	N	N	Y	N	Y
Sample Years	1950-1990	1950-1990	1950-1990	1950-1990	1950-2005	1950-2005
Number of countries	17	17	17	17	17	17

Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990. Sample includes 17 OECD countries. Panel A has the share of income of the top percentile as dependent variable, whereas Panel B displays results where dependent variable is the natural logarithm of top income percentile share. All regressions include period and country fixed effects. Regressions at Column (5) include country-specific trends. Robust standard errors are clustered at the country level. All regressions exclude the United States of America. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Results from Table 3 point to a negative relationship between the occurrence of communist events and the share of top percentile. In Panel A, the introduction of the control variables does not reduce explanatory power of the variable related to previous cold war communist events. Even when one accounts for different trends for each country, the coefficient on *Cold War Event* is still significant. Considering the coefficients of columns (3), one would expect that the 1953 suppression of anti-Communist rioting at Berlin links to a reduction of 0.08 and 0.19 percentage points in the share of top income percentile in France and Denmark, respectively. Results are robust to the specifying specific linear and quadratic country trends. When we consider the extended sample, the coefficient is robust and presents a higher

signal. This reinforces our understanding of the importance of the communism at a disciplining device for Western states and ruling elites. Results from Panel B corroborate the findings in Panel A.[15] The measure of trade openness is no longer robust, though it keeps the same signal. Besides the external communist threat, the increase in the stock of human capital is consistently linked to a reduction in inequality. More trade is also associated to less inequality, albeit in a less consistent way.

Table 4 introduces covariates related to political economy. As discussed in the previous section, we introduce additional variables that capture political economy effects, such as domestic political institutions and government expenditures. As Piketty (2014) highlights, the Second World War had a significant impact in reducing inequality. We control for that in column (4) by introducing the natural logarithm of deaths by country at the Second World War and its interaction with a time trend. With this specification, we are able to control for initial conditions in each country that are related to the war's events. Again, the Table is divided into two panels. Panel A displays results with a linear specification and Panel B displays results for the log-linear specification. In addition, every specification includes economic controls, time, country fixed effects and specific country linear trends, with exception of column (4), which does not have country-specific time trends.

[15]Results are robust to the use of lagged controls, as shown on Appendix.

Table 4: Effects of Cold War on Inequality: Political Economy

	(1)	(2)	(3)	(4)
	Panel A: Dep. Variable: Top 1%			
Cold War Event$_{t-1}$	-0.067**	-0.068**	-0.061*	-0.093**
	(0.030)	(0.031)	(0.030)	(0.043)
Polity IV Index		-0.052	-0.071	0.083
		(0.096)	(0.099)	(0.092)
Government Expenditures			5.204	-12.876***
			(6.816)	(3.375)
Ln(1+Deaths at WW2) x Trend				-0.014**
				(0.006)
	Panel B: Dep. Variable: Ln(Top 1%)			
Cold War Event$_{t-1}$	-0.007*	-0.007*	-0.006	-0.017**
	(0.004)	(0.004)	(0.004)	(0.007)
Polity IV Index		-0.004	-0.007	0.017
		(0.013)	(0.013)	(0.013)
Government Expenditures			0.866	-2.207***
			(0.950)	(0.716)
Ln(Deaths at WW2) x Trend				-0.001
				(0.001)
Observations	109	109	109	109
Economic Controls	Y	Y	Y	Y
Country FE	Y	Y	Y	Y
Period FE	Y	Y	Y	Y
Country-Specific Linear Trend	Y	Y	Y	N
Number of countries	16	16	16	16

Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990. Sample includes 16 OECD countries. Panel A has the share of income of the top percentile as dependent variable, whereas Panel B displays results where dependent variable is the natural logarithm of top income percentile share. All regressions include period, country fixed effects and country-specific trends. Regressions at Column (4) do not include country-specific trends. Robust standard errors are clustered at the country level. All regressions exclude the United States of America. Significance: *** p<0.01, ** p<0.05, * p<0.1.

The coefficient of Polity IV Index is not significant. The coefficient of government expenditures changes signal, possibly reflecting a correlation with Second World War fatalities. The introduction of Second World War fatalities has a negative and robust sign, possibly reflecting the arguments advanced by Piketty (2014). Even in this context, the coefficient on Cold War Events is significant. Therefore, we believe the latter had impacts on inequality that complements rather than substitutes the former.

Table 5 presents results controlling for top marginal income tax rates. We use data top marginal tax rates from Piketty et al. (2014). We control for, aside the usual economic controls and fixed effects, total government expenditures as a share of GDP and non military expenditures as a share of GDP. We also use this variable to have a better proxy for government social expenditures. In column (5), we also control for, as well as Table 4, the interaction between fatalities in World War 2 and a time trend.

Table 5: Effects on inequality - Top Marginal Income Tax Rate

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Top 1%	Top 1%	Top 1%	Top 1%	Top 1%
Cold War Event$_{t-1}$	-0.071***	-0.051**	-0.050**	-0.051*	-0.154*
	(0.015)	(0.021)	(0.022)	(0.024)	(0.083)
TopIncomeTaxRate	-5.407*	-4.890	-4.870	-4.638	-4.611**
	(2.844)	(2.860)	(2.863)	(2.711)	(1.951)
Government Expenditures			0.776		-6.548*
			(6.063)		(3.538)
Non-military Gov. Exp.				-0.111	
				(7.495)	
Ln(Deaths at WW2) x Trend					-0.017
					(0.011)
Observations	97	97	97	90	97
Economic Controls	N	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y
Period FE	Y	Y	Y	Y	Y
Country-Specific Linear Trend	Y	Y	Y	Y	N
Country-Specific Quadratic Trend	N	N	N	N	N
Number of countries	16	16	16	15	16

Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990. Sample includes 16 OECD countries. All regressions include period, country fixed effects and country-specific trends. Regressions at Column (5) do not include country-specific trends. Robust standard errors are clustered at the country level. All regressions exclude the United States of America. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Results from Table 5 still point to a negative relationship between Cold War Events and top incomes inequality. Moreover, top marginal tax rates appear to have a strong negative relationship with inequality.

6.1 Mechanisms

This section tests the possible mechanisms through which external events related to communist revolutions may have affected income distribution domestically. More specifically, we analyze the effects of intervening and moderator variables on the variable *Cold War Event*. Table 6 displays results considering some domestic variables that may have transmitted the threat of communism to the fall in inequality: union density, the strength of domestic communist parties and the presence of left-wing parties in the Executive. We also consider the cumulative effect of communist parties and left-wing executive, as in Huber and Stephens (2014). If these variables were intervening, we should expect that their introduction would turn the coefficient on *Cold War Event* to zero.

Table 6: Mechanisms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Top 1%	Top 1%	Top 1%	Top 1%	Top 1%	Top 1%	Top 1%
Cold War Event$_{t-1}$	-0.074**	-0.073**	-0.077**	-0.075**	-0.072**	-0.074**	-0.078**
	(0.032)	(0.031)	(0.033)	(0.032)	(0.027)	(0.029)	(0.029)
Union Density	-0.725		-1.067	-0.834		-0.832	-0.870
	(1.350)		(1.453)	(1.484)		(1.385)	(1.300)
Communist Party Share of Seats		0.044	0.069				
		(0.034)	(0.043)				
Communist Party Share of Seats_Cum				0.012			
				(0.044)			
Left Executive					-0.133	-0.146	
					(0.232)	(0.251)	
Left Executive_Cum							-0.290
							(0.394)
Observations	100	100	100	100	88	88	88
Economic Controls	Y	Y	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y	Y	Y
Period FE	Y	Y	Y	Y	Y	Y	Y
Country-Specific Linear Trend	Y	Y	Y	Y	Y	Y	Y
Number of countries	13	13	13	13	11	11	11

Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990. Sample includes 13(11) OECD countries. Dependent variable is the top income percentile share. All regressions include period, country fixed effects and country-specific trends. Robust standard errors are clustered at the country level. All regressions exclude the United States of America. Economic Controls are: percentage of secondary complete and trade openness. Significance: *** p<0.01, ** p<0.05, * p<0.1.

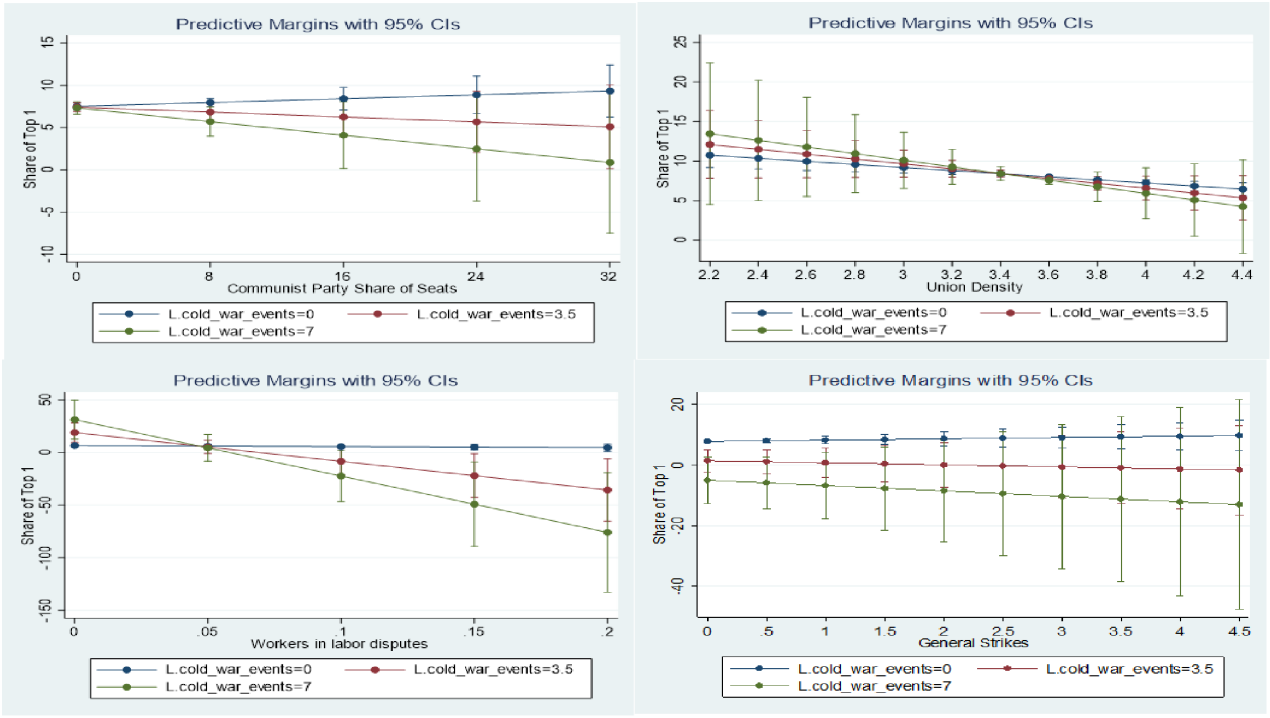
Results from Table 6 present a negative and robust relationship between top income inequality and the external threat of communism. Therefore, it seems that bargaining power of workers, as measured by *Union density*, and the people's preference toward communist or leftist parties are not related to top income inequality when we control for period, country fixed effects and country-specific trends. Possibly, this is due to endogeneity problems,

related to reverse causality: high levels of inequality may move parties more to the left and bring more people to unions, especially in a industrial world (Pontusson and Rueda, 2010).

As we did not find effects by investigating intervening variables, we move on to understand the effects of the interaction between Cold War Events and some political economy related variables. On Figure 1, we present the results of the margins plots of the interaction between our variable of interest with: Communist Party Share of Seats, Union Density, Workers in Labor Disputes and General Strikes. With these two last variables, we try to assess the actual labor activity happening on the ground.

Results suggest that domestically-defined variables transmitted the effect of external threats into domestic pressure for less inequality. The graph on the upper left-hand side of Figure 1 shows a negative relation for the share of communist parties in Congress that is intensified by with higher values for communist events. Interestingly, the relation between the number of communist congressmen and the top 1% share is only negative if the communist event variable is considerably higher than zero. This suggests that domestic communist parties only had leverage over the government to push for distributive policies if the ruling class was under the threat of communism. As Obinger and Schmitt (2011) highlight, the cold war was fundamental to the emergence of robust welfare states. This competition between regimes is brought into life by domestic institutions such as robust unions and communist parties.

Figure 1: Margin Plots of Interactions with: Union Density, Communist Party Share of Seats, Share of Workers in Labor Disputes and General Strikes



Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990. Each graph corresponds to the margins plots of the interaction between the variable *Cold War Event*$_{t-1}$ and the variable of interest, respectively, Communist Party Share of Seats, Union Density, Share of Workers in Labor Disputes and General Strikes. All regressions include period, country fixed effects, country-specific trends and economic controls. Robust standard errors are clustered at the country level. Economic Controls are: percentage of secondary complete and trade openness.

Source: own elaboration

We see a similar pattern with labor activity. The upper right-hand side graph plots a negative relation between union density and top 1% income that intensifies for higher values for the Cold War Event variable. The higher the latter, the more an increase in union density led to income redistribution. A possible interpretation is that unions used the threat of communism to pressure employers to raise wages and reduce profit margins. The graph on the lower left-hand side plots the relationship between top income inequality and workers in labor disputes. As we can see, results are magnified with more intense cold war events. There is a similar pattern when look at the last graph that plots the relationship between inequality and general strikes. The variables are associated with income distribution only if the country was significantly close to communist events.

6.2 Placebo

We conduct a placebo analysis to assess the robustness of our results.[16] We consider two variables that also influence domestic politics in its broad sense, but do not have this feature of competition between regimes as stressed by Obinger and Schmitt (2011). We test whether *War Risk* had any effect on inequality in the period 1950-1990 as well as in the periods 1950-2005 and 1990-2005, after the collapse of Soviet Union. War risk is a binary variable that is equal to 1 when countries waged inter-state wars in the previous ten year (Aghion et al., 2012). The data is from the Correlates of War (COW) database. Moreover, we test for the impacts of terrorist attacks in the period 1990-2005. We measure *Terrorism* weighting by the distance between the country affected by major terrorist attacks and our sample countries. We define attacks as"major" if it killed more than 791 people (the average of casualties of all attacks in the world throughout the period plus one standard deviation). Communist guerrillas did not carry out any of these attacks, and thus they were not related directly to the Cold War. We utilize data from the Global Terrorism Database.[17]

[16] In the appendix, we provide additional robustness tests regarding the choice of variables and the dynamic features of inequality.

[17] https://www.start.umd.edu/gtd/

Table 7: Placebo with engagement in war and terrorist attacks

VARIABLES	(1) Top 1%	(2) Top 1%	(3) Top 1%	(4) Top 1%	(5) Top 1%
War $Risk_{t-1}$	-0.210	0.093	0.042		
	(0.482)	(0.423)	(0.571)		
$Terrorism_{t-1}$				0.005	
				(0.389)	
$Terrorism_t$					-0.192
					(0.151)
Observations	117	168	51	51	51
Economic Controls	Y	Y	Y	Y	Y
Country FE	Y	Y	Y	Y	Y
Period FE	Y	Y	Y	Y	Y
Country-Specific Linear Trend	Y	Y	Y	Y	Y
Sample Years	1950-1990	1950-2005	1990-2005	1990-2005	1990-2005
Number of countries	17	17	17	17	17

Notes: The analysis is based on a country-by-period panel data set covering the period 1950-1990 or 1950-2005 or 1990-2005, according to the specifications. Sample includes 17 OECD countries. Dependent variable is the top income percentile share. All regressions include period, country fixed effects, country-specific trends and economic controls. Robust standard errors are clustered at the country level. All regressions exclude the United States of America. Economic Controls are: percentage of secondary complete and trade openness. Significance: *** p<0.01, ** p<0.05, * p<0.1.

Results from Table 7 show no statistical significance. The results to War Risk suggest that the elites redistributed income because of threats related to the Cold War – revolutions and uprisings – rather than inter-state war. Therefore, threats related to an external and powerful opponent were more conducive to income redistribution than one country's own participation in an inter-state war. The results from *Terrorism* also suggest that this kind of event does not translate into domestic questioning on inequality as the Cold War Events seemed to have done.

7 Conclusion

This paper discusses how the threat of communism acted as a disciplining device to inequality in OECD countries during the Cold War. In doing so, it contributes to the recent literature on top income inequality in explaining the causes of inequality beyond the marginal productivity framework. Our results suggest that employers, employees and governments formed common-interest states. Unions became more powerful the closer

their countries were to the spread of communism. On the other side of the bargaining table, employers agreed to reduce their gains from capital in favor of wages. The government complemented this common-interest state by spending with the poor. The economic and political elites formed this Cold-War coalition to redistribute income and reduce the likelihood of communist revolutions. The unions took advantage of this special conjuncture to push for higher wages, changing the return of labor vis-à-vis capital in favor of the former.

The Cold War redistributed income by making the society more politically equal. The rise of workers resemble the process Acemoglu and Robinson (2006) refer to as an *de facto* institutional change that reduce the power of the elites in benefit of the masses. The new inclusive institutions create more equal and vibrant societies. The authors describe this process but do not identify its ultimate cause, instead they rely on stochastic historical events that may trigger profound redistributive social changes. This article indicates that the communist events that happened during the Cold War worked as one of these triggers in the post-war.

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