PANOECONOMICUS, 2017, Vol. 64, Issue 2 (Special Issue), pp. 169-188
Received: 15 July 2015; Accepted: 25 February 2017.

UDC 330.34:330.56(100-773)
DOI: https://doi.org/10.2298/PAN1702169J
Original scientific paper

Kosta Josifidis

University of Novi Sad,
Faculty of Economics,
Department of European
and International Economics
and Business,
Serbia

josifidis@gmail.com

Novica Supić
Corresponding author

University of Novi Sad,
Faculty of Economics,
Department of European
and International Economics
and Business,
Serbia

novicasupic@yahoo.com

Emilija Beker Pucar

University of Novi Sad,
Faculty of Economics,
Department of European
and International Economics
and Business,
Serbia

emilijabp@gmail.com

Institutional Quality and Income Inequality in the Advanced Countries

Summary: The purpose of this paper is to shed more light on the effects of changes in quality of economic, legal and political institutions on income inequality in the advanced countries over the last two decades. Using the robust panel model on a sample of 21 OECD countries, it is found that the impact of elitization of society is more pronounced than the impact of unionization on income redistribution, but both effects are less expressed in comparison to the influence of institutional changes on redistribution. In a globalized economy, insufficient redistribution and high inequality might be interpreted as the consequence of institutional inertia to disruptive technological and business changes.

Key words: Income inequality, Institutions, Redistribution, Elites.

JEL: D63, H23.

Since the 1980s, most of the developed countries have faced the problem of rising income inequality. Consequently, inequality and redistribution issues started to dominate in academic and political debates, resulting in different interpretations of causes as well as consequences of distributional effects. From these discussions emerged the different opinions on what the state can and cannot do in the area of promoting collective wellbeing.

Although new causes of income inequality have been recognized, such as globalization, low-skilled biased technological change or migration, there is still a prevailing opinion that rising inequality can be controlled by improving existing institutions. However, it is often neglected that the worsening of income distribution is associated not only with the deepening of existing, but also with the emergence of new social asymmetries that require new institutional environment and arrangements.

Prompted by such considerations, this paper emphasizes the importance of institutional changes for understanding distributional effects. The paper is divided into the five parts. The first part reviews selected literature that connects income inequality to institutional changes and power relations in the society. The second part explains the theoretical framework from which is derived the research hypotheses about the relationship between redistribution and institutional changes. Data and econometric methodology are contained in the third part. Interpretation of empirical findings is given in the fourth part, while the fifth part is devoted to concluding remarks.

1. Literature Review

The increase in income inequality in the advanced countries during the past three decades has resulted in a large number, both theoretical and empirical, studies whose aim is to investigate the role of different determinants that influence inequality within and among countries. Our contribution to the existing literature lies in an effort to explain high pre-tax inequality and low redistribution through visible institutional inertia in relation to rapid technological and corporate changes, which influence the nature of distributional conflict.

Distributional effects should be a major objective of economic policy (Philip Arestis and Ana Rosa Gonzalez-Martinez 2016). Preferences for redistribution and consequently income inequality are determined by a large number of factors and their interactions (some of the recent studies addressed this question: Alberto F. Alesina and Paola Giuliano 2009, 2011; Esteban F. Klor and Moses Shayo 2010; James K. Galbraith 2011; Andreas Georgiadis and Alan Manning 2012; Elvire Guillaud 2013; William R. Kerr 2014; Anthony B. Atkinson 2015). Thus, Galbraith (2011) describes the evolution of inequality in the world economy since 1963 as relationship between inequality, development, political regimes and the functional distribution of income. Focusing on rising income inequality, Atkinson (2015) indentified a number of contributory factors to unequal distribution: globalisation, technological change (information and communications technology), growth of financial services; changing pay norms, reduced role of trade unions; scaling back of the redistributive tax-and-transfer policy.

The difference in the preference for redistribution is strongly related to persistent factors of the country that shape the preferences of their citizens (Javier Olivera 2015). In this context of inertial (persistent) factors, it is possible to recognize a particularly important role of institutions in restoring equality by redistributing income. John Dewey (1922) describes institutions as “embodied habits” that display “permanence and inertia” and as such impose a “force of lag in human life”. Distribution is an instituted process (Christopher Brown 2005). Inequality stems not from natural market forces, but from the way in which particular markets are instituted (Charles M. A. Clark and Catherine Kavanagh 1996).

The role of institutions on redistributive preferences and inequality has been assessed in a lot of empirical studies (for example: Lennart Erickson and Dietrich Vollrath 2004; William Easterly, Jozef Ritzen, and Michael Woolcock 2006; Alberto Chong and Mark Gradstein 2007; Winfried Koeniger, Marco Leonardi, and Luca Nunziata 2007; Pablo Beramendi and Thomas R. Cusack 2008; Nadezhda V. Baryshnikova, Ngoc T. A. Pham, and Maria M. Wihardja 2016; Kosta Josifidis et al. 2016). Using panel data on a large set of countries over 20 years, Chong and Gradstein (2007) confirm the results, previously found by, Konstantin Sonin (2003), Karla Hoff and Joseph E. Stiglitz (2004) and Alesina and George-Marios Angeletos (2005) that inequality can affect institutions but they show that the causation also runs in the reverse direction - inequality drives institutional quality as well as institutions drive inequality. Analyzing the evolution of inequality and its determinants across different forms of income in a panel of 13 OECD countries, Beramendi and Cusack (2008) argue that the larger cross-national variation in the distributions of earnings and dis-

posable income can be attributed to the role of political actors and economic institutions.

The nature of redistribution largely depends on asymmetry in power relations among different social groups. Moreover, power serves as an integral component in explaining the international structure and context (Josifidis and Alpar Lošonc 2014). There is extensive literature about the limitation of democratic institutions and, in this sense, elite's impact on income inequality and redistribution, whose influence could be also recognized in our research (for example: Chong and Gradstein 2007; James A. Robinson 2010; Daron Acemoglu et al. 2013; Jon D. Wisman 2013; Michael Albertus and Victor Menaldo 2014; Josifidis and Supić 2016).

According to Chong and Gradstein (2007), income gap is usually accompanied by a gap in economic and political power that allows more rent-seeking by the more powerful elites. What institutions or policies a political system generates depends on the distribution of power in society and how political institutions and mobilized interests aggregate preferences (Robinson 2010). It is expected that democracy increases redistribution and reduce inequality, but this expectation may fail to be realized when democracy is captured by the richer segments of the population (Acemoglu et al. 2013). The institutionalization of electoral democracy caused elites to lose direct control over the state but elites were successful in retaining control over ideology and in monopolizing public opinion (Wisman 2013). Using global panel data (1972-2008), Albertus and Menaldo (2014) finds that there is a relationship between democracy and redistribution only if elites are politically weak during a transition.

2. Theoretical Framework

The theoretical framework is based on the assumptions that income redistribution, and consequently disposable income inequality (inequality after taxes and transfers), depends on the impact of market income inequality (inequality before taxes and transfers) on the processes in which different social groups institutionalize their economic interests. In a democratic institutional environment, where the majority has greater electoral weight in relation to the minority, it is expected that the deterioration in income distribution could be counteracted by greater redistribution, pro-poor policies and removal of the privileges of the elites.

In terms of electoral democracy, the absence of institutional changes with redistributive effects is usually interpreted by the fact that increases in income inequality allow the minority, through increased economic and political power, to institutionalize *de facto* their interests, regardless of the interests of the majority. Although democracy clearly changes the distribution of *de jure* power in society, policy outcomes and inequality depend not just on the *de jure* but also the *de facto* distribution of power (Acemoglu and Robinson 2005; Acemoglu et al. 2013). As a result, redistributive preferences of the majority do not necessarily lead to greater redistribution.

The next explanation is the phenomena of "institutional inertia" in relation to the dynamics of income inequality. Institutional inertia stems from the social conventions according to which the existing institutions are not enough to deal with the new causes of income inequality, while at the same time there is no necessary consensus

about how to create new institutions. It is important to emphasize that these two hypotheses are not mutually exclusive. In other words, it is possible to have simultaneously *de facto* institutionalization of the minority's interests and institutional inertia. Below, we are going to explain both hypotheses, with an emphasis on the second one, because we mostly follow the approach of institutional inertia in the rest of our paper.

Income inequality and institutionalization of the minority's interest. Why is increase in market income inequality followed by the process of institutionalization of the minority's interest and anemic income redistribution? Political elites have the most direct impact on shaping the institutional environment - the rules, norms, and understandings. *De jure* power of political elites is derived from voters' support expressed by election results, but their *de facto* power depends on the support of economic elites. *De facto* dependence of the political elites on big capital is manifested through economic elite's rent-seeking activities - the wealthy and powerful get income, not as a reward for creating wealth, but by grabbing a larger share of the wealth that would otherwise have been produced without their effort (Stiglitz 2012). Changes in the institutional framework, which means more redistribution and less inequality, may be absent because the deficiencies in a system of representative democracy relativize the voters' preferences for redistribution. Institutional reform may be an instrument to reduce inequality, but political factors may prevent its implementation (Chong and Gradstein 2007).

Inequality and institutional inertia. The link between political and economic elites is not the only factor that contributes to growth in income inequality in a democratic institutional environment. New causes of rising income inequality are changing the nature of the distributional conflict. It seems that social conventions are gradually changed in the sense that the society through existing institutions are not able to provide more even distribution of income, while at the same time there is no necessary social consensus on building new institutions, creating a discontinuity in relation to the existing institutional framework.

In a globalized economy based on rapid technological and corporate changes, distributional conflicts become increasingly common in personal than in functional income distribution. Conflicts between working class and capital owners over income distribution are gradually replaced by competition between capital owners as well as between workers themselves. Heredity and certainty, as distinctive features of the traditional elite in the past are being increasingly replaced by extreme meritocracy and uncertainty, while workers are faced with a global auction of qualified labour and the pressure of immigration.

The changing nature of distributional conflict is connected with the process of innovative disruption of economy. It is a qualitative change in the economy - due to the permanence and inertia of institutional environments - that threatens the traditional sectors, and that have the potential to become the norm of doing business in the future. As illustrative examples, we can mention Uber and Airbnb, disrupters of taxi and hotel services respectively[1]. Taking into account the number of sectors af-

[1] As an example how the process of innovative disruption affects traditional business concepts, we could mention the shifting the focus in car industry from making vehicles to selling services. Thus, in January

fected by innovative disruption, as well as the fears that regulations could be put above innovation, regulators are forced to seek solutions in the application of existing competition law and look at problems on a case-by-case basis more often, rather than in changing the existing and building new institutions.

In our opinion, it is possible to single out the three key manifestations of innovative disruption with strong impact on redistribution and inequality:

(1) Increases of profit margins and wage growth in innovation- and idea-intensive sectors and their decline and stagnation respectively in traditional, labour- and capital-intensive sectors[2]. A characteristic of most of the innovation- and idea-intensive industries is their small share in total employment and their disproportionately high share in income distribution. The reverse is true for capital- and labour-intensive sectors, which remain the largest employers but their opportunities to increase profit margins and wages are limited. As a result, wages increase for a relatively small number of workers, while the majority face stagnation or declines in income (Josifidis and Supić 2016). Moreover, due to the tendency of new sectors to concentrate in the richest cities and regions, the spatial dimension of inequality becomes increasingly prominent (see, Glenn Ellison and Edward L. Glaeser 1999; Glaeser 2011; Enrico Moretti 2012).

(2) Digital Taylorism. The term "Digital Taylorism" describes the process of codification and routinisation, by using new technologies, individual, well-paid, qualified labour and its conversion into standardized, low-paid, qualified labour, which is generally available to a company[3]. Unlike mechanical Taylorism, which is primarily related to industrial and less qualified workers, Digital Taylorism affects workers in service sector, highly skilled workers and managers. Majority of managers and professionals lose their discretion and autonomy. The "permission to think" is granted only to a small proportion of top managers who are able to control business activities from a distance. In this environment, workers are becoming an easily substitutable factor of production while the success of a company is housed with top-level management (Josifidis and Supić 2016). The result is an increase in the wage gap and deterioration in income distribution.

(3) "People-to-People Economy". Progress in information technology results in the emergence of new business concepts that make obsolete conventional under standings of the firm as an established company that employs workers, provides services to consumers and pays taxes to the state. Using the Internet as a matching plat form to connect full- or part-time self-employed entrepreneurs and consumers dramatically reduces transaction costs and leads to the digitalization of labour market. According to Juha-Pekka Nurvala (2015), it is so called "People-to-People" economy in which there are no employment contracts, because employment law cannot be applied in the case of transactions that are, through the on-line platform, occurring be-

2016, General Motors invested 500 million USD in Lyft, Uber's rival in USA. Similar investments had been made by Volkswagen and Toyota.

[2] As an illustration of this trend, idea-intensive sectors accounted for 17% of profits generated by Western companies in 1999, whereas this share was 31% in 2015 (McKinsey Global Institute report, September 2015).

[3] According to James Avis (2012), Digital Taylorism involves translating the knowledge work of individuals into working knowledge - through the extraction, codification and digitalisation of knowledge into software prescripts that can be transmitted and manipulated by others, regardless of location.

tween consumers and the self-employed entrepreneurs. Platforms have also started to emerge in traditional industrial sectors. Machines and their products are equipped with sensors and are connected to the Internet, digitising the real processes and connecting manufactures with their customers and suppliers. The growth and expansion of the "People-to-People" economy to an increasing number of sectors[4], from transport through accommodation services to strategic consulting, imposes a big challenge for regulators, especially in the context of taxation and social protection, directly affecting the redistributive potential of the welfare state to equalize incomes.

Under the condition of innovative disruption, the institutional inertia related to low redistribution and high inequality should be interpreted as the consequences of changing social conventions of the majority rather than as the result of placing elites' interests above the interests of the majority. That social conventions are changing in a way that increase inequality is not justified, but is seems to be accepted as inevitable in a globalized economy based on rapid technological and corporate changes. The result is the lack of institutional changes that could compensate the deterioration in income distribution.

3. Data and Methodology

The research hypothesis that the low redistribution and high inequality in advanced countries is to a greater extent the result of institutional inertia, arising from changes in social conventions about inequality, rather than the result of changes in power relations between elites and trade unions, is derived from the given theoretical frame work. The hypothesis is tested by using a balanced panel model for the 21 most developed OECD countries. The data spans the period from 1990 to 2010. Since the institutions and income inequality are changing slowly, the baseline model is based on data averaged over five years.

The baseline model has the following form:

$$\begin{aligned} Redistribution_{it} &= B_0 + B_1 Gini\_market_{it} + B_2 D.Institutions_{it} + \\ &+ B_3 Gini\_market_{it} * D.Institutions_{it} + B_4 Elite_{it} + B_5 Union_{it} + e_{it}. \end{aligned} \quad (1)$$

The dependent variable ($Redistribution_{it}$) is income redistribution expressed by the absolute difference between Gini before taxes and social transfers and Gini after taxes and social transfers. The explanatory variables are: $Gini\_market_{it}$ - market income inequality expressed by Gini before taxes and social transfers; $D.Institutions_{it}$ - changes in the quality of an institutional environment calculated as the first difference of the legal, economic and political institutional quality index; $Elite_{it}$ - degree of elitization of society measured by participation of the top 1 percent of the richest population in the distribution of total income; $Union_{it}$ - trade union density as an indicator of workers' bargaining power in relation to employers and the state. The constant and error terms varying between units and over time are denoted by B_0 and e_{it}, respectively. Definitions, data sources, and descriptive statistics for each of the variables are given in Table 1 (Appendix).

[4] A platform like Uber has expanded to 67 countries in seven years; it took IBM 50 years to get there (Peter C. Evans and Annabelle Gawer 2016).

The two model variables: elitization of society and institutional change require further clarification. Elitization of society is expressed by personal income distribution. It may be problematic, because in this way functional income distribution is excluded from the analysis. For example, it is possible that profit increases at the expense of wages but does not significantly affect the proportion of income accruing to the 1% of the richest population. However, there are some factors that justify using the concept of personal rather that functional income distribution in our analysis.

Elite, expressed by personal income distribution, includes capital owners, but also the "working rich" - workers with extremely high wages. If elite were expressed by functional income distribution (the proportion of the national income going to profits, retained earnings, and dividends), the "working rich" would be removed from the analysis. It may be problematic because there is a visible trend of increasing the share of the "working rich" in the composition of top incomes in the developed countries during the last three decades. For example, top capital owners are being replaced by the "working rich" at the top of the income hierarchy in the USA (Thomas Piketty 2005; Atkinson and Piketty 2007).

The implicit assumption is that the elite (capital owners as well as the "working rich") prefer less generous redistribution. Equality in redistributive preferences between capital owners and the "working rich" could be explained by the fact that the "working rich" tends to be transformed into capital owners in the long run. Marginal propensity to save is increasing along with income growth, whereas marginal propensity to spend is decreasing with income growth. As a result of accumulation of income by the "working rich", the differences between capital owners and the "working rich" are being reduced over time.

The second issue that requires the additional explanation is the choice of measures of institutional changes. The variables that describe institutions come from the institutional quality dataset by Aljaž Kunčič (2014). The institutional measures are composite indices obtained by using cluster and factor analysis on more than 30 existing institutional indicators[5]. Following the approach originated by Paul Joskow (2008), the institutions are classified into three homogenous groups of institutions: legal, political and economic (Table 2).

There are at least three reasons why we prefer this dataset. First, these indices capture to a large extent the complete formal institutional environment of a country. Second, these institutional measures are composite indicators that combine the information from some of the most influential databases of institutions, such as: the Heritage Foundation, Wall Street Journal, Freedom House, Fraser Institute, World Bank World Governance Indicators. Third, the data are internationally comparable, available for all countries in the world and refer to a relatively long period of time. Such characteristics make Kunčič's dataset particularly useful in panel-data applications.

A potential problem with this dataset is the gap between the concept of institutions from the theoretical framework and its representation by the institutional measures in the empirical part of the paper. The institutional measures are based on the

[5] For more details about the construction of the dataset, please see: https://sites.google.com/site/aljazkuncic/research.

NIE theory (New Institutional Economics), while the theoretical framework differs from the neoclassical models, inherent to the NIE. Holistic approach in explaining the relationship between technological changes (innovative disruption), corporate capital, elite and institutional inertia, on the one hand, and dynamics of redistribution, on the other hand, may be linked to the OIE (Old Institutional Economics), especially Veblen-Ayres' tradition in the OIE[6]. The impact of Veblen-Ayresov tradition is particularly notable in highlighting the role of social conventions for understanding the absence of institutional changes, which, in the conditions of rising inequality and democratic institutional framework, are expected to lead to greater redistribution and lower inequality.

Table 2 Institutional Quality Variables

Variable	Description
Legal institutions	The average value of legal indicators (Index of economic freedom: property rights; Freedom of the press: legal environment; Freedom in the world: civil liberties; EFW indexes: judicial independence, impartial courts, protection of property rights; Law and order; Religion in politics; Rule of law).
Political institutions	The average value of political indicators (Freedom of the press: political environment; Freedom in the world: political rights; Institutionalized democracy; Checks and balances; Democratic accountability; Corruption; Bureaucratic quality; Internal conflict; Military in politics; Control of corruption; Corruption perceptions index; Political terror scale).
Economic institutions	The average value of economic indicators (Index of economic freedom: financial and business freedom; Regulatory quality; Freedom of the press: economic environment; EFW indexes: freedom to own foreign currency bank accounts, credit market regulations, labor market regulations, business regulations, foreign ownership/investment restrictions, capital controls; Investment profile).

Note: EFW - Index of the economic freedom of the world.

Source: Based on Kunčič (2014).

Although based on the NIE theory, Kunčič's indices do not exclude a priori the concept of institutions from the theoretical part of the paper. First, undoubtedly there are areas of serious disagreement between the OIE and the NIE. However, sharp dichotomy and extreme positions are not only untenable in social theory (Rutherford 1996), but also not necessary in our analysis. Consequently, we have chosen a more moderate and modest position, according to which the OIE and the NIE do not exclude, but complement each other to some degree. Second, Kunčič's indices are based on Oliver E. Williamson (2000) classification of institutions on four levels, combining two criteria: degree of formality and degree of embeddedness[7]. However, such division is not only somewhat arbitrary (Joskow 2008), but also each institutional level is constrained by the immediately preceding higher (more embedded)

[6] According to Malcolm Rutherford (1996), Veblen-Ayres' tradition in the OIE focuses on investigating the effects of new technology on institutional schemes, especially ways in which established social conventions and vested interests resist such change and emphasizes the political and economic power of large corporate interests.

[7] At the highest (the first) level, institutions are mostly informal, characterized by deep embeddedness and slow changes. Moving towards lower levels (the second, the third and the fourth one), institutions become more formal, less embedded and changes are more frequent compared with the first level institutions.

level, not excluding possible feedbacks from lower to higher levels as well (Kunčič 2014). Fourth, a full consistency between the concept of institutions and their measures would imply that the institutional proxies reflect institutional environment, but also institutional arrangements. Kunčič's dataset primarily describe formal institutional environment (the second level in the context of Oliver Williamson's classification). The problem with informal institutions and institutional arrangements is the lack of data, because it is difficult to measure these forms of institutions.

In order to overcome these problems, in the model, the impact of institutional changes on redistribution is presented by conditional marginal effects. The logic is that increasing market income inequality (inequality before taxes and transfers) generates asymmetry in economic power, social and political instability, which, through institutional changes, affects income redistribution.

Depending on which conditional marginal effects (interactions between market income inequality and legal, economic and political institutions) are included in the regression, the three baseline model specifications are estimated (Table 3, columns 2, 3 and 4). Also, we estimate the "reduced" model without the interactions (Table 3, column 1). The positive relationship between $\text{Redistribution}_{it}$ and the regressors is expected in the case of legal and political institutions and the regressor describing trade union density. Between degree of elitization, economic institutions, and market income inequality on the one hand and redistribution on the other hand, the expected relationship is negative.

In the model, we use an absolute (Gini before taxes and transfers minus Gini after taxes and transfers) instead of relative measure of redistribution (the absolute measure of redistribution divided by Gini before taxes and transfers, which yields a percentage measure of redistribution). Using an absolute measure removes "level effects" - the impact of market income inequality on the measure of redistribution from the analysis. Disregarding level effects is particularly appropriate when the analysis is focused on exploring changes in redistribution over time, which is the case in our research (see, Lane Kenworthy and Jonas Pontusson 2005).

When selecting the method of model estimation, in the first step, we analyze panel-data variation. It was observed that the variables describing institutional changes have small within-variation. In such a situation, the application of the model with fixed individual effects could be problematic, because the LSDV and within estimators rely only on within-variation (for more details, see Thomas Plümper and Vera E. Troeger 2007). In order to justify the choice of random (RE) instead of fixed (FE) model specification, we run the Hausman test. The tests for autocorrelation (Wooldridge test for autocorrelation in panel data: F (1, 20) = 31.121; Prob > F = 0.0000) and heteroscedasticity (Modified Wald test for groupwise heteroskedasticity: Chi2 (21) = 8734.93; Prob > Chi2 = 0.0000) in panel data showed that error term is not IID[8]. As a result, we use the robust version of the Hausman test.

The robust Hausman test statistic is of the form:

$$H = \left(\beta_{RE} - \beta_{FE}\right)' \left[V_{Boot}\left[\beta_{RE} - \beta_{FE}\right]\right]^{-1} \left(\beta_{RE} - \beta_{FE}\right), \quad (2)$$

[8] We used "xtserial" (written by Drukker David) and "xttest3" (written by Christopher F. Baum) commands in STATA to test autocorrelation and heteroscedasticity, respectively.

β_{RE} and β_{FE} denote Kx1 vectors of estimated coefficients of RE and FE model, $V_{Boot}[\beta_{RE} - \beta_{FE}]$ is the covariance matrix of $[\beta_{RE} - \beta_{FE}]$ computed from the bootstrapped joint distribution:

$$V_{Boot}[\beta_{RE} - \beta_{FE}] = \frac{1}{B-1}\sum_{b=1}^{B}(\delta_b - \delta)(\delta_b - \delta)', \quad (3)$$

where $\delta = (\beta_{RE} - \beta_{FE})$ and b is bth of B bootstrap replications (A. Colin Cameron and Pravin K. Trivedi 2005; Boris Kaiser 2014).

The results of the test (Hausman test: Chi2 = 10.65; Prob > Chi2 = 0.0997) showed that the null hypothesis is fail to reject, i.e. the coefficients estimated by RE method are consistent and efficient[9].

Taking into account the hypothesis, the nature of data and the results of the formal tests, the model is estimated by a RE robust method, which allows us to estimate the variables with small within variations and, at the same time, it controls for heteroskedasticity and autocorrelation within clusters. In order to check the robustness of the model to the choice of estimator, we re-estimated the model by using the Fixed Effects Vector Decomposition (FEVD) method that allows estimation of a FE model with time-invariant and almost time-invariant variables.

FEVD is a three-stage procedure. In the first stage, it is estimated a standard fixed effects model; the second stage breaks down the unit-effects into an error term and a part explained by the time-invariant variables and/or almost time-invariant variables; the third stage re-estimates model from the first stage without the unit effects but including the error term of the decomposed unit fixed effect vector obtained in the second stage (for more details, see Plümper and Troeger 2007).

The FEVD variance-covariance formula is:

$$V_{FEVD}(B, y) = (H'W)^{-1} H'\Omega H(W'H)^{-1}, \quad (4)$$

where:

$W = [X^*, Z]$, $W = [X, Z]$, $\Omega = \sigma_\varepsilon^2 I_{NT} + \sigma_u^2 I_N \otimes \iota_T \iota_T'$; $X^* = x_{it} - \frac{1}{T}\sum_{t=1}^{T} x_{it}$, I_N is an NxN identity matrix, ι_T is Tx1 vector of ones, σ_ε^2 is the variance of the residuals of the second stage and σ_u^2 is the variance of the estimated unit-effects of the first stage (Plümper and Troeger 2011).

The results contained in Table 3 show small differences between RE and FEVD estimates, which might be taken as the evidence of robustness to the choice of estimator. In addition, the robustness of estimates is checked by using the following three tests (Table 4 in the Appendix). First, we estimate the model in which the original values are replaced by logistic transformed values of the Gini index (Gini = Gini Logistic / (1-Gini)). Given that the Gini index is limited by an interval (0, 1), the

[9] The test was conducted using STATA command "rhausman", developed by Kaiser (2014).

logistic transformation gives us an unbounded measure of inequality. The second test involves estimation of the model with different periods for the dependent variable (2006-2010) and the explanatory variables (2001-2005) to see if there is a problem of endogeneity due to the presence of simultaneous or reverse dependency. In the last test, the robustness is checked by excluding one country/year at a time from the model in order to make sure that outliers/or inclusion of particular year do not affect the results[10].

Table 3 Model Estimation: Impact of Institutional Change on Income Redistribution, 1990-2010

Variables (5 year average)	Absolute income redistribution							
	RE robust				FEVD robust			
	1	2	3	4	5	6	7	8
D.Legal institutions	2.622*	-38.07*	3.118*	3.185*	14.47***	-25.87	15.81***	14.83***
	(1.410)	(21.47)	(1.611)	(1.648)	(5.222)	(42.17)	(5.562)	(5.431)
D.Economic institutions	-10.78**	-11.40**	-48.99*	-9.089*	-20.47**	-19.97*	-14.29	-20.15*
	(5.456)	(5.230)	(27.35)	(5.052)	(9.870)	(10.17)	(71.99)	(10.44)
D.Political institutions	11.46*	11.71*	6.876	-61.68*	21.23**	21.32**	24.77***	-48.09
	(6.585)	(6.381)	(6.618)	(36.34)	(8.433)	(8.178)	(7.716)	(65.63)
Elites	-0.436***	-0.419***	-0.351*	-0.360**	-0.332*	-0.340**	-0.394*	-0.331**
	(0.162)	(0.162)	(0.183)	(0.174)	(0.168)	(0.166)	(0.200)	(0.162)
Trade unions	0.0800***	0.0789***	0.0864***	0.0789***	0.109**	0.102**	0.0833	0.0925*
	(0.0264)	(0.0260)	(0.0273)	(0.0270)	(0.0423)	(0.0448)	(0.0572)	(0.0477)
Gini market	0.760***	0.755***	0.776***	0.784***	0.822***	0.827***	0.836***	0.821***
	(0.0712)	(0.0635)	(0.0651)	(0.0670)	(0.0695)	(0.0668)	(0.0615)	(0.0683)
Interactions								
Gini market * D.Leg.Inst		0.962*				0.945		
		(0.525)				(1.033)		
Gini market * D.Econ.Inst			0.945*				-0.142	
			(0.575)				(1.579)	
Gini market * D.Pol.Inst				1.650*				1.692
				(0.889)				(1.571)
Constant	-18.13***	-17.99***	-19.85***	-19.83***	-22.80***	-22.65***	-21.98***	-22.17***
	(2.422)	(2.177)	(2.721)	(2.508)	(3.461)	(3.514)	(4.183)	(3.587)
R^2	0.7658	0.7727	0.7560	0.7561	0.974	0.9753	0.9769	0.978
Chi2 or *F*	200.50	285.63	223.72	359.24	32.914	25.674	28.837	23.787
Sigma u	1.858	1.931	2.011	2.019				
Sigma e	1.044	1.035	1.056	1.027				
Rho RE	0.761	0.776	0.783	0.795				
Breusch-Pagan LM test - random effects	$p = 0.000$	$p = 0.000$	$p = 0.000$	$p = 0.000$				
Observations	83	84	84	84	63	63	63	63

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' calculation in STATA 14.

4. Results and Discussion

The results in Table 3 for the model without interactions (columns 1 and 5) show that the coefficient estimates are statistically significant with the expected sign for all sets of explanatory variables defined in Section 3. Between redistribution on the one hand and trade union density and accelerating changes in the quality of legal and political institutions on the other hand, there is a positive relationship. The increase in market income inequality, concentration of income in the hands of the richest 1% of the

[10] The results of this robustness test are not presented in the paper due to a large number of tables, but it would be made available by the authors upon request.

population, and accelerating changes in economic institutions is associated with a reduction in redistribution.

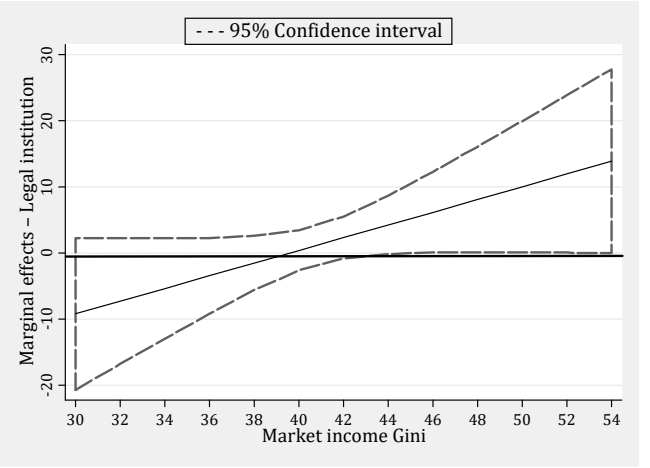
From Table 3 it is evident that the impact of elitization is more pronounced than the impact of unionization on redistribution. However, both effects are smaller in comparison to the influence of institutional changes on redistribution. This finding might be interpreted as a confirmation of the hypothesis that the low redistribution is to a greater extent the result of institutional inertia, rather than the result of changes in power relations between elites and trade unions. It is interesting to note the different signs for economic institutions (negative), and legal and political institutions (positive).

Why is the relationship between economic institutions and redistribution negative, whereas the relationship between legal as well as political institutions and redistribution is positive? One of the possible explanations is that economic freedom, as a synthetic indicator of the quality of economic institutions, is associated with the reduction of regulation and state intervention in the economy. The other interpretation is that political and legal institutions belong to the category of slow-moving institutions that are less susceptible to the influence of big capital, in comparison with fast-moving economic institutions.

The slow-changes in institutional environment may be treated as a manifestation of institutional inertia. However, the concept of institutional inertia alone is not enough to provide a comprehensive explanation of the absence of institutional changes associated with greater redistribution and lower inequality. The process of innovative disruption of the economy leads to the emergence of new forms of inequality, whose reduction requires not only the adaptation of existing institutions, but also the building of new institutions. As a result, the institutional inertia is just a part of, not the whole, explanation of situation in which institutional changes are lagging behind the dynamics of income inequality.

Particular attention should be paid to the specifications (columns 2, 3, 4) that control the interactions between market income inequality and institutional changes. The interactions actually represent the conditional effects, which might be used to test the hypothesis that the redistributive effects of institutional changes depend on market income inequality (for the technical details about using interactions, please see Thomas Brambor, William Roberts Clark, and Matt Golder 2006). Market income inequality affects the rate of change of the institutional environment and, consequently, its impact on redistribution. However, this effect is not the same for legal, economic and political institutions.

Figure 1 shows that the increase in market income inequality accelerates the changes in legal institutions associated with greater redistribution. This effect is statistically significant (the two lines representing 95% confidence intervals are above the zero line) only for the larger values in the Gini index. More specifically, if inequality in a particular country is above average inequality for a group of similar countries, the changes in legal institutions will be associated with greater absolute redistribution. In our sample, the average values of the Gini index (the average inequality in the context of pervious sentence) and its value related to the significant impact of institutional changes on redistribution are 42 and 44, respectively, which confirms our prediction.



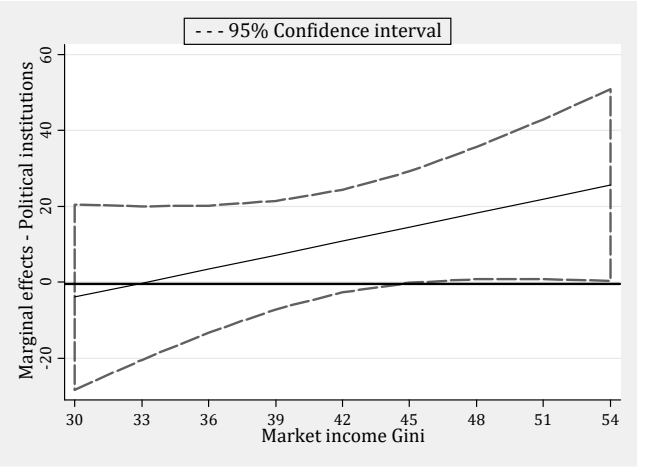
Source: Authors' calculation in STATA 14.

Figure 1 Influence of the Changes in Quality of Legal Institution on Redistribution Depending on Market Income Inequality

The inertia of legal institutions in relation to growing inequality might be explained by the fact that legal institutions belong to the category of slow-moving institutions. It seems that marked differences in market income distribution between similar countries serves as a driver of institutional change, in the context of the necessary social mobilization. Under conditions where these differences are low, there is not enough strong impetus for institutional change. The prevailing social conventions are that growing income inequality is primarily the result of external factors, which are exposed more or less to all the countries, and that the problems cannot be solved only by using national instruments.

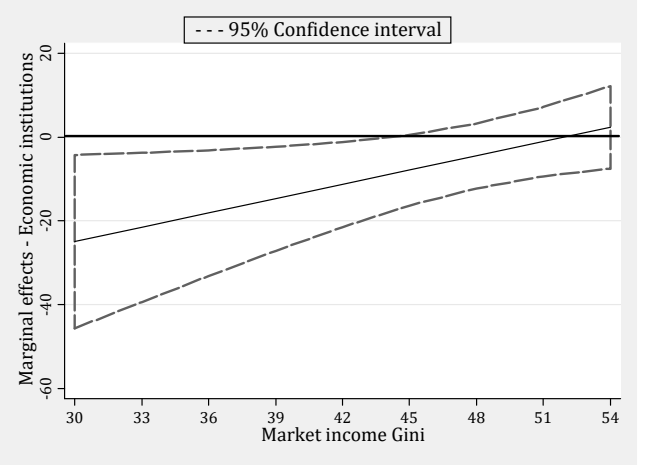
Figure 2 shows the impact of changes in political institutions on redistribution depending on market income inequality. The worsening of income distribution accelerates the changes in political institutions in a way that increases redistribution. As was the case with legal institutions, the observed relationship is statistically significant only when inequality in a particular country is above the average inequality of a group of comparable countries.

Political institutions, similar to legal institutions, belong to the category of slow-moving institutions. The inability of the majority, through elections and representative democracy, to provide greater redistribution may result in collective action to make institutions more redistributive. Social movement oriented towards the change of political institutional framework with significant redistributive effects depends on how much income inequality in a country is pronounced in comparison with other countries. Institutionalization of voters' preferences for greater redistribution is slowed down by economic elites who invest in *de facto* political power in order to compensate for the loss of *de jure* political power.



Source: Authors' calculation in STATA 14.

Figure 2 Influence of the Changes in Quality of Political Institution on Redistribution Depending on Market Income Inequality



Source: Authors' calculation in STATA 14.

Figure 3 Influence of the Changes in Quality of Economic Institution on Redistribution Depending on Market Income Inequality

Figure 3 shows a different situation. The negative impact of the changes in economic institutions on redistribution is reduced with the increase of market income inequality. However, this effect is statistically significant only in the interval in which the values describing the relationship between institutional changes and redistribution are negative. For the highest levels of inequality (Gini index over 50), these values are positive, but the effect is not statistically significant. It follows that the deterioration in income distribution changes the institutional environment in the di-

rection of greater redistribution, but this effect, in contrast to legal and political institutions, is not significant in the case of economic institutions. How can we explain these differences between economic institutions on the one hand, and legal and political institutions on the other hand?

According to conventional understanding, the deterioration in market income distribution is accompanied by a shift of economic power from the working class to elites. Through lobbying, cartelization and similar activities, big capital turns its economic power into *de facto* political power, establishing control over economic institutions. By preventing or postponing the changes in economic institutions required to assure more even income distribution, the big capital tends to keep the environment in which it has comparative advantages and enjoy the fruits of economic and political rents. In parallel with the growth of inequality, social pressure on the political elite for greater redistribution is increasing. As a result, economic institutions are changing towards greater redistribution, but these changes are not enough to compensate for the losses in equality in the previous period.

In our opinion, the traditional interpretation that elites slow down institutional changes in order to enjoy the fruits of economic and political rent might be problematic in the case of economic institutions. Economic institutions are a set of relations between people doing economic activities (Howard J. Sherman 2015), and, as such, belong to the group of fast-moving institutions (Acemoglu and Robinson 2006).

Changes in economic institutions might reduce the degree and duration of rent-seeking behaviour of big capital. However, this effect in terms of lower inequality and higher redistribution is constrained by the simultaneous emergence of new forms of inequality, which requires not only changes in existing institutional environment but also the building of new institutions. The primary generator of new forms of inequality is the process of innovative disruption of economy. Although economic institutions are changing faster relative to legal and political institutions, these changes delay compared to the speed of technological innovation and emergence of new business concepts. Changes in institutions without visible improvements in income distribution lead to the appearance of social tolerance to inequality, in the sense of prevailing opinion that the effective redistributive mechanisms could not be found in the current institutional environment. An increase in inequality is not justified, but it seems to be accepted by the majority as unavoidable in an environment characterized by disruptive technological and business changes.

5. Conclusion

This paper describes and empirically tests an alternative theoretical framework of redistribution that emphasizes the importance of institutional inertia for understanding the dynamics of income inequality in advanced countries. Differences in interests and power among social groups are factors that contribute to the deterioration of income distribution. However, their impacts are often exaggerated due to the neglect of the distributional effects of innovative disruption of the economy. Widening gap in profit margins and wages between innovation and idea-intensive sectors on the one hand and traditional sectors on the other hand, Digital Taylorism and the "People-to-People" economy are most directly manifestations of the innovative disruption re-

lated to institutional inertia in terms of high inequality and low absolute redistribution.

The institutional inertia hypothesis is tested by using a balanced panel model on the sample of 21 of the most developed OECD countries in the period from 1990 to 2010. The obtained results indicate that the impact of elitization of society is more pronounced than the impact of unionization on income redistribution, but both effects are smaller in comparison to the influence of institutional changes on redistribution. This finding might be interpreted as a confirmation that low redistribution is, to a greater extent, the result of institutional inertia, rather than the result of changes in power relations between elites and trade unions. The analysis of conditional effects shows that the deterioration in market income distribution is associated with the changes in an institutional environment towards greater redistribution. Unlike slow-moving legal and political institutions, the observed conditional effects are not statistically significant in the case of fast-moving economic institutions. This indicates the emergence of social tolerance to rising inequality and strengthens the social conventions that effective redistributive mechanisms are not found in the current institutional environment.

References

Acemoglu, Daron, and James A. Robinson. 2005. *Economic Origins of Dictatorship and Democracy*. Cambridge, UK: Cambridge University Press.

Acemoglu, Daron, and James A. Robinson. 2006. "De Facto Political Power and Institutional Persistence." *The American Economic Review*, 96(2): 325-330. http://dx.doi.org/10.1257/000282806777212549

Acemoglu, Daron, Suresh Naidu, Pascual Restrepo, and James A. Robinson. 2013. "Democracy, Redistribution and Inequality." National Bureau of Economic Research Working Paper 19746. http://dx.doi.org/10.3386/w19746

Albertus, Michael, and Victor Menaldo. 2014. "Gaming Democracy: Elite Dominance during Transition and the Prospects for Redistribution." *British Journal of Political Science*, 44(3): 575-603. http://dx.doi.org/10.1017/S0007123413000124

Alesina, Alberto F., and George-Marios Angeletos. 2005. "Fairness and Redistribution: US vs. Europe." *American Economic Review*, 95(3): 913-935.

Alesina, Alberto F., and Paola Giuliano. 2009. "Preferences for Redistribution." National Bureau of Economic Research Working Paper 14825.

Alesina, Alberto F., and Paola Giuliano. 2011. "Preferences for Redistribution." In *Handbook of Social Economics, Vol. 1A*, ed. Jess Benhabib, Alberto Bisin, and Matthew O. Jackson, 93-132. Amsterdam: North Holland.

Arestis, Philip, and Ana Rosa Gonzalez-Martinez. 2016. "Income Inequality: Implications and Relevant Economic Policies." *Panoeconomicus*, 63(1): 1-24. http://dx.doi.org/10.2298/PAN1601001A

Armingeon, Klaus, Christian Isler, Laura Knöpfel, David Weisstanner, and Sarah Engler. 2016. *Comparative Political Data Set 1960-2014*. Bern: Institute of Political Science, University of Berne.

Atkinson, Anthony B., and Thomas Piketty. 2007. *Top Incomes over the Twentieth Century: A Contrast between Continental European and English-Speaking Countries*. Oxford: Oxford University Press.

Atkinson, Anthony B. 2015. *Inequality: What Can Be Done?* Cambridge, MA: Harvard University Press.

Avis, James. 2012. "Global Reconstructions of Vocational Education and Training." *Globalisation, Societies and Education*, 10(1): 1-11. http://dx.doi.org/10.1080/14767724.2012.646876

Baryshnikova, Nadezhda V., Ngoc T. A. Pham, and Maria M. Wihardja. 2016. "Does Political and Economic Inequality Affect Institutional Quality?" *Economic Record*, 92(297): 190-208. http://dx.doi.org/10.1111/1475-4932.12246

Beramendi, Pablo, and Thomas R. Cusack. 2008. "Diverse Disparities: The Politics and Economics of Wage, Market, and Disposable Income Inequalities." *Political Research Quarterly*, 62(2): 257-275.

Brambor, Thomas, William Roberts Clark, and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis*, 14(1): 63-82. http://dx.doi.org/10.1093/pan/mpi014

Brown, Christopher. 2005. "Is there an Institutional Theory of Distribution?" *Journal of Economic Issues*, 39(4): 915-931. http://dx.doi.org/10.1080/00213624.2005.11506860

Cameron, A. Colin, and Pravin K. Trivedi. 2005. *Microeconometrics: Methods and Applications*. Cambridge, NY: Cambridge University Press.

Chong, Alberto, and Mark Gradstein. 2007. "Inequality and Institutions." *The Review of Economics and Statistics*, 89(3): 454-465. http://dx.doi.org/10.1162/rest.89.3.454

Clark, Charles M. A., and Catherine Kavanagh. 1996. "Basic Income, Inequality, and Unemployment: Rethinking the Linkage between Work and Welfare." *Journal of Economic Issues*, 30(2): 399-406. http://dx.doi.org/10.1080/00213624.1996.11505803

Dewey, John. 1922. *Human Nature and Conduct: An Introduction to Social Psychology*. New York: H. Holt and Company.

Easterly, William, Jozef Ritzen, and Michael Woolcock. 2006. "Social Cohesion, Institutions, and Growth." *Economics and Politics*, 18(2): 103-120. http://dx.doi.org/10.1111/j.1468-0343.2006.00165.x

Ellison, Glenn, and Edward L. Glaeser. 1999. "The Geographic Concentration of Industry: Does Natural Advantage Explain Agglomeration?" *The American Economic Review*, 89(2): 311-316. http://dx.doi.org/10.1257/aer.89.2.311

Erickson, Lennart, and Dietrich Vollrath. 2004. "Dimensions of Land Inequality and Economic Development." International Monetary Fund Working Paper 04/158.

Evans, Peter C., and Annabelle Gawer. 2016. "The Rise of the Platform Enterprise: A Global Survey." http://www.thecge.net/wp-content/uploads/2016/01/PDF-WEB-Platform-Survey_01_12.pdf.

Galbraith, James K. 2011. "Inequality and Economic and Political Change: A Comparative Perspective." *Cambridge Journal of Regions, Economy and Society*, 4(1): 13-27. http://dx.doi.org/10.1093/cjres/rsq014

Georgiadis, Andreas, and Alan Manning. 2012. "Spend It Like Beckham? Inequality and Redistribution in the UK, 1983-2004." *Public Choice*, 151(3): 537-563. http://dx.doi.org/10.1007/s11127-010-9758-7

Glaeser, Edward L. 2011. *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*. United States: Penguin Books.

Guillaud, Elvire. 2013. "Preferences for Redistribution: An Empirical Analysis over 33 Countries." *The Journal of Economic Inequality*, 11(1): 57-78. http://dx.doi.org/10.1007/s10888-011-9205-0

Hoff, Karla, and Joseph E. Stiglitz. 2004. "After the Big Bang? Obstacles to the Emergence of the Rule of Law in Post-Communist Societies." *The American Economic Review*, 94(3): 753-763. http://dx.doi.org/10.1257/0002828041464533

Josifidis, Kosta, and Alpar Lošonc. 2014. "Some Thoughts on Power: International Context." *Panoeconomicus*, 61(Special Issue): 597-615. http://dx.doi.org/10.2298/PAN1405597J

Josifidis, Kosta, Radmila Dragutinović Mitrović, Novica Supić, and Olgica Glavaški. 2016. "Redistribution and Transmission Mechanisms of Income Inequality: Panel Analysis of the Affluent OECD Countries." *Panoeconomicus*, 63(Special Issue): 231-258. http://dx.doi.org/10.2298/PAN1602231J

Josifidis, Kosta, and Novica Supić. 2016. "Income Inequality and Workers' Powerlessness in Selected OECD Countries." *Journal of Economic Issues*, 50(2): 424-434. http://dx.doi.org/10.1080/00213624.2016.1176499

Joskow, Paul. 2008. "Introduction to New Institutional Economics: A Report Card." Paper presented at the 7th convention of the International Society for New Institutional Economics, Budapest, Hungary.

Kaiser, Boris. 2014. "RHAUSMAN: Stata Module to Perform Robust Hausman Specification Test." Boston College Department of Economics, Statistical Software Components S457909.

Kenworthy, Lane, and Jonas Pontusson. 2005. "Rising Inequality and the Politics of Redistribution in Affluent Countries." *Perspectives on Politics*, 3(3): 449-471. http://dx.doi.org/10.1017/S1537592705050292

Kerr, William R. 2014. "Income Inequality and Social Preferences for Redistribution and Compensation Differentials." *Journal of Monetary Economics*, 66(C): 62-78. http://dx.doi.org/10.1016/j.jmoneco.2014.03.002

Klor, Esteban F., and Moses Shayo. 2010. "Social Identity and Preferences over Redistribution." *Journal of Public Economics*, 94(3-4): 269-278. http://dx.doi.org/10.1016/j.jpubeco.2009.12.003

Koeniger, Winfried, Marco Leonardi, and Luca Nunziata. 2007. "Labor Market Institutions and Wage Inequality." *Industrial and Labor Relations Review*, 60(3): 340-356.

Kunčič, Aljaž. 2014. "Institutional Quality Dataset." *Journal of Institutional Economics*, 10(1): 135-161. http://dx.doi.org/10.1017/S1744137413000192

Moretti, Enrico. 2012. *The New Geography of Jobs*. New York: Houghton Mifflin Harcourt.

Nurvala, Juha-Pekka. 2015. "'Uberisation' Is the Future of the Digitalised Labour Market." *European View*, 14(2): 231-239. http://dx.doi.org/10.1007/s12290-015-0378-y

Olivera, Javier. 2015. "Preferences for Redistribution in Europe." *IZA Journal of European Labor Studies*, 4(1): 1-18. http://dx.doi.org/10.1186/s40174-015-0037-y

Piketty, Thomas. 2005. "Top Income Shares in the Long Run: An Overview." *Journal of the European Economic Association*, 3(2-3): 382-392. http://dx.doi.org/10.1162/jeea.2005.3.2-3.382

Plümper, Thomas, and Vera E. Troeger. 2007. "Efficient Estimation of Time-Invariant and Rarely Changing Variables in Finite Sample Panel Analyses with Unit Fixed Effects." *Political Analysis*, 15(2): 124-139. https://doi.org/10.1093/pan/mpm002

Plümper, Thomas, and Vera E. Troeger. 2011. "Fixed- Effects Vector Decomposition: Properties, Reliability, and Instruments." *Political Analysis*, 19(2): 147-164. http://dx.doi.org/10.1093/pan/mpr008

Robinson, James A. 2010. "The Political Economy of Redistribution." In *Declining Inequality in Latin America. A Decade of Progress*, ed. Luis F. López-Calva and Nora C. Lustig, 32-72. Washington, DC: Brookings Institution Press.

Rutherford, Malcolm. 1996. *Institutions in Economics: The Old and the New Institutionalism*. Cambridge, UK: Cambridge University Press.

Sherman, Howard J. 2015. *How Society Makes Itself: The Evolution of Political and Economic Institutions*. London: Routledge.

Sonin, Konstantin. 2003. "Why the Rich May Favor Poor Protection of Property Rights." *Journal of Comparative Economics*, 31(4): 715-731. http://dx.doi.org/10.2139/ssrn.386102

Stiglitz, Joseph E. 2012. *The Price of Inequality: How Today's Divided Society Endangers Our Future*. New York: W. W. Norton & Company, Inc.

Williamson, Oliver E. 2000. "The New Institutional Economics: Taking Stock, Looking Ahead." *Journal of Economic Literature*, 38(3): 595-613. http://dx.doi.org/10.1257/jel.38.3.595

Wisman, Jon D. 2013. "Government Is Whose Problem?" *Journal of Economic Issues*, 47(4): 911-938.

Appendix

Table 1 Variable Description

Name	Source	Description	Obs.	Mean	Std. dev.	Min.	Max.
Absolute redistribution	Standardizing the world income inequality (database - SWIID, version 2014).	Difference between market income Gini and disposable-income Gini	84	12.64	5.18	1.71 N. Zeeland (2000-2004)	23.66 Sweden (1995-1999)
Market income inequality	Standardizing the world income inequality (database - SWIID, version 2014).	Gini coefficient before taxes and social transfer	84	41.92	4.63	30.72 Japan (1990-1994)	54.47 Portugal (2000-2004)
Legal institutions	Institutional quality dataset (Kunčič 2014).	Legal institutional quality, relative	84	1.35	0.36	0.02 Italy (2005-2009)	1.85 Denmark (2005-2009)
Economic institutions	Institutional quality dataset (Kunčič 2014).	Economic institutional quality, relative	84	1.14	0.39	-0.21 Greece (1990-1994)	1.75 N. Zeeland (2000-2004)
Political institutions	Institutional quality dataset (Kunčič 2014).	Political institutional quality, relative	84	1.49	0.29	0.61 Greece (2005-2009)	1.99 Finland (1995-1999)
Elites	Standardizing the world income inequality (database - SWIID, version 2014).	Participation of the 1.0 percent of the richest population in the distribution of total income	84	8.71	2.59	4.66 Finland (1990-1994)	17.72 USA (2005-2009)
Trade unions	Comparative political dataset 1960-2014 (Klaus Armingeon et al. 2016).	Net union membership as a proportion wage and salary earners in employment	84	35.73	20.43	7.68 France (2005-2009)	84.24 Norway (2000-2004)

Source: The authors.

Table 4 Robustness Check

Variables	Absolute income redistribution				
	Logistic Gini (5 year average)				Lagged model (2001-2005/2006-2010)
	1	2	3	4	5
D.Legal institutions	0.131* (0.0758)	0.266 (0.197)	0.131* (0.0763)	0.130* (0.0778)	2.512** (0.889)
D.Economic institutions	-0.532* (0.275)	-0.524* (0.273)	-0.364 (0.289)	-0.523** (0.263)	-0.0502 (0.285)
D.Political institutions	0.345 (0.326)	0.340 (0.325)	0.336 (0.329)	0.943* (0.505)	-3.094** 2.512**
Elites	-0.0182** (0.00821)	-0.0178** (0.00824)	-0.0174** (0.00840)	-0.0168** (0.00817)	-0.0509* (0.0275)
Trade unions	0.0043 (.0013)	0.0043*** (0.0131)	0.0044*** (0.0133)	0.0041*** (0.0132)	0.0152*** (0.00452)
Gini market	0.761*** (0.0732)	0.756*** (0.0723)	0.759*** (0.0703)	0.769*** (0.0673)	2.639*** (0.610)
Interactions					
Gini market * D.Leg.Inst		0.424 (0.571)			
Gini market * D.Econ.Inst			0.481 (0.723)		
Gini market * D.Pol.Inst				1.772* (1.085)	
Constant	0.818*** (0.127)	0.815*** (0.126)	0.808*** (0.129)	0.814*** (0.125)	6.112** (2.471)
R^2	0.72	0.73	0.72	0.72	0.81
Sigma u	0.095	0.098	0.097	0.098	
Sigma e	0.052	0.052	0.052	0.050	
Rho RE	0.768	0.779	0.775	0.79	
Breusch-Pagan LM test - random effects	$p = 0.000$	$p = 0.000$	$p = 0.000$	$p = 0.000$	
Observations	83	84	84	84	21

Note: Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors' calculation in STATA 14.