



Tulane Economics Working Paper Series

Income Redistribution Around the Globe: Determinants and Mechanisms

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Working Paper 2502
January 2025

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Income redistribution through taxes and transfers varies significantly across countries and over time. Existing explanations for this heterogeneity range from pre-fiscal inequality (e.g., the median voter theorem) to factors like democracy, development level, ethnic fractionalization, and unemployment. This study re-examines the determinants of income redistribution. We measure redistribution as the change in the pre- and post-fiscal Gini coefficient using a novel dataset comprising 100 data points from 77 primarily low- and middle income countries. Our analysis covers more fiscal interventions than found in the literature: in addition to direct taxes and transfers, it includes indirect taxes and subsidies. It also addresses econometric issues prevalent in the literature, such as post-treatment bias. The change in the Gini coefficient is further decomposed into three channels: progressivity, size, and reranking – an analysis not previously undertaken comprehensively. Our findings indicate that a stronger rule of law, higher ethnic fractionalization, a larger share of old-age population, greater female parliamentary representation, higher unemployment, a higher income ratio between middle and top deciles and having a federal system are associated with greater income redistribution. Conversely, democracy and larger population size are associated with lower levels of redistribution. We find that the size and progressivity of direct transfers and indirect taxes are the primary mechanisms driving these relationships.

Keywords: income redistribution, Gini, progressivity and size of fiscal interventions, reranking
JEL codes: D63, H22, H23

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Ali Enami² and Nora Lustig³

January 9, 2025

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¹ We are grateful to the participants of the 2024 Southern Economic Association conference for their feedback on an earlier version of this paper. Moreover, we are thankful to Cliona Poje and Maddie Ray for their excellent research assistance.

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1. Introduction

Tax-based income redistribution has played a significant role in episodes of declining inequality (Lindert, 2004; Lopez-Calva and Lustig, 2010). Income redistribution through taxes and transfers, however, varies significantly across countries and over time. Existing explanations for this heterogeneity range from pre-fiscal inequality (e.g., the median voter theorem) to factors like democracy, development level, ethnic fractionalization, and unemployment. This article re-examines the determinants of income redistribution using a novel dataset comprising 100 data points from 77 primarily low- and middle-income countries.

The fundamental determinants of income redistribution are varied and complex. They include social, demographic, economic, and political factors. Among the social determinants, they include pre-redistribution income inequality (Meltzer et al., 1981; Lindert, 2004; Jäntti et al., 2020; Niño-Zarazúa et al., 2023), as well as preferences for redistribution shaped by societal attitudes and political dynamics (Iversen, 2005; Cusack et al., 2006; Dion and Birchfield, 2010; Marechal et al., 2023; Busso et al., 2023). Ethnic fractionalization has also been identified as a potentially significant factor, as it can influence redistributive preferences and policies (Finseraas, 2012; Alt and Iversen, 2017; Pleninger and Sturm, 2020). Demographics, such as the share of the old-age population, further shape redistributive outcomes, as older populations often require more extensive public support (Von Weizsäcker, 1996; Razin et al., 2002; Simonovits, 2007).

Economic conditions such as unemployment rates (Bradley et al., 2003; Huber and Stephens, 2014; Pontusson and Weisstanner, 2018) and average income levels, alongside economic growth, also play a crucial role (Jäntti et al., 2020; Woo, 2023). Similarly, globalization and trade dynamics can affect the extent of redistribution, particularly in how these forces interact with domestic labor markets and welfare systems (Rodrik, 1998; Adsera and Boix, 2002; Espuelas, 2022). The reliance on natural resources also has implications for redistribution, with resource dependency influencing fiscal policy and social spending patterns (Crivelli and Gupta, 2014; Davis, 2020; Gngangnon, 2021; Pazouki and Zhu, 2022).

Political factors also play a pivotal role. The presence of democracy has been widely studied in the context of redistribution, as democratic institutions are often associated with greater accountability and responsiveness to public demands (Mulligan et al., 2010; Acemoglu et al., 2015; Jensen and Skaaning, 2015; Kammass and Sarantides, 2019). Similarly, federal systems of governance can impact redistributive policies through their allocation of responsibilities between central and local governments (Jäntti et al., 2020). The quality and accountability of institutions are equally significant, as stronger institutions typically foster more effective and equitable redistribution (Balafoutas, 2011; Kumah and Brazys, 2016; Temsumrit, 2022; Altube et al., 2023). Additionally, women's empowerment, particularly their representation in government, has emerged as an important determinant of redistributive efforts, reflecting the broader impact of gender equity on policy outcomes (Nelson and Goel, 2023; Bozzano et al., 2024).

Despite the extensive body of research on the fundamental determinants of income redistribution and their effects on income inequality, significant scope remains to revisit this topic and address unresolved questions and issues within the literature. A notable challenge lies in the conflicting findings, underscoring the need for further analysis supported by enhanced data quality and robust methodologies. For instance, pre-fiscal income inequality has been shown to both increase (Niño-Zarazúa et al., 2023) and decrease (Lindert, 2004) redistribution—a phenomenon often referred to as the Robin Hood Paradox. Similarly, reliance on natural resources has been linked to both higher and lower levels of income redistribution (Pazouki and Zhu, 2022). Even the presence of democratic institutions has yielded mixed results, with studies finding both positive and negative correlations with redistribution levels (Acemoglu et al., 2015). The observed heterogeneity in outcomes may reflect genuine differences arising from the inclusion of varying sets of countries and time periods across studies. However, as we discuss below, this heterogeneity could also stem from econometric issues and data limitations that may affect the results.

Our paper's primary contributions include the adoption of a more robust econometric framework, the expansion of the scope of fiscal interventions analyzed, an examination of the channels through which the fundamental determinants of fiscal redistribution influence income inequality, and the use of a novel, cross-country comparable dataset. We elaborate on these contributions immediately below.

There are two significant econometric errors commonly found in the literature. The first involves the inclusion of the same variable on both the left-hand side and as a regressor. Specifically, some models include the pre-fiscal Gini index (i.e., pre-redistribution income inequality) as a regressor while using the change in the Gini index as the outcome variable. This approach essentially places the pre-fiscal Gini on both sides of the regression equation. As demonstrated by Jäntti et al. (2020), this practice introduces bias into the coefficient estimates for the pre-fiscal Gini, which is often a key variable used to test predictions derived from the median-voter theorem. To address this issue, our paper employs alternative measures of pre-fiscal income inequality instead of the Gini index.

Another critical issue is post-treatment bias, which arises when an outcome variable is used as an explanatory variable. For example, it is common in this literature for studies to control for average income (e.g., GDP per capita). However, the primary regressor of interest is often a determinant of average income (e.g., the quality of institutions). Controlling for an outcome variable, such as average income in this case, introduces bias into the estimated coefficient of the main regressor (Angrist and Pischke, 2009).⁴ To address this issue, we apply a residualization method to eliminate post-treatment bias.

Existing studies focus on the change in the Gini index between pre-fiscal and disposable income, effectively considering only direct taxes and transfers. Most studies overlook the role of

⁴ This is known as “post-treatment” bias.

indirect taxes and subsidies.⁵ There is no a priori reason to assume that the fundamental determinants of income redistribution operate exclusively through direct taxes and transfers. Potentially, governments may face more obstacles when increasing VAT compared to income taxes (a direct tax) on the wealthy. Similarly, they may encounter more resistance if they try to implement direct cash transfers rather than subsidizing the price of certain food items for low-income households. By broadening the analysis to include both disposable income and what is known as consumable income,⁶ our paper provides a more comprehensive understanding of the role of fundamental determinants of income redistribution in shaping changes in income inequality.

As Lambert (2001) demonstrates, the change in the Gini coefficient can be mathematically expressed as the weighted sum of the progressivity of taxes and transfers—where the weights are determined by their size relative to prefiscal income—and the extent to which taxes and transfers rerank households in the income distribution. This implies that the size and progressivity of fiscal interventions, along with reranking, function as channels through which other factors—such as prefiscal inequality or the share of the old-age population—impact income redistribution and, consequently, changes in income inequality. Therefore, we treat these three sets of variables as intermediate outcomes or channels that explain how various socio-economic and political factors influence income redistribution and the resulting changes in income inequality.⁷

Our analysis relies on a dataset that addresses two major data-related concerns in the literature. First, cross-country analyses have used secondary data sources on income, taxes, and transfers, which are often not comparable and can lead to non-robust results (Atkinson and Brandolini, 2001). We address this issue by using data collected by the Commitment to Equity Data Center on Fiscal Redistribution (CEQ Data Center, 2024) for 77 countries. This dataset employs comparable and comprehensive fiscal-incidence analyses, known as the CEQ methodology (Lustig, 2022). Second, developing countries are often underrepresented in existing empirical work due to the lack of reliable data (Jäntti et al., 2020). A key feature of our dataset that makes our analysis relatively unique is that more than 90% of the countries in our sample are low- and middle-income countries from Latin America, Sub-Saharan Africa, and Asia.

Overall, we find that an increase in the rule of law, ethnic fractionalization, the share of the old-age population, women’s representation in parliament, the unemployment rate, the income ratio of middle deciles to the top decile (mid-to-high income ratio), and the presence of a federal system all increase the redistributive effect of the fiscal system.⁸ Conversely, the existence of a democracy and a larger population reduce this effect. Our analysis reveals that the size and progressivity of direct transfers and indirect taxes are the primary mechanisms driving these

⁵ An exception is Enami et al. (2022) that look at the relationship between the size and progressivity of direct and indirect taxes and transfers/subsidies and the (un)equalizing effect of them.

⁶ Consumable Income is defined as Disposable Income minus indirect taxes plus indirect subsidies Lustig (2022).

⁷ Some studies include size, progressivity and reranking as regressors in their linear model. However, as shown by Lambert (2001) and Enami (2022), the relationship between these variables and the change in the Gini is nonlinear. Thus, in addition to post-treatment bias, this introduces a misspecification bias.

⁸ That is, the absolute and/or relative change in income inequality between pre-fiscal (pre-redistribution) and post-fiscal (post-redistribution) incomes increases.

relationships, followed by the size and progressivity of direct taxes and, to a lesser extent, indirect subsidies. Other variables in our analysis, such as GDP per capita, GDP growth rate, trade openness, and natural resource exports, do not exhibit a statistically significant effect on the absolute or relative change in the Gini index, although some do influence the size and/or progressivity of fiscal interventions.

The remainder of this paper is organized as follows. Section 2 introduces the data sources and variables utilized in our analysis. Section 3 provides a detailed explanation of our methodology, highlighting how we address econometric challenges commonly found in the literature. In Section 4, we present our primary results and discuss the key insights from our robustness checks and auxiliary analyses (with further details provided in the Results Appendix). Finally, Section 5 concludes with our summary and suggestions for potential avenues for future research.

2. Data

We use several sources to collect the necessary data for our analysis. The Gini values for pre- and post-fiscal income,⁹ the size and progressivity¹⁰ of fiscal interventions (i.e., direct and indirect taxes and transfers/subsidies), and the reranking caused by these fiscal interventions are based on data available from the CEQ Data Center (2024).¹¹ The underlying fiscal incidence analysis method for all countries included in our database follows the CEQ methodology (Lustig, 2022), ensuring these variables are relatively comparable across countries. The CEQ methodology recommends researchers use two alternative pre-fiscal (i.e., pre-redistribution) income concepts because the literature does not agree on whether old-age pensions should be treated as part of pre-fiscal income (i.e., as a *deferred* source of income) or as a direct transfer Lustig (2022). We adhere to this recommendation and present results for the two pre-fiscal income concepts, i.e., Market Income Plus (contributory old-age) Pensions (MIPP)¹² and Market Income (MI),¹³ side-by-side. However, we lead with the MIPP-related results due to our larger sample size. As mentioned in the

⁹ As mentioned in the introduction, we use two different post-fiscal income concepts for our analysis, disposable and consumable income. Disposable income is equal to pre-fiscal minus direct taxes plus direct transfers. Consumable income is equal to disposable income minus indirect taxes plus indirect subsidies.

¹⁰ Following the Lambert (2001) decomposition of the change in Gini index discussed in the methodology section, we use the ratio of the total tax (transfer/subsidy) to the total pre-fiscal income for the size of that tax (transfer/subsidy) and the Kakwani index for its progressivity.

¹¹ CEQ Data Center shares its data in various ways. The variables used in our analysis are mainly available in the CEQ Standard Indicator (CEQSI) database. We used original sources used by CEQ Data Center to construct CEQSI to validate, edit, and amend this database. See the CEQ Data Center for the complete list of sources used to construct the CEQSI database: <https://commitmenttoequity.org/datacenter/>.

¹² Market Income includes “factor income such as wages and salaries from the formal and informal sectors (also known as ‘earned income’), income from capital (rents, profits, dividends, interest, and so on), private pensions (and other benefits from a privately run benefit system), income received from insurance claims (for example, due to crop failure), private transfers (remittances and other private transfers such as alimony), imputed rent for owner-occupied housing (also known as ‘income from owner-occupied housing’), the value of own production, and employers’ contributions to all social insurance programs (old-age pensions, health, disability, unemployment compensation, and so on) minus employees’ and employers’ contributions to social insurance old-age pensions (Lustig, 2023, p. 244).”

¹³ For these results, old-age pensions are considered as part of direct transfers and contributions to pensions (by employers and employees) as part of direct taxes.

introduction, we use two different post-fiscal (i.e., post-redistribution) income concepts for our analysis: Disposable Income and Consumable Income. Disposable Income is equal to pre-fiscal income minus direct taxes plus direct transfers. Consumable Income is equal to Disposable Income minus indirect taxes plus indirect subsidies.

The *Federation* indicator (i.e., whether a country has a federal government) is constructed using data from Forum of Federations (2024). The *Democracy* indicator (i.e., whether a country is a democracy) is based on the classification of political regimes by Herre (2021).¹⁴ *Ethnic fractionalization* is constructed using the Historical Index of Ethnic Fractionalization (HIEF) Dataset provided by Dražanová (2020).¹⁵ Data on the *Rule of law*¹⁶ and the *percentage of parliament seats occupied by women* is available from Environment Social and Governance Data (ESG, 2024). Lastly, *total population*, *65+ population* (as a percentage of the total population), *GDP per capita*, *GDP growth rate*, *unemployment rate*, *trade openness* (sum of exports and imports as a percentage of GDP), *natural resource exports* (fuel, ore, and metal exports as a percentage of GDP), and the *mid-to-high income ratio* (i.e., total income of the middle deciles divided by total income of the top decile) are from World Development Indicators (WDI, World Bank, 2024).

To make sure our sample size is as large as possible, we impute a small number of observations for the following variables: trade openness (2% of the sample), natural resource exports (3% of the sample), and the mid-to-high income ratio (15% of the sample). Our imputation method uses the value from the closest year to the survey year used for a CEQ incidence analysis, with preference given to years prior to the survey year. Nonetheless, we check the robustness of our results by re-estimating our models using data without any imputation for the aforementioned variables.

Table 1 presents the breakdown of countries in the sample by income and geographic region according to World Bank classification (World Bank, 2024). Note that some countries are represented more than once because researchers used the CEQ fiscal incidence analysis multiple times for these countries. Therefore, there is a difference between the number of “observations” and “unique countries” in the sample. As Table 1 shows, the majority of countries in the sample (more than 90%) are from low- and middle-income countries. Moreover, Latin America, Sub-Saharan Africa, and Asia are well-represented in the sample. The Data Appendix provides the full list of countries included in our analysis.

¹⁴ Herre (2021) relies on four categories to classify political system: closed autocracies, electoral autocracies, electoral democracies, and liberal democracies. Our Democracy indicator is equal to 1 for countries that belong to the latter two categories in the relevant year (zero otherwise).

¹⁵ The HIEF index is only available until 2013. We use the average value of this index in the last 5 years (2009-2013) for all countries in the sample. It is worth noting that the value of the HIEF index does not change significantly from one year to another.

¹⁶ ESG (2024) defines *rule of law* as follows: “Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.”

Table 1. Breakdown of countries by income level and region

Breakdown by	Observations		Countries	
	Frequency	Percent	Frequency	Percent
Income level				
Low income	15	15%	12	15%
Lower-middle income	37	37%	30	38%
Upper-middle income	40	40%	30	38%
High income	8	8%	7	9%
Region				
East Asia and Pacific	11	11%	9	12%
Europe and Central Asia	19	19%	17	22%
Latin America	31	31%	18	23%
Middle East and North Africa	6	6%	6	8%
North America	2	2%	1	1%
South Asia	3	3%	3	4%
Sub-Saharan Africa	28	28%	23	30%
Total	100	100%	77	100%

Source: CEQ Data Center (2024), World Bank (2024), and own calculations.

Notes: The classifications are according to the World Bank and based on the survey year used in the CEQ fiscal incidence analysis. In the case of income categories, the sum of unique countries is more than 77 because there are two observations for Argentina and Russia in the sample and each country belongs to the upper-middle income group in one year and high-income group in another year. The sum of the percentages may not equal 100% due to rounding errors.

Table 2 presents the summary statistics of the countries in our sample. This table is divided into four sections. Section A presents the summary statistics for the Gini values in the sample. As mentioned before, there is more data available on the Gini coefficient of MIPP compared to MI, which means we have more observations in the regression models that rely on MIPP as the pre-fiscal income. Another takeaway from the Gini values in this table is that the combination of old-age pensions and contributions to these pensions is equalizing, as inequality decreases by 3.1 Gini points from MI to MIPP. For comparison, the reduction in inequality from MIPP to Disposable Income is also 3 Gini points. In other words, the *additional* reduction in inequality from all other direct transfers and taxes is relatively similar to the initial reduction in inequality created by old-age pensions and contributions to these pensions. The *additional* reduction in inequality (from

Disposable Income to Consumable Income) due to indirect taxes and subsidies is much smaller at about 0.3 Gini points.¹⁷

Sections B and C of Table 2 contain comparable variables, but they differ because of the pre-fiscal income used to calculate them. Overall, the average value of all variables in Section B are more than those in Section C (in absolute terms), except for the Kakwani index of direct taxes and transfers. An interesting observation in these sections is the regressivity of indirect taxes (i.e., negative Kakwani value), regardless of the choice of pre-fiscal income.

Section D of the table includes all other characteristics of the countries in the sample. About 19% of the observations are from the countries with a federal system and 60% are from democratic countries. The population of the countries in the sample ranges from less than a million (Montenegro) to 1.3 billion (China). Uganda, the country with the youngest population in the sample only has 1.5% of individuals over the age of 65, while Bulgaria, the country with the oldest population has close to 22% in this age group. About 22% of parliamentary seats are occupied by women, but there is significant heterogeneity across countries, with this value ranging from about 3% (Iran) to about 53% (Bolivia). A similar heterogeneity is observed in all economic variables in the sample, but on average a country in the sample has a GDP per capita of about \$6,000, a growth rate of 3.7%, and an unemployment rate of 7.8%. The combined value of imports and exports for this average country is about 71.7% of GDP, and the value of natural resource exports (fuel, ore, and metal) is about 6.5% of GDP. Lastly, the income of the middle 20% (deciles 5 and 6) averages about 47% of the income of the top decile. However, this ratio ranges from about 16% in the most unequal country (South Africa) to about 85% in the most equal country (Belarus).

Table 2. Summary statistics of key variables in the sample

Variable	Observations	Countries	Mean	Std. Dev.	Min	Max
A. Gini						
Market Income	72	54	47.77	7.76	30.04	65.72
Market Income Plus Pensions	92	71	44.87	9.67	23.42	73.70
Disposable Income	100	77	41.87	9.36	21.43	64.04
Consumable Income	99	76	41.54	9.06	21.88	63.96
B. Pre-fiscal income: Market Income						
Absolute redistributive effect from pre-fiscal to Disposable Income	72	54	5.27	5.53	0.02	19.20

¹⁷ Note that the reduction in income inequality attributed to various fiscal interventions is a result of the somewhat arbitrary sequential order they are added to the fiscal system. In other words, the change in Gini would be different if we change the order and, for example, account for all other direct taxes and transfers first and then include pensions and contribution to pensions. For more discussion see the concept of Marginal Contribution in Lustig (2023).

Absolute redistributive effect from pre-fiscal to Consumable Income	71	53	5.40	5.18	-0.50	18.60
Relative redistributive effect from pre-fiscal to Disposable Income	64	47	13.67%	15.70%	0.05%	61.74%
Relative redistributive effect from pre-fiscal to Consumable Income	64	47	13.86%	14.64%	-1.14%	59.81%
Size of direct taxes (as % of pre-fiscal income)	55	41	10.76%	9.12%	0.23%	32.38%
Size of direct transfers (as % of pre-fiscal income)	57	42	10.06%	8.87%	0.10%	33.67%
Size of indirect taxes (as % of pre-fiscal income)	57	42	8.77%	3.81%	2.75%	21.60%
Size of indirect subsidies (as % of pre-fiscal income)	44	32	2.21%	2.75%	0.02%	13.19%
Kakwani of direct taxes	59	44	0.21	0.16	-0.01	0.64
Kakwani of direct transfers	59	43	0.50	0.23	0.004	0.996
Kakwani of indirect taxes	62	46	-0.06	0.11	-0.37	0.12
Kakwani of indirect subsidies	47	34	0.32	0.31	-0.07	1.32
Reranking with Disposable Income as post-fiscal income	52	38	0.03	0.03	0.0003	0.09
Reranking with Consumable Income as post-fiscal income	53	38	0.03	0.03	0.0004	0.09
C. Pre-fiscal income: Market Income Plus Pensions						
Absolute redistributive effect from pre-fiscal to Disposable Income	92	71	2.74	2.21	0.06	11.83
Absolute redistributive effect from pre-fiscal to Consumable Income	92	71	2.91	2.18	0.00	11.85
Relative redistributive effect from pre-fiscal to Disposable Income	92	71	6.12%	4.80%	0.20%	26.98%
Relative redistributive effect from pre-fiscal to Consumable Income	92	71	6.45%	4.57%	0.00%	27.03%

Size of direct taxes (as % of pre-fiscal income)	69	53	6.22%	5.26%	0.37%	22.47%
Size of direct transfers (as % of pre-fiscal income)	71	52	2.82%	2.84%	0.02%	13.91%
Size of indirect taxes (as % of pre-fiscal income)	74	55	8.72%	3.97%	2.28%	21.80%
Size of indirect subsidies (as % of pre-fiscal income)	53	39	2.02%	2.50%	0.02%	12.71%
Kakwani of direct taxes	72	54	0.24	0.14	0.004	0.63
Kakwani of direct transfers	74	54	0.73	0.19	-0.07	1.26
Kakwani of indirect taxes	75	55	-0.02	0.08	-0.29	0.16
Kakwani of indirect subsidies	55	40	0.24	0.33	-0.49	1.29
Reranking with Disposable Income as post-fiscal income	67	50	0.01	0.01	0.00005	0.05
Reranking with Consumable Income as post-fiscal income	65	47	0.01	0.01	0.0001	0.06
D. Other country characteristics						
Rule of law	100	77	-0.38	0.63	-1.79	1.59
Federation (indicator)	100	77	0.19	0.39	0	1
Democracy (indicator)	100	77	0.59	0.49	0	1
Ethnic fractionalization	97	74	0.49	0.24	0.04	0.88
Population (millions)	100	77	71.62	190.94	0.62	1,371.86
65+ population (%)	100	77	7.01%	4.59%	1.53%	21.95%
Women in parliament (% of seats)	96	73	21.75%	10.69%	2.76%	53.08%
GDP per capita	99	76	\$6,090	\$8,380	\$432	\$57,700
GDP growth rate	100	77	3.72%	2.80%	-3.83%	12.55%
Unemployment rate	100	77	7.75%	6.05%	0.14%	26.06%
Trade openness (% of GDP)	99	76	71.71%	37.37%	22.11%	305.97%
Natural resource exports (% of GDP)	97	74	6.45%	8.30%	0.01%	48.65%
Mid-to-high income ratio	97	75	47.27%	15.28%	15.59%	84.91%

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: The total observations are 100 (77 countries) but not all of them have values for all the variables. For example, there may be countries for which prefiscal income only is available in the form of Market Income plus Pensions or Market Income; however, for every one of the 100 (77) there will be at least one of the two. See the Data section for the description of variables and Data Appendix for the list of countries in the sample.

3. Methodology

A common yet problematic modeling approach in the literature is to regress the absolute and/or relative change in the Gini index between pre-fiscal and post-fiscal income (i.e., absolute and relative redistributive effects, respectively) on the determinants of income redistribution. Researchers often ignore the potential causal relationship between the regressors, resulting in parameter estimates suffering from *post-treatment* bias. This bias occurs when the model controls for an outcome variable that is caused by the main regressor of interest (Angrist and Pischke, 2009). For example, if the quality of institutions causes economic growth (measured by GDP growth rate), then controlling for the latter causes bias in the coefficient of the former.

To address the *post-treatment* bias we use the following one-step *residualization* method. First, we divide the fundamental determinants of income redistribution into two groups. The first group contains regressors that can be assumed to be relatively exogenous and not caused by other variables in the model. These variables are the rule of law, federation, democracy, ethnic fractionalization, size of the population (in log form), old-age population (as a percentage of the total population), and the share of parliament seats occupied by women. The second group includes variables that are potentially affected by (at least one of) the variables in the first group. The variables in this second group are as follows: GDP per capita (in log form), GDP growth rate, unemployment rate, trade openness (sum of imports and exports as a percentage of GDP), natural resource exports (sum of fuel, ore, and metal exports as a percentage of GDP) and the mid-to-high income ratio.

Second, we regress the variables in the second group separately on all variables in the first group and collect the residuals from each regression model. By design, the residuals of a regression model have the same unit as the left-hand side variable in that model and are orthogonal to the regressors in that model (Stock and Watson, 2020). This means the residuals, by design, contain the portion of variation in the variables in the second group that is not caused by variables in the first group. Third, we use these residuals in the model instead of the variables in the second group. Given that there is no causal relationship between the variables in the first group and these residuals, *post-treatment* bias is eliminated. Equation (1) shows the main regression model used in our paper:

$$Y_c = B_0 + B_1 \text{Rule of law}_c + B_2 \text{Federation}_c + B_3 \text{Democracy}_c$$

$$\begin{aligned}
&+B_4\text{Ethnic fractionalization}_c + B_5\text{Log}(\text{Population})_c + B_6\text{Over 65 Population}(\%)_c \\
&+B_7\text{Women in Parliament}(\%)_c + B_8\text{Log}(\text{GDP per capita})_c^R + B_9\text{GDP growth rate}_c^R \\
&\quad +B_{10}\text{Unemployment rate}_c^R + B_{11}\text{Trade openness}(\%\text{ of GDP})_c^R \\
&\quad +B_{12}\text{Resource exports}(\%\text{ of GDP})_c^R + B_{13}\text{Mid to high income ratio}_c^R + \varepsilon_c \quad (1)
\end{aligned}$$

where Y_c is the outcome of interest, i.e., absolute and relative change in Gini, measured for country c and ε is the white noise. All other variables are introduced above and variables with a superscript “R” in their name are *residualized* using the method described earlier in this section. Note that we use bootstrap standard errors to account for the fact that our estimation process effectively resembles the two-stage least squares (2SLS) technique, and we need to account for the probabilistic nature of our first stage in which residualized variables are created.

The aforementioned list of regressors neither include the pre-fiscal income Gini nor the size and progressivity of fiscal interventions (taxes and transfers/subsidies). While the model must control for pre-fiscal income inequality, Jäntti et al. (2020) show that the coefficient of pre-fiscal Gini would be biased since the outcome of interest (e.g., absolute change in Gini) effectively includes pre-fiscal Gini. To resolve this issue, we use the (residualized) mid-to-high income ratio in the model. The exclusion of the size and Kakwani of fiscal interventions from the model is due to the fact that, as explained below in the context of Lambert (2001) decomposition of redistributive effect, these variables are intermediate outcomes, i.e., channels through which the fundamental determinants of income redistribution affect the change in income inequality.

Lambert (2001) shows that in a fiscal system with one tax and one transfer, the change in the Gini index between pre- and post-fiscal incomes can be mathematically decomposed into the size and progressivity of the tax and transfer (i.e., the fiscal interventions) and the reranking (of individuals in the income distribution) that these fiscal interventions create. Enami (2018) expanded this decomposition to a system with multiple taxes and transfers/subsidies, as shown in Equation (2).

$$\text{Gini}_{\text{pre-fisc}} - \text{Gini}_{\text{post-fisc}} = \frac{\sum_{i=1}^n g_i K_i + \sum_{j=1}^m b_j K_j}{1 - \sum_{i=1}^n g_i + \sum_{j=1}^m b_j} - \text{Reranking} \quad (2)$$

Where g (b) is the size of a tax (transfer/subsidy) calculated as the ratio of the total tax (transfer/subsidy) to the total pre-fiscal income, and K is the Kakwani index of the tax (transfer/subsidy). Reranking is always non-negative and is defined as the difference between the Gini and concentration coefficients of the post-fiscal income.¹⁸ The change in Gini values on the left-hand side is ordered such that a lower post-fiscal Gini implies a more positive value and therefore a higher redistributive effect. It is worth noting that the first element on the right-hand

¹⁸ The concentration coefficient (CC) of the post-fiscal income is calculated using the pre-fiscal ranking of individuals in the income distribution. Note that the formula for Gini of the post-fiscal income is the same as CC except that the ranking of individuals in the post-fiscal income is used in the calculation. As a result, the difference between the Gini and CC of post-fiscal income is an indicator of reranking of individuals in income distribution as we go from the pre- to post-fiscal income.

side of the formula is known as *Vertical Equity* and in the absence of reranking, it would be equal to the change in the Gini index.

Lambert (2001) decomposition and its extension by Enami (2018) provides a key insight into the cascading nature of the determinants of income redistribution and their impact on income inequality: the size and progressivity of fiscal interventions and the reranking they create should be viewed as intermediate outcomes or channels through which other variables affect income redistribution, i.e., they would replace Y_c in Equation (1). The reranking term in this decomposition reflects how taxes and transfers/subsidies alter the order of individuals in the income distribution and it depends on the characteristics of these fiscal interventions, among which size and progressivity are the most important factors (if not the only relevant factors). Even without access to this decomposition, one should view the size and progressivity of fiscal interventions as intermediate outcomes, given that income redistribution occurs through these fiscal interventions. In other words changes in other fundamental factors would impact the absolute and relative change in income inequality only if they influence income distribution via changes in fiscal interventions.

Many researchers use the relative change in Gini in addition to or instead of the absolute change in this indicator as their main outcome of interest. The decomposition of the relative change in Gini is shown in Equation (3):

$$\frac{Gini_{Pre-fisc} - Gini_{Post-fisc}}{Gini_{Pre-fisc}} = \frac{\frac{\sum_{i=1}^n g_i K_i + \sum_{j=1}^m b_j K_j}{1 - \sum_{i=1}^n g_i + \sum_{j=1}^m b_j} - Reranking}{Gini_{Pre-fisc}} \quad (3)$$

Equation (3) might suggest the presence of a fourth channel, i.e., the pre-fiscal Gini, through which fundamental determinants of income redistribution can affect it. However, this fourth channel is also implicitly present in Equation (2) through the Kakwani index, and yet we do not include it as a distinct channel for the following reason: if the outcome of interest is the redistribution of income, the Gini of pre-fiscal income must be held constant. Otherwise, the analysis would incorporate the determinants of the pre-fiscal income distribution as well (which is an interesting, but separate question). In this paper, we focus solely on the determinants of income redistribution, therefore, the only possible channels through which the fundamental factors of income redistribution can affect it are the size and progressivity of fiscal interventions and any reranking these interventions create.

In addition to the above takeaway from Equations (2) and (3) regarding treating the size and progressivity of fiscal interventions and reranking as intermediate outcomes (rather than control variables), these equations also reveal the non-linear relationship between these variables and the absolute and relative redistributive effects. Moreover, the relationships shown in Equations (2) and (3) cannot be easily transformed into a linear form (e.g., using natural logs). As a result, simplistic regression models in which the absolute or relative change in Gini is regressed on these intermediate outcomes are inappropriate and suffer from misspecification bias.

4. Results and Discussion

This section is divided into two parts. First, we present our main results related to the effect of the fundamental determinants of income redistribution on the absolute and relative change in the Gini index, the size and progressivity of fiscal interventions, and the reranking of individuals in the income distribution. Second, we discuss the results of our robustness checks and auxiliary analyses.

a. Main Results

We begin by presenting the results related to the impact of fundamental determinants of income redistribution on the absolute and relative redistributive effects, i.e., the absolute and relative change in the Gini index. As mentioned in the methodology section, we have two pre-fiscal income concepts: Market Income Plus (contributory old-age) Pensions (MIPP) and Market Income (MI), depending on whether pensions (contributions to pensions) are accounted for as part of pre-fiscal income or direct transfers (direct taxes). We also have two post-fiscal income concepts: Disposable and Consumable Incomes, which, by design, do not depend on the choice of the pre-fiscal income. Consequently, the combination of two pre- and post-fiscal incomes creates four possible absolute and relative changes in the Gini index.

Table 3 presents these results. the rule of law has a positive and statistically significant effect only on the absolute and relative redistributive effects when the pre-fiscal income is MIPP. Having a federal system positively affects the absolute and relative change in the Gini index by about 1.8-3.6 Gini points and 2.7-7.2 percentage points, respectively, and the effect size is bigger when the pre-fiscal income is MI. The existence of democracy is negatively associated with absolute and relative redistributive effects and this effect is statistically significant when the pre-fiscal income is MI. Specifically, having democracy decreases the absolute and relative redistributive effects by about 3.6 Gini points and 11.0 percentage points, respectively. An increase in ethnic fractionalization leads to a 1.8-3.8 Gini point increase in the absolute redistributive effect and a 10.8% increase in the relative redistributive effect, though these effects are marginally statistically significant. The overall size of the population has a negative relationship with the absolute and relative change in the Gini index. A 10 percent increase in the population size leads to a 0.04-0.1 Gini point and a 0.07-0.26 percentage point decrease in the absolute and relative redistributive effects, respectively. On the other hand, the share of old-age population has a positive effect on both absolute and relative redistributive effects, with a much larger effect when pre-fiscal income is MI. For the absolute redistributive effect, a 1 percentage point increase in the share of the old-age population leads to about a 0.2 Gini point increase when pre-fiscal income is MIPP, while the effect is five times larger — about 1 Gini point — when the pre-fiscal income is MI. Regarding the relative redistributive effect, a 1 percentage point increase in the old-age population results in about a 0.5-0.7 percentage point increase in the relative change in the Gini index when pre-fiscal income is MIPP, while the effect size is 2.9-3.0 percentage points when the pre-fiscal income is MI. Similar to the rule of law, women's representation in parliament has a positive and statistically significant impact on income redistribution only when the pre-fiscal income is MIPP. A 1

percentage point increase in the number of parliament seats held by women leads to about a 0.05-0.06 Gini point increase in absolute redistributive effect and a 0.07-0.09 percentage point increase in the relative redistributive effect. Unemployment is positively associated with both redistributive effects. A 1 percentage point increase in the unemployment rate leads to about a 0.1-0.2 Gini point increase in the absolute redistributive effect and a 0.2-0.3 percentage point increase in the relative redistributive effects. Pre-fiscal income *equality* is mostly positively associated with redistributive effects, indicative of the Robin Hood Paradox (Lindert, 2004). Among the statistically significant effects a 1 percentage point increase in the mid-to-high income ratio (i.e., the income ratio of the middle 2 deciles to the top 1 decile)¹⁹ results in an additional 0.07-0.10 Gini points and 0.13-0.35 percentage points increase in the absolute and relative redistributive effects, respectively.

The remaining variables — GDP per capita, GDP growth rate, trade openness, and the importance of exporting natural resources in the economy— appear to have no statistically significant effect on income redistribution.²⁰ However, this may be due to insufficient power to identify their effects. It is worthwhile to examine if these variables impact the size, progressivity, and/or reranking of individuals in the income distribution, so we continue to include these variables in the models used for the rest of our analysis.

¹⁹ Note that an increase in this ratio means the total income of the middle two deciles is closer to the total income of the top deciles, therefore, the income distribution is more *equal*.

²⁰ The only exception is ethnic fractionalization that has a borderline statistically significant and positive effect on absolute redistributive effect from MIPP to Disposable Income.

Table 3. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)	Market Income Plus Pensions (MIPP)	Market Income (MI)		Market Income Plus Pensions (MIPP)	Market Income Plus Pensions (MIPP)	Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.154*** (0.335)	1.165*** (0.342)	-0.021 (0.666)	0.023 (0.610)	1.511* (0.818)	1.628** (0.794)	-2.632 (2.073)	-2.426 (1.889)
Federation	1.786*** (0.652)	1.865*** (0.669)	3.150** (1.251)	3.577*** (1.166)	2.693** (1.257)	2.904** (1.296)	6.417 (4.077)	7.170* (3.709)
Democracy	-0.225 (0.375)	-0.162 (0.412)	-3.574*** (0.713)	-3.637*** (0.65)	-1.390 (0.864)	-1.317 (0.935)	-10.985*** (2.639)	-11.022*** (2.440)
Ethnic fractionalization	1.823* (1.018)	1.701 (1.123)	3.813* (2.170)	3.561* (1.949)	3.508 (2.319)	3.111 (2.504)	11.115 (7.258)	10.793* (6.464)
Population (log)	-0.351*** (0.134)	-0.380** (0.150)	-0.908** (0.378)	-0.973*** (0.354)	-0.653** (0.294)	-0.693** (0.319)	-2.513** (1.265)	-2.636** (1.158)
65+ population (%)	0.217*** (0.071)	0.168** (0.077)	1.057*** (0.116)	0.997*** (0.087)	0.666*** (0.198)	0.533*** (0.196)	3.044*** (0.470)	2.887*** (0.386)
Women in parliament (% of seats)	0.049** (0.019)	0.058*** (0.020)	-0.029 (0.030)	-0.016 (0.028)	0.069* (0.036)	0.093** (0.040)	-0.130 (0.103)	-0.100 (0.093)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.049 (0.360)	-0.232 (0.397)	-0.350 (0.679)	-0.666 (0.587)	-0.027 (0.843)	-0.473 (0.900)	-1.623 (2.301)	-2.490 (1.998)
GDP growth rate	-0.087 (0.067)	-0.070 (0.071)	0.134 (0.130)	0.140 (0.117)	-0.169 (0.149)	-0.126 (0.151)	0.232 (0.428)	0.265 (0.387)
Unemployment rate	0.166*** (0.042)	0.139*** (0.044)	0.195** (0.079)	0.169** (0.077)	0.282*** (0.087)	0.211** (0.091)	0.438 (0.270)	0.395 (0.245)
Trade openness (% of GDP)	0.004 (0.008)	0.005 (0.008)	0.015 (0.018)	0.014 (0.017)	0.012 (0.018)	0.014 (0.018)	0.071 (0.063)	0.073 (0.058)
Natural resource exports (% of GDP)	-0.011 (0.022)	-0.013 (0.023)	-0.002 (0.053)	0.003 (0.045)	-0.014 (0.054)	-0.021 (0.053)	-0.050 (0.186)	-0.035 (0.163)
Mid-to-high income ratio	0.024 (0.016)	-0.003 (0.018)	0.104** (0.042)	0.069** (0.035)	0.128*** (0.040)	0.061 (0.041)	0.347** (0.157)	0.271** (0.131)
Observations	82	82	65	64	82	82	60	60
Unique countries	61	61	47	46	61	61	43	43

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table 4 presents the effect of fundamental determinants of income redistribution on the size of taxes and transfers/subsidies. As a reminder, following Lambert (2001) decomposition and its extension by Enami (2018), we define the size of a fiscal intervention as a ratio with respect to the size of the pre-fiscal income. Therefore, we have two different values for the size of each tax and transfer/subsidy depending on whether MIPP or MI is used as the pre-fiscal income.

The Rule of law appears to increase the size of direct taxes in a statistically significant way only. Having a federal system positively affects the size of direct transfers increasing them by 2.4 and 8.4 percentage points when the pre-fiscal income is MIPP and MI, respectively. Democracy has a negative and statistically significant effect on the size of direct taxes and transfers, but only when MI is the pre-fiscal income. Specifically, having a democracy decreases the size of direct taxes and transfers by 6.0 and 3.9 percentage points, respectively. The old-age population has a positive effect on the size of all fiscal interventions, though the effect on the size of indirect subsidies is never statistically significant. When the pre-fiscal income is MIPP (MI), a 1 percentage point increase in the old-age population increases the size of direct transfers and indirect taxes by 0.2 (1.5) and 0.5 (0.4) percentage points, respectively. The old-age population only has a statistically significant effect on the size of direct taxes when pre-fiscal income is MI: a 1 percentage point increase in the share of old-age population leads to 1.4 percentage point increase in the size of direct taxes. GDP per capita only has a statistically significant effect on the size of indirect taxes, with the effect being more pronounced when the pre-fiscal income is MI. A 10 percent increase in GDP per capita leads to a 0.4 (0.3) percentage point decrease in the size of indirect taxes when the pre-fiscal income is MI (MIPP). A similar relationship exists between the mid-to-high income ratio and the size of indirect taxes, where a 1 percentage point increase in this ratio results in a 0.15 (0.12) percentage point decrease in the size of indirect taxes when the pre-fiscal income is MI (MIPP). Unemployment affects the size of direct transfers regardless of the choice of pre-fiscal income and the size of indirect taxes when the pre-fiscal income is MIPP. A 1 percentage point increase in unemployment increases the size of direct transfers by 0.2 and 0.5 percentage points when the pre-fiscal income is MIPP and MI, respectively. A similar increase in unemployment raises the size of indirect taxes by 0.3 percentage points when the pre-fiscal income is MIPP. Other variables have no statistically significant effect on the size of fiscal interventions, with the exception of women's political representation, which has a marginally statistically significant effect on the size of indirect taxes only when the pre-fiscal income is MIPP: a 1 percentage point increase in the share of parliament seats held by women results in a 0.09 percentage point increase in the size of indirect taxes.

Table 4. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Size of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	3.950*** (1.280)	0.187 (0.786)	-0.634 (0.968)	-0.865 (0.722)	3.538* (1.890)	-1.388 (1.785)	-0.904 (1.096)	-0.689 (1.014)
Federation	2.224 (1.728)	2.397** (1.110)	-0.423 (1.623)	-1.689 (1.482)	4.544 (2.985)	8.446*** (2.664)	1.668 (2.131)	-1.891 (1.929)
Democracy	-1.404 (1.547)	-0.504 (0.722)	-0.239 (1.317)	0.108 (1.011)	-6.043*** (2.063)	-3.913** (1.832)	0.101 (1.457)	0.331 (1.266)
Ethnic fractionalization	0.794 (3.426)	0.657 (1.949)	0.803 (2.777)	-1.161 (2.144)	2.332 (4.955)	3.192 (3.755)	-0.720 (3.094)	-1.35 (2.642)
Population (log)	0.227 (0.585)	-0.359 (0.280)	-0.228 (0.440)	0.134 (0.452)	-0.761 (0.906)	-0.568 (0.721)	-0.438 (0.511)	0.267 (0.639)
65+ population (%)	0.296 (0.219)	0.242* (0.126)	0.469** (0.233)	0.191 (0.200)	1.430*** (0.233)	1.503*** (0.243)	0.380* (0.205)	0.122 (0.162)
Women in parliament (% of seats)	0.079 (0.054)	0.034 (0.030)	0.091* (0.051)	0.028 (0.037)	-0.017 (0.092)	-0.123 (0.079)	0.054 (0.060)	0.061 (0.056)
<i>Residualized variables:</i>								
GDP per capita (log)	0.095 (1.277)	0.593 (0.704)	-2.636*** (0.994)	-0.243 (0.905)	1.540 (2.109)	0.100 (2.004)	-3.865*** (1.301)	-0.011 (1.267)
GDP growth rate	0.006 (0.192)	-0.039 (0.147)	0.115 (0.211)	0.026 (0.154)	0.139 (0.469)	0.184 (0.347)	0.164 (0.264)	0.062 (0.274)
Unemployment rate	0.223 (0.140)	0.212*** (0.067)	0.293*** (0.108)	0.005 (0.100)	0.202 (0.224)	0.468** (0.216)	0.202 (0.126)	-0.010 (0.122)
Trade openness (% of GDP)	0.047 (0.029)	0.005 (0.019)	-0.014 (0.023)	0.030 (0.024)	0.019 (0.043)	-0.027 (0.038)	-0.020 (0.023)	0.039 (0.030)
Natural resource exports (% of GDP)	-0.046 (0.122)	0.106 (0.072)	-0.077 (0.076)	0.025 (0.070)	-0.129 (0.230)	0.065 (0.131)	-0.034 (0.102)	0.026 (0.101)
Mid-to-high income ratio	0.008 (0.071)	0.065 (0.047)	-0.120** (0.049)	0.021 (0.048)	0.092 (0.104)	0.062 (0.092)	-0.148** (0.059)	0.014 (0.071)
Observations	64	66	69	49	53	55	55	42
Unique countries	48	47	50	35	39	40	40	30

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

The effect of the fundamental determinants of income redistribution on the progressivity of fiscal interventions is presented in Table 5. Since the definition of any progressivity index (here the Kakwani index) is based on the pre-fiscal income distribution, we have two sets of results depending on whether the pre-fiscal income is MI or MIPP. In the following discussion of the results in Table 5, we indicate in parentheses if a particular takeaway applies when the pre-fiscal income is MI, MIPP, or both.

The progressivity of direct taxes is statistically significantly affected only by GDP per capita (both MI and MIPP) and the old-age population (only MI), with both effects being negative. The rule of law (both MI and MIPP), GDP growth rate (only MI), and trade openness (only MIPP) increase the progressivity of direct transfers, while democracy (only MI) decreases it. The progressivity of indirect taxes is positively affected only by GDP growth rate (only MIPP), but negatively affected by the rule of law (only MIPP), the old-age population (both MI and MIPP), unemployment (only MIPP), and the mid-to-high income ratio (both MI and MIPP). Lastly, the rule of law (both MI and MIPP) and democracy (only MIPP) have a positive effect on the progressivity of indirect subsidies, while GDP growth rate (only MI) has a negative effect.

Table 5. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.012 (0.035)	0.094*** (0.035)	-0.039** (0.015)	0.263*** (0.070)	0.012 (0.033)	0.093* (0.055)	-0.001 (0.021)	0.180* (0.094)
Federation	-0.030 (0.041)	-0.012 (0.076)	-0.015 (0.026)	0.140 (0.127)	-0.021 (0.059)	0.184 (0.117)	-0.056 (0.039)	0.218 (0.154)
Democracy	-0.016 (0.037)	0.091 (0.062)	0.010 (0.017)	0.165* (0.089)	-0.002 (0.052)	-0.146** (0.070)	0.035 (0.027)	0.096 (0.115)
Ethnic fractionalization	0.048 (0.114)	-0.048 (0.149)	0.022 (0.034)	-0.213 (0.220)	0.016 (0.115)	0.233 (0.182)	-0.041 (0.057)	-0.065 (0.25)
Population (log)	-0.002 (0.013)	-0.0005 (0.0279)	-0.009 (0.007)	0.048 (0.038)	-0.002 (0.017)	-0.039 (0.033)	-0.0002 (0.0121)	0.017 (0.044)
65+ population (%)	-0.012 (0.008)	-0.008 (0.006)	-0.005* (0.002)	-0.002 (0.016)	-0.020*** (0.006)	0.015 (0.010)	-0.016*** (0.003)	0.011 (0.013)
Women in parliament (% of seats)	-0.001 (0.002)	0.004 (0.003)	0.0003 (0.0007)	-0.005 (0.004)	0.0004 (0.0020)	0.0001 (0.0034)	0.002 (0.001)	-0.009 (0.006)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.061* (0.037)	0.011 (0.042)	-0.021 (0.013)	0.090 (0.074)	-0.066* (0.039)	0.055 (0.062)	-0.033 (0.024)	0.062 (0.089)
GDP growth rate	-0.005 (0.006)	0.010 (0.010)	0.005* (0.003)	-0.019 (0.015)	-0.006 (0.009)	0.023* (0.012)	-0.000005 (0.005075)	-0.033* (0.019)
Unemployment rate	-0.003 (0.003)	0.006 (0.004)	-0.003** (0.002)	0.004 (0.013)	-0.0005 (0.0039)	0.009 (0.008)	-0.003 (0.003)	0.007 (0.014)
Trade openness (% of GDP)	0.00003 (0.00070)	0.002** (0.001)	-0.0002 (0.0003)	-0.002 (0.002)	0.0003 (0.0012)	0.001 (0.002)	0.00001 (0.00056)	-0.003 (0.003)
Natural resource exports (% of GDP)	-0.002 (0.003)	0.002 (0.004)	-0.001 (0.001)	-0.002 (0.006)	-0.001 (0.004)	0.003 (0.005)	0.0004 (0.0022)	0.004 (0.008)
Mid-to-high income ratio	0.002 (0.002)	-0.002 (0.002)	-0.003*** (0.001)	-0.004 (0.004)	0.003 (0.002)	-0.003 (0.003)	-0.004** (0.001)	-0.001 (0.005)
Observations	68	70	72	52	54	55	58	44
Unique countries	50	50	52	37	39	39	42	31

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Lambert (2001) decomposition and its extension by Enami (2018) treat reranking of individuals in the income distribution as a distinct factor that explains the change in the Gini index. That being said, reranking is effectively a result of changes in fiscal interventions, and we have already examined the effect of the fundamental determinants of income redistribution on the size and progressivity of these fiscal interventions. However, it is worthwhile to investigate whether these fundamental variables have a detectable effect on reranking. Note that reranking is theoretically non-negative (and it is always positive in our sample), but, it enters with a negative sign in the decomposition as shown in Equations (2) and (3). Therefore, an increase in reranking results in a decrease in both absolute and relative redistributive effects, holding everything else constant.

Table 6 presents the effect of the fundamental determinants of income redistribution on reranking. Since reranking is defined based on the pre-fiscal income distribution, we again have two sets of results. Rule of law and the mid-to-high income ratio has a statistically significant and positive effect on reranking only when the pre-fiscal income is MIPP. For the mid-to-high income ratio, a 1 percentage point increase leads to a 3.5-4.4 percent increase in reranking. Federation and the old-age population also positively affect reranking, but only when the pre-fiscal income is MI. Having a federal system increases reranking by nearly 130% compared to countries without such a system. A 1 percentage point increase in the old-age population results in about a 10-11 percent increase in reranking. Finally, the unemployment rate has a positive effect on reranking regardless of the pre-fiscal income, though the point estimates are slightly higher when the pre-fiscal income is MIPP. A 1 percentage point increase in the unemployment rate leads to a 10.9-13.9 (8.4-9.5) percent increase in reranking when the pre-fiscal income is MIPP (MI).

Table 6. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.899** (0.385)	0.704* (0.367)	0.396 (0.387)	0.347 (0.376)
Federation	0.719 (0.781)	0.665 (0.526)	1.291** (0.655)	1.269** (0.581)
Democracy	-0.486 (0.466)	-0.407 (0.420)	-0.414 (0.470)	-0.364 (0.448)
Ethnic fractionalization	-0.182 (1.102)	-0.279 (0.898)	-0.477 (1.164)	-0.251 (1.143)
Population (log)	0.060 (0.218)	0.031 (0.162)	-0.106 (0.192)	-0.095 (0.176)
65+ population (%)	0.054	0.040	0.106*	0.100*

	(0.092)	(0.085)	(0.063)	(0.059)
Women in parliament (% of seats)	0.006 (0.016)	0.001 (0.014)	0.002 (0.022)	-0.003 (0.021)
<i>Residualized variables:</i>				
GDP per capita (log)	0.101 (0.324)	0.307 (0.297)	0.599 (0.462)	0.496 (0.442)
GDP growth rate	0.043 (0.069)	0.038 (0.076)	0.091 (0.081)	0.109 (0.08)
Unemployment rate	0.139*** (0.032)	0.109*** (0.033)	0.095* (0.050)	0.084* (0.049)
Trade openness (% of GDP)	0.014 (0.010)	0.003 (0.009)	-0.003 (0.010)	-0.003 (0.010)
Natural resource exports (% of GDP)	0.026 (0.027)	0.011 (0.024)	0.013 (0.037)	0.007 (0.036)
Mid-to-high income ratio	0.044** (0.019)	0.035** (0.017)	-0.004 (0.022)	-0.002 (0.021)
Observations	63	62	50	51
Unique countries	46	44	36	36

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

b. Robustness Checks and Additional Analysis

In constructing our database, we made a few choices that could influence our findings, and it is important to ensure these choices do not significantly alter our main results. First, as mentioned in the data section, we used minor imputation for some variables to maximize the sample size. Results Appendix A1 presents the outcomes of the models without data imputation. Despite losing about 20% of the sample for some models, the parameter estimates remain relatively close to those reported in the main text. Some coefficients lose statistical significance due to the reduced sample size, while a few coefficients become statistically significant. Notably, trade openness exhibits a positive effect on both absolute and relative redistributive effects (when the pre-fiscal income is MIPP). Specifically, a 1 percentage point increase in the ratio of total exports and imports to GDP

leads to a 0.02 Gini point and a 0.04 percentage point increase in the absolute and relative change in Gini, respectively.

Second, although most of our sample consists of low- and middle-income countries, about 8% of the observations are from high-income countries (according to the World Bank classification). These observations might act as outliers and improperly influence our parameter estimates. Result Appendix A2 excludes these observations and re-estimates our models. The parameter estimates remain close to those reported in the main text. As expected, the exclusion of high-income countries (and the resulting loss of sample size) makes it more challenging to identify statistically significant results, but it also enhances the precision of some of the estimates. For instance, the unemployment rate now has a statistically significant effect on the size of direct taxes (in addition to the size of direct transfers and indirect taxes): a 1 percentage point increase in unemployment rate increases the size of direct taxes by 0.3 percentage points (when the pre-fiscal income is MIPP).

Another concern about our sample is that some countries are represented more than once due to multiple CEQ incidence analyses conducted at different points in time. To address this issue, we re-estimated our models using only one observation per country, prioritizing the most recent observation unless an older observation has fewer missing values. The results are reported in Results Appendix A3. Similar to the previous robustness checks, the parameters estimates remain relatively consistent with those reported in the main text, although the reduction in sample size generally increases standard errors.

Our last robustness check is focused on the mid-to-high income ratio variable used both as a measure of the pre-fiscal income inequality and to assess how the median voter reacts to it by increasing or decreasing the income redistribution. We construct this ratio using two variables from WDI (2024): income share of the middle 20% and the top 10%. WDI (2024) relies on either an income- or consumption-based survey in a given country to calculate the portion of the income that goes to different deciles of income distribution. However, only values constructed using an income-based survey accurately reflect the pre-fiscal income share of various deciles. Despite this limitation, we chose this variable for our main models because it maximizes the sample size. However, it is important to assess whether our main conclusions change if we use a cleaner alternative variable. Specifically, we construct this variable using the pre-fiscal income shares (for each decile) available in the CEQ incidence analyses. It is important to note that these income shares are not available in every CEQ incidence analysis, and we lose up to 37% of our sample for some models. Results Appendix A4 presents the outcomes of the models that use this alternative mid-to-high income ratio. While the parameter estimates align with the ones presented in the main text, the loss of sample size had an adverse effect on the standard errors. For example, the new mid-to-high income ratio no longer has a statistically significant effect on the absolute and relative redistributive effect, progressivity of fiscal interventions, or reranking. Additionally, its negative effect on the size of indirect taxes is only marginally significant. Additionally, we replace this mid-to-high income ratio with the mid-to-mean income ratio (also constructed using the available data

from CEQ incidence analyses) to ensure our findings are not affected by the choice of the variable that controls for the pre-fiscal income inequality. These results are available in Results Appendix A5 and closely resemble those presented in Results Appendix A4.

In addition to these robustness checks, we also conduct two auxiliary analyses. First, we include controls for geographic regions (based on the World Bank categories displayed in Table 1) in all models (including as regressors in the residualization process). We did not include these variables in the models used for the results presented in the main text due to concerns about their potential high correlation with other socio-economic and political factors, which could bias the results toward zero. In other words, these region fixed effects would take away part of the effects that belong to the variables such as the rule of law or democracy that may have a relatively similar values for a given region.²¹ That being said, it is interesting to see how much our results would change when these fixed effects are added to the model. As expected, Results Appendix A6 shows a general bias toward zero for previously statistically significant coefficients, with varying degrees of impact on different variables. For example, the old-age population and women's parliamentary representation are less influenced by the inclusion of region fixed effects, while the democracy indicator is more affected.

Our final auxiliary analysis is inspired by De La O et al. (2023) which document a negative effect of opting out of public services (e.g., education and health care) on the opinion and support of individuals for these services. Specifically, we use the share of primary school students attending private schools (in residualized form) as a proxy for public service opt-out and assess its effect on the redistribution of income.²² These results are presented in Results Appendix A7 and indicate that, in line with De La O et al. (2023), an increase in the share of private primary school students reduces the redistributive effect of the fiscal system, although the effect is rarely statistically significant. Notably, we find a statistically significant and negative effect on the size of direct taxes: A 1 percentage point increase in the ratio of students attending private primary schools leads to a 0.14-0.21 percentage point decrease in the size of direct taxes.

5. Concluding Remarks

This study revisits a fundamental question in Development Economics: the determinants of income redistribution and their impact on income inequality. It addresses ongoing debates in the literature and resolves prevalent econometric issues²³ in the existing studies. We discuss Lambert

²¹ The following extreme example shows why this correlation is concerning and why we did not include region fixed effects in our main models. Imagine a scenario in which all countries in a given region either have democracy or not. If we control for the region, the indicator variables used to do so would be perfectly collinear with the democracy indicator and the model cannot be estimated. In this example, the region fixed effects would completely control for the effect of democracy on the outcome of interest and the democracy indicator must be removed from the model if we want to have region fixed effects. Alternatively, if we want to estimate the effect of democracy on an outcome of interest, we have to exclude region fixed effects from the model.

²² As mentioned in the Results Appendix, this variable is imputed for about 20% of the sample.

²³ The main examples are misspecification and post-treatment bias (i.e., controlling for an outcome variable)

(2001) decomposition and its extension by Enami (2018), emphasizing that the only channels to change income inequality through redistribution are the size and progressivity of fiscal interventions (i.e., direct taxes and transfers as well as indirect taxes and subsidies) and any resulting reranking of individuals in the income distribution. We go beyond analyzing the absolute and relative redistributive effect between pre-fiscal income and Disposable Income by including Consumable Income to account for indirect taxes and subsidies in our analysis. Lastly, our novel dataset derived from methodologically comparable fiscal incidence analyses of primarily low- and middle-income countries in Latin America, Sub-Saharan Africa, and Asia addresses a gap in the literature which is mainly focused on income redistribution in developed countries.

Overall, we find that increases in the rule of law, ethnic fractionalization, the share of old-age population, women's parliamentary representation, unemployment rate, the mid-to-high income ratio, and having a federal system enhance the redistributive effect of the fiscal system (in the form of an increase in the absolute and/or relative change in Gini index). Conversely, democracy and larger populations generally decrease redistributive effects. The primary channels used by these fundamental determinants of income redistribution are the size and progressivity of direct transfers and indirect taxes, followed by direct taxes and to a lesser extent indirect subsidies. Moreover, we show that part of the change in Gini index is through the effect of these fundamental variables on the ranking of individuals in the income distribution.

While our analysis addresses several major concerns in the literature, future studies can further refine our analysis. First, a bigger sample size and the resulting increase in power would help future studies detect smaller effect sizes than what we are able to do in this paper. Second, we employed a one-step residualization method. It is relatively straightforward to extend this approach to a multi-step method. For example, in a two-step method, relatively exogenous variables are used to residualize some of the variables and then the combination of exogenous and initially residualized variables are used to residualize the rest of variables. Future studies should explore the value that a multi-step residualization can provide in terms of eliminating any remaining post-treatment bias. Third, we ignore the possibility of reverse causality, i.e., whether the absolute or relative redistributive effect has an impact on variables such as economic growth (i.e., GDP growth rate). Future studies should address this potential concern using methods such as the *instrumental variable* (IV) technique and potentially in conjunction with the residualization method used in this paper.

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Data Appendix

The following table provides the complete list of countries included in our analysis in alphabetical order. The year in parentheses indicates the survey year used for the CEQ fiscal incidence analysis.

Appendix Table D1. List of countries in the sample

Albania (2015)	Comoros (2014)	Guinea (2012)	Montenegro (2015)	Sierra Leone (2018)
Angola (2022)	Costa Rica (2010)	Honduras (2011)	Mozambique (2020)	South Africa (2010)
Argentina (2012)	Costa Rica (2018)	India (2011)	Myanmar (2017)	South Africa (2015)
Argentina (2017)	Croatia (2014)	Indonesia (2012)	Namibia (2010)	Spain (2017)
Armenia (2011)	Djibouti (2017)	Indonesia (2017)	Namibia (2016)	Sri Lanka (2009)
Belarus (2015)	Dominican Rep. (2013)	Iran (2011)	Nicaragua (2009)	Tajikistan (2015)
Bolivia (2009)	Ecuador (2011)	Iraq (2017)	Niger (2011)	Tanzania (2011)
Bolivia (2015)	Egypt (2015)	Ivory Coast (2015)	Niger (2014)	Togo (2015)
Botswana (2010)	El Salvador (2011)	Jordan (2010)	Pakistan (2019)	Tunisia (2010)
Brazil (2009)	El Salvador (2013)	Kenya (2015)	Panama (2016)	Turkey (2014)
Brazil (2018)	El Salvador (2015)	Kyrgyzstan (2016)	Paraguay (2014)	Turkey (2016)
Bulgaria (2019)	El Salvador (2017)	Lao PDR (2019)	Peru (2009)	Uganda (2012)
Burkina Faso (2014)	Eswatini (2017)	Lesotho (2017)	Peru (2011)	Uganda (2016)
Cambodia (2017)	Ethiopia (2010)	Malaysia (2019)	Philippines (2015)	Ukraine (2016)
Cambodia (2020)	Ethiopia (2015)	Mali (2014)	Poland (2014)	United States (2011)
Chile (2013)	Gambia (2015)	Mauritius (2017)	Rep. of Moldova (2017)	United States (2016)
China (2014)	Georgia (2013)	Mexico (2010)	Romania (2016)	Uruguay (2009)
Colombia (2010)	Ghana (2012)	Mexico (2012)	Russia (2010)	Venezuela (2013)
Colombia (2014)	Guatemala (2011)	Mexico (2014)	Russia (2014)	Viet Nam (2018)
Colombia (2017)	Guatemala (2014)	Mongolia (2016)	Serbia (2016)	Zambia (2015)

Source: CEQ Data Center (2024).

Notes: Year in parentheses indicates the survey year used for the CEQ fiscal incidence analysis.

Results Appendix

This appendix contains the detailed results of the following robustness checks and auxiliary analyses discussed in the results section of the main text.

- A1. No imputation** (otherwise same models and data as the main text).
- A2. No high-income countries** (otherwise same models and data as the main text).
- A3. Every country is only represented once in the sample** (otherwise same models and data as the main text).
- A4. Models use an alternative variable for the mid-to-high income ratio based on the CEQ fiscal incidence analysis as opposed to WDI (2024)** (otherwise same models and data as the main text).
- A5. Models use the mid-to-mean income ratio as opposed to the mid-to-high income ratio** (otherwise same models and data as the main text). The mid-to-mean income ratio is also constructed using data from the CEQ incidence analyses.
- A6. Models control for the geographic region a country belongs to** (otherwise same models and data as the main text).
- A7. Models have a variable for the percentage of private primary school students** (otherwise same models and data as the main text). This variable is available from EdStat (2024)²⁴. This variable is imputed (for about 20% of the sample) using values in the closest year to the survey year used for a CEQ incidence analysis (with preference given to years prior to the year of survey).

²⁴ EdStat (2024). Education Statistics, The World bank: Available at: <https://datacatalog.worldbank.org/search/dataset/0038480/education-statistics>. Data accessed on July 5, 2024.

A1. No imputation

Table A1-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)	Market Income Plus Pensions (MIPP)	Market Income (MI)		Market Income Plus Pensions (MIPP)	Market Income Plus Pensions (MIPP)	Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.358*** (0.431)	1.341*** (0.454)	-0.313 (0.788)	-0.398 (0.694)	2.112** (1.032)	2.15** (1.057)	-3.534 (2.646)	-3.399 (2.382)
Federation	2.162*** (0.815)	2.171*** (0.821)	3.077** (1.284)	3.349*** (1.213)	3.668** (1.655)	3.668** (1.656)	5.903 (4.368)	6.347 (4.08)
Democracy	-0.574 (0.516)	-0.487 (0.567)	-3.205*** (0.818)	-3.245*** (0.754)	-2.193* (1.207)	-1.99 (1.294)	-9.902*** (3.246)	-10.071*** (2.962)
Ethnic fractionalization	2.848** (1.409)	2.694* (1.556)	2.594 (2.32)	2.056 (2.075)	5.883* (3.095)	5.254 (3.398)	6.491 (8.265)	6.329 (7.326)
Population (log)	-0.619** (0.267)	-0.589** (0.285)	-0.724* (0.419)	-0.677* (0.407)	-1.228** (0.535)	-1.112* (0.583)	-1.756 (1.625)	-1.763 (1.530)
65+ population (%)	0.215*** (0.08)	0.174* (0.089)	1.067*** (0.125)	1.019*** (0.090)	0.655*** (0.224)	0.537** (0.225)	2.965*** (0.518)	2.832*** (0.419)
Women in parliament (% of seats)	0.048** (0.023)	0.058** (0.025)	-0.012 (0.030)	-0.004 (0.027)	0.074 (0.047)	0.099* (0.051)	-0.095 (0.107)	-0.069 (0.096)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.110 (0.402)	-0.214 (0.459)	-0.707 (0.789)	-0.878 (0.664)	-0.268 (0.953)	-0.555 (1.04)	-2.891 (3.021)	-3.330 (2.633)
GDP growth rate	-0.047 (0.088)	-0.025 (0.092)	0.045 (0.157)	0.059 (0.142)	-0.106 (0.201)	-0.058 (0.207)	-0.147 (0.513)	-0.051 (0.469)
Unemployment rate	0.194*** (0.063)	0.179*** (0.067)	0.107 (0.096)	0.065 (0.087)	0.314** (0.122)	0.269** (0.135)	0.067 (0.379)	0.043 (0.337)
Trade openness (% of GDP)	0.017** (0.008)	0.018* (0.009)	0.002 (0.020)	-0.002 (0.018)	0.040** (0.019)	0.041* (0.022)	0.016 (0.078)	0.021 (0.067)
Natural resource exports (% of GDP)	-0.025 (0.036)	-0.037 (0.036)	0.018 (0.061)	0.018 (0.051)	-0.060 (0.087)	-0.084 (0.086)	0.070 (0.228)	0.068 (0.206)
Mid-to-high income ratio	0.026 (0.018)	-0.004 (0.021)	0.123*** (0.046)	0.092** (0.036)	0.131*** (0.043)	0.058 (0.045)	0.439** (0.181)	0.362** (0.147)
Observations	66	66	57	56	66	66	52	52

Unique countries	50	50	41	40	50	50	37	37
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Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A1-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income: Outcome of interest: Size of	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	3.644** (1.706)	0.455 (0.555)	-1.257 (1.137)	-1.005 (1.342)	1.824 (2.129)	-1.357 (1.987)	-1.973* (1.197)	-0.722 (1.557)
Federation	2.979 (2.199)	2.854** (1.154)	0.816 (2.083)	-1.811 (2.036)	3.913 (3.273)	9.548*** (3.143)	2.165 (2.451)	-2.119 (2.601)
Democracy	-1.049 (1.731)	-0.175 (0.738)	-0.092 (1.554)	-0.111 (1.342)	-4.905** (2.367)	-4.530** (2.229)	0.665 (1.444)	0.414 (1.925)
Ethnic fractionalization	1.874 (3.921)	0.748 (2.038)	2.173 (3.388)	-0.696 (3.409)	-0.094 (5.936)	4.388 (4.654)	-0.955 (3.542)	-1.173 (3.996)
Population (log)	0.035 (0.769)	-0.428 (0.332)	-0.446 (0.580)	0.089 (0.789)	-0.383 (1.279)	-1.151 (1.091)	-0.473 (0.712)	0.277 (0.977)
65+ population (%)	0.292 (0.265)	0.262** (0.108)	0.490* (0.260)	0.208 (0.263)	1.567*** (0.272)	1.477*** (0.290)	0.450** (0.220)	0.135 (0.254)
Women in parliament (% of seats)	0.106 (0.065)	0.032 (0.025)	0.107* (0.059)	0.029 (0.048)	0.030 (0.105)	-0.119 (0.086)	0.067 (0.064)	0.066 (0.066)
<i>Residualized variables:</i>								
GDP per capita (log)	-1.077 (1.523)	-0.377 (0.673)	-3.757*** (1.187)	-0.081 (1.248)	1.161 (2.392)	-0.203 (2.354)	-4.305*** (1.416)	0.120 (1.666)
GDP growth rate	0.012 (0.284)	-0.046 (0.131)	0.196 (0.267)	-0.005 (0.253)	-0.331 (0.512)	0.137 (0.406)	-0.025 (0.288)	0.00009 (0.39336)
Unemployment rate	0.183 (0.255)	0.125 (0.088)	0.333** (0.158)	0.018 (0.200)	-0.003 (0.319)	0.601** (0.296)	0.235 (0.162)	-0.013 (0.194)
Trade openness (% of GDP)	0.050 (0.032)	0.003 (0.020)	-0.008 (0.027)	0.030 (0.031)	0.001 (0.047)	-0.037 (0.046)	-0.021 (0.026)	0.043 (0.046)
	0.003	0.032	-0.055	0.035	-0.068	0.055	-0.011	0.023

Natural resource exports (% of GDP)	(0.177)	(0.041)	(0.099)	(0.100)	(0.252)	(0.151)	(0.114)	(0.133)
Mid-to-high income ratio	0.015 (0.089)	0.027 (0.03)	-0.121* (0.062)	0.035 (0.072)	0.135 (0.109)	0.047 (0.102)	-0.154** (0.066)	0.013 (0.092)
Observations	54	55	58	42	47	49	49	38
Unique countries	41	40	43	30	34	35	35	27

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A1-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.017 (0.045)	0.118*** (0.043)	-0.046** (0.019)	0.263*** (0.090)	0.022 (0.044)	0.054 (0.073)	-0.002 (0.026)	0.152 (0.115)
Federation	-0.010 (0.062)	-0.073 (0.098)	-0.018 (0.035)	0.065 (0.178)	-0.013 (0.068)	0.150 (0.129)	-0.064 (0.045)	0.236 (0.193)
Democracy	-0.028 (0.057)	0.113 (0.078)	0.022 (0.023)	0.215* (0.111)	-0.019 (0.062)	-0.118 (0.084)	0.039 (0.031)	0.106 (0.153)
Ethnic fractionalization	0.034 (0.133)	-0.087 (0.167)	0.019 (0.043)	-0.327 (0.287)	0.043 (0.125)	0.119 (0.182)	-0.025 (0.066)	-0.205 (0.287)
Population (log)	0.002 (0.023)	0.009 (0.034)	-0.004 (0.009)	0.070 (0.058)	-0.009 (0.026)	-0.008 (0.041)	0.003 (0.016)	0.035 (0.061)
65+ population (%)	-0.016* (0.010)	-0.008 (0.007)	-0.004 (0.003)	-0.002 (0.018)	-0.022*** (0.007)	0.019* (0.011)	-0.016*** (0.004)	0.012 (0.016)
Women in parliament (% of seats)	-0.001 (0.002)	0.004 (0.003)	0.0005 (0.0009)	-0.005 (0.005)	0.001 (0.002)	-0.001 (0.004)	0.002 (0.001)	-0.013* (0.007)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.061 (0.052)	0.066 (0.058)	-0.022 (0.020)	0.135 (0.103)	-0.073 (0.046)	0.070 (0.076)	-0.031 (0.027)	0.067 (0.102)
GDP growth rate	0.001 (0.008)	0.0005 (0.0135)	0.005 (0.005)	-0.032 (0.019)	0.0001 (0.0098)	0.017 (0.015)	0.003 (0.006)	-0.025 (0.023)
Unemployment rate	-0.002 (0.005)	0.009* (0.005)	-0.004* (0.002)	0.0001 (0.0191)	0.0003 (0.0052)	0.001 (0.01)	-0.003 (0.004)	-0.002 (0.015)
Trade openness (% of GDP)	-0.0004 (0.0011)	0.002 (0.001)	-0.0002 (0.0005)	-0.002 (0.002)	0.0001 (0.0014)	0.0001 (0.0024)	0.0004 (0.0006)	-0.005 (0.004)
Natural resource exports (% of GDP)	-0.003 (0.004)	0.003 (0.006)	-0.001 (0.002)	-0.001 (0.008)	0.001 (0.005)	0.001 (0.006)	0.001 (0.003)	0.002 (0.009)
Mid-to-high income ratio	0.004 (0.003)	-0.004 (0.003)	-0.003** (0.001)	-0.004 (0.006)	0.004* (0.002)	-0.002 (0.004)	-0.003** (0.002)	0.0003 (0.0060)
Observations	55	58	60	45	48	49	52	40
Unique countries	41	42	44	32	34	34	37	28

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A1-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.747* (0.398)	0.514 (0.388)	0.366 (0.440)	0.317 (0.417)
Federation	0.608 (0.905)	0.543 (0.628)	1.529* (0.889)	1.541** (0.753)
Democracy	-0.424 (0.487)	-0.391 (0.490)	-0.399 (0.555)	-0.391 (0.537)
Ethnic fractionalization	-0.143 (1.158)	-0.259 (0.972)	-0.087 (1.403)	0.158 (1.352)
Population (log)	0.068 (0.248)	0.046 (0.212)	-0.237 (0.324)	-0.238 (0.288)
65+ population (%)	0.098 (0.100)	0.086 (0.087)	0.097 (0.076)	0.089 (0.072)
Women in parliament (% of seats)	0.013 (0.018)	0.008 (0.017)	0.0002 (0.0238)	-0.005 (0.023)
<i>Residualized variables:</i>				
GDP per capita (log)	-0.253 (0.392)	0.038 (0.388)	0.602 (0.539)	0.489 (0.511)
GDP growth rate	-0.041 (0.087)	-0.053 (0.101)	0.086 (0.104)	0.105 (0.099)
Unemployment rate	0.091* (0.052)	0.072 (0.055)	0.127* (0.066)	0.119* (0.062)
Trade openness (% of GDP)	0.012 (0.011)	0.001 (0.011)	-0.002 (0.012)	-0.002 (0.011)

Natural resource exports (% of GDP)	0.023 (0.032)	0.004 (0.030)	0.008 (0.045)	0.001 (0.041)
Mid-to-high income ratio	0.040* (0.021)	0.031 (0.020)	-0.013 (0.025)	-0.010 (0.023)
Observations	52	51	44	45
Unique countries	39	37	31	31

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

A2. No high-income countries

Table A2-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
	Market Income Plus Pensions (MIPP)		Market Income (MI)		Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.178*** (0.411)	1.245*** (0.414)	-0.013 (0.679)	0.080 (0.628)	1.067 (0.923)	1.313 (0.880)	-3.472 (2.286)	-3.017 (2.096)
Federation	1.527** (0.735)	1.509** (0.714)	3.591*** (1.178)	3.776*** (1.039)	1.870 (1.286)	1.833 (1.242)	9.087** (3.868)	9.143*** (3.524)
Democracy	-0.164 (0.396)	-0.101 (0.422)	-3.790*** (0.727)	-3.789*** (0.676)	-1.246 (0.922)	-1.162 (0.958)	-11.662*** (2.659)	-11.435*** (2.469)
Ethnic fractionalization	1.288 (1.075)	1.229 (1.076)	5.607*** (1.942)	5.280*** (1.794)	2.130 (2.334)	1.818 (2.24)	17.865** (7.229)	17.37*** (6.609)
Population (log)	-0.279** (0.131)	-0.316** (0.140)	-1.062*** (0.323)	-1.122*** (0.305)	-0.524* (0.296)	-0.581* (0.309)	-3.279*** (1.158)	-3.401*** (1.056)
65+ population (%)	0.178** (0.082)	0.16** (0.081)	1.033*** (0.134)	1.001*** (0.105)	0.545** (0.229)	0.484** (0.210)	3.156*** (0.588)	3.074*** (0.493)
Women in parliament (% of seats)	0.040* (0.021)	0.049** (0.022)	-0.043 (0.032)	-0.030 (0.028)	0.051 (0.038)	0.073* (0.040)	-0.117 (0.106)	-0.086 (0.096)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.245	-0.531	0.069	-0.354	-0.476	-1.185	0.334	-0.871

	(0.355)	(0.372)	(0.786)	(0.680)	(0.855)	(0.865)	(2.644)	(2.314)
GDP growth rate	-0.100	-0.090	0.150	0.124	-0.192	-0.167	0.458	0.400
	(0.068)	(0.068)	(0.127)	(0.117)	(0.148)	(0.145)	(0.436)	(0.391)
Unemployment rate	0.157***	0.139***	0.182**	0.162*	0.258**	0.212**	0.628**	0.621**
	(0.051)	(0.051)	(0.079)	(0.086)	(0.105)	(0.102)	(0.283)	(0.256)
Trade openness (% of GDP)	0.005	0.006	0.013	0.012	0.015	0.017	0.061	0.067
	(0.009)	(0.008)	(0.017)	(0.016)	(0.020)	(0.019)	(0.060)	(0.054)
Natural resource exports (% of GDP)	0.002	0.001	-0.016	-0.003	0.008	0.006	-0.264	-0.227
	(0.025)	(0.026)	(0.065)	(0.054)	(0.062)	(0.060)	(0.227)	(0.196)
Mid-to-high income ratio	0.018	-0.010	0.114**	0.073*	0.109**	0.041	0.412**	0.326**
	(0.018)	(0.019)	(0.05)	(0.043)	(0.046)	(0.045)	(0.176)	(0.148)
Observations	74	74	57	56	74	74	52	52
Unique countries	56	56	41	40	56	56	37	37

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A2-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Outcome of interest: Size of								
Rule of law	3.509**	-0.367	0.423	-0.200	4.626**	0.001	0.187	-0.122
	(1.411)	(1.130)	(1.223)	(1.015)	(2.236)	(1.825)	(1.443)	(1.872)
Federation	2.629	1.836*	0.649	-2.214	3.289	9.136***	3.428	-2.571
	(1.751)	(1.081)	(1.809)	(1.630)	(3.276)	(2.918)	(2.800)	(2.424)
Democracy	-1.411	-0.728	-0.856	-0.086	-6.249**	-4.376**	-0.386	0.060
	(1.657)	(0.773)	(1.495)	(1.173)	(2.440)	(1.781)	(1.534)	(1.371)
Ethnic fractionalization	2.361	1.469	2.151	0.129	4.023	5.601	0.564	-0.135
	(3.635)	(1.934)	(3.347)	(2.574)	(5.646)	(3.884)	(3.812)	(3.445)
Population (log)	-0.131	-0.451*	-0.183	0.119	-0.755	-0.626	-0.367	0.245
	(0.599)	(0.273)	(0.497)	(0.521)	(0.961)	(0.667)	(0.563)	(0.766)
65+ population (%)	0.396	0.247	0.558**	0.309	1.308***	1.571***	0.454*	0.203
	(0.272)	(0.152)	(0.280)	(0.212)	(0.314)	(0.314)	(0.242)	(0.230)

Women in parliament (% of seats)	0.101* (0.060)	0.020 (0.035)	0.080 (0.052)	0.021 (0.037)	-0.044 (0.114)	-0.168** (0.078)	0.045 (0.068)	0.061 (0.065)
<i>Residualized variables:</i>								
GDP per capita (log)	0.110 (1.277)	0.509 (0.673)	-2.241** (1.054)	0.201 (1.050)	1.584 (2.203)	1.417 (1.637)	-3.589*** (1.352)	0.602 (1.719)
GDP growth rate	0.085 (0.205)	-0.095 (0.160)	0.150 (0.239)	-0.001 (0.156)	0.087 (0.501)	-0.032 (0.365)	0.258 (0.294)	0.006 (0.296)
Unemployment rate	0.313** (0.149)	0.200*** (0.074)	0.294** (0.121)	-0.056 (0.127)	0.070 (0.31)	0.313 (0.221)	0.202 (0.166)	-0.054 (0.214)
Trade openness (% of GDP)	0.035 (0.028)	0.009 (0.016)	-0.002 (0.027)	0.036 (0.024)	0.024 (0.054)	-0.036 (0.039)	-0.016 (0.031)	0.045 (0.038)
Natural resource exports (% of GDP)	-0.072 (0.116)	0.113 (0.088)	-0.110 (0.083)	0.054 (0.078)	-0.033 (0.242)	0.113 (0.156)	-0.078 (0.125)	0.056 (0.131)
Mid-to-high income ratio	0.003 (0.073)	0.042 (0.046)	-0.096* (0.052)	0.074 (0.052)	0.056 (0.108)	0.098 (0.089)	-0.123* (0.065)	0.046 (0.090)
Observations	57	59	62	45	46	48	48	38
Unique countries	43	42	45	32	33	34	34	26

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A2-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.031 (0.048)	0.122** (0.058)	-0.021 (0.015)	0.209** (0.090)	0.025 (0.057)	0.096 (0.081)	0.012 (0.028)	0.096 (0.148)
Federation	-0.050 (0.045)	0.015 (0.091)	-0.005 (0.028)	0.142 (0.172)	-0.055 (0.091)	0.155 (0.144)	-0.031 (0.051)	0.176 (0.219)
Democracy	-0.002 (0.039)	0.089 (0.069)	0.014 (0.018)	0.146 (0.122)	0.008 (0.062)	-0.157** (0.079)	0.033 (0.030)	0.083 (0.137)
Ethnic fractionalization	-0.040 (0.119)	-0.052 (0.182)	0.010 (0.039)	-0.165 (0.281)	-0.049 (0.161)	0.361 (0.220)	-0.061 (0.075)	-0.002 (0.330)
Population (log)	0.010 (0.015)	0.003 (0.031)	-0.006 (0.007)	0.025 (0.048)	0.008 (0.023)	-0.050 (0.040)	0.003 (0.015)	-0.001 (0.055)
65+ population (%)	-0.021** (0.009)	-0.009 (0.009)	-0.004 (0.003)	0.002 (0.021)	-0.024*** (0.009)	0.024** (0.012)	-0.018*** (0.005)	0.008 (0.018)
Women in parliament (% of seats)	-0.001 (0.002)	0.003 (0.003)	0.0001 (0.0008)	-0.004 (0.004)	0.0001 (0.0026)	0.0004 (0.0038)	0.001 (0.001)	-0.007 (0.006)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.064* (0.039)	0.019 (0.050)	-0.017 (0.014)	0.052 (0.085)	-0.067 (0.049)	0.052 (0.074)	-0.028 (0.027)	-0.007 (0.120)
GDP growth rate	-0.007 (0.007)	0.008 (0.012)	0.004 (0.003)	-0.014 (0.017)	-0.008 (0.012)	0.024* (0.014)	-0.0002 (0.0056)	-0.032 (0.022)
Unemployment rate	-0.006 (0.004)	0.004 (0.005)	-0.003 (0.002)	0.012 (0.017)	-0.003 (0.007)	0.015* (0.009)	-0.006 (0.004)	0.015 (0.019)
Trade openness (% of GDP)	0.0004 (0.0009)	0.002* (0.001)	-0.0002 (0.0003)	-0.001 (0.002)	0.001 (0.002)	0.002 (0.002)	-0.0002 (0.0007)	-0.003 (0.003)
Natural resource exports (% of GDP)	0.0002 (0.0030)	0.003 (0.005)	-0.001 (0.002)	-0.003 (0.008)	0.001 (0.006)	-0.00008 (0.00676)	0.001 (0.003)	0.006 (0.009)
Mid-to-high income ratio	0.002 (0.003)	-0.002 (0.003)	-0.002** (0.001)	-0.006 (0.005)	0.003 (0.003)	-0.002 (0.004)	-0.004** (0.002)	-0.004 (0.007)
Observations	60	62	64	47	46	48	50	39
Unique countries	45	45	47	34	33	34	36	27

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A2-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.141** (0.477)	0.967** (0.439)	0.879* (0.459)	0.833* (0.428)
Federation	0.678 (0.789)	0.542 (0.522)	1.288* (0.729)	1.253* (0.66)
Democracy	-0.640 (0.507)	-0.492 (0.444)	-0.474 (0.507)	-0.417 (0.468)
Ethnic fractionalization	0.558 (1.348)	0.161 (1.098)	-0.274 (1.374)	-0.031 (1.32)
Population (log)	0.010 (0.220)	0.011 (0.168)	-0.069 (0.209)	-0.058 (0.197)
65+ population (%)	0.094 (0.110)	0.068 (0.112)	0.132 (0.085)	0.125 (0.078)
Women in parliament (% of seats)	-0.003 (0.018)	-0.007 (0.016)	-0.002 (0.022)	-0.008 (0.021)
<i>Residualized variables:</i>				
GDP per capita (log)	0.229 (0.338)	0.379 (0.333)	0.801 (0.495)	0.704 (0.470)
GDP growth rate	0.030 (0.065)	0.025 (0.072)	0.056 (0.095)	0.077 (0.090)
Unemployment rate	0.117*** (0.032)	0.089** (0.035)	0.069 (0.056)	0.059 (0.053)
Trade openness (% of GDP)	0.019* (0.010)	0.007 (0.009)	-0.001 (0.011)	-0.001 (0.010)

Natural resource exports (% of GDP)	0.033 (0.032)	0.021 (0.029)	0.028 (0.051)	0.020 (0.048)
Mid-to-high income ratio	0.062*** (0.021)	0.052*** (0.020)	0.012 (0.024)	0.016 (0.022)
Observations	57	57	45	46
Unique countries	42	41	32	32

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

A3. Every country is only represented once in the sample

Table A3-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
	Market Income Plus Pensions (MIPP)		Market Income (MI)		Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.198*** (0.427)	1.316*** (0.420)	-0.194 (0.845)	-0.052 (0.785)	1.430 (1.055)	1.814* (0.998)	-3.268 (2.668)	-2.873 (2.428)
Federation	1.463* (0.818)	1.570* (0.839)	2.692 (1.954)	3.172* (1.833)	2.000 (1.598)	2.342 (1.664)	4.394 (6.615)	5.327 (6.041)
Democracy	-0.235 (0.513)	-0.427 (0.555)	-2.656** (1.176)	-3.039*** (1.105)	-1.266 (1.226)	-1.782 (1.287)	-8.266* (4.304)	-9.007** (3.959)
Ethnic fractionalization	2.155* (1.212)	2.306* (1.291)	2.625 (2.914)	2.692 (2.691)	4.369 (2.887)	4.709 (2.991)	8.286 (9.986)	8.573 (9.239)
Population (log)	-0.316** (0.154)	-0.361** (0.168)	-0.778 (0.479)	-0.849* (0.468)	-0.593 (0.363)	-0.667* (0.383)	-2.195 (1.725)	-2.331 (1.614)
65+ population (%)	0.213** (0.084)	0.175** (0.087)	1.022*** (0.132)	0.973*** (0.104)	0.675*** (0.24)	0.565** (0.227)	2.972*** (0.575)	2.854*** (0.492)
Women in parliament (% of seats)	0.053** (0.024)	0.067*** (0.026)	-0.019 (0.041)	-0.006 (0.039)	0.077 (0.051)	0.111** (0.055)	-0.120 (0.148)	-0.089 (0.135)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.116	-0.204	-0.269	-0.463	-0.244	-0.496	-1.392	-1.867

	(0.397)	(0.434)	(0.890)	(0.808)	(0.976)	(1.028)	(3.223)	(2.885)
GDP growth rate	-0.098	-0.076	0.167	0.179	-0.176	-0.116	0.328	0.384
	(0.080)	(0.085)	(0.180)	(0.166)	(0.182)	(0.188)	(0.600)	(0.546)
Unemployment rate	0.168***	0.146***	0.222**	0.188*	0.303***	0.246**	0.532	0.480
	(0.046)	(0.048)	(0.096)	(0.097)	(0.104)	(0.110)	(0.335)	(0.311)
Trade openness (% of GDP)	0.003	0.003	0.024	0.023	0.010	0.010	0.106	0.107
	(0.008)	(0.009)	(0.021)	(0.021)	(0.020)	(0.021)	(0.075)	(0.068)
Natural resource exports (% of GDP)	-0.013	-0.021	-0.028	-0.023	-0.015	-0.036	-0.143	-0.133
	(0.026)	(0.026)	(0.074)	(0.064)	(0.064)	(0.061)	(0.270)	(0.236)
Mid-to-high income ratio	0.018	-0.011	0.121**	0.086*	0.116***	0.044	0.417**	0.334**
	(0.017)	(0.019)	(0.053)	(0.045)	(0.044)	(0.046)	(0.193)	(0.161)
Observations	61	61	47	46	61	61	43	43
Unique countries	61	61	47	46	61	61	43	43

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A3-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Outcome of interest: Size of								
Rule of law	4.238***	0.090	-0.656	-0.739	3.523	-2.458	-0.842	-0.723
	(1.519)	(1.114)	(1.165)	(1.096)	(2.367)	(2.147)	(1.499)	(2.282)
Federation	0.845	2.519	-1.933	-1.388	2.654	7.702*	1.003	-1.560
	(1.976)	(1.729)	(1.856)	(2.255)	(4.746)	(4.367)	(3.185)	(4.732)
Democracy	-1.211	-0.439	-0.663	-0.203	-5.274	-3.780	-0.736	-0.208
	(2.051)	(1.210)	(1.754)	(1.371)	(3.397)	(2.771)	(1.994)	(2.735)
Ethnic fractionalization	0.819	0.409	1.278	-1.797	2.640	2.502	0.043	-1.850
	(4.093)	(2.807)	(3.212)	(2.791)	(6.748)	(5.523)	(4.169)	(5.451)
Population (log)	0.281	-0.371	-0.260	-0.186	-0.610	-0.459	-0.333	-0.114
	(0.707)	(0.353)	(0.488)	(0.532)	(1.236)	(0.974)	(0.593)	(1.105)
65+ population (%)	0.248	0.210	0.535**	0.196	1.385***	1.533***	0.446**	0.163
	(0.260)	(0.148)	(0.241)	(0.267)	(0.29)	(0.282)	(0.224)	(0.325)

Women in parliament (% of seats)	0.077 (0.073)	0.065 (0.046)	0.089 (0.058)	0.037 (0.055)	0.029 (0.153)	-0.127 (0.101)	0.073 (0.076)	0.063 (0.125)
<i>Residualized variables:</i>								
GDP per capita (log)	0.693 (1.491)	0.696 (0.883)	-2.821** (1.146)	-0.184 (1.254)	1.698 (2.927)	0.729 (2.348)	-3.857** (1.563)	0.234 (2.571)
GDP growth rate	0.009 (0.256)	-0.053 (0.199)	0.187 (0.250)	0.026 (0.239)	0.280 (0.663)	0.309 (0.499)	0.304 (0.385)	0.023 (0.612)
Unemployment rate	0.146 (0.152)	0.220** (0.095)	0.254** (0.125)	-0.020 (0.157)	0.231 (0.322)	0.461* (0.266)	0.209 (0.170)	-0.044 (0.228)
Trade openness (% of GDP)	0.054 (0.038)	0.006 (0.025)	-0.011 (0.027)	0.012 (0.031)	0.027 (0.069)	0.002 (0.053)	-0.020 (0.031)	0.021 (0.072)
Natural resource exports (% of GDP)	-0.073 (0.149)	0.124 (0.098)	-0.051 (0.095)	0.046 (0.101)	-0.193 (0.34)	0.053 (0.203)	-0.020 (0.146)	0.049 (0.208)
Mid-to-high income ratio	0.032 (0.091)	0.059 (0.053)	-0.114** (0.058)	0.009 (0.067)	0.121 (0.142)	0.105 (0.114)	-0.151** (0.076)	0.014 (0.126)
Observations	48	47	50	35	39	40	40	30
Unique countries	48	47	50	35	39	40	40	30

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A3-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.017 (0.047)	0.083* (0.046)	-0.024 (0.016)	0.213** (0.100)	0.023 (0.046)	0.116 (0.072)	0.015 (0.024)	0.102 (0.181)
Federation	-0.036 (0.050)	0.004 (0.096)	0.001 (0.030)	0.204 (0.216)	-0.007 (0.087)	0.151 (0.167)	-0.058 (0.06)	0.205 (0.379)
Democracy	-0.009 (0.047)	0.130* (0.075)	0.006 (0.022)	0.219 (0.154)	0.011 (0.082)	-0.152 (0.109)	0.028 (0.041)	0.187 (0.306)
Ethnic fractionalization	0.075 (0.134)	-0.139 (0.176)	0.012 (0.042)	-0.277 (0.325)	-0.014 (0.155)	0.183 (0.250)	-0.038 (0.081)	-0.151 (0.565)
Population (log)	0.002 (0.015)	0.008 (0.032)	-0.010 (0.007)	0.040 (0.053)	0.001 (0.021)	-0.038 (0.042)	-0.0005 (0.0154)	0.027 (0.089)
65+ population (%)	-0.011 (0.010)	-0.011* (0.006)	-0.005** (0.002)	-0.005 (0.020)	-0.018** (0.008)	0.011 (0.013)	-0.016*** (0.004)	0.008 (0.022)
Women in parliament (% of seats)	-0.002 (0.002)	0.001 (0.004)	0.000001 (0.000852)	-0.005 (0.006)	-0.001 (0.003)	0.003 (0.005)	0.001 (0.002)	-0.009 (0.011)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.074 (0.046)	0.005 (0.050)	-0.011 (0.016)	0.077 (0.108)	-0.060 (0.064)	0.041 (0.082)	-0.026 (0.034)	0.054 (0.196)
GDP growth rate	-0.004 (0.008)	0.007 (0.012)	0.005* (0.003)	-0.022 (0.024)	-0.008 (0.012)	0.016 (0.017)	-0.001 (0.008)	-0.037 (0.036)
Unemployment rate	0.00001 (0.00414)	0.005 (0.005)	-0.003 (0.002)	0.007 (0.020)	0.002 (0.005)	0.010 (0.010)	-0.004 (0.004)	0.010 (0.026)
Trade openness (% of GDP)	-0.0001 (0.0009)	0.003** (0.001)	-0.0002 (0.0003)	-0.0005 (0.0035)	0.0003 (0.0016)	-0.001 (0.002)	-0.00007 (0.00076)	-0.002 (0.008)
Natural resource exports (% of GDP)	-0.002 (0.003)	0.002 (0.005)	-0.001 (0.002)	-0.003 (0.009)	-0.002 (0.006)	0.004 (0.007)	0.002 (0.003)	0.005 (0.020)
Mid-to-high income ratio	0.001 (0.003)	-0.003 (0.003)	-0.002** (0.001)	-0.005 (0.006)	0.002 (0.003)	-0.005 (0.004)	-0.003* (0.002)	-0.002 (0.010)
Observations	50	50	52	37	39	39	42	31
Unique countries	50	50	52	37	39	39	42	31

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A3-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.788* (0.477)	0.754* (0.443)	0.265 (6.437)	0.258 (5.826)
Federation	0.305 (0.908)	0.510 (0.670)	0.999 (4.999)	1.038 (4.572)
Democracy	-0.225 (0.663)	-0.386 (0.529)	-0.714 (0.866)	-0.683 (0.836)
Ethnic fractionalization	-0.290 (1.408)	-0.202 (1.080)	-0.352 (1.632)	-0.008 (1.632)
Population (log)	0.124 (0.215)	0.059 (0.157)	-0.143 (1.411)	-0.128 (1.274)
65+ population (%)	0.033 (0.112)	-0.005 (0.102)	0.124 (0.382)	0.113 (0.346)
Women in parliament (% of seats)	0.006 (0.020)	0.005 (0.014)	0.002 (0.296)	-0.003 (0.269)
<i>Residualized variables:</i>				
GDP per capita (log)	-0.088 (0.421)	0.135 (0.364)	0.718 (4.016)	0.569 (3.651)
GDP growth rate	0.051 (0.086)	0.059 (0.083)	0.105 (0.802)	0.129 (0.731)
Unemployment rate	0.166*** (0.048)	0.133*** (0.048)	0.081 (1.212)	0.069 (1.098)
Trade openness (% of GDP)	0.010 (0.011)	-0.001 (0.011)	-0.0004 (0.1150)	-0.001 (0.104)

Natural resource exports (% of GDP)	0.030 (0.040)	0.011 (0.036)	0.002 (0.188)	-0.006 (0.172)
Mid-to-high income ratio	0.040* (0.023)	0.035* (0.020)	0.003 (0.032)	0.005 (0.032)
Observations	46	44	36	36
Unique countries	46	44	36	36

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

A4. Models use an alternative variable for the mid-to-high income ratio based on the CEQ fiscal incidence analysis as opposed to WDI (2024)

Table A4-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
	Market Income Plus Pensions (MIPP)		Market Income (MI)		Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.941* (0.538)	1.019* (0.599)	0.018 (0.493)	0.162 (0.479)	1.245 (1.085)	1.432 (1.237)	-1.608 (1.409)	-1.474 (1.381)
Federation	1.376 (0.966)	1.328 (1.003)	4.629*** (0.935)	5.113*** (0.958)	1.374 (1.732)	1.213 (1.884)	10.627*** (2.432)	11.244*** (2.474)
Democracy	-0.893 (0.682)	-0.524 (0.711)	-3.869*** (0.653)	-3.564*** (0.636)	-2.942** (1.495)	-2.244 (1.621)	-11.139*** (1.968)	-10.506*** (1.971)
Ethnic fractionalization	3.321* (1.785)	2.586 (1.939)	4.710*** (1.288)	3.992*** (1.389)	6.293 (3.957)	4.616 (4.319)	11.888*** (3.687)	10.781*** (3.720)
Population (log)	-0.626 (0.385)	-0.559 (0.402)	-0.985*** (0.219)	-1.002*** (0.223)	-1.101 (0.812)	-0.950 (0.864)	-2.382*** (0.654)	-2.518*** (0.646)
65+ population (%)	0.349*** (0.130)	0.295** (0.145)	0.922*** (0.106)	0.804*** (0.111)	0.965*** (0.335)	0.841** (0.379)	2.372*** (0.407)	2.229*** (0.411)
Women in parliament (% of seats)	0.047* (0.025)	0.050* (0.028)	-0.008 (0.025)	0.005 (0.025)	0.079 (0.049)	0.091 (0.058)	-0.035 (0.066)	-0.011 (0.064)
<i>Residualized</i> variables:								

GDP per capita (log)	-0.902* (0.489)	-1.19** (0.532)	-0.571 (0.522)	-0.549 (0.517)	-1.872* (0.998)	-2.556** (1.158)	-1.004 (1.619)	-1.585 (1.578)
GDP growth rate	0.071 (0.105)	0.103 (0.113)	0.169 (0.12)	0.151 (0.113)	0.128 (0.205)	0.195 (0.232)	0.481 (0.332)	0.422 (0.314)
Unemployment rate	0.227*** (0.069)	0.217*** (0.071)	0.193*** (0.073)	0.201*** (0.071)	0.338*** (0.123)	0.314** (0.136)	0.325 (0.215)	0.365* (0.208)
Trade openness (% of GDP)	0.027* (0.014)	0.027* (0.016)	-0.007 (0.015)	-0.013 (0.016)	0.069** (0.032)	0.068* (0.037)	-0.004 (0.043)	-0.011 (0.044)
Natural resource exports (% of GDP)	-0.050 (0.038)	-0.046 (0.039)	0.007 (0.046)	0.018 (0.043)	-0.112 (0.079)	-0.106 (0.084)	0.072 (0.124)	0.083 (0.117)
Mid-to-high income ratio	-0.086 (0.071)	-0.106 (0.075)	0.037 (0.059)	0.037 (0.059)	-0.054 (0.145)	-0.084 (0.161)	0.166 (0.206)	0.134 (0.205)
Observations	52	52	51	51	52	52	49	49
Unique countries	37	37	36	36	37	37	34	34

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model except for mid-to-high income ratio that is constructed using the data related to the CEQ incidence analyses as opposed to the WDI (2024) data.

Table A4-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	2.167 (1.684)	0.025 (0.525)	0.249 (1.284)	-0.782 (1.68)	3.889** (1.910)	-1.335 (1.840)	-0.489 (1.269)	-0.431 (1.205)
Federation	1.797 (2.571)	1.811 (1.182)	-0.308 (2.239)	-3.462 (2.391)	8.186*** (3.012)	10.783*** (2.719)	2.426 (2.361)	-1.273 (2.155)
Democracy	-2.013 (2.090)	-0.964 (0.734)	0.112 (1.630)	-0.829 (1.616)	-6.643*** (2.523)	-3.322* (1.765)	1.083 (1.646)	0.453 (1.477)
Ethnic fractionalization	1.139 (4.217)	3.423* (2.060)	-1.428 (3.898)	-0.925 (3.706)	3.187 (5.452)	3.726 (3.962)	-3.326 (3.788)	-1.423 (3.354)
Population (log)	0.121 (0.953)	-0.677* (0.408)	0.651 (0.763)	0.690 (0.804)	-1.02 (0.896)	-0.899 (0.722)	-0.081 (0.617)	0.343 (0.668)
65+ population (%)	0.473	0.501***	0.098	0.092	1.022***	1.303***	0.070	-0.058

	(0.387)	(0.159)	(0.331)	(0.402)	(0.365)	(0.293)	(0.285)	(0.243)
Women in parliament (% of seats)	0.120*	0.018	0.102*	0.034	-0.003	-0.108	0.019	0.073
	(0.065)	(0.027)	(0.057)	(0.060)	(0.102)	(0.074)	(0.066)	(0.061)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.930	-0.197	-2.022	0.777	2.064	0.536	-2.88**	0.853
	(1.636)	(0.545)	(1.310)	(1.201)	(2.256)	(1.870)	(1.368)	(1.198)
GDP growth rate	0.073	-0.003	-0.146	-0.003	0.465	0.221	0.090	0.031
	(0.331)	(0.114)	(0.314)	(0.295)	(0.407)	(0.342)	(0.292)	(0.327)
Unemployment rate	0.414**	0.224***	0.203	0.069	0.177	0.434*	0.153	0.134
	(0.206)	(0.081)	(0.186)	(0.188)	(0.243)	(0.238)	(0.145)	(0.148)
Trade openness (% of GDP)	0.015	0.022	-0.046	0.043	-0.012	-0.070*	-0.052	0.024
	(0.047)	(0.019)	(0.039)	(0.045)	(0.056)	(0.041)	(0.033)	(0.034)
Natural resource exports (% of GDP)	-0.166	-0.024	-0.080	0.011	-0.161	0.100	0.032	0.001
	(0.151)	(0.042)	(0.110)	(0.101)	(0.235)	(0.117)	(0.123)	(0.104)
Mid-to-high income ratio	-0.191	0.010	-0.166	0.130	0.155	0.007	-0.232*	0.135
	(0.221)	(0.068)	(0.156)	(0.16)	(0.236)	(0.175)	(0.130)	(0.133)
Observations	47	49	52	38	47	49	49	39
Unique countries	35	34	37	28	34	35	35	28

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model except for mid-to-high income ratio that is constructed using the data related to the CEQ incidence analyses as opposed to the WDI (2024) data.

Table A4-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.038 (0.065)	0.133* (0.073)	-0.021 (0.017)	0.185 (0.161)	0.024 (0.045)	0.100* (0.060)	-0.008 (0.020)	0.181 (0.175)
Federation	-0.061 (0.083)	-0.010 (0.144)	0.002 (0.036)	0.230 (0.235)	-0.068 (0.082)	0.206 (0.133)	-0.022 (0.046)	0.244 (0.189)
Democracy	-0.006 (0.062)	0.149 (0.099)	0.058*** (0.022)	0.258 (0.184)	-0.008 (0.065)	-0.101 (0.079)	0.039 (0.028)	0.136 (0.175)
Ethnic fractionalization	0.003 (0.167)	-0.044 (0.264)	-0.057 (0.048)	-0.386 (0.386)	0.011 (0.149)	0.188 (0.198)	-0.021 (0.062)	-0.122 (0.361)
Population (log)	0.014 (0.034)	-0.008 (0.055)	0.007 (0.013)	0.023 (0.074)	0.004 (0.022)	-0.037 (0.036)	-0.003 (0.013)	0.017 (0.063)
65+ population (%)	-0.013 (0.015)	-0.007 (0.018)	-0.007** (0.004)	-0.006 (0.04)	-0.017 (0.012)	0.012 (0.014)	-0.019*** (0.005)	0.001 (0.029)
Women in parliament (% of seats)	-0.001 (0.003)	0.0004 (0.0004)	-0.0002 (0.0010)	-0.007 (0.006)	0.002 (0.002)	-0.001 (0.004)	0.0003 (0.0011)	-0.008 (0.006)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.044 (0.056)	-0.013 (0.074)	-0.017 (0.018)	-0.007 (0.133)	-0.047 (0.054)	0.068 (0.070)	0.002 (0.026)	0.059 (0.165)
GDP growth rate	-0.010 (0.012)	0.024 (0.019)	0.003 (0.005)	0.009 (0.030)	-0.011 (0.012)	0.029* (0.015)	0.001 (0.005)	-0.032 (0.035)
Unemployment rate	-0.007 (0.006)	0.006 (0.009)	-0.006** (0.002)	0.019 (0.021)	0.004 (0.006)	0.014 (0.010)	-0.006* (0.003)	0.006 (0.021)
Trade openness (% of GDP)	0.001 (0.002)	0.003 (0.003)	-0.001 (0.001)	-0.002 (0.004)	0.001 (0.002)	0.00001 (0.00233)	-0.0004 (0.0007)	-0.004 (0.003)
Natural resource exports (% of GDP)	-0.002 (0.005)	0.004 (0.006)	0.0004 (0.0015)	0.00005 (0.00996)	-0.002 (0.005)	0.002 (0.006)	-0.0002 (0.0020)	0.005 (0.014)
Mid-to-high income ratio	0.010 (0.008)	-0.013 (0.011)	-0.003 (0.002)	-0.017 (0.016)	0.008 (0.007)	0.001 (0.009)	-0.003 (0.003)	-0.006 (0.015)
Observations	48	49	52	38	46	49	49	39
Unique countries	35	34	37	28	34	35	35	28

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model except for mid-to-high income ratio that is constructed using the data related to the CEQ incidence analyses as opposed to the WDI (2024) data.

Table A4-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.852** (0.426)	0.719** (0.351)	0.460 (0.373)	0.402 (0.363)
Federation	0.252 (0.866)	0.258 (0.503)	1.556** (0.665)	1.48** (0.581)
Democracy	-0.955* (0.513)	-0.985** (0.424)	-0.468 (0.494)	-0.430 (0.468)
Ethnic fractionalization	0.522 (1.160)	0.169 (0.840)	-0.639 (1.275)	-0.350 (1.234)
Population (log)	0.148 (0.281)	0.185 (0.203)	-0.119 (0.203)	-0.107 (0.186)
65+ population (%)	0.110 (0.108)	0.072 (0.075)	0.072 (0.078)	0.073 (0.074)
Women in parliament (% of seats)	0.016 (0.018)	0.018 (0.014)	0.002 (0.021)	-0.003 (0.020)
<i>Residualized variables:</i>				
GDP per capita (log)	-0.082 (0.422)	0.168 (0.313)	0.668 (0.465)	0.530 (0.453)
GDP growth rate	-0.042 (0.084)	-0.090 (0.096)	0.118 (0.078)	0.137* (0.078)
Unemployment rate	0.105** (0.050)	0.052 (0.044)	0.093 (0.058)	0.082 (0.056)
Trade openness (% of GDP)	0.016 (0.013)	0.001 (0.012)	-0.004 (0.012)	-0.003 (0.011)

Natural resource exports (% of GDP)	-0.009 (0.032)	-0.023 (0.027)	0.012 (0.040)	0.005 (0.038)
Mid-to-high income ratio	0.081 (0.056)	0.069 (0.045)	0.006 (0.050)	0.008 (0.047)
Observations	49	50	48	49
Unique countries	36	36	35	35

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model except for mid-to-high income ratio that is constructed using the data related to the CEQ incidence analyses as opposed to the WDI (2024) data.

A5. Models use the mid-to-mean income ratio as opposed to the mid-to-high income ratio

Table A5-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)	Market Income Plus Pensions (MIPP)	Market Income (MI)		Market Income Plus Pensions (MIPP)	Market Income Plus Pensions (MIPP)	Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.987* (0.537)	1.073* (0.598)	0.019 (0.496)	0.161 (0.481)	1.253 (1.077)	1.450 (1.229)	-1.593 (1.418)	-1.449 (1.388)
Federation	1.381 (0.956)	1.344 (0.995)	4.631*** (0.937)	5.107*** (0.962)	1.440 (1.714)	1.300 (1.862)	10.658*** (2.444)	11.283*** (2.488)
Democracy	-0.932 (0.693)	-0.568 (0.719)	-3.872*** (0.664)	-3.561*** (0.644)	-2.936** (1.491)	-2.243 (1.614)	-11.16*** (1.992)	-10.512*** (1.983)
Ethnic fractionalization	3.320* (1.782)	2.580 (1.931)	4.710*** (1.293)	4.024*** (1.388)	6.270 (3.944)	4.585 (4.305)	11.903*** (3.681)	10.784*** (3.704)
Population (log)	-0.604 (0.386)	-0.536 (0.405)	-0.985*** (0.220)	-1.005*** (0.224)	-1.114 (0.827)	-0.963 (0.884)	-2.378*** (0.660)	-2.508*** (0.650)
65+ population (%)	0.343*** (0.131)	0.286* (0.147)	0.923*** (0.106)	0.806*** (0.112)	0.951*** (0.337)	0.822** (0.382)	2.369*** (0.411)	2.219*** (0.415)
Women in parliament (% of seats)	0.048* (0.025)	0.051* (0.028)	-0.008 (0.025)	0.006 (0.025)	0.080 (0.049)	0.092 (0.058)	-0.029 (0.068)	-0.005 (0.067)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.823* (0.386)	-1.074** (0.405)	-0.641 (0.220)	-0.598 (0.224)	-1.682* (0.827)	-2.295** (0.884)	-1.158 (0.660)	-1.668 (0.650)

	(0.451)	(0.495)	(0.513)	(0.499)	(0.913)	(1.059)	(1.556)	(1.504)
GDP growth rate	0.056	0.083	0.169	0.154	0.106	0.164	0.494	0.437
	(0.101)	(0.109)	(0.120)	(0.113)	(0.199)	(0.226)	(0.332)	(0.312)
Unemployment rate	0.202***	0.188**	0.195**	0.211***	0.340**	0.312*	0.350	0.393*
	(0.077)	(0.083)	(0.080)	(0.078)	(0.150)	(0.171)	(0.238)	(0.230)
Trade openness (% of GDP)	0.029*	0.029*	-0.006	-0.013	0.069**	0.068*	-0.003	-0.010
	(0.015)	(0.017)	(0.016)	(0.016)	(0.032)	(0.036)	(0.043)	(0.044)
Natural resource exports (% of GDP)	-0.052	-0.048	0.009	0.017	-0.105	-0.098	0.071	0.081
	(0.038)	(0.039)	(0.046)	(0.043)	(0.078)	(0.082)	(0.124)	(0.117)
Mid-to-mean income ratio	-0.050	-0.058	0.018	0.025	-0.006	-0.016	0.096	0.088
	(0.044)	(0.047)	(0.037)	(0.037)	(0.083)	(0.093)	(0.13)	(0.127)
Observations	52	52	51	51	52	52	49	49
Unique countries	37	37	36	36	37	37	34	34

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), but use mid-to-mean income ratio as opposed to mid-to-high income ratio. Models all have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A5-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income: Outcome of interest: Size of	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	2.354 (1.688)	0.030 (0.531)	0.353 (1.281)	-0.869 (1.716)	3.865** (1.910)	-1.324 (1.849)	-0.472 (1.273)	-0.463 (1.247)
Federation	1.758 (2.574)	1.788 (1.175)	-0.344 (2.244)	-3.639 (2.440)	8.191*** (3.037)	10.811*** (2.710)	2.408 (2.391)	-1.198 (2.174)
Democracy	-2.116 (2.110)	-0.972 (0.747)	0.015 (1.639)	-0.796 (1.641)	-6.625*** (2.537)	-3.339* (1.761)	1.065 (1.648)	0.448 (1.485)
Ethnic fractionalization	1.146 (4.241)	3.426* (2.067)	-1.414 (3.892)	-1.032 (3.701)	3.293 (5.401)	3.591 (4.034)	-3.504 (3.871)	-1.288 (3.436)
Population (log)	0.204 (0.935)	-0.668 (0.407)	0.712 (0.757)	0.668 (0.801)	-1.034 (0.899)	-0.888 (0.730)	-0.060 (0.633)	0.308 (0.680)
65+ population (%)	0.466 (0.383)	0.506*** (0.161)	0.092 (0.327)	0.110 (0.412)	1.027*** (0.364)	1.297*** (0.294)	0.061 (0.284)	-0.053 (0.243)
Women in parliament (% of seats)	0.118*	0.018	0.104*	0.027	-0.0003	-0.111	0.014	0.075

	(0.067)	(0.027)	(0.058)	(0.061)	(0.1033)	(0.076)	(0.067)	(0.062)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.881 (1.542)	-0.278 (0.505)	-1.978* (1.196)	0.682 (1.182)	1.777 (2.128)	0.454 (1.740)	-2.471* (1.375)	0.598 (1.135)
GDP growth rate	0.054 (0.315)	0.005 (0.115)	-0.166 (0.308)	0.017 (0.289)	0.470 (0.406)	0.211 (0.339)	0.076 (0.293)	0.042 (0.329)
Unemployment rate	0.349 (0.215)	0.218** (0.085)	0.142 (0.186)	0.094 (0.197)	0.199 (0.266)	0.407 (0.256)	0.112 (0.152)	0.166 (0.171)
Trade openness (% of GDP)	0.021 (0.049)	0.022 (0.019)	-0.042 (0.040)	0.042 (0.046)	-0.010 (0.057)	-0.072* (0.042)	-0.056* (0.034)	0.026 (0.034)
Natural resource exports (% of GDP)	-0.182 (0.150)	-0.027 (0.044)	-0.089 (0.111)	0.010 (0.104)	-0.157 (0.234)	0.109 (0.119)	0.033 (0.125)	-0.0002 (0.1080)
Mid-to-mean income ratio	-0.128 (0.125)	-0.007 (0.044)	-0.115 (0.091)	0.077 (0.106)	0.088 (0.141)	-0.022 (0.110)	-0.137* (0.081)	0.082 (0.086)
Observations	47	49	52	38	47	49	49	39
Unique countries	35	34	37	28	34	35	35	28

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), but use mid-to-mean income ratio as opposed to mid-to-high income ratio. Models all have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A5-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.031 (0.065)	0.140* (0.074)	-0.020 (0.018)	0.192 (0.169)	0.022 (0.045)	0.100* (0.060)	-0.008 (0.020)	0.183 (0.200)
Federation	-0.060 (0.081)	-0.021 (0.146)	0.004 (0.036)	0.247 (0.246)	-0.068 (0.084)	0.207 (0.134)	-0.023 (0.046)	0.241 (0.191)
Democracy	-0.002 (0.062)	0.141 (0.099)	0.057*** (0.022)	0.251 (0.188)	-0.007 (0.065)	-0.101 (0.079)	0.039 (0.028)	0.137 (0.178)
Ethnic fractionalization	0.004 (0.166)	-0.036 (0.264)	-0.058 (0.048)	-0.370 (0.391)	0.017 (0.150)	0.186 (0.200)	-0.019 (0.063)	-0.131 (0.380)
Population (log)	0.011 (0.034)	-0.003 (0.055)	0.007 (0.013)	0.026 (0.076)	0.003 (0.022)	-0.037 (0.037)	-0.003 (0.013)	0.019 (0.064)
65+ population (%)	-0.012 (0.015)	-0.007 (0.017)	-0.008** (0.004)	-0.008 (0.041)	-0.017 (0.011)	0.012 (0.014)	-0.019*** (0.005)	0.001 (0.03)
Women in parliament (% of seats)	-0.001 (0.003)	0.001 (0.004)	-0.0002 (0.0010)	-0.007 (0.006)	0.002 (0.002)	-0.001 (0.004)	0.0003 (0.0011)	-0.008 (0.006)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.054 (0.053)	-0.003 (0.063)	-0.011 (0.016)	0.012 (0.137)	-0.062 (0.054)	0.065 (0.065)	0.010 (0.024)	0.068 (0.149)
GDP growth rate	-0.008 (0.012)	0.022 (0.019)	0.002 (0.005)	0.006 (0.031)	-0.011 (0.012)	0.028* (0.015)	0.001 (0.005)	-0.033 (0.037)
Unemployment rate	-0.004 (0.008)	0.002 (0.010)	-0.006** (0.003)	0.016 (0.023)	0.005 (0.007)	0.013 (0.011)	-0.006 (0.004)	0.004 (0.023)
Trade openness (% of GDP)	0.001 (0.002)	0.003 (0.003)	-0.001 (0.001)	-0.002 (0.004)	0.001 (0.002)	-0.00001 (0.00240)	-0.0004 (0.0008)	-0.005 (0.003)
Natural resource exports (% of GDP)	-0.002 (0.005)	0.004 (0.006)	0.001 (0.002)	0.0004 (0.0103)	-0.002 (0.006)	0.002 (0.006)	-0.0004 (0.0020)	0.006 (0.016)
Mid-to-mean income ratio	0.005 (0.005)	-0.008 (0.006)	-0.001 (0.001)	-0.009 (0.011)	0.005 (0.004)	0.0002 (0.0054)	-0.001 (0.002)	-0.004 (0.01)
Observations	48	49	52	38	46	49	49	39
Unique countries	35	34	37	28	34	35	35	28

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), but use mid-to-mean income ratio as opposed to mid-to-high income ratio. Models all have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A5-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.826* (0.432)	0.695** (0.354)	0.460 (0.373)	0.402 (0.363)
Federation	0.219 (0.888)	0.226 (0.511)	1.558** (0.664)	1.482** (0.579)
Democracy	-0.923* (0.521)	-0.954** (0.435)	-0.468 (0.493)	-0.431 (0.467)
Ethnic fractionalization	0.478 (1.179)	0.135 (0.836)	-0.640 (1.310)	-0.351 (1.261)
Population (log)	0.147 (0.288)	0.186 (0.206)	-0.120 (0.205)	-0.107 (0.190)
65+ population (%)	0.119 (0.112)	0.080 (0.076)	0.072 (0.080)	0.073 (0.075)
Women in parliament (% of seats)	0.016 (0.017)	0.018 (0.014)	0.002 (0.021)	-0.003 (0.020)
<i>Residualized variables:</i>				
GDP per capita (log)	-0.219 (0.391)	0.054 (0.288)	0.656 (0.451)	0.513 (0.435)
GDP growth rate	-0.022 (0.086)	-0.074 (0.098)	0.118 (0.079)	0.137* (0.078)
Unemployment rate	0.119** (0.057)	0.065 (0.050)	0.093 (0.062)	0.082 (0.060)
Trade openness (% of GDP)	0.015 (0.014)	0.0002 (0.0120)	-0.004 (0.013)	-0.003 (0.012)
Natural resource exports (% of GDP)	-0.010	-0.024	0.012	0.005

	(0.031)	(0.027)	(0.040)	(0.038)
Mid-to-mean income ratio	0.034 (0.032)	0.030 (0.027)	0.002 (0.031)	0.003 (0.029)
Observations	49	50	48	49
Unique countries	36	36	35	35

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), but use mid-to-mean income ratio as opposed to mid-to-high income ratio. Models all have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

A6. Models control for the geographic region a country belongs to

Table A6-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
	Market Income Plus Pensions (MIPP)		Market Income (MI)		Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.911** (0.431)	0.863* (0.453)	0.228 (0.710)	0.127 (0.671)	0.763 (1.014)	0.695 (1.027)	-2.542 (2.351)	-2.644 (2.221)
Federation	1.534** (0.692)	1.540** (0.740)	2.943** (1.343)	3.144** (1.292)	2.044 (1.46)	2.074 (1.581)	4.051 (4.673)	4.941 (4.407)
Democracy	0.457 (0.575)	0.105 (0.638)	-0.451 (1.133)	-1.176 (1.081)	0.382 (1.276)	-0.541 (1.399)	-1.254 (4.003)	-2.713 (3.828)
Ethnic fractionalization	0.536 (1.192)	0.776 (1.334)	0.002 (2.450)	0.014 (2.336)	0.354 (2.761)	0.820 (3.126)	-1.582 (9.164)	-0.529 (8.458)
Population (log)	-0.097 (0.157)	-0.151 (0.193)	-0.465 (0.470)	-0.482 (0.467)	-0.107 (0.359)	-0.218 (0.447)	-0.621 (1.717)	-0.857 (1.658)
65+ population (%)	0.218** (0.097)	0.256*** (0.098)	0.712*** (0.195)	0.784*** (0.164)	0.628** (0.276)	0.713*** (0.255)	1.985** (0.793)	2.101*** (0.689)
Women in parliament (% of seats)	0.052*** (0.018)	0.057*** (0.019)	0.005 (0.030)	0.007 (0.028)	0.084** (0.034)	0.098** (0.038)	-0.033 (0.098)	-0.021 (0.090)
<i>Residualized</i> variables:								
GDP per capita (log)	0.658	0.306	0.889	0.508	1.481	0.627	1.401	-0.006

	(0.424)	(0.486)	(0.953)	(0.943)	(1.028)	(1.153)	(3.411)	(3.103)
GDP growth rate	-0.097	-0.067	-0.095	-0.022	-0.170	-0.096	-0.309	-0.130
	(0.073)	(0.081)	(0.168)	(0.156)	(0.161)	(0.174)	(0.567)	(0.532)
Unemployment rate	0.142***	0.121**	0.138	0.129	0.265**	0.207	0.362	0.345
	(0.051)	(0.058)	(0.112)	(0.105)	(0.114)	(0.128)	(0.414)	(0.375)
Trade openness (% of GDP)	0.009	0.007	0.017	0.017	0.026	0.021	0.098	0.097
	(0.008)	(0.009)	(0.022)	(0.021)	(0.019)	(0.021)	(0.073)	(0.068)
Natural resource exports (% of GDP)	-0.026	-0.030	0.005	0.013	-0.038	-0.053	0.078	0.062
	(0.025)	(0.027)	(0.053)	(0.054)	(0.056)	(0.059)	(0.213)	(0.197)
Mid-to-high income ratio	0.037	0.005	0.097	0.076	0.178***	0.100	0.438	0.352
	(0.026)	(0.031)	(0.063)	(0.052)	(0.060)	(0.068)	(0.270)	(0.221)
Observations	82	82	65	64	82	82	60	60
Unique countries	61	61	47	46	61	61	43	43

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), control for the region a country is from, and have an intercept that are not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A6-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Outcome of interest: Size of								
Rule of law	3.915***	-0.016	-0.410	-0.931	3.664	0.334	-0.746	-1.690
	(1.507)	(1.047)	(1.131)	(1.313)	(2.373)	(1.909)	(1.621)	(2.314)
Federation	1.125	2.177	-2.325	1.201	0.878	6.251**	0.512	1.169
	(1.949)	(1.347)	(1.892)	(2.067)	(3.570)	(2.993)	(2.800)	(5.016)
Democracy	1.463	0.838	1.160	-0.012	-1.294	-2.311	0.778	-0.311
	(1.819)	(1.141)	(1.716)	(1.783)	(3.536)	(3.089)	(2.175)	(5.479)
Ethnic fractionalization	-4.014	-0.635	-4.602	1.091	-3.673	1.176	-4.702	2.628
	(4.021)	(2.919)	(3.649)	(3.952)	(5.491)	(5.183)	(4.308)	(7.800)
Population (log)	1.142	-0.093	1.052	-0.554	1.076	1.076	0.436	-0.569
	(0.805)	(0.444)	(0.643)	(0.734)	(1.347)	(1.081)	(0.877)	(2.047)
65+ population (%)	0.058	0.220	0.468	0.253	1.098**	1.299***	0.463	0.398
	(0.332)	(0.195)	(0.325)	(0.392)	(0.443)	(0.413)	(0.361)	(0.622)

Women in parliament (% of seats)	0.103** (0.051)	0.043 (0.033)	0.075 (0.053)	0.039 (0.043)	0.035 (0.106)	-0.135 (0.086)	0.037 (0.076)	0.021 (0.093)
<i>Residualized variables:</i>								
GDP per capita (log)	1.126 (1.650)	1.997* (1.158)	-1.764 (1.631)	-0.667 (1.446)	4.709 (3.566)	0.902 (2.839)	-3.901* (2.258)	-1.646 (3.266)
GDP growth rate	-0.052 (0.205)	-0.081 (0.157)	0.053 (0.233)	0.106 (0.216)	-0.241 (0.504)	0.282 (0.464)	0.136 (0.364)	0.353 (0.533)
Unemployment rate	0.028 (0.136)	0.153 (0.106)	0.182 (0.174)	-0.120 (0.169)	0.072 (0.268)	0.425* (0.240)	0.139 (0.198)	-0.038 (0.246)
Trade openness (% of GDP)	0.018 (0.028)	0.010 (0.022)	-0.021 (0.030)	-0.011 (0.036)	0.017 (0.053)	-0.016 (0.051)	-0.030 (0.033)	0.008 (0.054)
Natural resource exports (% of GDP)	-0.178* (0.101)	0.116 (0.076)	-0.104 (0.097)	0.013 (0.095)	-0.233 (0.222)	0.013 (0.155)	-0.073 (0.145)	0.001 (0.156)
Mid-to-high income ratio	-0.152* (0.090)	0.100 (0.078)	-0.148 (0.103)	-0.102 (0.114)	0.025 (0.163)	0.106 (0.133)	-0.191* (0.112)	-0.039 (0.145)
Observations	64	66	69	49	53	55	55	42
Unique countries	48	47	50	35	39	40	40	30

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), control for the region a country is from, and have an intercept that are not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A6-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	-0.028 (0.049)	0.141*** (0.054)	-0.024* (0.014)	0.221* (0.123)	-0.023 (0.054)	0.118 (0.078)	0.003 (0.026)	0.034 (0.202)
Federation	-0.064 (0.058)	0.025 (0.115)	-0.022 (0.030)	0.029 (0.247)	-0.039 (0.092)	0.381*** (0.133)	-0.092* (0.055)	0.175 (0.387)
Democracy	0.019 (0.057)	0.068 (0.093)	-0.031 (0.026)	0.087 (0.223)	0.060 (0.085)	-0.148 (0.123)	-0.007 (0.049)	-0.008 (0.724)
Ethnic fractionalization	-0.049 (0.132)	0.102 (0.192)	0.025 (0.039)	-0.039 (0.437)	-0.117 (0.169)	0.294 (0.242)	-0.064 (0.087)	0.017 (0.914)
Population (log)	0.011 (0.021)	-0.008 (0.044)	-0.004 (0.009)	0.046 (0.097)	0.016 (0.034)	-0.110** (0.047)	0.017 (0.019)	0.006 (0.207)
65+ population (%)	-0.001 (0.013)	-0.010 (0.014)	-0.001 (0.004)	0.003 (0.041)	-0.014 (0.013)	0.007 (0.018)	-0.008 (0.007)	0.031 (0.074)
Women in parliament (% of seats)	0.0001 (0.0015)	0.003 (0.003)	-0.001 (0.001)	-0.005 (0.005)	0.001 (0.003)	-0.001 (0.004)	0.001 (0.001)	-0.009 (0.013)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.036 (0.051)	-0.027 (0.069)	-0.025 (0.022)	0.035 (0.122)	-0.040 (0.074)	0.102 (0.109)	-0.004 (0.038)	0.021 (0.427)
GDP growth rate	-0.004 (0.007)	0.011 (0.012)	0.005 (0.003)	-0.010 (0.020)	-0.006 (0.013)	0.005 (0.018)	0.002 (0.007)	-0.024 (0.077)
Unemployment rate	-0.006 (0.005)	0.011 (0.007)	-0.003 (0.003)	0.018 (0.021)	-0.003 (0.007)	0.001 (0.010)	-0.003 (0.004)	0.021 (0.031)
Trade openness (% of GDP)	0.0001 (0.0008)	0.003* (0.001)	-0.0002 (0.0003)	-0.0001 (0.0041)	0.0001 (0.0015)	-0.001 (0.002)	0.0003 (0.0009)	-0.003 (0.005)
Natural resource exports (% of GDP)	-0.003 (0.003)	0.003 (0.005)	-0.001 (0.001)	-0.003 (0.009)	-0.003 (0.006)	0.007 (0.005)	0.0003 (0.0024)	0.006 (0.021)
Mid-to-high income ratio	0.0001 (0.0034)	0.00002 (0.00410)	-0.002 (0.001)	-0.002 (0.012)	0.002 (0.004)	-0.006 (0.006)	-0.002 (0.002)	-0.001 (0.032)
Observations	68	70	72	52	54	55	58	44
Unique countries	50	50	52	37	39	39	42	31

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), control for the region a country is from, and have an intercept that are not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

Table A6-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	0.946** (0.446)	0.820* (0.431)	0.747 (0.635)	0.689 (0.578)
Federation	0.961 (0.821)	0.568 (0.638)	1.377 (1.333)	1.433 (1.192)
Democracy	0.843 (0.580)	0.698 (0.585)	-0.365 (0.974)	-0.193 (0.912)
Ethnic fractionalization	-1.220 (1.392)	-1.583 (1.179)	-0.106 (1.966)	0.019 (1.792)
Population (log)	0.189 (0.266)	0.227 (0.222)	0.007 (0.452)	0.011 (0.397)
65+ population (%)	-0.062 (0.133)	-0.056 (0.117)	0.098 (0.129)	0.080 (0.121)
Women in parliament (% of seats)	0.018 (0.015)	0.009 (0.014)	-0.005 (0.025)	-0.010 (0.023)
<i>Residualized variables:</i>				
GDP per capita (log)	0.711 (0.449)	0.970*** (0.372)	0.615 (0.910)	0.462 (0.838)
GDP growth rate	0.005 (0.079)	-0.006 (0.084)	0.106 (0.137)	0.123 (0.131)
Unemployment rate	0.104* (0.055)	0.070 (0.047)	0.068 (0.082)	0.049 (0.077)
Trade openness (% of GDP)	0.015 (0.012)	0.006 (0.010)	-0.006 (0.017)	-0.008 (0.016)

Natural resource exports (% of GDP)	0.035 (0.030)	0.024 (0.032)	-0.002 (0.060)	-0.010 (0.054)
Mid-to-high income ratio	0.057 (0.036)	0.055* (0.032)	-0.012 (0.046)	-0.017 (0.043)
Observations	63	62	50	51
Unique countries	46	44	36	36

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1), control for the region a country is from, and have an intercept that are not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.

A7. Models have a variable for the percentage of private primary school students

Table A7-1. The effect of the fundamental determinants of redistribution on absolute and relative redistributive effects

Outcome of interest:	Absolute redistributive effect				Relative redistributive effect			
	Market Income Plus Pensions (MIPP)		Market Income (MI)		Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.237*** (0.326)	1.247*** (0.337)	0.099 (0.705)	0.119 (0.66)	1.741** (0.774)	1.835** (0.773)	-2.335 (2.174)	-2.230 (2.001)
Federation	1.813*** (0.645)	1.901*** (0.666)	2.774** (1.320)	3.277*** (1.259)	2.778** (1.234)	3.004** (1.284)	5.227 (4.261)	6.207 (3.940)
Democracy	-0.206 (0.374)	-0.165 (0.417)	-3.519*** (0.704)	-3.592*** (0.653)	-1.363 (0.864)	-1.347 (0.950)	-10.622*** (2.678)	-10.734*** (2.478)
Ethnic fractionalization	1.881* (1.032)	1.814 (1.155)	3.557* (2.137)	3.392* (1.937)	3.736 (2.350)	3.459 (2.569)	10.253 (7.357)	10.098 (6.596)
Population (log)	-0.362*** (0.133)	-0.395*** (0.151)	-0.821** (0.375)	-0.904** (0.357)	-0.688** (0.287)	-0.738** (0.317)	-2.23* (1.268)	-2.41** (1.172)
65+ population (%)	0.217*** (0.073)	0.173** (0.079)	1.049*** (0.116)	0.99*** (0.088)	0.672*** (0.204)	0.551*** (0.200)	2.951*** (0.486)	2.813*** (0.399)
Women in parliament (% of seats)	0.048** (0.019)	0.057*** (0.020)	-0.013 (0.030)	-0.004 (0.028)	0.067* (0.036)	0.091** (0.040)	-0.096 (0.099)	-0.072 (0.091)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.106	-0.325	-0.27	-0.609	-0.23	-0.751	-1.784	-2.578

	(0.352)	(0.399)	(0.743)	(0.645)	(0.836)	(0.902)	(2.644)	(2.290)
GDP growth rate	-0.084	-0.06	0.098	0.115	-0.151	-0.093	0.085	0.141
	(0.071)	(0.075)	(0.133)	(0.123)	(0.152)	(0.157)	(0.449)	(0.412)
Unemployment rate	0.153***	0.132***	0.189**	0.164**	0.252***	0.199**	0.402	0.371
	(0.044)	(0.046)	(0.081)	(0.077)	(0.092)	(0.096)	(0.279)	(0.255)
Trade openness (% of GDP)	0.004	0.006	0.011	0.011	0.013	0.016	0.059	0.064
	(0.008)	(0.009)	(0.018)	(0.018)	(0.018)	(0.019)	(0.067)	(0.061)
Natural resource exports (% of GDP)	-0.018	-0.023	0.012	0.013	-0.037	-0.050	0.058	0.057
	(0.024)	(0.026)	(0.057)	(0.049)	(0.059)	(0.061)	(0.234)	(0.206)
Mid-to-high income ratio	0.018	-0.012	0.097**	0.064*	0.107***	0.037	0.352**	0.278*
	(0.016)	(0.018)	(0.045)	(0.037)	(0.040)	(0.041)	(0.179)	(0.148)
Students in private primary schools (% of total)	-0.016	-0.001	-0.064**	-0.048	-0.026	0.013	-0.173	-0.134
	(0.020)	(0.022)	(0.030)	(0.029)	(0.046)	(0.052)	(0.116)	(0.104)
Observations	81	81	64	63	81	81	59	59
Unique countries	60	60	46	45	60	60	42	42

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), EdStat (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and additionally have a variable for the share of primary school students in private schools. Models have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process. See the Data section for the description of variables in the model except for the share of students in private primary schools that is introduced at the beginning of the Results Appendix.

Table A7-2. The effect of the fundamental determinants of redistribution on the size of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Outcome of interest: Size of								
Rule of law	4.173***	0.789	-0.566	-1.001	3.850**	-1.345	-0.926	-0.798
	(1.223)	(0.591)	(1.034)	(0.974)	(1.854)	(1.870)	(1.139)	(1.189)
Federation	2.059	2.922***	-0.404	-1.706	3.109	8.359***	1.713	-1.671
	(1.661)	(1.043)	(1.662)	(1.555)	(3.077)	(2.753)	(2.197)	(2.127)
Democracy	-0.914	-0.203	-0.186	0.014	-5.727***	-3.896**	0.093	0.338
	(1.419)	(0.634)	(1.357)	(1.129)	(1.989)	(1.874)	(1.483)	(1.389)
Ethnic fractionalization	-0.222	0.881	0.764	-0.998	1.911	3.151	-0.698	-1.220
	(3.258)	(1.783)	(2.970)	(2.409)	(4.965)	(3.880)	(3.198)	(2.898)
Population (log)	0.318	-0.446*	-0.225	0.133	-0.509	-0.548	-0.448	0.242
	(0.525)	(0.259)	(0.463)	(0.496)	(0.918)	(0.747)	(0.538)	(0.679)

65+ population (%)	0.239 (0.210)	0.243** (0.110)	0.466* (0.241)	0.198 (0.231)	1.385*** (0.218)	1.500*** (0.249)	0.381* (0.209)	0.116 (0.188)
Women in parliament (% of seats)	0.086 (0.054)	0.019 (0.026)	0.090* (0.053)	0.027 (0.039)	0.034 (0.099)	-0.121 (0.080)	0.053 (0.064)	0.057 (0.061)
<i>Residualized variables:</i>								
GDP per capita (log)	0.329 (1.276)	-0.068 (0.553)	-2.676** (1.125)	-0.181 (1.060)	1.874 (1.961)	0.125 (2.089)	-3.878*** (1.340)	-0.132 (1.456)
GDP growth rate	-0.063 (0.203)	0.068 (0.114)	0.120 (0.232)	0.020 (0.160)	-0.011 (0.434)	0.175 (0.362)	0.169 (0.275)	0.084 (0.282)
Unemployment rate	0.120 (0.133)	0.184*** (0.064)	0.286*** (0.110)	0.017 (0.123)	0.145 (0.204)	0.463** (0.226)	0.205 (0.130)	-0.006 (0.149)
Trade openness (% of GDP)	0.032 (0.028)	0.008 (0.017)	-0.015 (0.025)	0.031 (0.027)	0.009 (0.043)	-0.028 (0.040)	-0.020 (0.025)	0.042 (0.033)
Natural resource exports (% of GDP)	-0.012 (0.134)	0.003 (0.044)	-0.084 (0.092)	0.033 (0.086)	-0.020 (0.205)	0.069 (0.137)	-0.036 (0.108)	0.020 (0.112)
Mid-to-high income ratio	0.022 (0.075)	0.007 (0.029)	-0.124** (0.060)	0.026 (0.065)	0.096 (0.093)	0.062 (0.097)	-0.148** (0.063)	0.010 (0.078)
Students in private primary schools (% of total)	-0.142** (0.062)	0.010 (0.035)	-0.007 (0.063)	0.010 (0.052)	-0.208* (0.113)	-0.015 (0.081)	0.008 (0.070)	0.023 (0.071)
Observations	63	65	68	48	53	55	55	42
Unique countries	47	46	49	34	39	40	40	30

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), EdStat (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and additionally have a variable for the share of primary school students in private schools. Models have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process. See the Data section for the description of variables in the model except for the share of students in private primary schools that is introduced at the beginning of the Results Appendix.

Table A7-3. The effect of the fundamental determinants of redistribution on the progressivity of fiscal interventions

Pre-fiscal income:	Market Income Plus Pensions (MIPP)				Market Income (MI)			
Outcome of interest: Kakwani of	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies	Direct taxes	Direct transfers	Indirect taxes	Indirect subsidies
Rule of law	0.007 (0.035)	0.083** (0.039)	-0.039** (0.016)	0.260*** (0.086)	0.010 (0.032)	0.086 (0.057)	-0.003 (0.022)	0.199* (0.103)
Federation	-0.027 (0.042)	-0.018 (0.083)	-0.013 (0.026)	0.120 (0.140)	-0.014 (0.065)	0.201 (0.123)	-0.052 (0.042)	0.180 (0.173)
Democracy	-0.016 (0.038)	0.088 (0.064)	0.009 (0.017)	0.170* (0.099)	-0.004 (0.056)	-0.151** (0.072)	0.034 (0.027)	0.099 (0.122)
Ethnic fractionalization	0.044 (0.113)	-0.053 (0.158)	0.026 (0.036)	-0.227 (0.234)	0.020 (0.117)	0.245 (0.187)	-0.039 (0.059)	-0.092 (0.261)
Population (log)	-0.0001 (0.0132)	0.001 (0.029)	-0.009 (0.007)	0.050 (0.041)	-0.003 (0.018)	-0.042 (0.035)	-0.001 (0.012)	0.021 (0.047)
65+ population (%)	-0.013* (0.008)	-0.009 (0.006)	-0.004* (0.003)	-0.001 (0.018)	-0.020*** (0.006)	0.015 (0.010)	-0.016*** (0.003)	0.011 (0.013)
Women in parliament (% of seats)	-0.001 (0.002)	0.004 (0.003)	0.0003 (0.0007)	-0.005 (0.004)	0.0001 (0.0025)	-0.0004 (0.0036)	0.001 (0.001)	-0.008 (0.006)
<i>Residualized variables:</i>								
GDP per capita (log)	-0.055 (0.038)	0.021 (0.045)	-0.026* (0.015)	0.107 (0.093)	-0.067* (0.040)	0.054 (0.063)	-0.033 (0.025)	0.071 (0.095)
GDP growth rate	-0.005 (0.006)	0.008 (0.01)	0.005* (0.003)	-0.020 (0.017)	-0.005 (0.010)	0.024* (0.013)	0.0003 (0.0053)	-0.035* (0.021)
Unemployment rate	-0.001 (0.004)	0.007* (0.004)	-0.003 (0.002)	0.003 (0.014)	-0.0003 (0.0043)	0.009 (0.008)	-0.003 (0.003)	0.007 (0.015)
Trade openness (% of GDP)	-0.00003 (0.00078)	0.002** (0.001)	-0.0001 (0.0003)	-0.002 (0.002)	0.0004 (0.0013)	0.001 (0.002)	0.00005 (0.00062)	-0.004 (0.003)
Natural resource exports (% of GDP)	-0.001 (0.003)	0.004 (0.005)	-0.001 (0.001)	0.00002 (0.00726)	-0.001 (0.005)	0.003 (0.005)	0.0002 (0.0024)	0.004 (0.008)
Mid-to-high income ratio	0.002 (0.003)	-0.001 (0.003)	-0.003*** (0.001)	-0.002 (0.005)	0.003 (0.002)	-0.003 (0.004)	-0.003** (0.001)	-0.001 (0.005)
Students in private primary schools (% of total)	0.002 (0.003)	0.001 (0.003)	0.001 (0.001)	-0.003 (0.005)	0.001 (0.003)	0.002 (0.004)	0.001 (0.001)	-0.005 (0.006)
Observations	67	69	71	51	54	55	58	44
Unique countries	49	49	51	36	39	39	42	31

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), EdStat (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and additionally have a variable for the share of primary school students in private schools. Models have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process. See the Data section for the description of variables in the model except for the share of students in private primary schools that is introduced at the beginning of the Results Appendix.

Table A7-4. The effect of the fundamental determinants of redistribution on reranking

Outcome of interest:	Reranking (log)			
Pre-fiscal income:	Market Income Plus Pensions (MIPP)		Market Income (MI)	
Post-fiscal income:	Disposable Income	Consumable Income	Disposable Income	Consumable Income
Rule of law	1.025** (0.405)	0.808** (0.404)	0.383 (0.415)	0.324 (0.403)
Federation	0.647 (0.751)	0.579 (0.516)	1.328* (0.719)	1.334** (0.646)
Democracy	-0.331 (0.442)	-0.298 (0.424)	-0.424 (0.500)	-0.381 (0.477)
Ethnic fractionalization	-0.379 (1.041)	-0.400 (0.889)	-0.453 (1.231)	-0.210 (1.197)
Population (log)	0.082 (0.207)	0.043 (0.159)	-0.113 (0.211)	-0.106 (0.194)
65+ population (%)	0.063 (0.084)	0.056 (0.079)	0.106 (0.067)	0.099 (0.063)
Women in parliament (% of seats)	0.005 (0.016)	-0.0003 (0.0139)	0.002 (0.024)	-0.004 (0.022)
<i>Residualized variables:</i>				
GDP per capita (log)	0.046 (0.321)	0.210 (0.329)	0.592 (0.492)	0.484 (0.467)
GDP growth rate	0.040 (0.070)	0.041 (0.078)	0.094 (0.091)	0.115 (0.089)
Unemployment rate	0.109*** (0.038)	0.090** (0.038)	0.096* (0.053)	0.085* (0.050)
Trade openness (% of GDP)	0.013 (0.010)	0.003 (0.009)	-0.003 (0.011)	-0.003 (0.010)

Natural resource exports (% of GDP)	0.019 (0.026)	0.003 (0.025)	0.012 (0.041)	0.005 (0.039)
Mid-to-high income ratio	0.039** (0.019)	0.030 (0.020)	-0.005 (0.024)	-0.002 (0.023)
Students in private primary schools (% of total)	-0.038* (0.021)	-0.025 (0.019)	0.004 (0.026)	0.007 (0.026)
Observations	62	61	50	51
Unique countries	45	43	36	36

Source: Dražanová (2020), Herre (2021), CEQ Data Center (2024), ESG (2024), WDI (2024), and own calculations.

Notes: Bootstrap standard errors (using 1,000 replications) are in parentheses. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively. All models are based on Equation (1) and have an intercept that is not displayed in the table. *Residualized* variables are created by regressing a given variable on non-residualized variables in the model and collecting the residuals. See the Methodology section for more details about Equation (1) and residualization process and the Data section for the description of variables in the model.