



**UNIVERSITÀ POLITECNICA DELLE MARCHE**  
Dipartimento di Scienze Economiche e Sociali

FROM OPPORTUNITY GAPS TO REDISTRIBUTION  
DEMANDS: EVIDENCE FROM EUROPEAN REGIONS

Andrea Gasparroni

QUADERNI DI RICERCA n. 506

ISSN: 2279-9575

March 2026

*Comitato scientifico / Scientific Committee:*

Giulia Bettin

Marco Gallegati

Stefano Staffolani

Alessandro Sterlacchini

*Curatore / Editor:* Alberto Russo

The views expressed in the articles are those of the authors and do not involve the responsibility of the department.

## Abstract

This paper investigates how different sources of income inequality shape individual preferences for redistribution across European regions. Using EU-SILC microdata and the intergenerational transmission of disadvantages modules (2005, 2011, and 2019), we construct regional measures of income inequality of opportunity across 132 European regions. These indicators are combined with individual-level data from the European Social Survey to examine how regional opportunity structures and individual exposure to disadvantaged circumstances affect redistributive preferences. Our results show that inequality of opportunity is a strong and robust predictor of support for redistribution, while overall income inequality and inequality of effort display weak or insignificant effects. Individuals living in regions with higher inequality of opportunity are significantly more likely to support redistributive policies. In addition, we construct an individual-level opportunity disadvantage index capturing the probability of having experienced limited opportunities during income formation. This measure is also strongly associated with redistributive preferences, suggesting that both contextual and personal exposure to unfair inequality shape attitudes toward redistribution.

**JEL Class.:** D63, D31, D10

**Keywords:** Inequality, Preferences for Redistribution, Inequality of Opportunity, Intergenerational Mobility.

**Address:** **Andrea Gasparroni**, Dipartimento di Scienze Economiche e Sociali (DiSES), Facoltà di Economia "Giorgio Fuà", Università Politecnica delle Marche, Piazzale Martelli 8, 60121, Ancona, Italia. E-mail: [a.gasparroni@pm.univpm.it](mailto:a.gasparroni@pm.univpm.it)



# From Opportunity Gaps to Redistribution Demands: Evidence from European Regions

*Andrea Gasparroni*

## 1 Introduction

Inequality has re-emerged as one of the defining challenges of modern economies. Beyond ethical considerations, persistent disparities limit access to education, skills, and economic opportunities for disadvantaged groups (WorldBank, 2016; OECD, 2015). These disparities also weaken social cohesion and institutional trust, undermining the legitimacy of democratic and economic systems (Dabla-Norris, 2015). While Europe remains among the most equal regions globally, persistent intra-regional disparities highlight the importance of understanding the structural drivers of inequality for effective policy design (Bussolo et al., 2018; Filauro et al., 2023).

A growing body of research suggests that not all inequalities have the same social and political consequences. In particular, inequality of opportunity — disparities arising from circumstances beyond individual control, such as family background or place of birth — has been shown to be especially detrimental for social outcomes. Previous research has documented that regions characterized by higher levels of opportunity-related inequality tend to display lower institutional trust, lower subjective well-being, and weaker political participation. Similar patterns also emerge at the individual level.

These findings highlight a central insight: inequalities stemming from circumstances outside individual control may erode social cohesion more deeply than differences arising from individual effort (Ferreira et al., 2018; Marrero et al., 2016). This observation raises an important question. If unfair inequality weakens social cohesion, does it also shape the demand for redistributive policies?

This paper addresses this question by analysing the relationship between inequality of opportunity and preferences for redistribution across European regions. We contribute to the literature in three main ways.

First, we move from educational inequality of opportunity to *income* inequality of opportunity, using EU-SILC microdata<sup>1</sup> and, in particular, the special modules on the intergenerational transmission of disadvantage (2005, 2011, and 2019). Income is the most commonly used outcome in the inequality of opportunity literature because it is continuous, economically interpretable, and directly connected to redistributive policies. Moreover, EU-SILC allows us to capture how parental background, early-life environment, and regional disadvantage translate into unequal and potentially unfair income outcomes.

Second, we focus on a specific behavioural response to inequality: *preferences for redistri-*

---

<sup>1</sup>This study is based on data from Eurostat, EU-SILC, 2005–2019, 2023, 21/2024-EU-SILC. The responsibility for all conclusions drawn from the data lies entirely with the author.

*bution*. While standard political economy models predict that higher inequality should increase the demand for redistribution (Meltzer and Richard, 1981), empirical evidence remains mixed (Lübker, 2007; Dallinger, 2010; Kenworthy and McCall, 2008; Jæger, 2013). We argue that this ambiguity arises because individuals may react differently depending on the perceived source of inequality. Inequality related to effort may be tolerated or even viewed as an incentive, whereas inequality arising from circumstances beyond individual control may be perceived as unfair and therefore increase support for redistribution (Brunori et al., 2013; Becchetti et al., 2024).

Third, we introduce a novel individual-level measure that captures the probability of having experienced limited opportunities during the income formation process. This measure, which we call the *Opportunity Disadvantage Index*, combines information on individuals' circumstances using weights derived from their contribution to inequality of opportunity. The index provides an empirical proxy for experienced unfairness and allows us to link objective opportunity structures with individual redistributive attitudes.

Standard political economy models predict that higher inequality should increase support for redistribution (Meltzer and Richard, 1981). However, empirical studies provide much more ambiguous results (Lübker, 2007; Dallinger, 2010; Kenworthy and McCall, 2008; Jæger, 2013). One possible explanation is that individuals react differently depending on the perceived source of inequality. Inequality that reflects effort or talent may be tolerated or even viewed as desirable incentives, whereas inequality arising from circumstances beyond individual control may be perceived as unfair and therefore increase support for redistribution (Brunori et al., 2013; Becchetti et al., 2024).

To capture this mechanism, we employ two complementary measures of unfair inequality. The first is a regional index of income inequality of opportunity, constructed using EU-SILC microdata. The second is an individual-level measure that approximates the probability that an individual has experienced limited opportunities during the period in which their income was formed. This measure is operationalized through an Opportunity Disadvantage Index based on individuals' circumstances.

Our results show that both regional inequality of opportunity and the individual Opportunity Disadvantage Index significantly and positively affect support for redistribution. A 10 percentage-point increase in regional inequality of opportunity raises the probability of selecting the maximum level of redistribution by approximately 4.5 percentage points. Similarly, a 10 percentage-point increase in the individual Opportunity Disadvantage Index increases this probability by about 5.5 percentage points. In contrast, inequality related to effort and overall income inequality display weaker or statistically insignificant associations.

Because inequality of opportunity may itself be endogenous to redistributive preferences, we address this concern using two instrumental variable strategies. At the regional level, we instrument inequality of opportunity using European Social Fund allocations. At the individual level, we exploit compulsory schooling reforms as a source of exogenous variation in opportunity structures. The IV estimates confirm, and in some specifications strengthen, the main results, reinforcing the interpretation that unfair inequality — rather than inequality per se — is the primary driver of redistributive preferences.

The remainder of the paper is structured as follows. Section 2 reviews the literature on

inequality, inequality of opportunity, and redistributive preferences. Section 3 describes the data and the construction of the inequality measures. Section 4 outlines the empirical strategy. Section 5 presents the main results and section 6 presents robustness checks and heterogeneity analysis. Section 7 introduces the individual-level analysis based on the opportunity disadvantage index. Section 8 discusses the mechanisms linking opportunity inequality to redistributive preferences. Section 9 concludes.

## 2 Literature Review

This section reviews three strands of literature relevant to our analysis: (i) the relationship between income inequality and preferences for redistribution, (ii) the role of beliefs and fairness perceptions in shaping redistributive attitudes, and (iii) the literature on inequality of opportunity.

### 2.1 Income Inequality and Preferences for Redistribution

Research in political economy typically predicts a positive relationship between income inequality and the demand for redistribution. This prediction is often linked to aversion to inequality rooted in social norms and values. Early voting models emphasised the role of the median voter, suggesting that higher inequality increases the incentive for the median voter to support redistributive policies (Meltzer and Richard, 1981).

However, empirical evidence has provided mixed support for this prediction. While several studies find a positive association between aggregate inequality and redistributive preferences (Jæger, 2013; Johnston and Newman, 2016; Dallinger, 2008), others report no statistically significant relationship (Lübker, 2007; Kenworthy and McCall, 2008). In some cases, research even finds that differences in redistributive preferences between rich and poor decrease as inequality increases (Finseraas, 2009; Schmidt-Catran, 2016).

Cross-country comparisons also reveal considerable heterogeneity. For example, countries characterised by higher levels of income inequality—such as the United States and the United Kingdom—often display lower support for redistribution and greater acceptance of inequality. In contrast, Scandinavian countries, which exhibit lower levels of income inequality, tend to show stronger support for redistributive policies (Almas et al., 2021; Buser et al., 2020; Grimalda et al., 2018). These findings suggest that the relationship between inequality and redistributive preferences may depend on contextual factors and underlying social norms.

### 2.2 Beliefs, Fairness, and Perceptions of Inequality

A growing body of literature argues that the relationship between inequality and redistributive preferences depends crucially on individuals' beliefs and perceptions about the origins of inequality. Within this perspective, norms and values play an important role in shaping inequality aversion (Dimick et al., 2018; Lupu and Pontusson, 2011; Shayo, 2009; Cavaillé and Trump, 2015).

In particular, personal beliefs related to fairness and meritocracy appear to be central determinants of redistributive preferences. Individuals tend to support redistribution more strongly

when inequality is perceived as unfair or resulting from non-meritorious processes (Alesina and Angeletos, 2005; Ahrens, 2022). Conversely, inequality perceived as reflecting effort or talent may be more socially accepted. Empirical evidence shows that individuals often tolerate inequality when it is perceived as merit-based, while inequalities attributed to unfair circumstances generate stronger support for redistribution (Lewin-Epstein et al., 2003; Almås et al., 2010; Mijs, 2018). Experimental studies provide additional evidence that perceptions of unfairness causally increase support for redistributive policies (Piff et al., 2020; Becker, 2020).

Another strand of literature focuses on subjective beliefs about inequality, highlighting the disconnect between objective inequality and individuals' perceptions of the income distribution. Many individuals are poorly informed about the actual level of inequality in their societies, which complicates the relationship between inequality and redistribution preferences (Engelhardt and Wagener, 2018; Gimpelson and Treisman, 2018).

Overall, income inequality plays an important role in shaping redistributive attitudes (Olivera, 2015; Pittau et al., 2013; Kerr, 2014; Tóth et al., 2011; Yamamura, 2012; Jæger, 2013). However, the empirical literature also highlights the importance of additional factors, such as social mobility (Alesina et al., 2018), institutional frameworks, and individual characteristics. In particular, demographic factors and personal beliefs related to meritocracy and fairness appear to be crucial determinants of redistributive preferences (Alesina and Giuliano, 2011; Mengel and Weidenholzer, 2023).

Importantly, the relationship between inequality and redistributive preferences may also operate in the opposite direction. Societal preferences can influence income inequality through political support for redistributive policies, creating a feedback loop in which inequality shapes social preferences, which in turn affect redistributive institutions and future inequality trajectories.

### 2.3 Inequality of Opportunity

Within this broader debate, the concept of inequality of opportunity (IOp) offers a useful framework for assessing the fairness of income inequality. Inequality of opportunity refers to disparities arising from circumstances beyond individual control, such as family background, place of birth, or parental resources.

The philosophical foundations of inequality of opportunity can be traced back to Dworkin (1981), Arneson (1989), and Cohen (1989), who proposed a normative distinction between fair and unfair inequalities. According to this framework, fair inequalities arise from factors within the sphere of individual responsibility, whereas unfair inequalities stem from circumstances outside individual control.

Building on this normative perspective, an extensive economic literature has developed following the seminal contributions of Fleurbaey (1994), Fleurbaey (2008), and Roemer (1998), who provided formal economic models of equality of opportunity. Over the past two decades, numerous empirical studies have proposed methods to measure inequality of opportunity across different dimensions of well-being—including income, education, and health—and across different countries and time periods.

A central objective of this literature has been to decompose total inequality into two com-

ponents: inequality attributable to circumstances (inequality of opportunity) and inequality attributable to individual effort. Several empirical approaches have been proposed to measure these components using microdata and regression-based methods.<sup>2</sup>

While a large body of research has focused on measuring inequality of opportunity and analysing its determinants, much less attention has been devoted to its political consequences. In particular, relatively little empirical evidence exists on how inequality of opportunity influences individuals' preferences for redistribution.

## 2.4 Contribution of This Paper

This paper contributes to the literature in three main ways.

First, we provide new evidence on the relationship between inequality of opportunity and redistributive preferences by constructing regional measures of income inequality of opportunity across European regions using EU-SILC microdata.

Second, we introduce a novel individual-level measure of experienced unfairness, the *Opportunity Disadvantage Index*. This index captures the probability that an individual faced limited opportunities during the income formation process by combining information on individuals' circumstances with weights derived from their contribution to inequality of opportunity.

Third, by combining regional inequality measures with individual-level survey data from the European Social Survey, we analyse how both structural opportunity inequality and individual exposure to disadvantaged circumstances shape support for redistribution. This approach allows us to bridge the gap between objective opportunity structures and individuals' lived experiences of unfair inequality.

## 3 Data

Our analysis combines multiple data sources to measure both regional inequality of opportunity and individual preferences for redistribution.

The main source used to construct inequality measures is the European Union Statistics on Income and Living Conditions (EU-SILC). We focus on the ad-hoc module on the *Intergenerational Transmission of Disadvantages*, which is available only for the waves 2005, 2011, and 2019. This module provides detailed information on respondents' parental background, including the financial situation of the household when the respondent was 14 years old, as well as parental education and occupation. These variables are crucial for identifying circumstances beyond individual control and therefore for measuring inequality of opportunity.

Using EU-SILC microdata, we compute regional measures of overall income inequality, inequality of opportunity, inequality of effort, and educational inequality. The analysis covers 25 European countries and 132 regions, corresponding to the highest level of territorial disaggregation available in EU-SILC:

- NUTS0 for Croatia, Denmark, Estonia, Germany, Ireland, Latvia, Lithuania, Netherlands, Norway, Portugal, Slovakia, Slovenia, and Switzerland;

---

<sup>2</sup>For comprehensive reviews of this literature, see [Ferreira and Peragine \(2016\)](#), [Ramos and Van de Gaer \(2016\)](#), and [Pignataro \(2012\)](#).

- NUTS1 for Austria, Belgium, Bulgaria, France, Greece, Hungary, Italy, Poland, and Sweden;
- NUTS2 for the Czech Republic, Finland, and Spain.

Overall income inequality and educational inequality are measured using the Gini index applied respectively to the regional income distribution and to the distribution of educational attainment (ISCED). To assess the fairness of the income distribution, we rely on the literature on inequality of opportunity (Roemer, 1998; Checchi and Peragine, 2010; Ferreira and Gignoux, 2011; Brunori et al., 2013). Following Becchetti et al. (2024), total income inequality is decomposed into inequality of opportunity (driven by circumstances beyond individual control) and inequality of effort (driven by individual choices and actions).

To estimate inequality of opportunity we adopt the widely used ex-ante parametric approach (Ferreira and Gignoux, 2011). This regression-based method estimates the portion of income inequality explained by predetermined circumstances. The set of circumstances included follows the empirical literature (Becchetti et al., 2024; Checchi and Peragine, 2010) and includes parental education, parental occupation, parental employment status, gender, parental presence during childhood, number of children in the household, and the financial situation of the household during childhood.<sup>3</sup>

Regional inequality indicators are then matched with individual-level data from the European Social Survey (ESS), specifically waves 2, 5, and 9, corresponding respectively to the years 2005, 2011, and 2019. The ESS provides detailed information on socio-demographic characteristics, attitudes, and beliefs.

Our dependent variable is derived from the ESS question asking respondents whether “*the government should reduce differences in income levels*”. Responses are measured on a scale from 1 (strongly disagree) to 5 (strongly agree), where higher values indicate stronger support for redistribution.

The ESS also provides a rich set of individual controls including education, income position, employment status, political ideology, religion, and demographic characteristics. Additional regional controls such as GDP per capita and social spending are obtained from Eurostat and the World Income Inequality Database (WIID).

Table 1 summarises the main variables used in the empirical analysis and their corresponding data sources.

---

<sup>3</sup>Inequality of opportunity estimates are bootstrapped (1,000 replications) to account for sampling variability.

Table 1: Definition of variables

Variable	Description	Source
Preferences for Redistribution	Individual response to the statement “The government should reduce differences in income levels”, measured on a 1–5 scale	ESS
Overall Inequality	Gini index applied to the regional income distribution	EU-SILC; WIID
Inequality of Opportunity (IOp)	Component of income inequality explained by circumstances beyond individual control, estimated using the ex-ante parametric approach	EU-SILC
Inequality of Effort (IEf)	Residual component of income inequality attributed to effort and individual choices	EU-SILC
Opportunity Disadvantage Index	Individual propensity score capturing exposure to disadvantaged opportunity structures based on weighted circumstances	EU-SILC
Gender	Dummy variable equal to 1 if the respondent is female	ESS
Education	Categorical variable for education level groups (ISCED classification)	ESS
Income	Self-reported income decile position	ESS
Main Activity	Primary economic activity (employed, self-employed, unemployed, retired, student)	ESS
Immigrant	Dummy variable equal to 1 if the respondent was born outside the country	ESS
Age	Age of the respondent at the time of the interview	ESS
Social Spending	Government social protection expenditure	Eurostat
Regional GDP per capita	Average regional GDP per capita	Eurostat
Educational Inequality	Gini index applied to education distribution	EU-SILC
Beliefs	Individual attitudes such as political ideology, meritocracy beliefs and religiosity	ESS

*Notes:* Table reports the main variables used in the empirical analysis and their corresponding data sources.

Table 2: Descriptive statistics of individual-level variables

Variable	Observations	Mean	Std. Dev.	Min	Max
Preferences for Redistribution	95,109	3.880	1.028	1	5
Gender	98,100	0.547	0.498	0	1
Income	75,643	4.594	2.492	1	10
Education	97,928	3.274	1.314	1	5
Immigrant	98,023	0.098	0.297	0	1
Educational Inequality	98,137	0.181	0.055	0	1
Age	98,121	49.930	16.232	15	89

*Notes:* Descriptive statistics based on pooled ESS waves 2, 5 and 9 (years 2005, 2011, 2019).

Table 3: Regional inequality measures

Variable	2005		2011		2019	
	Mean	Std.Dev	Mean	Std.Dev	Mean	Std.Dev
Overall Income Inequality	0.284	0.045	0.285	0.037	0.274	0.036
Inequality of Opportunity	0.095	0.041	0.107	0.041	0.099	0.036
Inequality of Effort	0.189	0.029	0.178	0.038	0.175	0.029
Relative IOp	0.177	0.105	0.224	0.128	0.205	0.101

*Notes:* Regional inequality indicators computed from EU-SILC microdata.

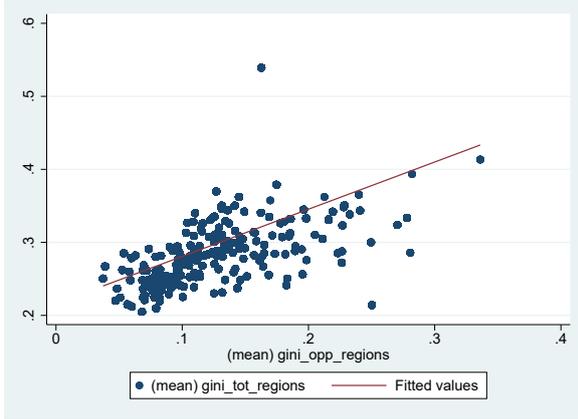


Figure 1: Inequality of opportunity and overall income inequality

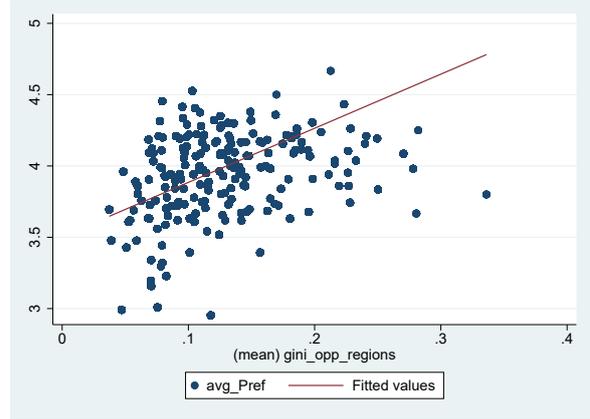


Figure 2: Inequality of opportunity and redistribution preferences

Table 4: Correlation between inequality measures and redistribution preferences

Variable	Coefficient	Std. Error
Inequality of Effort	1.464**	0.583
Inequality of Opportunity	2.390***	0.483
Observations	205	
R-squared	0.123	

*Notes:* Dependent variable is the regional average of redistribution preferences. ESS round fixed effects included. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

## 4 Econometric Specification

Using the data described above, we estimate a series of econometric models to examine how different forms of inequality—overall income inequality, inequality of opportunity, inequality of effort, and the relative share of inequality of opportunity—affect individual preferences for redistribution.

Our dependent variable is derived from the European Social Survey question asking respondents whether “the government should reduce differences in income levels”. Responses are recorded on a scale from 1 (strongly disagree) to 5 (strongly agree). As a robustness check, we also recode this variable into a binary indicator equal to one for individuals expressing support for redistribution.<sup>4</sup>

Consistent with the existing literature<sup>5</sup>, we include a rich set of socio-demographic controls including gender, age, education, employment status, income, immigrant status, and family composition. We also control for attitudinal variables such as left–right ideological self-placement and meritocratic beliefs.

In addition, we incorporate regional-level controls capturing structural economic conditions, including regional GDP per capita, educational inequality, and social spending (Verme, 2011).

Because redistributive preferences are measured at the individual level while inequality indicators are measured at the regional level, the analysis captures the effect of living in a region

<sup>4</sup>The binary indicator takes value 1 if the response is greater than or equal to 3.

<sup>5</sup>See, among others, Olivera (2015); Ahrens (2022); Alesina and Giuliano (2011).

characterised by higher inequality of opportunity on an individual’s support for redistribution.

Our baseline specification is:

$$\begin{aligned}
Y_i = & \alpha_j + \beta_1 \cdot \text{Inequality Index}_{r,i} + \beta_2 \cdot \text{Education}_i + \beta_3 \cdot \text{Income}_i + \beta_4 \cdot \text{Age}_i \\
& + \beta_5 \cdot \text{Age}_i^2 + \beta_6 \cdot \text{Gender}_i + \beta_7 \cdot \text{Immigrant}_i + \beta_8 \cdot \text{Beliefs}_i + \beta_9 \cdot \text{MainActivity}_i \\
& + \beta_{10} \cdot \text{Religion}_i + \beta_{11} \cdot \text{FamilySize}_i + \beta_{12} \cdot \text{SocialSpending}_r \\
& + \beta_{13} \cdot \text{EducationalInequality}_r + \beta_{14} \cdot \text{RegionalGDP}_r \\
& + \sum_{r=1}^R \pi_r \cdot \text{Region}_r + \sum_{t=1}^T \rho_t \cdot \text{ESSRound}_t + \varepsilon_i
\end{aligned} \tag{1}$$

Standard errors are clustered at the regional level and bootstrapped (1,000 replications) to account for the generated-regressor nature of the inequality of opportunity measure.

## 5 Empirical Results

Our central hypothesis is that the mixed empirical evidence on the relationship between income inequality and redistributive preferences arises because inequality is often treated as a single undifferentiated measure. We argue instead that inequality must be decomposed into two components: inequality of opportunity and inequality of effort.

We first examine the relationship between overall income inequality and redistributive preferences. Across all specifications, the coefficient on overall inequality is small and statistically insignificant (Table 5, columns 1, 4, 5 and 8).

Once inequality is decomposed, a clearer pattern emerges. Inequality of opportunity shows a positive and statistically significant association with redistributive preferences, whereas inequality of effort is either negative or statistically insignificant.

Table 5: Benchmark regressions: The effect of inequality measures on preferences for redistribution

Variables	OLS				Ordered Logit			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Overall Inequality	0.209 (0.288)			0.301 (0.290)	0.516 (0.440)			0.490 (0.415)
Inequality of Opportunity		0.220*** (0.063)	0.201*** (0.042)			2.403*** (0.460)	2.131*** (0.507)	
Inequality of Effort			-0.099 (0.053)				-1.356 (0.705)	
Relative IOp				0.052*** (0.015)				0.73*** (0.162)
Observations	74,075	74,075	74,075	74,075	74,075	74,075	74,075	74,075
Regional Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.1413	0.1417	0.1415	0.1418				

Notes: Bootstrapped standard errors clustered at the regional level in parentheses. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

Table 6: Marginal effects from Ordered Logit models

Variables	(1)	(2)	(3)
Overall Inequality			0.098
Inequality of Opportunity	0.456***	0.404***	
Inequality of Effort		-0.086	
Relative IOp			0.139***

Notes: Marginal effects computed for the probability of selecting the highest category of redistribution preferences. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01.

## 5.1 Instrumental Variable Approach

A potential concern in the baseline specifications is that regional inequality of opportunity may be endogenous to redistributive preferences. Endogeneity may arise from omitted regional characteristics or from reverse causality, insofar as stronger preferences for redistribution may translate into political support for policies that reduce opportunity gaps. To address this issue, we implement an instrumental variable strategy.

Our main instrument is the amount of per-capita European Social Fund (ESF) allocations received by each region. The ESF is the main European instrument for promoting employment, education, and social inclusion, and it is explicitly targeted at disadvantaged individuals and structurally weaker regions. It is therefore plausibly related to regional opportunity structures and, in particular, to inequality of opportunity. At the same time, conditional on the controls included in the model, ESF allocations are unlikely to affect individual preferences for national redistribution except through their impact on the regional distribution of opportunities.

The first-stage results strongly support the relevance of the instrument. As shown in Table 7, ESF per-capita allocations are positively and significantly associated with regional inequality of opportunity across all specifications in which they are used as instruments.

A natural concern is that EU-funded interventions might also affect political attitudes directly, for example by increasing trust in institutions or support for redistribution. However, the available evidence suggests that the political visibility of EU social policies is limited. [Natili et al. \(2023\)](#) show that only a minority of citizens is aware of the role played by EU social initiatives in their local communities, and that such initiatives affect political attitudes mainly when they are explicitly recognised by citizens, primarily through support for European integration rather than support for national redistribution. This weak visibility reduces concerns that ESF allocations directly shape redistributive preferences through political-attitudinal channels.

As an additional robustness check, we use an alternative instrument based on the regional average of the most influential circumstance in each cohort-year, identified through the Shapley decomposition.<sup>6</sup> Since this variable is constructed from predetermined parental-background characteristics, it provides an additional source of plausibly exogenous variation in inequality of opportunity.

The second-stage estimates confirm and strengthen the baseline results. Once inequality of opportunity is instrumented, its coefficient remains positive, large, and statistically significant across all specifications. The marginal effects from the extended ordered Probit models indicate

<sup>6</sup>See Appendix A for details on the decomposition of circumstance contributions to inequality of opportunity.

that a 10 percentage-point increase in inequality of opportunity raises the probability of choosing the maximum redistribution category by between 2.78 and 5.45 percentage points, depending on the specification. These magnitudes are very close to those obtained in the non-IV analysis, suggesting that the baseline association is not driven by reverse causality or omitted-variable bias.

The IV estimates also provide an additional insight. Once the opportunity-related component of inequality is isolated, both overall inequality and inequality of effort become negative in several specifications, and in some cases statistically significant. This pattern is consistent with our main hypothesis: the positive relationship between inequality and redistributive preferences reflects primarily the unfair, circumstance-related component of inequality rather than inequality per se.

Taken together, these results reinforce the interpretation that inequality of opportunity is a key determinant of redistributive preferences. To ensure valid inference, all IV estimates are obtained with bootstrapped standard errors clustered at the regional level.

Table 7: Instrumental variable estimates: inequality measures and redistribution preferences

<b>First stage</b>					
<i>Dependent variable: Inequality of Opportunity</i>	(1)	(2)	(3)	(4)	(5)
ESF per capita	0.252*** (0.004)	0.252*** (0.004)	0.252*** (0.004)		
Average of Circumstance				0.086*** (0.004)	0.086*** (0.004)
<b>Second stage</b>					
Estimator	(1) eoprobit	(2) eoprobit	(3) eoprobit	(4) 2SLS	(5) 2SLS
Inequality of Opportunity	5.780*** (0.978)	4.871*** (1.052)	5.739*** (0.984)	2.331*** (0.634)	2.236*** (0.564)
Inequality of Effort		-0.897*** (0.349)		0.787 (0.531)	
Overall Inequality			-0.668*** (0.249)		-0.822*** (0.226)
Marginal effect of IOp on max redistribution	0.431*** (0.108)	0.278*** (0.079)	0.545*** (0.180)		
Observations	51,541	51,541	51,541	67,452	67,452
Regional fixed effects	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Standard errors	Bootstrap	Bootstrap	Bootstrap	Bootstrap	Bootstrap

*Notes:* Bootstrapped standard errors clustered at the regional level are reported in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## 6 Robustness Checks

We perform a series of robustness checks to assess the stability of the baseline results and verify that the relationship between inequality of opportunity and redistributive preferences is not driven by specific modeling choices or sample characteristics <sup>7</sup>.

<sup>7</sup>Details and tables available in Appendix C.

First, we recompute the inequality measures at the national level instead of the regional level. Using the same EU-SILC data and methodology, we construct national indexes of inequality of opportunity and inequality of effort. This specification allows us to test whether the relationship identified in the baseline model holds when inequality is measured at a broader territorial scale. The results remain highly consistent with the main estimates: inequality of opportunity continues to display a positive and statistically significant association with preferences for redistribution.

Second, we re-estimate the benchmark models excluding regional fixed effects. While the baseline specification exploits within-region variation over time, this alternative specification focuses on between-region variation. The results remain stable and the coefficients of interest retain their positive sign and statistical significance. Although this specification may capture additional time-invariant regional characteristics, the persistence of the main results suggests that the relationship between inequality of opportunity and redistributive preferences is not driven by the inclusion of regional fixed effects.

Third, we conduct a sensitivity analysis by sequentially excluding each country from the sample. This leave-one-country-out procedure allows us to verify whether the results are disproportionately driven by specific national contexts. The estimated coefficients remain stable across all iterations, indicating that the findings are not sensitive to the exclusion of individual countries.

Fourth, we restrict the sample to observations with a consistent level of territorial disaggregation. Because EU-SILC provides different NUTS levels across countries, this restriction ensures that the analysis is based on comparable geographical units. The results remain unchanged, confirming that the baseline estimates are not driven by differences in regional aggregation.

An additional concern relates to the quality of data in ESS wave 2, which has been shown to present some representativeness issues (Becchetti et al., 2024). Excluding this wave from the analysis does not affect the estimated coefficients, further confirming the robustness of the results.

## 6.1 Heterogeneity Analysis

We further investigate whether the relationship between inequality and redistributive preferences differs across socio-demographic groups. To do so, we estimate the baseline model on different subsamples of the population.

The results reveal meaningful heterogeneity in how individuals respond to different forms of inequality. Higher-income individuals appear more responsive to inequality of effort than to inequality of opportunity. This pattern may reflect a stronger adherence to meritocratic interpretations of economic outcomes among individuals who have benefited from favourable opportunity structures.

In contrast, individuals with lower income levels display a stronger response to inequality of opportunity. This finding suggests that individuals who are more likely to face structural barriers are particularly sensitive to inequalities arising from circumstances beyond individual control.

Gender differences also emerge from the analysis. Women show stronger redistributive

preferences in response to inequality of opportunity, a result consistent with the literature documenting that women tend to perceive greater structural constraints within economic and social systems.

Similarly, individuals with lower educational attainment appear more sensitive to opportunity-related inequality, possibly reflecting direct experiences with limited access to education and upward mobility. Younger individuals also exhibit stronger redistributive responses to inequality of opportunity, which may reflect greater concern about future mobility prospects and life opportunities.

Taken together, these results highlight that redistributive preferences depend not only on the overall level of inequality but also on the perceived source of inequality and on individuals' socio-economic positions. Inequalities arising from circumstances beyond individual control consistently generate stronger support for redistribution across different population groups.

Finally, as discussed in the main empirical analysis, Ordered Logit models provide an additional robustness check. Table 6 reports the corresponding marginal effects.

Overall, the results of these robustness exercises confirm the stability of the main findings.<sup>8</sup> Across alternative specifications, aggregation levels, and subsample analyses, inequality of opportunity remains the most robust and consistent determinant of redistributive preferences.

## 7 From Regional Patterns to Individual Exposure: A Micro Perspective

The regional analysis presented above highlights how inequality of opportunity shapes preferences for redistribution through the opportunity structures prevailing in the places where individuals live. In this section, we extend the analysis by introducing a complementary micro-level perspective.

Our main contribution is the construction of an individual-level measure capturing the probability that a person has been exposed to limited opportunities during the period in which their income was formed. We refer to this measure as the *Opportunity Disadvantage Index*. By linking circumstance-based disadvantage to individual redistributive attitudes, this index allows us to move from regional patterns of inequality of opportunity to individual exposure to unfair opportunity structures.

To construct this measure, we first identify how different circumstances contribute to inequality of opportunity. Using the same set of circumstances employed in the regional analysis, we decompose total inequality of opportunity into the shares attributable to each circumstance. This decomposition allows us to quantify the relative importance of each factor in generating opportunity-related inequality.

We implement the decomposition using the Shapley value approach, which attributes a contribution to each circumstance in a way that is independent of the ordering of variables. Although computationally intensive, as it requires computing inequality across all possible combinations of circumstances, the Shapley method provides a transparent and consistent allocation

---

<sup>8</sup>All robustness checks are reported in Appendix C.

of contributions across correlated factors. To ensure statistical reliability, the decomposition is repeated 1,000 times using bootstrap resampling.

Because opportunity structures evolve over time, the index is estimated separately by birth cohort.<sup>9</sup> Opportunity structures are inherently cohort-specific: individuals born in different periods face distinct educational systems, labour-market conditions, and social policies that influence the extent to which circumstances affect income outcomes. Estimating the index within cohorts therefore captures temporal heterogeneity in opportunity structures while also mitigating life-cycle bias in income data.

Using the contributions obtained from the Shapley decomposition, we construct the Opportunity Disadvantage Index by aggregating standardised circumstance variables using weights corresponding to their relative contribution to inequality of opportunity.<sup>10</sup> All circumstances are standardised so that higher values correspond to more disadvantaged conditions (for example, lower parental education or weaker household financial conditions). The resulting index measures the probability that an individual faced constrained opportunities during the period in which their income was formed.

This micro-level indicator allows us to link inequality of opportunity not only to regional environments but also to individual exposure to disadvantage. In this way, the analysis complements the regional approach by examining whether individuals who were more likely to face limited opportunities are systematically more supportive of redistributive policies.

To complement the individual-level analysis, we also compute inequality of opportunity at the cohort–NUTS1 level. This allows us to examine how opportunity structures evolve across regions and across generations, and to assess whether the spatial distribution of income-related inequality of opportunity displays persistent regularities over time.

Figures 3–5 report the distribution of inequality of opportunity across NUTS1 regions for three birth cohorts. The maps reveal a pronounced spatial pattern in opportunity inequality. Higher levels of inequality of opportunity tend to cluster in several continental and Nordic regions, while lower values are more frequently observed in the Iberian Peninsula, Southern Italy, and parts of Eastern Europe. This geography is broadly consistent with the intergenerational mobility literature, which emphasises the role of welfare institutions, labour-market structures, and access to education in shaping opportunity sets.<sup>11</sup>

The cross-cohort evolution of these maps also suggests partial convergence in opportunity inequality. The 1960 cohort displays particularly high levels of inequality of opportunity in Spain and several Eastern regions, consistent with persistent labour-market dualism and the long shadow of institutional transitions. For the 1980 cohort, the spatial distribution appears somewhat more compressed, plausibly reflecting the expansion of education systems, European integration, and cohesion-policy interventions. At the same time, several peripheral regions remain characterised by relatively high levels of inequality of opportunity, indicating that convergence has been incomplete.

---

<sup>9</sup>Individuals are grouped into 20-year birth cohorts in order to obtain sufficiently large samples and to capture individuals exposed to broadly similar institutional, educational, and labour-market environments during the formation of their income.

<sup>10</sup>The full methodological procedure is described in Appendix A.

<sup>11</sup>See, for example, Esping-Andersen (2005), Solon (2004), and Checchi et al. (2016).

These patterns are also informative when related to previous research on educational inequality of opportunity. A broad regularity emerging from that literature is that regions with more favourable institutional and labour-market environments tend to display lower opportunity inequality across multiple dimensions of well-being. Our results are consistent with this view, but they also suggest that income-related inequality of opportunity is likely to display greater persistence and wider cross-regional dispersion than educational opportunity inequality. This is plausible, since income opportunities depend not only on access to schooling, but also on job quality, labour-market segmentation, wage-setting institutions, wealth transmission, and housing conditions.

This interpretation points to an important substantive implication. Equalising educational opportunities may be necessary to reduce unfair inequality, but it is unlikely to be sufficient to eliminate disparities in economic opportunity. Even where access to education becomes more equal, post-educational mechanisms may continue to generate substantial inequality in lifetime income opportunities.

Figure 3: Inequality of opportunity by NUTS1 region: 1940 cohort

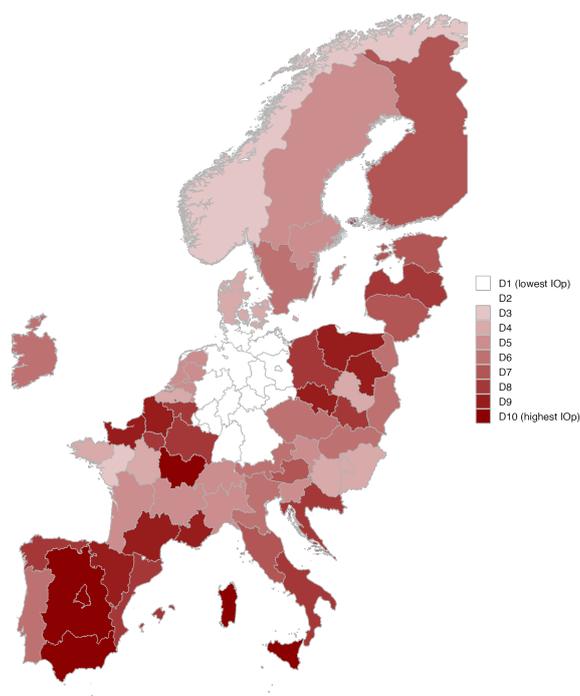


Figure 4: Inequality of opportunity by NUTS1 region: 1960 cohort

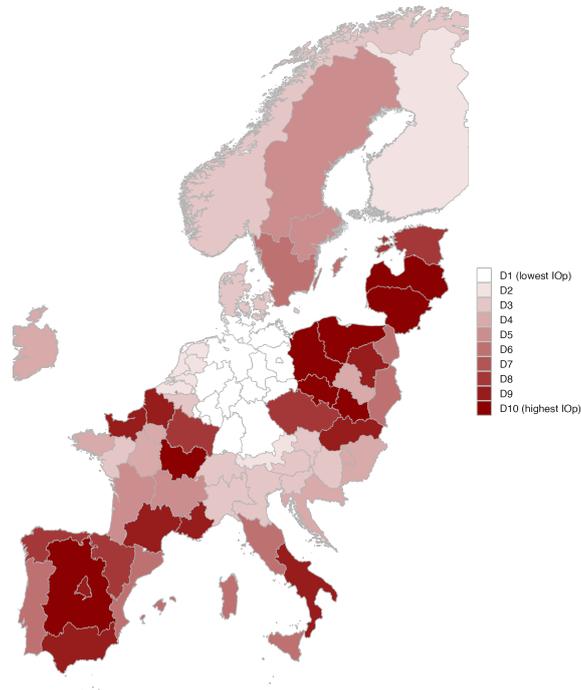
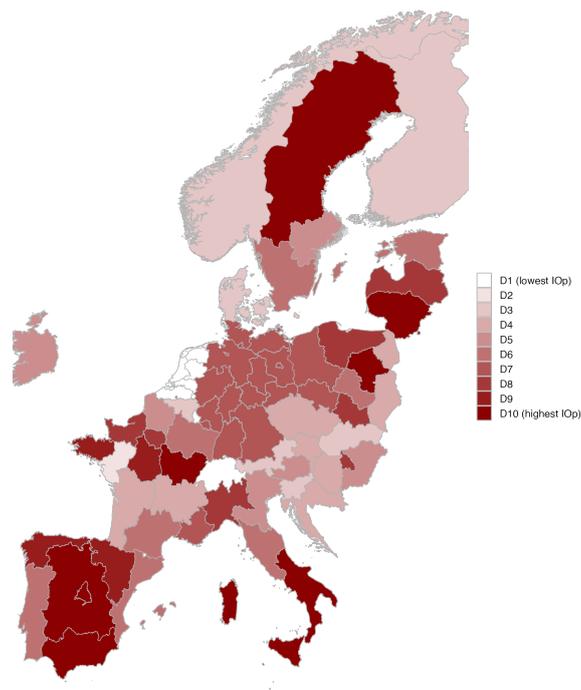


Figure 5: Inequality of opportunity by NUTS1 region: 1980 cohort



## 7.1 Empirical Analysis

We estimate the same econometric specification as in Equation 1, with the key difference that we now include the individual-level propensity score capturing the probability of having experienced limited opportunities during the period in which income was formed. This score, which we refer to as the *Opportunity Disadvantage Index*, is measured at the cohort level and assigned to each individual in the ESS sample.

Because inequality of opportunity is computed at the cohort–NUTS1 level using EU-SILC data, it can be matched to all available waves of the European Social Survey rather than only to the survey waves corresponding to EU-SILC years. As a consequence, the usable ESS sample increases substantially, from 74,075 observations in the baseline analysis to 188,796 observations in this extended specification. This larger sample allows us to simultaneously capture two complementary dimensions: the individual probability of having faced limited opportunities and the regional opportunity environment in which individuals formed their income.

As in the previous analysis, we estimate both OLS and Ordered Logit models. Across all specifications reported in Table 8, the Opportunity Disadvantage Index displays a stable, positive, and highly significant association with preferences for redistribution.

In the OLS specifications (columns 1–4), the estimated coefficient is remarkably consistent at around 0.034. This implies that a one-unit increase in the index, which ranges between 0 and 1, is associated with an increase of 0.034 points in the redistribution preference scale (which ranges from 1 to 5). Although modest in absolute terms, as expected given the bounded scale of the dependent variable, the coefficient is highly stable across specifications and statistically strong. Its magnitude is also comparable to other socio-economic determinants typically identified in the literature on redistributive preferences.

The Ordered Logit estimates (columns 5–8) provide a clearer interpretation in terms of probabilities. Considering the marginal effects for the highest redistribution category, the Opportunity Disadvantage Index displays a marginal effect of approximately 0.55. In economic terms, this implies that a 10 percentage point increase in the index raises the probability of selecting the highest level of redistribution by about 5.5 percentage points, holding other characteristics constant. The stability of this marginal effect across specifications confirms that the relationship is robust and not sensitive to the functional form of the model.

When inequality of opportunity, inequality of effort, and relative inequality of opportunity are included alongside the propensity score, the main results remain unchanged. Inequality of opportunity continues to display a positive and statistically significant effect (columns 2–3 and 6–7), while inequality of effort is either negative or statistically weak, consistent with the patterns observed in the previous section.

Importantly, the magnitude of the Opportunity Disadvantage Index remains essentially unchanged after introducing the full set of inequality measures, both in the OLS and Ordered Logit specifications. This suggests that the index captures an independent dimension of experienced unfairness related to individual exposure to disadvantaged circumstances, which is not absorbed by regional inequality indicators.

Overall, the magnitude and consistency of the estimated effects indicate that individuals who were more likely to experience limited opportunities during the formation of their income are

systematically more supportive of redistribution. These findings reinforce the central hypothesis of the paper: experienced or objective unfairness plays a key role in shaping redistributive attitudes, beyond the influence of observable regional inequality or individual socio-economic characteristics.

$$\begin{aligned}
Y_i = & \alpha_j + \beta_1 \text{Inequalities\_indexes}_{r,i} + \beta_2 \text{Education\_level}_i + \beta_3 \text{Income}_i + \beta_4 \text{Age}_i \\
& + \beta_5 \text{Age}_i^2 + \beta_6 \text{Gender}_i + \beta_7 \text{Immigrant}_i + \beta_8 \text{Beliefs}_i + \beta_9 \text{Main\_activity}_i \\
& + \beta_{11} \text{Family\_size}_i + \beta_{12} \text{Social\_spending}_r + \beta_{13} \text{Edu\_inequality}_r \\
& + \beta_{14} \text{Regional\_GDP}_r + \sum_{r=1}^R \pi_r \text{Region}_r + \sum_{t=1}^T \rho_t \text{ESSRound}_t + \sum_{t=1}^T \theta_t \text{Cohort}_t + \varepsilon_i \quad (2)
\end{aligned}$$

Table 8: Benchmark regressions: Effect of the probability to have experienced limited opportunities on individual preferences for redistribution.

<i>Pref. for redistribution</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Variables</b>	OLS				Ordered Logit			
<b>Opportunity Disadvantage Index</b>	0.034*** (0.004)	0.034*** (0.004)	0.034*** (0.005)	0.034*** (0.003)	0.282*** (0.025)	0.283*** (0.028)	0.284*** (0.022)	0.283*** (0.022)
<b>Overall Inequality</b>		0.221*** (0.060)		0.220*** (0.037)		0.634 (0.464)		0.624 (0.350)
<b>Inequality of Opportunity</b>		0.225*** (0.058)	0.320*** (0.079)			2.450*** (0.396)	2.241*** (0.411)	
<b>Inequality of Effort</b>			0.029 (0.057)				-1.330* (0.517)	
<b>Relative IOp</b>				0.051*** (0.013)				0.729*** (0.153)
<b>Margins (Max)</b>					0.551***	0.490***	0.552***	0.562***
Controls	Yes							
Observations	188,796	188,796	188,796	188,796	188,796	188,796	188,796	188,796
Regional fixed effects	Yes							
Time fixed effects	Yes							
Cohort fixed effects	Yes							
Standard Errors	Bootstrap							
R-squared (OLS)	0.1426	0.1428	0.1428	0.1429				

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

## 7.2 Instrumental variable approach

To further address potential endogeneity concerns, we implement an instrumental variable (IV) strategy. Although the Opportunity Disadvantage Index is constructed using cohort-specific circumstances and therefore largely predetermined with respect to current attitudes, unobserved historical or regional factors may still jointly influence both the opportunity structure faced by individuals and their redistributive preferences.

To mitigate this concern, we measure the Opportunity Disadvantage Index at the cohort–NUTS1 level. This design captures the opportunity structure prevailing during each cohort’s income-formation period and largely rules out reverse causality, since contemporary preferences for redistribution cannot influence opportunity structures that existed decades ear-

lier. Nevertheless, residual endogeneity may still arise from measurement error or omitted regional characteristics that affect both opportunity structures and redistributive attitudes.

To address these concerns, we employ compulsory schooling reforms as an instrumental variable. This strategy exploits exogenous variation in the educational environment generated by historical reforms that increased the number of mandatory years of schooling. These reforms affected educational attainment for specific cohorts independently of individual characteristics and therefore generated variation in opportunity structures that is plausibly unrelated to contemporaneous individual preferences for redistribution.

The validity of this identification strategy relies on two key conditions: relevance and the exclusion restriction. Relevance requires that the instrument significantly affects the Opportunity Disadvantage Index. This condition is satisfied empirically, as shown by the first-stage results reported in Table 9. The estimated coefficient for compulsory education is negative and highly statistically significant, indicating that increases in mandatory years of schooling are associated with lower levels of opportunity disadvantage. This result is consistent with the interpretation that expanding compulsory education reduces structural disadvantages and improves equality of opportunity.

The exclusion restriction requires that compulsory schooling reforms affect redistributive preferences only through their impact on opportunity structures. This assumption is plausible given that these reforms were broad institutional changes implemented for long-run educational and economic development objectives rather than in response to redistributive preferences of specific cohorts. As a result, they are unlikely to directly influence contemporary attitudes toward redistribution except through their effect on experienced opportunity conditions.

Table 9 reports the results of the instrumental variable estimation. The first-stage estimates show a negative and highly significant coefficient for compulsory education across all specifications, confirming the relevance of the instrument.

The second-stage results, estimated using alternative methods (IV-Probit, 2SLS, and Eoprobit), consistently indicate a strong and positive effect of the Opportunity Disadvantage Index on preferences for redistribution. Individuals who were exposed to more limited opportunities during their income-formation period are significantly more likely to support redistributive policies. The magnitude of the estimated coefficients is stable across estimators, suggesting that the results are robust to different functional forms.

The direct measure of inequality of opportunity remains positive but less precisely estimated in the IV specifications. This pattern supports the interpretation that individual exposure to disadvantaged circumstances plays a more direct role in shaping redistributive attitudes than aggregate measures of opportunity inequality.

According to the marginal effects from the eoprobit model, a one-unit increase in the Opportunity Disadvantage Index raises the probability of choosing the maximum redistribution level by about 6 percentage points. Given that the index ranges between 0 and 1, a 10 percentage point increase in the index corresponds to an increase of approximately 0.6 percentage points in the probability of selecting the highest redistribution category.

An additional aspect worth noting is that the IV estimates are larger in magnitude than the corresponding coefficients obtained in the baseline specifications. This pattern is consistent with

the interpretation of instrumental variable estimates as local average treatment effects (LATE). In our context, the IV coefficients capture the effect of opportunity disadvantage for individuals whose exposure to limited opportunities was affected by compulsory schooling reforms (the so-called *compliers*). These individuals are precisely those whose educational trajectories were altered by the expansion of compulsory schooling and whose opportunity structures were therefore most responsive to institutional changes. If the reforms disproportionately affected individuals originating from more disadvantaged backgrounds, the IV estimates may reflect stronger redistributive responses among these groups. Consequently, the larger IV coefficients can be interpreted as evidence that the impact of experienced opportunity disadvantage on redistributive preferences is particularly pronounced among individuals whose opportunities were most sensitive to educational reforms.

Overall, the IV results corroborate the baseline findings. The strong first-stage relationship confirms the relevance of the instrument, while the stability of the second-stage estimates across different estimation methods suggests that the positive association between limited opportunities and support for redistribution is not driven by reverse causality or omitted variable bias.

Table 9: Instrumental Variables Strategy: Effect of the probability to have experienced limited opportunities on individual preferences for redistribution.

<b>First stage</b>			
<i>Propensity Score</i>	(1)	(2)	(3)
Compulsory Education	-0.010*** (0.002)	-0.010*** (0.002)	-0.027*** (0.000)
<b>Second stage</b>			
<i>Preferences for redistribution</i>	(1)	(2)	(3)
Variables	iv probit	2SLS	eoprobit
Opportunity Disadvantage Index	1.970*** (0.593)	1.763*** (0.576)	0.833*** (0.137)
Inequality of Opportunity	0.214* (0.129)	0.037 (0.108)	0.157* (0.088)
Margins Opportunity Disadvantage Index (max)			0.060***
Observations	188,796	188,796	188,796
Regional fixed effect	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Cohort fixed effect	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Standard Errors	Bootstrap	Bootstrap	Bootstrap

Note: \* p < 0.1, \*\* p < 0.05, \*\*\* p < 0.01. Standard errors are reported in parentheses.

### 7.3 Is the Opportunity Disadvantage Index a valid measure of experienced unfairness?

All the previous empirical analysis relies on the assumption that the Opportunity Disadvantage Index represents a meaningful proxy for experienced unfairness, that is, the probability that

individuals were exposed to limited opportunities during the period in which their income was formed. Although the index is constructed using objective circumstance-based information, it is important to assess whether it also correlates with individuals' subjective perceptions of opportunity fairness.

To provide an empirical validation of the index, we perform a set of regressions where the Opportunity Disadvantage Index is used as the dependent variable and is explained by four categorical variables drawn from the European Social Survey capturing individuals' perceived fairness in access to opportunities. These questions measure both personal and societal perceptions of fairness in education and labour market access. Specifically, respondents are asked about:

- the perceived fairness of their own opportunity to achieve the level of education they seek,
- the perceived fairness of their own opportunity to obtain the job they seek,
- the perceived fairness of educational opportunities available to everyone in their country,
- the perceived fairness of job opportunities available to everyone in their country.

Each response is measured on an ordinal scale reflecting different levels of agreement with the statement. These variables therefore capture how individuals perceive the fairness of opportunity structures both at the personal level and at the broader societal level.

Table 10 reports the regression results. Each row corresponds to a separate regression where the Opportunity Disadvantage Index is explained by one of the four fairness perception variables. Across all specifications, the estimated coefficients are negative and statistically significant. This relationship remains robust even when regional fixed effects are included.

The negative coefficients indicate that individuals who report higher levels of perceived fairness tend to display lower values of the Opportunity Disadvantage Index. In other words, individuals who were more likely to face disadvantaged opportunity structures according to the objective index also tend to perceive opportunity systems as less fair.

To further illustrate this relationship, Figure 6 plots the association between the Opportunity Disadvantage Index and each fairness perception variable. The visual patterns reveal a clear downward relationship: higher perceived fairness corresponds to lower values of the index.

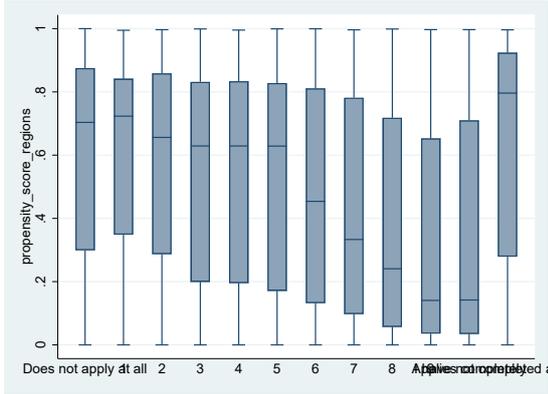
Taken together, these results provide a meaningful empirical validation of the Opportunity Disadvantage Index. Although the index is constructed using objective circumstances rather than subjective perceptions, it aligns closely with individuals' own assessments of opportunity fairness. This suggests that the index captures a relevant dimension of experienced disadvantage and supports its interpretation as a measure of exposure to unequal opportunities.

Table 10: Propensity Score and subjective fairness perception.

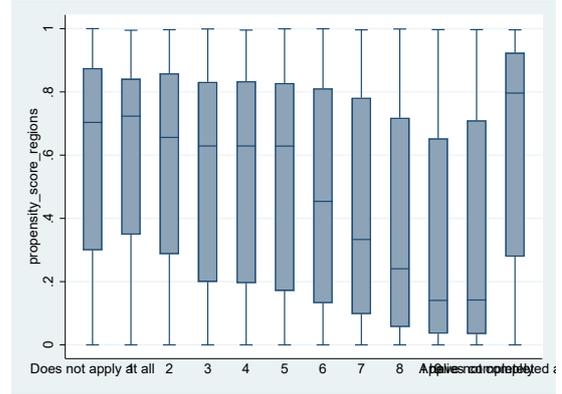
<i>Opportunity disadvantage index</i>	(1)	(2)
<b>Variables</b>		
Personal fair chance to achieve education	-0.010***	-0.006***
Personal fair chance to achieve job	-0.028***	-0.018***
Overall fair chance to achieve education	-0.012***	-0.004***
Overall fair chance to achieve job	-0.018***	-0.006***
Regional fixed effect	No	Yes

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . Each line corresponds to a different regression.

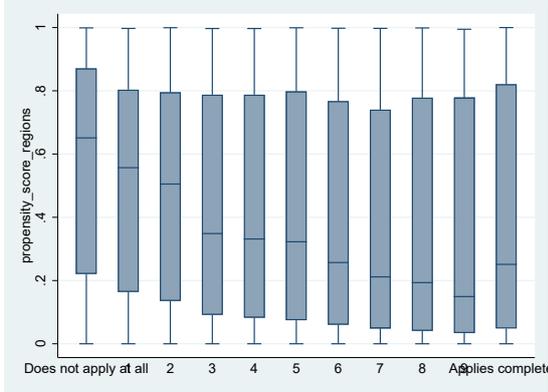
Figure 6: Empirical validation of the Opportunity disadvantage index.



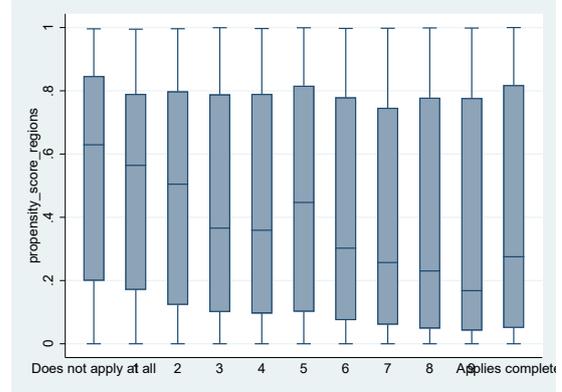
Fair chance achieve the level of education I seek.



Fair chance achieve the job I seek.



Everyone, fair chance achieve education they seek.



Everyone, fair chance achieve the job they seek.

## 8 Mechanisms linking inequality of opportunity to redistributive preferences: regional and individual channels

The empirical analysis presented in this paper documents a robust positive relationship between inequality of opportunity and support for redistribution at both the regional and the individual level. While these two empirical approaches operate at different levels of aggregation, they can be interpreted as capturing complementary mechanisms through which unequal opportunity structures shape redistributive preferences.

The regional analysis shows that individuals living in regions characterised by higher in-

equality of opportunity exhibit stronger support for redistribution. This pattern suggests that opportunity structures influence attitudes not only through individual experiences but also through the broader social environment in which beliefs about fairness and economic success are formed. In regions where economic outcomes are strongly influenced by circumstances rather than effort, individuals are more likely to perceive the economic system as less meritocratic. Previous theoretical and empirical contributions highlight how such perceptions play a central role in shaping redistributive preferences (Alesina and Angeletos, 2005; Alesina and Giuliano, 2011). Regional opportunity structures can therefore influence attitudes through shared beliefs about fairness, social norms, and political discourse, affecting even individuals who are not personally constrained by disadvantaged circumstances (Piketty, 1995; Benabou and Tirole, 2006).

The individual-level analysis provides complementary evidence by showing that individuals who were more likely to face limited opportunities during their income-formation period express stronger support for redistribution. For these individuals, inequality of opportunity represents a concrete and lived experience rather than an abstract concept. Early-life constraints may reduce expected returns to effort, weaken perceived mobility prospects, and increase economic insecurity. In such contexts, redistributive policies may be perceived both as a corrective mechanism addressing unfair outcomes and as a form of insurance against persistent disadvantage (Fong, 2001; Corneo and Grüner, 2002).

A key mechanism linking the regional and individual dimensions concerns the formation of beliefs about social mobility. Exposure to unequal opportunity structures—either through the surrounding environment or through personal experiences—can shape individuals’ expectations regarding the likelihood of upward mobility. When individuals perceive that mobility prospects are limited and that economic outcomes are only weakly related to effort, the perceived legitimacy of inequality declines and support for redistribution tends to increase (Alesina et al., 2018; Chetty et al., 2017).

Taken together, the regional and individual analyses provide a coherent interpretation of how inequality of opportunity translates into redistributive preferences. Regional opportunity structures influence the informational and normative environment in which individuals form their attitudes, while individual exposure to constrained opportunities directly affects perceived fairness and economic expectations. The convergence of results across these two levels strengthens the interpretation of the empirical findings and highlights the role of inequality of opportunity as a central driver of redistributive demand.

## 9 Conclusions

This paper investigates how different dimensions of income inequality shape individual preferences for redistribution. The central argument is that the effect of inequality on redistributive attitudes depends fundamentally on its perceived fairness. Distinguishing between inequality of opportunity, arising from circumstances beyond individual control, and inequality of effort, reflecting individual choices and actions, provides a clearer conceptual framework for understanding the mixed findings in the empirical literature on inequality and redistribution.

This distinction is also consistent with several theoretical mechanisms discussed in previous studies. Inequality may reduce support for redistribution when individuals dislike inequality per se or compare themselves unfavourably with richer peers, as in the “pure distaste for inequality” framework of [Alesina et al. \(2004\)](#) and the “relative income comparisons” mechanism of [Ferrer-i Carbonell \(2005\)](#). Conversely, inequality may increase support for redistribution when individuals interpret others’ success as a signal of future upward mobility, as captured by the “tunnel effect” of [Hirschman and Rothschild \(1973\)](#). Our empirical results help reconcile these competing predictions by showing that their relevance depends crucially on the underlying source of inequality.

The analysis contributes to this literature in three main ways. First, it provides regional-level evidence showing that individuals living in regions characterised by higher inequality of opportunity display systematically stronger support for redistribution. Second, it introduces a novel individual-level measure of exposure to limited opportunities—the Opportunity Disadvantage Index—which allows us to link early-life circumstances to redistributive attitudes. Third, by combining regional inequality measures with individual exposure to opportunity constraints, the analysis provides a unified empirical framework that captures both contextual and experiential channels through which inequality of opportunity shapes redistributive preferences.

Across all empirical specifications, inequality of opportunity is consistently and positively associated with stronger preferences for redistribution, whereas inequality of effort and overall income inequality display weaker and less systematic effects. The magnitude of these associations is economically meaningful. From a regional perspective, individuals living in regions where inequality of opportunity is 10 percentage points higher display approximately a 4.5 percentage-point higher probability of selecting the maximum level of redistribution. At the individual level, a 10 percentage-point increase in the probability of having experienced limited opportunities increases the probability of choosing the maximum redistribution level by about 5.5 percentage points. These results suggest that redistributive preferences are driven not by inequality per se, but by the extent to which inequality reflects circumstances perceived as unfair.

To strengthen the causal interpretation of these relationships, the analysis implements instrumental variable strategies at both the regional and the individual levels. At the regional level, European Social Fund allocations are used as an instrument for inequality of opportunity, helping address concerns related to reverse causality and omitted variables. The IV estimates confirm a robust positive effect of inequality of opportunity on redistributive preferences, while the effect of inequality of effort remains weaker and less systematic. At the individual level, compulsory schooling reforms provide an exogenous source of variation in the Opportunity Disadvantage Index. The results indicate that longer compulsory schooling reduces opportunity disadvantage, while individuals exposed to more limited opportunities display stronger support for redistribution.

Taken together, these findings highlight the importance of distinguishing between structural and behavioural components of inequality. Inequality of opportunity—reflecting circumstances beyond individual control—emerges as a key determinant of redistributive preferences, both through regional opportunity structures and through individuals’ own exposure to constrained

opportunities.

From a policy perspective, these results suggest that public support for redistribution is closely linked to the perceived fairness of economic outcomes. Policies aimed at reducing inequality of opportunity—such as improving access to education, reducing barriers to social mobility, and addressing structural disadvantages—may therefore play a central role not only in promoting fairness but also in sustaining the political legitimacy of redistributive institutions.

Finally, the results should be interpreted within the institutional context in which they are obtained. European countries are characterised by relatively developed welfare states and a strong normative emphasis on fairness and social protection, factors that may increase the salience of inequality of opportunity in shaping redistributive preferences. In institutional settings characterised by weaker welfare states, higher levels of inequality, or stronger beliefs in meritocracy, the same mechanisms may operate differently or with different intensity. This suggests that the relationship between inequality of opportunity and redistributive preferences may be context-dependent and points to the need for further comparative research across institutional environments.

# APPENDIX

## A Inequality of Opportunity

### A.1 Measuring Inequality of Opportunity

The philosophical foundations of inequality of opportunity are rooted in the work of [Dworkin \(1981\)](#), [Arneson \(1989\)](#), and [Cohen \(1989\)](#). These authors propose an ethical distinction between fair inequalities and unfair inequalities, or inequality of opportunity. Fair inequalities are defined as those inequalities that are due to factors within the sphere of individual responsibility. In contrast, unfair inequalities are defined as those that are due to factors outside the individual’s responsibility. In economic terms, following the seminal contributions of [Fleurbaey \(1994\)](#), [Fleurbaey \(2008\)](#), and [Roemer \(1998\)](#), who provided an economic formulation of the concept of equality of opportunity, a substantial lines of literature has emerged over the past two decades, proposing a variety of approaches and methodologies to quantify the extent of inequality of opportunity across different dimensions of well-being (**income**, education, health), time periods, and countries. Additionally, studies have sought to decompose total inequality into inequality of opportunity and inequality due to effort.

For reviews of this literature, see among others [Ferreira and Peragine \(2016\)](#), [Ramos and Van de Gaer \(2016\)](#) and [Pignataro \(2012\)](#).

This section outlines the methodology employed to assess inequality of opportunity (IOp). In line with the main conceptualization in the literature, inequality of opportunity is defined as the proportion of overall inequality that can be attributed to circumstances beyond an individual’s control, including factors such as family background, gender, ethnicity, or place of birth. These elements, frequently named “circumstances”, are distinguished from “effort”, which encompasses choices and actions that individuals can control.

### A.2 Outcome Generating Process

The measurement of inequality of opportunity is based on the decomposition of total inequality into components attributed to circumstances and effort.

In the literature, it is assumed that all determinants of the individual output, here income,  $\mathbf{Y}$ , including the different forms of luck, can be classified into either set of circumstances  $\mathbf{C}$  that lie beyond individual responsibility, belonging to a finite set  $\Omega$ , or as responsibility characteristics, summarized by a variable  $\mathbf{E}$  denoting effort, belonging to a set  $\Theta$ .

We assume, following [Peragine \(2002\)](#) and [Ferreira and Peragine \(2016\)](#) that individual outcomes (e.g., **income**, education) are generated by a simplified outcome generating process described by a function of both circumstances ( $C$ ) and effort ( $E$ ):

$$Y = f(C, E) \tag{3}$$

where  $Y$  represents the outcome,  $C$  represents the set of circumstances, and  $E$  represents the set of effort variables. The function  $f(C, E)$  captures the interaction between the two sets of factors in determining outcomes.

In this model the outcome is exclusively determined by circumstances and effort, such that all individuals having the same circumstances and the same effort obtain the same outcomes. The source of unfairness in this model is given by the effect that circumstance variables have on individual outcomes. Hence, the main methodological challenge for measuring inequality of opportunity is quantifying this unfair part of outcome inequality. In the literature this is usually done by constructing, for a given distribution of income  $Y$ , a suitable counterfactual distribution,  $Y^C$ , such that by construction  $Y^C$  is able capture the variability in the outcome uniquely arising from the differences in the circumstance variables,  $C$ , while ignoring the differences resulting from different  $E$ . The measure of absolute inequality of opportunity in the society is then measured by the inequality in the counterfactual distribution  $Y^C$ . It is also a common practice in the literature to provide the estimates of relative inequality of opportunity as the share of unfair inequality in the total outcome inequality: for a given inequality index  $I$ , the relative measure is then  $I(Y^C)/I(Y)$ . Different definitions of the counterfactual distribution  $Y^C$  and hence different measures have been proposed in the literature (see [Ferreira and Peragine \(2016\)](#); [Ramos and Van de Gaer \(2016\)](#), [Becchetti et al. \(2024\)](#)). In this work, we adopt an ex ante parametric set up, which usually assumes a linear relationship between the outcome and the circumstance/effort variables.

### Ex-Ante Parametric Approach

To empirically measure inequality of opportunity, we use the ex-ante parametric <sup>12</sup> approach as outlined by [Ferreira and Gignoux \(2011\)](#). In this approach, the outcome generating process can be written as:

$$Y_i = bC_i + cE_i + u_i \quad (4)$$

As recognised by the literature ([Roemer, 1998](#)), effort can itself be partially determined by the existing social circumstances:

$$E_i = dC_i + v_i \quad (5)$$

Hence the outcome generating process can be written as a reduce form equation:

$$Y_i = bC_i + c(dC_i + v_i) + u_i = (b + cd)C_i + (cv_i + u_i) = \beta C_i + \epsilon_i \quad (6)$$

With individual effort correspond to any random component not included in the set of circumstances. We first estimate the effect of circumstances on outcomes using a regression model (*OLS*):

$$Y_i = \alpha + \beta C_i + \epsilon_i \quad (7)$$

The estimated value  $\hat{Y}_i$  captures the portion of the outcome that can be attributed to circumstances. We then compute the inequality in the distribution of  $\hat{Y}_i$ , which represents inequality of opportunity. We compute inequality using standard the standard inequality index, the Gini coefficient.

---

<sup>12</sup>The literature has developed two different approaches to measure inequality of opportunity, namely the “ex ante” and the “ex post” approaches: see [Fleurbaey and Peragine \(2013\)](#) for a discussion. We adopt the ex ante approach, which is by large the most widely used methodology in the empirical literature, for reasons of data availability.

The absolute measure of inequality of opportunity is given by the inequality in the distribution of predicted outcomes  $\hat{Y}_i$ , while the relative measure of inequality of opportunity is the ratio of the inequality due to circumstances to total inequality. Mathematically, the relative measure is expressed as:

$$IOp_{relative} = \frac{I(\hat{Y}_i)}{I(Y_i)} \quad (8)$$

where  $I(\cdot)$  denotes the inequality index (e.g., Gini or MLD).

### A.3 Our Calculation of Inequality of Opportunity

The regional analysis covers 132 European regions and it is based on two complementary datasets: EU-SILC and the ESS. We match the EU-SILC ad hoc modules on intergenerational transmission of disadvantages (2005, 2011, 2019) with waves 2, 5, and 9 of the ESS. To compute inequality-of-opportunity (IOp) and inequality-of-effort (IEf) indexes, we rely primarily on EU-SILC, which provides the richest set of individual circumstances describing socioeconomic background. While the ESS offers fewer but similar variables, we opted not to use it as the main dataset for two reasons. First, to avoid the sample-induced endogeneity that arises when inequality measures and income distributions are computed on the same dataset (Becchetti et al., 2024). Second, for the cohort analysis and for income-based decompositions, EU-SILC provides continuous and externally validated income measures, whereas ESS relies on self-reported income bands. To estimate inequality of opportunity, we apply the ex-ante parametric method (Ferreira and Gignoux, 2011). The set of circumstances follows the literature (Becchetti et al., 2024; Checchi and Peragine, 2010) and includes parental education, parental occupation, parental activity status, parental presence, gender, number of children in the household, and the household’s financial situation. These enter the following OLS regression, estimated separately for each region and wave:

$$\begin{aligned} \log(\text{IncomeHH}_i) = & \alpha + \lambda \text{Gender}_i + \sum_n \beta_n \text{EduParents}_{in} + \sum_m \gamma_m \text{OccParents}_{im} \\ & + \sum_o \eta_o \text{ActStatusParents}_{io} + \delta \text{NumChildren}_i + \sum_r \theta_r \text{PresParents}_{ir} \\ & + \sum_s \nu_s \text{FinSituation}_{is} + \epsilon_i \end{aligned} \quad (9)$$

The dependent variable is log equivalized household disposable income. Predicted incomes generate a counterfactual distribution of income “as if” only circumstances shaped economic outcomes. Applying the Gini index to this distribution yields the inequality-of-opportunity measure. Inequality of effort is computed residually as total observed income inequality minus inequality of opportunity. All inequality-of-opportunity measures are bootstrapped (1,000 replications) to ensure robust estimation and account for sampling uncertainty. For the individual-level analysis, we employ the three cohorts 1940, 1960, and 1980 using the same harmonised approach, ensuring methodological consistency with the regional analysis.

## A.4 Measuring the Individual Probability of Experiencing Limited Opportunities

To link group-level inequality-of-opportunity measures to individual-level predictions, we compute the probability that each person experiences limited opportunities, based on their specific set of circumstances. We begin from the observation that total inequality of opportunity (IOp) can be decomposed into the separate contributions of each circumstance included in the parametric models.

### Shapley Decomposition of Inequality of Opportunity

To attribute the share of total inequality associated with each circumstance, we use the Shapley decomposition method. The Shapley approach distributes the total inequality among circumstances by computing the marginal contribution of each variable across all possible subsets of circumstances (Shorrocks et al., 1999). This ensures two desirable properties. First, the decomposition is independent of the ordering of variables, so each circumstance receives a fair contribution regardless of the sequence in which it enters the inequality measure. Second, the Shapley contributions sum exactly to total inequality, yielding an exhaustive and interpretable breakdown.

Formally, let  $I$  be the total inequality measure and  $C_i$  a generic circumstance. The Shapley value  $\phi_i$  for circumstance  $i$  is:

$$\phi_i = \sum_{S \subseteq C \setminus \{i\}} \frac{|S|!(|C| - |S| - 1)!}{|C|!} [I(S \cup \{i\}) - I(S)], \quad (10)$$

where  $S$  ranges over all subsets of circumstances excluding  $i$ , and  $I(S)$  denotes the inequality estimated using only circumstances in  $S$ . Since the number of subsets equals  $2^K$  for  $K$  circumstances, the procedure is computationally intensive but conceptually advantageous in multi-factor settings.

To enhance the robustness of both the decomposition and the subsequent empirical models, we perform a bootstrap procedure with 1,000 replications. Bootstrapping accounts for sampling variability in estimating the inequality components and produces more stable and reliable importance weights for each circumstance. As noted by Ferreira and Gignoux (2014) and Brunori et al. (2019), Shapley results should not be interpreted causally and may be affected by multicollinearity across circumstances, though this does not bias the IOp point estimates.

### Constructing the Individual Probability of Experiencing Limited Opportunities

After determining the Shapley contribution of each circumstance to overall inequality, we derive an individual-level probability (or propensity) of experiencing limited opportunities. This measure reflects the disadvantage associated with each person's specific set of circumstances.

The procedure consists of three steps:

1. **Standardisation of circumstances.** Each circumstance is normalised to ensure comparability and to prevent any single variable from dominating the weighted index.

2. **Weighting by Shapley contributions.** For each individual, we compute a weighted score using the percentage contributions of all circumstances obtained from the Shapley decomposition. The probability (or propensity) score for individual  $i$  is:

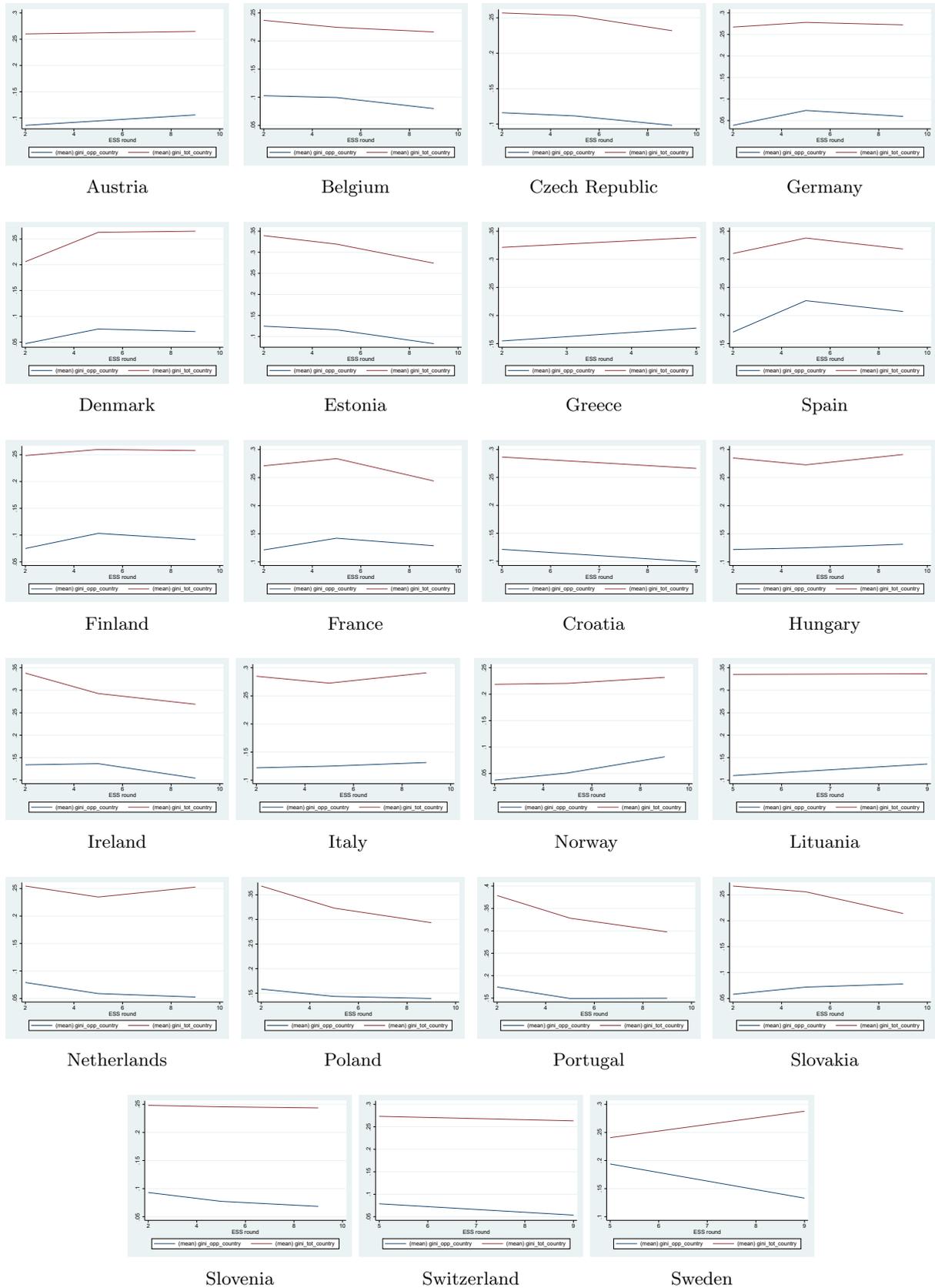
$$P_i = \sum_{j=1}^k w_j \cdot X_{ij}, \quad (11)$$

where  $w_j$  is the Shapley-based contribution of circumstance  $j$ , and  $X_{ij}$  is the individual-specific value of circumstance  $j$ . Because the  $w_j$  values come from the bootstrapped Shapley decomposition, the resulting scores incorporate confidence about the relative importance of each circumstance.

3. **Interpretation.** Higher values of  $P_i$  reflect a higher probability that an individual is disadvantaged given their circumstances. This index provides a bridge between the group-level analysis of inequality of opportunity and individual-level empirical models, allowing us to assess how the burden of limited opportunities varies across individuals.

## B IOP and Overall income inequality by country and year

Figure 7: Inequality of opportunity and overall inequality by country.



## C Robustness checks and heterogeneity analysis

### C.1 Use of national indexes and no regional fixed effects

Table 11: Robustness: use of national indexes and no regional fixed effects.

Preferences for redistribution	(1)	(2)	(3)	(4)	(5)	(6)
OLS						
Propensity Score				0.094*** 0.008		
Overall Inequality	0.324 (0.234)				0.158 (0.083)	
Inequality of opportunity		0.256*** (0.066)			0.283*** (0.076)	0.727*** (0.031)
Inequality of effort			0.109 (0.167)			
Observations	74,075	74,075	74,075	74,075	74,075	74,075
Regional fixed effect	Yes	Yes	Yes	Yes	Yes	<b>NO</b>
Time fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Clustered	Bootstrap	Bootstrap	Bootstrap	Bootstrap	Bootstrap
R-squared	0.1413	0.1417	0.1415	0.1418	0.1425	0.0776

Notes: \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. Standard errors are reported in parentheses.

### C.2 Same level of disaggregation

Table 12: Robustness: same level of disaggregation.

<i>Preferences for redistribution</i>	(1)	(2)	(3)
	NUTS 0	NUTS 1	NUTS 2
Propensity Score	0.015** (0.004)	0.043*** (0.007)	0.083*** (0.001)
Inequality of opportunity	1.165*** (0.158)	0.231*** (0.092)	0.628*** (0.149)
Observations	33,974	23,798	12,293
Regional fixed effect	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Standard Errors	Bootstrap	Bootstrap	Bootstrap
R-squared	0.1439	0.1451	0.1076

Notes: \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. Standard errors are reported in parentheses.

### C.3 Excluding 2005

Table 13: Robustness: excluding 2005.

Preferences for redistribution	(1)	(2)	(3)	(4)	(5)
	OLS				
Propensity Score		0.023*** (0.004)			
Overall Inequality				0.001 (0.001)	0.002 (0.001)
Inequality of opportunity	0.448*** (0.098)			1.218*** (0.321)	
Inequality of effort			0.588 (2.199)		
Observations	52,322	52,322	52,322	52,322	52,322
Regional fixed effect	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Standard Errors	Bootstrap	Bootstrap	Bootstrap	Bootstrap	Bootstrap
R-squared	0.1301	0.1303	0.070	0.1640	0.1625

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . Standard errors are reported in parentheses.

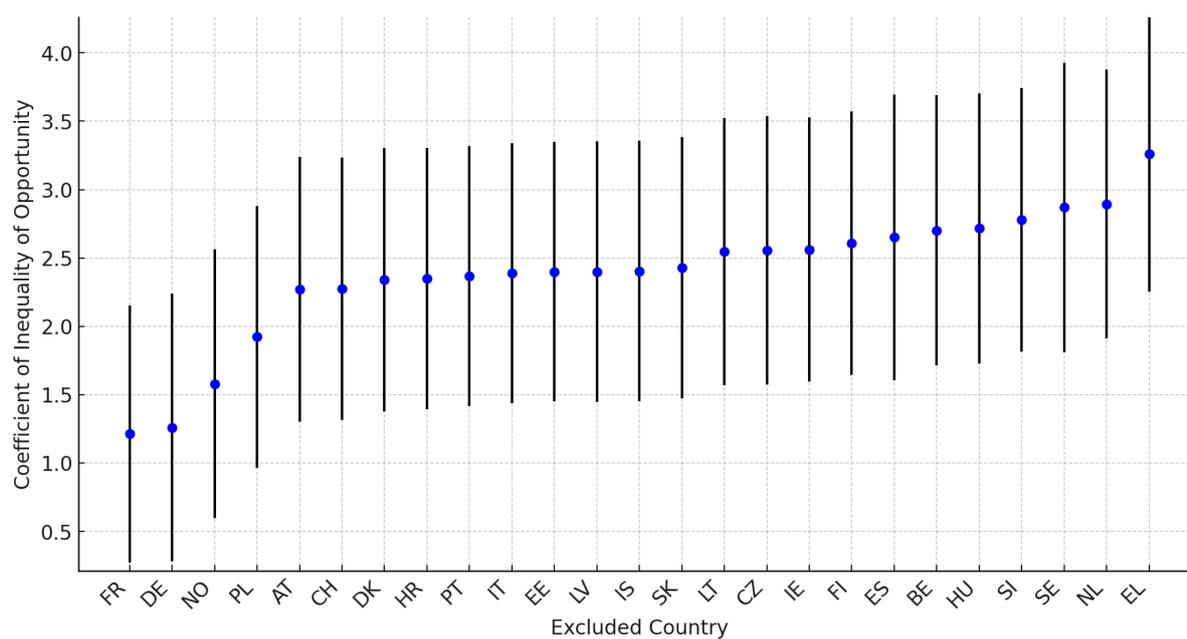
## C.4 One-by-one country exclusion

Table 14: Robustness: One-by-one country exclusion.

Country excluded	Inequality of Opportunity	Standard Errors
Ordered Logit		
AT	2.269***	(0.494)
BE	2.701***	(0.504)
CH	2.276***	(0.489)
CZ	2.556***	(0.501)
DE	1.260**	(0.500)
DK	2.340***	(0.492)
EE	2.400***	(0.485)
EL	3.262***	(0.515)
ES	2.651***	(0.533)
FI	2.610***	(0.492)
FR	1.213**	(0.480)
HR	2.351***	(0.487)
HU	2.716***	(0.505)
IE	2.561***	(0.493)
IS	2.403***	(0.486)
IT	2.390***	(0.485)
LT	2.547***	(0.499)
LV	2.400***	(0.486)
NL	2.894***	(0.502)
NO	1.579***	(0.502)
PL	1.923***	(0.489)
PT	2.367***	(0.485)
SE	2.870***	(0.540)
SI	2.778***	(0.492))
SK	2.428***	(0.488)

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ . Standard errors are reported in parentheses.

Figure 8: One-by-one country exclusion.



## C.5 Split samples

Table 15: Robustness: Split Samples.

Variable	Sample	Inequality of Opportunity	Inequality of Effort	Observation
Ordered Logit				
Income	Richer (above 5th decile)	1.226	-4.214***	34,718
	Poorer (below 6th decile)	4.002***	3.805***	39,357
Gender	Male	0.789*	0.655	33,883
	Female	2.811***	0.0734	40,192
Education	ISCED above 3	-0.298	-5.947***	27,258
	ISCED below 3	4.041***	3.219*	46,900
Age	Above 40	1.402*	-1.643**	52,193
	Below 40	4.160***	3.151*	21,882

## References

- AHRENS, L. (2022): “Unfair inequality and the demand for redistribution: why not all inequality is equal,” *Socio-Economic Review*, 20, 463–487.
- ALESINA, A. AND G.-M. ANGELETOS (2005): “Fairness and redistribution,” *American economic review*, 95, 960–980.
- ALESINA, A., R. DI TELLA, AND R. MACCULLOCH (2004): “Inequality and happiness: are Europeans and Americans different?” *Journal of public economics*, 88, 2009–2042.
- ALESINA, A. AND P. GIULIANO (2011): “Preferences for redistribution,” in *Handbook of social economics*, Elsevier, vol. 1, 93–131.
- ALESINA, A., S. STANTCHEVA, AND E. TESO (2018): “Intergenerational mobility and preferences for redistribution,” *American Economic Review*, 108, 521–554.
- ALMAS, I., A. W. CAPPELEN, E. SORENSEN, AND B. TUNGODDEN (2021): “Fairness across the World: Preferences and Beliefs.”, *Federal Reserve Bank of New York*.
- ALMÅS, I., A. W. CAPPELEN, E. Ø. SØRENSEN, AND B. TUNGODDEN (2010): “Fairness and the development of inequality acceptance,” *Science*, 328, 1176–1178.
- ARNESON, R. J. (1989): “Paternalism, utility, and fairness,” *Revue Internationale de Philosophie*, 409–437.
- BECCHETTI, L., F. COLCERASA, V. PERAGINE, AND F. PISANI (2024): “Inequality of opportunity and life satisfaction,” *Oxford Economic Papers*, gpa011.
- BECKER, B. (2020): “Mind the income gaps? Experimental evidence of information’s lasting effect on redistributive preferences,” *Social Justice Research*, 33, 137–194.
- BENABOU, R. AND J. TIROLE (2006): “Belief in a just world and redistributive politics,” *The Quarterly journal of economics*, 121, 699–746.
- BRUNORI, P., F. H. FERREIRA, AND V. PERAGINE (2013): “Inequality of opportunity, income inequality, and economic mobility: Some international comparisons,” in *Getting development right: Structural transformation, inclusion, and sustainability in the post-crisis era*, Springer, 85–115.
- BRUNORI, P., V. PERAGINE, AND L. SERLENGA (2019): “Upward and downward bias when measuring inequality of opportunity,” *Social Choice and Welfare*, 52, 635–661.
- BUSER, T., G. GRIMALDA, L. PUTTERMAN, AND J. VAN DER WEELE (2020): “Overconfidence and gender gaps in redistributive preferences: Cross-Country experimental evidence,” *Journal of Economic Behavior & Organization*, 178, 267–286.
- BUSSOLO, M., M. E. DAVALOS, V. PERAGINE, AND R. SUNDARAM (2018): *Toward a new social contract: Taking on distributional tensions in Europe and Central Asia*, World Bank Publications.

- CAVAILLÉ, C. AND K.-S. TRUMP (2015): “The two facets of social policy preferences,” *The Journal of Politics*, 77, 146–160.
- CHECCHI, D. AND V. PERAGINE (2010): “Inequality of opportunity in Italy,” *The Journal of Economic Inequality*, 8, 429–450.
- CHECCHI, D., V. PERAGINE, AND L. SERLENGA (2016): “Inequality of Opportunity in Europe: Is There a Role for Institutions?” in *Inequality: Causes and consequences*, Emerald Group Publishing Limited, 1–44.
- CHETTY, R., D. GRUSKY, M. HELL, N. HENDREN, R. MANDUCA, AND J. NARANG (2017): “The fading American dream: Trends in absolute income mobility since 1940,” *Science*, 356, 398–406.
- COHEN, J. (1989): “The economic basis of deliberative democracy,” *Social philosophy and policy*, 6, 25–50.
- CORNEO, G. AND H. P. GRÜNER (2002): “Individual preferences for political redistribution,” *Journal of public Economics*, 83, 83–107.
- DABLA-NORRIS, E. (2015): “Causes and Consequences of Income Inequality: A Global Perspective,” *IMF DISCUSSION NOTE*.
- DALLINGER, U. (2008): “Public support for redistribution: what explains cross-national differences?” *Journal of European Social Policy*, 20, 333–349.
- (2010): “Public support for redistribution: what explains cross-national differences?” *Journal of European Social Policy*, 20, 333–349.
- DIMICK, M., D. RUEDA, AND D. STEGMUELLER (2018): “Models of other-regarding preferences, inequality, and redistribution,” *Annual Review of Political Science*, 21, 441–460.
- DWORKIN, R. (1981): “Natural law revisited,” *U. Fla. L. Rev.*, 34, 165.
- ENGELHARDT, C. AND A. WAGENER (2018): “What do Germans think and know about income inequality? A survey experiment,” *Socio-Economic Review*, 16, 743–767.
- ESPING-ANDERSEN, G. (2005): “Social inheritance and equal opportunity policies,” *Maintaining Momentum*, 14–30.
- FERREIRA, F. H. AND J. GIGNOUX (2011): “The measurement of inequality of opportunity: Theory and an application to Latin America,” *Review of income and wealth*, 57, 622–657.
- (2014): “The measurement of educational inequality: Achievement and opportunity,” *The World Bank Economic Review*, 28, 210–246.
- FERREIRA, F. H., C. LAKNER, M. A. LUGO, AND B. ÖZLER (2018): “Inequality of opportunity and economic growth: How much can cross-country regressions really tell us?” *Review of Income and Wealth*, 64, 800–827.

- FERREIRA, F. H. AND V. PERAGINE (2016): “Individual responsibility and equality of opportunity,” .
- FERRER-I CARBONELL, A. (2005): “Income and well-being: an empirical analysis of the comparison income effect,” *Journal of public economics*, 89, 997–1019.
- FILAURO, S., F. PALMISANO, V. PERAGINE, ET AL. (2023): *The evolution of inequality of opportunity in Europe*, European Union.
- FINSERAAS, H. (2009): “Income inequality and demand for redistribution: A multilevel analysis of European public opinion,” *Scandinavian Political Studies*, 32, 94–119.
- FLEURBAEY, M. (1994): “On fair compensation,” *Theory and decision*, 36, 277–307.
- (2008): *Fairness, responsibility, and welfare*, OUP Oxford.
- FLEURBAEY, M. AND V. PERAGINE (2013): “Ex ante versus ex post equality of opportunity,” *Economica*, 80, 118–130.
- FONG, C. (2001): “Social preferences, self-interest, and the demand for redistribution,” *Journal of Public economics*, 82, 225–246.
- GIMPELSON, V. AND D. TREISMAN (2018): “Misperceiving inequality,” *Economics & Politics*, 30, 27–54.
- GRIMALDA, G., F. FARINA, AND U. SCHMIDT (2018): “Preferences for redistribution in the US, Italy, Norway: An experiment study,” Tech. rep., Kiel working paper.
- HIRSCHMAN, A. O. AND M. ROTHSCHILD (1973): “The changing tolerance for income inequality in the course of economic development: With a mathematical appendix,” *The Quarterly Journal of Economics*, 87, 544–566.
- JÆGER, M. M. (2013): “The effect of macroeconomic and social conditions on the demand for redistribution: A pseudo panel approach,” *Journal of European Social Policy*, 23, 149–163.
- JOHNSTON, C. D. AND B. J. NEWMAN (2016): “Economic inequality and US public policy mood across space and time,” *American Politics Research*, 44, 164–191.
- KENWORTHY, L. AND L. MCCALL (2008): “Inequality, public opinion and redistribution,” *Socio-Economic Review*, 6, 35–68.
- KERR, W. R. (2014): “Income inequality and social preferences for redistribution and compensation differentials,” *Journal of Monetary Economics*, 66, 62–78.
- LEWIN-EPSTEIN, N., A. KAPLAN, AND A. LEVANON (2003): “Distributive justice and attitudes toward the welfare state,” *Social Justice Research*, 16, 1–27.
- LÜBKER, M. (2007): “Inequality and the demand for redistribution: are the assumptions of the new growth theory valid?” *Socio-Economic Review*, 5, 117–148.

- LUPU, N. AND J. PONTUSSON (2011): “The structure of inequality and the politics of redistribution,” *American Political Science Review*, 105, 316–336.
- MARRERO, G. A., J. G. RODRÍGUEZ, AND R. VAN DER WEIDE (2016): “Unequal opportunity, unequal growth,” *World bank policy research working paper*.
- MELTZER, A. H. AND S. F. RICHARD (1981): “A rational theory of the size of government,” *Journal of political Economy*, 89, 914–927.
- MENGEL, F. AND E. WEIDENHOLZER (2023): “Preferences for redistribution,” *Journal of Economic Surveys*, 37, 1660–1677.
- MIJS, J. J. (2018): “Inequality is a problem of inference: How people solve the social puzzle of unequal outcomes,” *Societies*, 8, 64.
- NATILI, M., S. RONCHI, AND F. VISCONTI (2023): “Invisible social Europe? Linking citizens’ awareness of European cohesion funds, individual power resources, and support for the EU,” *Journal of European Social Policy*, 33, 570–582.
- OECD (2015): “In It Together: Why Less Inequality Benefits All,” *OECD publishing*.
- OLIVERA, J. (2015): “Preferences for redistribution in Europe,” *IZA Journal of European Labor Studies*, 4, 1–18.
- PERAGINE, V. (2002): “Opportunity egalitarianism and income inequality,” *Mathematical social sciences*, 44, 45–64.
- PIFF, P. K., D. WIWAD, A. R. ROBINSON, L. B. AKNIN, B. MERCIER, AND A. SHARIF (2020): “Shifting attributions for poverty motivates opposition to inequality and enhances egalitarianism,” *Nature Human Behaviour*, 4, 496–505.
- PIGNATARO, G. (2012): “Equality of opportunity: Policy and measurement paradigms,” *Journal of Economic Surveys*, 26, 800–834.
- PIKETTY, T. (1995): “Social mobility and redistributive politics,” *The Quarterly journal of economics*, 110, 551–584.
- PITTAU, M. G., R. MASSARI, AND R. ZELLI (2013): “Hierarchical modelling of disparities in preferences for redistribution,” *Oxford Bulletin of Economics and Statistics*, 75, 556–584.
- RAMOS, X. AND D. VAN DE GAER (2016): “Approaches to inequality of opportunity: Principles, measures and evidence,” *Journal of Economic Surveys*, 30, 855–883.
- ROEMER, J. (1998): “Equality of opportunity,” .
- SCHMIDT-CATRAN, A. W. (2016): “Economic inequality and public demand for redistribution: Combining cross-sectional and longitudinal evidence,” *Socio-Economic Review*, 14, 119–140.
- SHAYO, M. (2009): “A model of social identity with an application to political economy: Nation, class, and redistribution,” *American Political science review*, 103, 147–174.

- SHORROCKS, A. F. ET AL. (1999): “Decomposition procedures for distributional analysis: a unified framework based on the Shapley value,” Tech. rep., mimeo, University of Essex.
- SOLON, G. (2004): “2 A model of intergenerational mobility variation over time,” *Generational income mobility in North America and Europe*, 38.
- TÓTH, I. G., T. KELLER, ET AL. (2011): “Income distributions, inequality perceptions and redistributive claims in European societies,” *AIAS, GINI Discussion Paper*, 7.
- VERME, P. (2011): “Life satisfaction and income inequality,” *Review of Income and Wealth*, 57, 111–127.
- WORLD BANK (2016): “Poverty and shared prosperity 2016 : taking on inequality,” *World bank policy research working paper*.
- YAMAMURA, E. (2012): “Social capital, household income, and preferences for income redistribution,” *European Journal of Political Economy*, 28, 498–511.