universität wien

# DISSERTATION / DOCTORAL THESIS

Titel der Dissertation /Title of the Doctoral Thesis

„Explaining Preferences for Redistributive Taxation“

verfasst von / submitted by

Fabian Kalleitner, BA BA MA

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Doktor der Philosophie (Dr.phil.)

Wien, 2023 / Vienna 2023

| | |
|---|---|
| Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet: | A 796 310 122 |
| Dissertationsgebiet lt. Studienblatt / field of study as it appears on the student record sheet: | Sociology |
| Betreut von / Supervisor: | Univ.-Prof. Mag. Dr. Bernhard Kittel |

# Acknowledgments

Finishing this dissertation would not have been possible without the support of many kind people over the years. First and foremost, I want to thank my supervisor Bernhard Kittel, who gave me a chance what feels like ages ago when I first arrived at his office with a rudimentary idea to study tax preferences and he hired me to become a university assistant. This position provided me with the necessary financial stability to engage in such a project, and his guidance over the years has helped me tremendously.

I also want to thank the many colleagues who commented on parts of the dissertation and gave me valuable feedback to improve my work or just lend me their ears when I needed to talk about numerous small issues and challenges over a good cup of coffee or a drink after work. This list includes but is not limited to Monika Mühlböck, Reka Szendrö, Manuel Schwaninger, Sabine Neuhofer, Julia Wahrmuth, David Schiestl, Lukas Schlögl, all the members of the Perceptions of Inequalities and Justice in Europe project, and David Rueda, who was nice enough to comment on parts of the dissertation. Special thanks also go to Licia Bobzien, who become one of my dearest friends in the course of this project and who coauthored Chapter 6 of this dissertation. Furthermore, I also want to thank Stefan Liebig, who has been the best chair a "WiMi" can wish for and made my recent move to Berlin that much nicer.

Parts of the chapters were presented in many conferences and workshops, where I received helpful advice from other presenters, session chairs, organizers, and participants: the Varieties of Welfare Capitalism International PhD Workshop at the Hertie School of Governance in Berlin, May 21, 2019; the European Sociological Association Conference in Manchester, August 21, 2019; the Analytical Sociology Seminar in Venice, November 20, 2019; the Austrian Society for Political Science Graduate Conference in Vienna, November 29, 2019; the International Sociological Association RC28 Spring Meeting 2021 (online), June 4, 2021; the Society for the Advancement of Socio-Economics Annual Conference 2021 (online), July 3, 2021; and the American Sociological Association Annual Meeting 2021 (online), August 8, 2021.

I also want to mention the financial support this dissertation project received. First, the Platform for Surveys, Methods and Empirical Analyses (PUMA), provided me with the chance to field a survey experiment using a random household sample of the Austrian population to test my hypotheses. Second, this dissertation received the Theodor Körner Prize from the Theodor Körner Society for the Promotion of Science and Art, which gave me a considerable financial boost. I am grateful for this recognition of my work and really appreciate that this prize funds ongoing work of early-career researchers.

Finally, I want to thank my parents Ulrike and Ferdinand for being quite unscientific and believing in me without having to understand everything. And, most of all, I want to thank Mirjam for the moral support over the years, the incredible amount of patience, and all the nice words. Thank you!

## Declaration of submitted studies and co-authorship

Chapters 1 to 5 and Chapter 7 of this dissertation have been single-authored. Chapter 6 contains a paper manuscript coauthored with Licia Bobzien that is currently under review as *Fabian Kalleitner & Licia Bobzien: "Taxed fairly? How differences in perception shape attitudes towards progressive taxation"* (date of submission: November 15, 2022).

# Contents

# Abstract

When do people want more redistributive taxes? Although several countries in Europe have experienced rising levels of inequality in the last couple of decades, public demands for redistributive taxes have remained on similar levels or even decreased. In this dissertation, I argue that we can understand this phenomenon by acknowledging the role of limited public information about inequality and tax rates and the importance of fairness heuristics in hindering or enabling individuals to demand redistribution by taxes. Utilizing data from the European Social Survey and experimental web surveys conducted in Austria, this dissertation tests these theoretical arguments empirically.

First, following established arguments in social justice research, I argue that people tend to use the status quo as a baseline for fairness judgements and suggest that preferred tax rates and tax distributions strongly depend on people's perceptions about the status quo taxation. This could explain why fairness beliefs remain quite stable despite substantial changes in inequality and why people sometimes refrain from supporting redistribution although they express concerns about the size of inequality in their country. Testing the link between objective macro conditions and individual fairness beliefs, I show that people perceive higher average tax rates to be fair if they live in a country with high average tax rates and accept larger tax progressivity if taxation in their country is already strongly stratified by income, providing initial evidence that people "learn to like" the tax system they live in.

Second, the dissertation tests the explanatory power of the adjustment argument that status quo's legitimizing power can reduce individual preferences for redistribution against the material self-interest argument that advocates that people will choose the net-income maximizing option if they receive information about inequality and the shape of redistribution. Experimental results indicate no evidence that one's relative income position affects fair taxes as self-interest arguments would predict but instead indicate that information of the present structure of tax rates lead people to adapt their fairness assessments of the tax progressivity to the status quo.

Third, I suggest that to understand the perceptions-preferences link, researchers have to acknowledge that inequality perceptions are the product of social comparisons and reflect not only how they see the world but also how they want to see the world. Focusing on the direction of comparison, I theoretically argue and empirically show that the choice of upward- or downward-oriented comparisons—although irrelevant from a pure information perspective—systematically biases respondents' perceived relative income positions and their fairness attitudes because people use the way inequality is described as a clue to what individuals should have. Following up on this result, I show that this effect on individuals' relative income perceptions is produced by a cognitive anchoring bias and provide a new method for how researchers can avoid such biases in the future.

Fourth, the dissertation argues that not only are income perceptions relational but so are tax perceptions, and it suggests that people will tend to overestimate their tax contribution relative to others. This should lead the rich to perceive higher levels of tax progressivity than the poor, and vice versa. Following a three-step approach, the dissertation shows that individuals' income position is connected to their tax preferences as a self-interest rationale would predict. However, decomposing tax preferences into their perception and preference component indicates that income-stratified preferences are driven by differences in what people think they are taxed and not how they think they should be taxed. Informing a subset of respondents about actual tax rates shows that changing these tax perceptions causally affects support for redistributive taxation and can increase tax solidarity among the rich.

# Zusammenfassung

Wann wollen Personen progressivere Steuersysteme? Obwohl in mehreren europäischen Ländern die Ungleichheit in den letzten Jahrzehnten zugenommen hat, stagniert die öffentliche Nachfrage nach progressiven Steuern. In dieser Dissertation argumentiere ich, dass Steuerpräferenzen meist keine auf breiter Informationsbasis beruhenden kognitiven Kosten-Nutzen Erwägungen darstellen, sondern Menschen dazu neigen, auf Gerechtigkeitsheuristiken zurückzugreifen, die stark von individuellen Wahrnehmungen des eigenen institutionellen -und sozialen Umfelds beeinflusst sind. Die Dissertation leitet aus von dieser theoretischen Überlegung konkrete Hypothesen ab und testet diese mit Daten aus dem European Social Survey und experimentellen Web-Umfragen in Österreich.

Forschungen zur sozialen Gerechtigkeit konnten zeigen, dass Menschen oft dazu neigen, den Status quo als Grundlage für eigene Gerechtigkeitsurteile zu verwenden. Dies führt dazu, dass Menschen bestehende Verteilungen und institutionelle Arrangements meist für gerechter befinden, als sie das tun würden, wenn sie keine klare Ausgangsposition kennen. Diesem Argument folgend erwarte ich, dass präferierte Steuersätze und Steuerverteilungen stark von den subjektiven Wahrnehmungen der Menschen über den Steuer-Status quo abhängen. Meine Analysen zeigen, dass dieser Zusammenhang sowohl korrelational zwischen objektiven makroökonomischen Steuersystemen und individuellen Gerechtigkeitsüberzeugungen besteht, als auch in einem Umfrageexperiment gezeigt werden kann, wo Steuerwahrnehmungen gezielt durch Informationstreatments verändert werden. Dies könnte erklären, warum die Gerechtigkeitsvorstellungen trotz erheblicher Veränderungen bei der Ungleichheit recht stabil bleiben und warum die Menschen mitunter auch Umverteilung ablehnen, obwohl sie Bedenken über das Ausmaß der Ungleichheit in ihrem Land für ungerecht befinden.

Gerechtigkeitsheuristiken beeinflussen individuelle Steuereinstellungen aber nicht nur über Status quo Wahrnehmungen, sondern auch über Vergleiche der eigenen Situation mit derer von anderen. Informationen beziehungsweise Wahrnehmungen über Ungleichheit oder Umverteilung lassen für Individuen nicht nur Rückschlüsse zu, wo sie selbst stehen, sondern auch, wie viel sie relativ zu anderen verdienen, Steuern zahlen oder Leistungen beziehen. Personen nutzen diese Indikatoren und neigen dazu, unterschiedlich Schlussfolgerungen zu ziehen, je nachdem mit wem sie sich vergleichen. Diesem Argument folgend zeigt die Dissertation anhand von Umfrageexperimenten, dass die Wahl zwischen aufwärts- oder abwärtsgerichteten Vergleichen die wahrgenommenen relativen Einkommenspositionen der Befragten und ihre anschließenden Gerechtigkeitseinstellungen systematisch verzerrt. Menschen neigen also dazu, die Art und Weise, wie Ungleichheit beschrieben wird, als Anhaltspunkt dafür nutzen, was der Einzelne haben sollte. Demnach sind Ungleichheits- und Umverteilungswahrnehmungen keine einfachen Indikatoren des individuellen Informationsstands, sondern Produkte unterschiedlicher sozialer Mechanismen und können stark davon abhängen, wie sich Menschen im Vergleich zu anderen einschätzen wollen und in welcher Vergleichssituation sie sich befinden.

Nicht nur die Einkommenswahrnehmungen, sondern auch Steuerwahrnehmungen sind relational. Da Menschen dazu neigen, ihre Beiträge zu kollektiven Gütern zu überschätzen, erwarte ich, dass Personen ihren Steuerbeitrag im Vergleich zu anderen überschätzen. Dies sollte dazu führen, dass einkommenshöhere Personen ein höheres Maß an Steuerprogressivität wahrnehmen als einkommensschwächere Personen. Empirische Analysen zeigen, dass dies der Fall ist und einkommensabhängigen Steuerpräferenzen zum Teil nicht durch unterschiedliche Vorstellungen über gerechte Steuerhöhen erklärt werden können, sondern durch unterschiedliche Wahrnehmungen über die Höhe der Steuern anderer Einkommensgruppen. Die Information einer Teilgruppe der Befragten über die tatsächlichen Steuersätze zeigt, dass eine Änderung dieser Steuerwahrnehmung die Unterstützung für eine umverteilende Besteuerung kausal beeinflussen kann und zu mehr Steuersolidarität von Personen mit höheren Einkommen führen kann.

# 1) Introduction

> *I am tempted to believe that what we call necessary institutions are often no more than institutions to which we have grown accustomed, and that in matters of social constitution the field of possibilities is much more extensive than men living in their various societies are ready to imagine (Alexis de Tocqueville 1896:101).*

The 2007–2008 financial crisis and the following years of economic downturn were one of the biggest economic challenges for the stability of the European welfare states. While standard economic models focusing on a revenue-maximizing voter predict that increased inequality due to the crisis would be met by increasing demands for redistribution (Meltzer and Richard 1981; Roberts 1977; Romer 1975), this has not been the case. Despite rising levels of income inequality within countries (Chancel et al. 2021), this trend has been accompanied neither by growing popular concern about inequality nor by increasing demands for redistribution (Alesina, Glaeser, and Sacerdote 2005; Breznau and Hommerich 2019; Janmaat 2013; Kenworthy and McCall 2008; McCall 2013; Mijs 2021; Trump 2023). This raises the following question: when and why do individuals demand more redistribution by the welfare state?

The literature suggests two main approaches for fixing this gap. The first sticks with the basic idea of standard economic models and assumes that maximizing net income is the only desire motivating individuals' actions but emphasizes that individuals lack information about relevant macro conditions that would allow them to act in line with their material interests (Cruces, Perez-Truglia, and Tetaz 2013; Fernández-Albertos and Kuo 2018).[1] The second approach shifts away from the importance of material self-interest and argues that people not only want to maximize their net-income but also desire to create income distribution and redistributive institutions that they consider just (Ahrens 2022b; Alesina and Angeletos 2005). While both branches in the literature have produced important insights for understanding the factors influencing individuals' preferences for redistribution, the literature to date faces major difficulties in linking the empirical results of these "material" and "cultural" approaches and understanding and communicating their respective limitations (Clark and D'Ambrosio 2015; for a literature summary, see also Hing et al. 2019). To overcome this issue, this dissertation proposes and empirically tests a theoretical framework that argues that these approaches differ not only in their assumptions about the origin of human motivation but also in their understanding of the social mechanisms linking macro level conditions to micro level preference formation.

Both theoretical branches suggest that one main reason for the limited empirical value of the Meltzer-Richard idea of a connection between inequality and preferences for redistribution is its oversimplification of the complex *situational mechanism* that explains how structural conditions constrain or enable individual perceptions, beliefs, and preference formation. This insight highlights the importance of perceptions as the main link in the process of belief formation that ultimately should affect how people select preferences based on their desires. Hence, to understand preference stability over the years despite changes in inequality, researchers have proposed that studies have to answer either one of two essential questions: when and why an individual believes that a certain form of redistribution maximizes their income, and when and why individuals perceive inequality to be fair.

However, to answer these questions, I argue that these two branches in the literature focus on two different functions of perceptions: (i) perceptions' role in providing individuals with a sense of what is

[1] In addition, parts of this literature also expand the myopic perspective and essentially suggest that people consider more macro level conditions and future risks and opportunities when forming redistributive preferences (Bénabou and Ok 2001; Moene and Wallerstein 2001). However, newer accounts of these theoretical approaches again emphasize that individual perceptions of these macro-conditions are again highly biased (see, e.g., Alesina, Stantcheva, and Teso 2018; Rehm 2016).

the case and (ii) perceptions' role in suggesting available action alternatives (Wikström 2006). The first function highlights that individuals need a basic understanding of macro level conditions on which to base their preferences. This idea has been emphasized in many empirical studies in the last couple of years that argue that "misperceptions" and "biased beliefs" or "misinformation" about relevant macroconditions may hinder individuals from acting in their material self-interest (see, e.g., Cruces et al. 2013). The second function emphasizes that perceptions not only provide individuals with a sense of *what is* but also *what is possible* and thus present action alternatives by providing them with a range of "natural" options. This normative power of perceptions has been emphasized quite recently in the literature that argues that the legitimizing power of the status quo might be crucial to understanding when and why individuals act upon or do not act upon changes in inequality (see, e.g., Trump 2018).

Hence, while the literature focusing on material self-interest mainly understands perceptions as indicators of people's (mis)information, fairness arguments highlight the normative role of perceptions that influences preferences but may also reflect how individuals want to see the world. To explain how these different understandings of perceptions influence when and why we should expect that individuals react to changes in macro level conditions or changing perceptions (e.g., by information), I briefly explain these two approaches and highlight their limitations. Afterward, I derive the main goals of this dissertation and describe the content of the subsequent chapters.

As mentioned, the limited/biased information approach argues that the ability to act in one's material self-interest crucially depends on information about difficult-to-understand macro conditions. From a simple revenue-maximizing perspective, voters have little interest in gathering information on taxes and inequality because the expected utility of their single vote is low and the heuristics people use may bias their perceptions (Cruces et al. 2013). In line with this expectation, many empirical studies have shown that the general population knows little about relevant macro conditions, such as the size of inequality , their relative income position (Bublitz 2022), the structure of redistribution and taxes (Slemrod 2006), and the size of intergenerational income mobility (Alesina, Stantcheva, and Teso 2018; Corak 2013). Thus, it is unlikely that people will rely on accurate information when forming redistributive preferences.[2] Preferences motivated by fast-paced considerations of one's material self-interest are thus special cases only to be expected when the topic is quite salient and information is plentiful or when one's income-maximizing option is obvious. More commonly, people will use heuristics to form perceptions about inequality and to judge the tax and redistribution system in place.

Following this approach, empirical studies have found that individuals tend to underestimate the amount of inequality and often overestimate (predominantly the poor) or underestimate (predominantly the rich) their relative income positions (Cruces et al. 2013; Hauser and Norton 2017). However, updating this information produces only mixed evidence of the self-interest maximization that this line of literature normally predicts. Instead, numerous empirical studies have suggested that providing information and correcting biases have rather small effects, and studies often only find statistically significant effects for certain subgroups or for certain types of misperceptions (Engelhardt and Wagener 2018; Fernández-Albertos and Kuo 2018; Karadja, Mollerstrom, and Seim 2016) (for a recent meta-study see Ciani et al., 2021). Thus, while the limited information argument seems relevant, in the sense that studies find that individuals have biased perceptions about relevant macro conditions, it is essentially unable to explain why preferences for redistribution do not change as studies have found that individuals often do not (rationally) adapt their preferences when being informed about actual levels of inequality.

One potential explanation of these inconsistent results could be that individuals not only care about their material self-interest but also about the fairness of inequality and redistribution. As Trump (2018) has

[2] Similar information issues have been debated in sociology regarding the issue of class consciousness (Bourdieu 1985; Dodson 2017; Edlund 2000; Fernández and Jaime-Castillo 2018; Marx 1847; Svallfors 2013).

noted, the focus on the factors hindering the development of preferences for redistribution might be too narrow. From a broader understanding of rationality, individuals are expected to act not only because they benefit from it but also because they believe that it is a good/fair thing to do and they have reasons to believe so (Boudon 2003; Opp 2013). Hence, individuals might deviate from the income maximizing option not because they are misinformed but because they think an alternative option is more legitimate or fair. This highlights the role of legitimacy and justice beliefs as important preconditions for demanding redistribution (Harth, Kessler, and Leach 2008; Reese, Proch, and Cohrs 2014).

In line with this idea, previous research has found that individuals accept inequality if they think it can be justified (Haack and Sieweke 2018; Starmans, Sheskin, and Bloom 2017). Moreover, the importance of fairness considerations in allocation decisions has been pointed out recently by several experimental studies as well (Balafoutas et al. 2013; Durante, Putterman, and van der Weele 2014; Esarey, Salmon, and Barrilleaux 2012; Kittel, Kanitsar, and Traub 2017; Kittel, Paetzel, and Traub 2015; Stantcheva 2021). Thus, individuals' preferences and actions should be affected by the subjectively perceived amount of unfair inequality rather than by the actual amount of inequality in society (Ahrens 2022b). Therefore, to understand people's reactions or lack thereof, researchers should examine the processes behind the legitimization and illegitimation of inequalities rather than inequality changes themselves. In line with this argument, several studies have emphasized the importance of individuals' beliefs about procedural and distributive justice (often connected to meritocracy beliefs) to understand why individuals justify inequality and oppose redistribution (Alesina et al. 2005; Almås, Cappelen, and Tungodden 2019; Carbone and Mijs 2022; Frank 2016; Liebig and Sauer 2016; Mijs 2021). However, while these factors are important, I argue that the normative power of perceptions might highlight an even simpler mechanism through which structural conditions affect individual inequality acceptance and preferences for redistribution.

Following empirical justice research (Jasso 1980; Jasso and Wegener 1997a), macro conditions like inequality and the state of redistributive taxation are not only important characteristics for individuals to maximize their interests but also constitute the baseline for their justice evaluation. Rational choice theories predominantly presume that social action is preceded by a cognitive deliberation process in which individuals choose the best options to maximize their interests (irrespective of whether this choice represents the optimal material or normative option). However, this assumption overestimates the role of conscious decisions as individuals will often skip the cognitively demanding process of evaluating available action alternatives and use perceptions directly as indicators of what is possible and adequate in a particular situation (Kahneman 2003; Payne, Bettman, and Johnson 1993; Searle 2001; Wikström 2006). Hence, I expect that individuals are directly influenced by the "moral economy" of the redistributive tax system they live in as these institutions are normatively and institutionally embedded, which promotes adaption to the status quo (Koos and Sachweh 2019; Sachweh 2012; Sayer 2007). As such, individuals use perceptions as habitualized shortcuts to infer not only *what is possible* but also *what ought to be* (Homans 1973).

In line with this argument, Trump (2018) has shown that receiving information about unequal incomes in the US and Sweden causes individuals to adapt their beliefs to the status quo and increase the amount of inequality they perceive to be legitimate. Furthermore, Haack and Sieweke (2018) have shown that adaption is a subtle but powerful mechanism that links the collective legitimacy of inequality to individuals' acceptance of inequality. Thus, information about the status quo might moderate one's assessments about one's own fair share of the benefits and burdens in society as heightened perceived inequalities might be justified and rationalized due to processes of legitimization.

While this aspect has received considerable attention in inequality research, I argue that this process should affect individuals' beliefs not only about the legitimacy of inequality but also about the redistributive institutions in place. Research has shown that illegitimate inequality or concerns about

inequality do not automatically legitimize governmental interventions or increase individuals' preferences for redistribution (Scheve and Stasavage 2022). As such, perceiving unfair inequality might be a necessary but insufficient condition in motivating individuals' support for redistribution. Hence, the pressing question is why individuals often do not favor increases in redistribution despite expressing concerns with the size of inequality in their country (Osberg and Smeeding 2006). Thus, this dissertation focuses on the question of when and why redistribution is considered fair.

However, contrary to expectations of traditional econometric models (e.g., Meltzer and Richard 1981), research has shown that *redistribution from* and *redistribution to* are inherently different and may depend on different explanatory factors. This difference relates to studies emphasizing the role of material interest and the moderating factors of tax and benefit targeting (Berens and Gelepithis 2019; Moene and Wallerstein 2001) but especially also the social mechanisms related to individuals' fairness considerations. While welfare benefits emphasize the aspect of *redistribution to* and, thus, make benefit receivers' (predominantly the poor) characteristics salient, taxation highlights the aspect of *redistribution from* and, thus, makes taxpayers' (predominantly the rich) characteristics salient (Cavaillé and Trump 2015). Hence, following the prominent theoretical concept of welfare deservingness (van Oorschot 2000), the question of when people think that the poor deserve to receive benefits might be essentially different from the question of when people think that the rich deserve to be taxed. However, while attitudes towards social spending, such as for unemployment benefits or pensions, have seen many major contributions in sociology (Burgoon et al. 2022; Fernández and Jaime-Castillo 2013; Naumann, Buss, and Bähr 2016; van Oorschot 2000; Reeskens and van Oorschot 2013; Taylor-Gooby et al. 2020), public attitudes on different forms of taxes of the welfare state have featured less prominently (see Martin and Prasad 2014, for a similar argument).[3] Despite the crucial role of taxation in stratifying a country's society and its importance in decreasing social and economic inequality (Atkinson, Piketty, and Saez 2011; Esping-Andersen 1990; Korpi and Palme 1998; Saez and Zucman 2019), we know comparatively little about what explains variation in tax demands and tax fairness beliefs of different individuals. To fill this gap, I focus on the arguably less prominent revenue side of the welfare state and study the question of what explains individuals' demands for redistributive taxation.

However, the directionality of redistribution not only suggests that redistribution comes in two different variants but also highlights the fact that redistribution (and inequality) is essentially relational (Cansunar 2021; Condon and Wichowsky 2020). This means that people make sense of inequality and redistribution by comparing their outcomes, benefits, and burdens with others, and perceptions of macro level conditions signal not only individuals' views about their own situation but also how they relate their own situation to those of others (Hansen 2022; Horwitz and Dovidio 2017; Starmans et al. 2017; Sznycer et al. 2017).

Acknowledging this characteristic, I suggest that the empirical findings of a missing link between relative income perceptions and preferences for redistribution might not only be explained by other mechanisms like individuals' fairness concerns but also by these studies underestimating the relational component of these kinds of perceptions and information. Focusing on the directionality of comparisons, empirical results have demonstrated that individuals perceive differences between the poor and rich as less legitimate when these differences are framed as the disadvantaged group having less, react differently to advantageous inequality (downwards directed) compared to disadvantageous inequality (upwards directed), and emphasize different fairness dimensions when thinking about the rich or the poor. Thus, despite its uninformative character, the anchor (the poor vs. the rich) of comparison likely

[3] However, the literature has seen several important contributions focusing on the macro level and studying questions related to globalization, international tax competition, the role of institutions, and the interrelationship between size of the welfare state and tax mixes (Ganghof 2009; Ganghof and Genschel 2008; Genschel and Schwarz 2011; Obinger 2021).

affects individuals' perceptions of where they stand in society, how fair they think this inequality is, and whether they support changes in the redistributive power of the welfare state. Thus, I argue that previous literature has not only misconceptualized perceptions as simple indicators of people's (mis)information but might have also produced misperceptions themselves as common research designs focus often on either upwards-related relative income or downwards-related relative income only.

This relational characteristic may not only affect how we interpret individuals' income perceptions but also individuals' perceptions about the structure of redistribution. Instead of simple indicators of the degree of tax progressivity, individuals' tax perceptions also indicate how individuals view and want to view their tax contributions relative to others. Although seldomly acknowledged in the preference literature, studies in tax compliance have for a long time emphasized that individuals' willingness to contribute to tax revenue depends on their feelings of injustice, which are informed by perceptions about who pays for the welfare state (Andreoni, Erard, and Feinstein 1998; Kirchler, Hoelzl, and Wahl 2008). Therefore, the degree of individual tax solidarity likely depends on what they think others are contributing relative to themselves (Liebig and Mau 2005; Rothstein 2001), but these are likely biased as people tend to overestimate their own contribution relative to others (Ross and Sicoly 1979). Thus, I expect that individuals' tax preferences should be a function not only of their preferences or fairness beliefs but also of their biased perceptions about what others contribute to the public good relative to themselves.

In summary, I argue that economic inequality might not be met by rising demands for redistribution given that increases in redistribution are not perceived to be just because fairness judgments are anchored in perceptions about the present redistributive structure and because inequality and redistribution are essentially relational and perceptional biases that lead individuals to underestimate others' tax contribution relative to their own, which decreases tax solidarity. Focusing on conflicts about "who gives to" (taxation) rather than "who gains from" (benefits) the welfare state (Beramendi and Rehm 2016), the following chapters of the dissertation provide a new theoretical framework to understand preferences for redistribution and tests these arguments empirically.

The next chapters are structured as follows. Chapter 2 provides a middle-range theory of preferences for redistributive taxation that suggests that the theoretical arguments and empirical evidence of the redistribution literature can be subsumed by a theoretical framework that assumes that individuals are motivated by two desires: income maximization and the desire to live in a just world. These desires are moderated by individuals' beliefs and perceptions that affect the logic of action and link individuals' decision-making with the macro level context. I argue that these perceptions serve two important functions: providing individuals with a sense of what is the case, on which they can base their preferences; and defining action alternatives by providing individuals with a range of "natural" options. Linking these two processes, I suggest that perceiving inequality and redistribution always involves a process of social comparison that highlights the role of cognitive biases, motivated beliefs, and individually perceived tax solidarity.

Chapter 3 deals with the connection between objective circumstances and individual beliefs, studying whether individuals "learn to like" the tax system they live in. Following the arguments developed in Chapter 2, I suggest that preferred tax rates and tax distributions are strongly dependent on people's perceptions about the status quo taxation because people tend to use the status quo as a baseline for fairness judgements. To test this argument, I use cross-country data from the European Social Survey and analyze whether people will (i) consider larger sizes of the welfare state fair if they live in a country with high average tax rates and (ii) accept larger tax progressivity if taxation in their country is already strongly stratified by income. This test provides initial evidence for the existence and substantial relevance of the relationship between institutional arrangements of taxation on the macro level and individuals' perceptions of what constitutes fair taxes for themselves at the micro level.

Chapter 4 follows up on the results of Chapter 3 and tests the explanatory power of the two main perceptual explanations for individuals' redistributive tax preferences related to information. While advocates of a utility perspective state that informing individuals about increasing inequality will lead to more demand for redistribution, others argue that legitimization mechanisms hinder this process and might lead to more acceptance of inequality. Using data from a representative experimental survey conducted in Austria in 2018, this chapter examines the causal impact of information about (i) one's relative income position and about (ii) the present structure of tax rates on the tax progressivity respondents consider to be fair.

Chapter 5 highlights that past literature has understood perceptions as simple indicators of misinformation but has, so far, failed to find consistent evidence that shows that correcting these misperceptions leads to the expected updates in preferences. I suggest that understanding inequality perceptions as the product of social comparisons might help to explain these findings. Focusing on the direction of comparison, I predict that the choice of upward- or downward-oriented comparisons systematically biases respondents' perceived relative income positions and their fairness attitudes because people (i) tend to anchor estimates at their endpoints and (ii) use the way inequality is described as a clue of what individuals should have. Using data from two experimental surveys conducted in Austria, I test these hypotheses empirically, provide evidence as to whether these effects are created by motivational or cognitive social mechanisms, and use this evidence to propose and test a method for how researchers interested in relative income effects can avoid such biases in the future.

Chapter 6 starts from the cross-sectional finding that, empirically, the poor are more likely to support increases in the level of tax progressivity than the rich. Such income-stratified tax preferences can result from differences in preferences of *what should be taxed* as argued by previous literature. However, it may also result from income-stratified perceptions of *what is taxed*. Following established theoretical arguments on how individuals form perceptions about their relative contributions to public goods, this chapter argues that the rich perceive higher levels of tax progressivity than the poor and that these biased tax perceptions affect individuals' support for progressive taxation. Using data from an Austrian survey experiment, this study tests this argument in three steps. First, it tests whether individuals' income position is connected to their tax preferences as a self-interest rationale would predict. Second, it decomposes tax preferences into perception and preference components and tests whether income-stratified preferences are driven by differences in what people think is taxed or should be taxed. Third, it randomly informs a subset of the sample about actual tax rates and studies whether changing these tax perceptions causally affects support for redistributive taxation.

# 2) A Middle-Range Theory of Redistributive Preference Formation

*Between a condition of objective inequality and the response of a disadvantaged person lie the perceptions, evaluations, expectations, in short, the psyche of the individual (Robert A. Dahl 1971:95).*

In this chapter, I explain the rationale for using relative income perceptions, tax perceptions, and fairness attitudes to explain redistributive taxation preferences. To do this, I embed the formation of redistributive taxation preferences in a general theory of social action that assumes that individuals' actions are driven by a desire for income maximization and to live in a just world. Afterward, I highlight the partly endogenous nature of perceptions and fairness attitudes, and explain how they relate to macro-level inequality and individuals' income positions. This will explain why I expect accounting for perceptions and fairness attitudes to change our interpretation of individual rationality and demonstrate how structurally biased beliefs can perpetuate inequalities. Finally, I derive the general theoretical arguments tested in this dissertation connected to (1) status-quo bias of fairness perceptions, (2) endpoint-anchoring of relative income perceptions, and (3) overestimation of in-group contributions to public goods, e.g., paying taxes, and explain their respective roles in shaping individuals' redistributive taxation preferences.

The central challenge within all theoretical explanations of people's redistributive preferences is that their central explanatory factor - the level of inequality – is a macro-level condition that should influence individuals' (micro-level) behavior. As the Dahl quote above emphasized, before objective macro conditions can affect social actions, they must be i) adequately transmitted (directly or indirectly affecting individual perceptions and beliefs) and ii) cognitively processed by individuals (i.e., the setting must allow individuals to take these beliefs into account when deciding redistributive preferences and actions). While seminal economic models "solved" these issues using simplifying assumptions, later theories actively acknowledged these challenges and expanded the initially rather parsimonious models. This created an increasing number of what could be called "small range theories" [4] that often have focused on one specific social mechanism or sub-relationship in the inequality-redistribution link. Due to this approach, the current literature lacks a theoretical framework on how these various theoretical advancements and empirical results relate to each other (for similar accounts, see, also, Cavaille, 2023; Hing et al., 2019). To overcome this issue, this chapter embeds the redistributive preference formation process within a general theory of social action to establish a theoretical framework that enabled me to combine different theoretical branches and empirical results.

## Preference formation at the micro level

Emphasizing the importance of the structure of proposed relationships and the links between macro-micro and micro-macro has a long tradition in analytical sociology (Hedström and Swedberg 1998; Hedström and Ylikoski 2010; Sørensen 1998) (for earlier variants, see, e.g., Boudon, 1979; Diekmann, 2020; Elster, 1989). Although a considerable amount of research in sociology focuses on the micro-macro link (Alexander 1987), numerous theoretical works on frames and biases in analytical sociology and social psychology have highlighted the macro-micro link's social aspect as well (Ajzen, 1985; Hedstrom, 2005, pp. 38–66).[5] These "bridge hypotheses" link social structures to the actors' subjective

[4] Robert Merton called these "the minor working hypotheses evolved in abundance during the day-by-day routine of research" (Merton 1968:39).

[5] A famous early example of a "sociological" situational mechanism is related to the Thomas theorem, which basically states that what people define as real is real in their consequences. Merton used this "definition of the situation" to explain the phenomenon of a self-fulfilling prophecy and the Matthew effect in science (Merton 1968,

views, essentially describing "the typical logic of the situation for the actors" (Esser 1998:94). By following this tradition and using the so-called "mechanism approach" in social explanation, I focused on the *situational mechanisms* that explain how structural conditions, e.g., economic inequality and the institutional setting, constrain or enable individual perceptions and preference formation (Hedström 2005; Hedström and Ylikoski 2010).

To be able to describe the situational mechanisms affecting individuals' preferences in the context of redistributive taxation, a solid understanding of the action-formation process at the micro level is essential. Following Hedström (2005), I relied on a basic theory of action that describes social action as a consequence of individuals' desires, beliefs, and opportunities (DBO theory). DBO theory states that the combination of individuals' desires (what people wish or want to happen or not to happen), beliefs (what people think to be true – or most likely), and opportunities (action alternatives available to an individual in a given situation) can create a compelling reason for individual action (Hedström 2005) and explain meaningful intention of an actor.

The outcomes that this dissertation explains are redistributive taxation preferences that, following DBO theory and other established theories in social psychology, are understood as intentions to act (see, also, Fishbein & Ajzen, 2010), i.e., given proper opportunities, individuals are expected to do what they prefer (e.g., vote for the taxes they prefer). This relates the formation of preferences to a general theory of social action and embeds the dissertation in a greater research endeavor interested in explaining why individuals adapt or do not adapt their preferences upon changes in structural conditions such as in the level of inequality. This way, the dissertation limits itself to explaining preference formation and leaves out the constraints (or opportunities) to political action that should affect when and why individuals act or do not act based on their preferences (for a discussion of these issues, refer to Iversen & Goplerud, 2018). Assuming that preferences can be understood as intentions to act, the social action model basically can be reduced to a combination of desires and beliefs explaining intentions, as presented in Figure 2.1.[6]

Following established models of rationality in sociology, I assumed that individuals act not only because they benefit from certain actions, but also because they believe that they are good and/or fair actions, and they have reasons to believe so (see, also, Boudon, 2003; Opp, 1983). Thus, I focused on two essential individual desires that are highly relevant in the context of individual preferences for redistribution in general and redistributive taxation preferences in particular: the desire to maximize one's income and the desire to live in a just world.[7]

1995). See, also, the German discussion on "explanatory sociology" [*erklärende Soziologie*] (Esser, 1996; Kroneberg, 2005).

[6] Note that the opportunities for preference expression can be understood as a problem of human judgment and habits within the stage of belief formation (as will be demonstrated later).

[7] I refer to the social psychological term "living in a just world" here (instead of stating that individuals want to maximize the fairness of outcomes and processes) to emphasize that these fairness ideals are socially constructed (norm-related) and to highlight that motivational belief distortions (preference-related) are a distinct possibility here (see, e.g., Lerner, 1980).

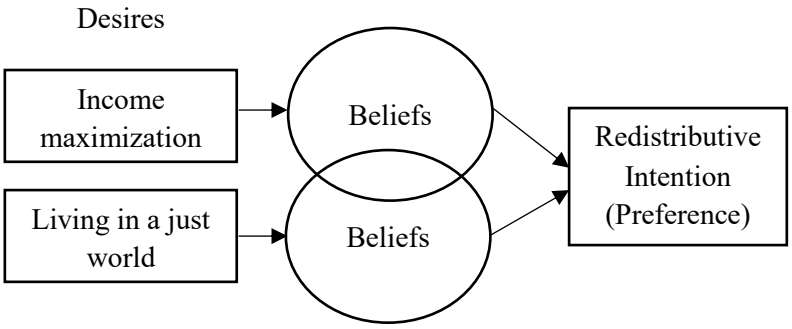


**Figure 2.1: The desires-beliefs-opportunities (DBO) model of the formation of preferences in the context of redistributive taxation**

This approach relates to the general distinction in the social sciences between two basic mechanisms of human motivation: interests and values.[8] However, by understanding motivations as belief dependent desires, I avoided the strict functionalist distinction between material circumstances and deep-rooted ideological values. Thus, this view of social action and rationality raises the issue of "false consciousness" without dropping a strong notion of rationality and individuality of action (Boudon 1998). This incorporates the critique within new economic sociology, highlighting that theoretical accounts in the social sciences often split into "oversocialized" (norm emphasizing sociology) and "undersocialized" (self-interest focused economics) views, which both rely on an atomistic understanding of individual action (Granovetter 1985). Specifically, assuming that individual political preferences are shaped by self-interest or a desire for income maximization is not equal to the assumption that material circumstances are an independent explanatory factor for preferences. Structurally dependent beliefs about the means to achieve one's goals, or about the appropriate goals given the specific situation, matter. While some of these beliefs are specific to one kind of desire, others matter for both.

In the next section, I demonstrate that this two-desire approach is general enough to subsume large parts of the theoretical arguments and empirical results, while remaining specific enough to suggest clear explanatory mechanisms and point to testable empirical hypotheses. To do this, I briefly describe these two desires in more detail and link them to the relevant literature in the field. Afterward, I connect these desires to specific beliefs and explain how they affect individual preference formation in the context of redistributive taxation.

## Income maximization

The idea that individuals desire to maximize their incomes basically assumes that people strive to maximize their utility (self-interest) and that people gain utility from increased consumption, which can be achieved through higher income. The concept has a long tradition in the social sciences and often is viewed as individuals' main motivation to support or oppose welfare policies in the political economy literature (Downs 1957; Iversen and Soskice 2001). Nearly every empirical study that analyzes redistribution preferences or demands for progressive taxation considers material self-interest to be an important explanatory mechanism (Hing et al. 2019; Stantcheva 2021).

[8] Related to this, Max Weber (2002) distinguishes between instrumental (zweckrational) and value-rational (wertrationales) action, Lindenberg (1990) *homo oeconomicus* and *homo sociologicus*, Elster (1989, 1998) mentioned selfishness and altruism, Fehr et al. (2002) self-interest and strong reciprocity (social preferences), and Hall and Taylor (1996) calculus and cultural explanation. Note that despite these approaches' popularity, others have argued in favor of a board rationality concept (Opp 2013) or that more fine-grained distinctions are needed to explain human action (Esser and Kroneberg 2015; Lindenberg and Steg 2007).

In its simplest and strictly myopic variant, this approach expects that individuals will want to maximize their net income (income after taxes and benefits) given their current gross income (income before taxes and benefits) and the current size and shape of inequality. This expectation has been formalized in the classic economic literature on redistribution preferences and the size of government (Meltzer and Richard 1981; Romer 1975). The seminal Meltzer-Richard model's basic argument is that individuals want to maximize their net income while considering the level of inequality and accounting for potential efficiency losses. To derive a unique solution for the relationship between macro-level inequality and micro-level redistribution preferences, the model relies on four central assumptions. First, tax rates are assumed to be flat; thus, as stated in the title of Meltzer and Richard's (1981) original publication, the model essentially explains "the size of government" (i.e., the size of the welfare state) and cannot account for disproportionate tax rates (e.g., progressive income taxes) and preferences for these. Second, redistribution happens in the form of lump-sum transfers, meaning that social transfers are split equally among the population; thus, benefits also are not allowed to be targeted. Third, all standard and rational choice assumptions hold. Thus, individuals should be fully informed about relevant macro-level conditions and rationally select the income-maximizing option. Fourth, individuals strictly will act myopically, with the intent to maximize their short-term material self-interest.[9]

With this approach, the theory avoids all potential non-linearities that can arise from target-specific taxation or social spending, enabling the model to derive a unique solution to individuals' redistribution preferences that depends solely on the amount of inequality within a country (specified as the difference between mean income and median income). Specifically, the model predicts that: cross-sectionally, people with higher relative incomes should prefer less redistribution compared with those with lower relative income positions and, longitudinally, rising levels of inequality should increase the average level of preferences for redistribution within a country. Thus, the essential political question "Who gets what, when, how" (Lasswell 1958) from the welfare state becomes a question of simple mathematics related to the size and shape of inequality.

Despite its parsimonious setup, the Meltzer-Richard model received considerable empirical support from laboratory research, indicating that people act in line with its expectations in anonymized full information settings (Agranov and Palfrey 2015; Esarey et al. 2012). However, laboratory studies also have demonstrated that the relationship between income and preferences can be affected by changes in framing (e.g., calling redistribution a minimum income or a tax rate) (Lorenz, Paetzel, and Tepe 2017), individuals' social preferences and justice attitudes (Sauermann 2023; Tyran and Sausgruber 2006), and the allocation mechanisms of outcomes to be redistributed (windfall or effort-based earnings) (Balafoutas et al. 2013; Durante et al. 2014; Tepe, Vanhuysse, and Lutz 2021). Thus, while people seem to act in line with the model in specific situations, these actions are highly context-dependent, and small modifications can lead people to deviate from the income-maximizing option.

While most laboratory studies have found the expected, although sometimes unstable, negative relationship between individuals' relative income positions and revealed or stated preferences for redistribution, the results in survey research are more mixed. Although most cross-sectional studies have found correlational evidence of the expected negative relationship between preferences for redistribution or higher tax progressivity and individual income, more sophisticated research designs that use variation over time have found little evidence of the supposed link between income inequality and preferences for redistribution (Breznau and Hommerich 2019; Brooks and Manza 2013; Kenworthy and McCall

[9] A fifth assumption would be that the model assumes that the policy space is one-dimensional and that individual preferences can be aggregated using the simple median voter theorem. As the transformation of preferences into political actions (mainly vote choice) will not be part of this dissertation, I refer to the literature for further discussions on this issue (Iversen and Goplerud 2018).

2008; McCall 2013; Mijs 2021; Trump 2023).[10] Thus, the rich being less in favor of progressive taxation or redistribution than the poor does not seem to be a result of a process of fast-paced rational choice updating of interests, as the standard econometric model would predict.

Taken together, we know that individuals sometimes act in a self-interested manner, but various factors seem to lead individuals to deviate from simple income maximization, particularly outside the lab context. To account for these inconsistencies, researchers have suggested several alternative theoretical approaches to explain how individuals maximize their material self-interest when deciding their redistributive preferences. This line of research basically preserves the idea that people solely care about maximizing their net income, but drops the myopic perspective and allows for more strategic preference formation of individuals to explain redistributive preferences' long-term stability.

First, it has been suggested that people want to maximize lifelong income or mid-term income and account for the potential stickiness of tax rates enacted in the present (Alesina and Giuliano 2011). Therefore, people should take their expected social mobility into consideration when forming preferences for redistribution, which might explain the low variance in redistributive preferences over the life span (Bénabou and Ok 2001; Piketty 1995). Second, other theoretical accounts have argued that people are affected not only by the direct consequences of redistribution and inequality, but also by negative externalities that might arise because of growing levels of inequality such as reduced subjective well-being (Ferrer-i-Carbonell 2005; Reyes-García et al. 2019; Verme 2011), increased crime (Kelly 2000), and negative effects on physical and mental health (Pickett and Wilkinson 2015). To avoid these negative externalities, high-income earners should prefer more redistribution than what would be expected by standard econometric models that only consider the direct economic benefits of redistribution (Rueda and Stegmueller 2016). Third, it has been emphasized that individuals are permanently uncertain about whether they can maintain their current economic position and, thus, should consider social and economic risks when forming their political preferences. Therefore, individuals should account for potential income losses due to unemployment and other economic risks and demand redistribution at present as insurance for potential misfortunes in the future (Moene and Wallerstein 2001; Rehm 2009). This should hold not only for the benefit side, but also for the revenue side, of the welfare state, as individuals should consider whether they are taxed disproportionally higher than others when forming redistributive preferences (Beramendi and Rehm 2016; Korpi and Palme 1998). Thus, self-interest in the form of after-tax income maximization should be affected by the institutional characteristics of (income) taxation in one's country.

To sum up, these expansions of the rational choice idea suggest that to understand individual self-interest, we need to consider more than inequality and individuals' relative income position within the income hierarchy, namely social mobility, the state's ability to limit the consequences of negative externalities from inequality, insurance targeting, labor market risks, and tax laws. All these factors suggest further macro conditions that people should keep in mind when forming their preferences. These expansions capture the complex nature of preference formation in the "real" world more accurately, while they maintain that materialistic utility maximization is the sole (or at least primary) desire of

[10] Explanations focusing on a material self-interest rationale have received more support in the context of welfare preferences that study individual reactions to unemployment and income shocks, or changes in subjective or objective unemployment risks (Ahrens 2022a; Marx 2014; Naumann, Buss, and Bähr 2016; Schwander and Häusermann 2013). Generally, most of these empirical studies detect short-term adaptations in support of welfare spending on welfare legitimacy after such events. This could hint that people have an easier time updating their preferences if economic shocks are easily observable for the individual (such is the case when an individual becomes unemployed), and benefits are more targeted to a specific social risk (e.g., unemployment benefits). However, researchers also generally have found that individual preferences remain quite stable in the long term despite substantial changes in material circumstances and interests (Ebbinghaus, Lehner, and Naumann 2022; Margalit 2019; O'Grady 2019; van Oorschot 2000).

individuals that one must consider to explain preferences for redistribution or redistributive taxation. However, these considerations already point toward the importance of beliefs, as individuals now should be accurately informed not only about their relative income position, but also about labor market risks, mobility prospects, welfare state targeting, etc.[11] Thus, by increasing the rational choice model's complexity, it becomes more and more difficult to assume that individuals are informed adequately and are cognitively able to estimate the option that maximizes their post-redistribution-income.

However, empirical studies have demonstrated that even in full information settings with simple choice decisions, people often do not act according to the expectations of theoretical accounts that focus on an individual self-interest rationale (Engelhardt and Wagener 2018; OECD 2021). Thus, individuals' desire to maximize their income might be insufficient to explain their distributive decisions and preferences, both in the lab and even more so in the field. To account for this issue, a rich literature expanded the list of potential drivers of preferences for progressive taxation and redistribution, focusing primarily on individuals' desires for fair outcomes and allocation processes (Alesina & Angeletos, 2005; Heuer et al., 2020; Hvidberg et al., 2023; Liebig & Mau, 2005; Osberg & Smeeding, 2006; for a summary, see Hing et al., 2019).

## Living in a just world

People desire to live in a just world and want to consider what they and others do is just (Jost, Kay, and Thorisdottir 2009). People can feel better when giving something away (Andreoni 1990; Fehr and Fischbacher 2003), particularly if this decreases unfair inequality (Bohmann and Kalleitner 2023; Fehr and Schmidt 1999). While it still is being debated whether the reason for this desire is an affectual, i.e., emotional, reaction or that they want to avoid cognitive dissonance (Lerner 1980), increase their social image (Andreoni 1990), heighten their self-identity, expect reciprocity (Rabin 1993), or because they simply care about others' well-being (Tricomi et al. 2010), the fact that individuals' desire to live in a world in which they think conditions and outcomes for themselves and others are fair is quite established.

The idea that people care about the fairness of the (re)distribution system and the level of inequality has a long tradition, particularly in the social justice literature (see, e.g., Elster, 1998; Homans, 1973; Jasso, 1980; Mau & Veghte, 2007; D. Miller, 1999), but it also has received considerable attention in economics (see, e.g. Alesina and Angeletos 2005; Almås et al. 2010; Fong 2001; Hufe, Kanbur, and Peichl 2022; Stantcheva 2021). In the context of inequality and redistribution, the main argument basically states that people should not react to inequality, but rather to unfair inequality. Thus, individuals' preferences and actions should be affected by inequality as it is perceived and evaluated – rather than by the actual amount of inequality in society (Bjørnskov et al. 2013; Osberg and Smeeding 2006). Therefore, researchers should examine the processes behind legitimization and illegitimation of inequalities, rather than inequality changes themselves, to understand people's reactions or lack thereof.

[11] Also, note that the classic argument that information will be transmitted efficiently via prices should not apply here (Hayek 1945). Opportunity costs should prevent individuals from acquiring lots of information, as the expected impact of one's single vote choice is quite low (see, also, Downs, 1957). Furthermore, it is quite unlikely that individuals experience sufficient institutional change or political propositions so that they can acquire an adequate overview of the political possibilities passively. Thus, similar to Coleman's (1988) ideas about social capital, it can be expected that individuals rationally will underinvest in knowledge of public economics and state finances, and that the information gathered likely will be a byproduct of other activities (e.g., participating in the labor market). Following these arguments, one also can expect that low-income earners in particular will have a low information basis because their potential utility of tax knowledge is lower than high-income earners. This could reproduce inequalities, as high-income earners might be better-equipped to vote in their rational interest than low-income earners.

Following this notion, empirical studies found that people often prefer inequality to equality, particularly if they think that these outcomes result from fair allocation processes (Starmans et al. 2017; Trump 2020). A central factor legitimizing inequality in this process is individuals' belief in meritocracy, i.e., the belief that current inequalities mostly reflect differences in individual effort (Frank 2016; Heuer et al. 2020; Mijs and Savage 2020; Sandel 2020). Meritocracy can be understood as a popular combination of a specific form of distributive justice (fairness of outcomes and their distributions) and procedural justice (whether allocation mechanisms are viewed as fair) in market settings (Liebig and Sauer 2016). On the one hand, meritocracy highlights the importance of "equality of opportunity," emphasizing that inequalities should be the product of differences in "merit," not based on differences at birth. On the other hand, meritocracy emphasizes equity's dominant role in deciding distributions' fairness, i.e., all in all, rewards should reflect differences in individuals' efforts. Thus, redistributive preferences should decrease under meritocracy beliefs because more and more people would argue that these inequalities are just.

In analyzing the explanatory power of fairness beliefs, extant studies could demonstrate that unfair inequality is a better predictor of preferences for redistribution than objective inequality (Ahrens 2022b; Almås et al. 2010; Stantcheva 2021). Furthermore, the empirical literature has indicated that the gap between inequality perceptions and fairness ideals is a strong predictor of inequality concerns and preferences for redistribution (Bohmann and Kalleitner 2023; García-Sánchez et al. 2020; Giger and Lascombes 2019; Kuhn 2019; Schneider and Castillo 2015), as expected by social justice theories (Jasso and Wegener 1997b). Moreover, fairness concerns in the form of stronger average beliefs in meritocracy in the US have been put forth as one explanation for the welfare state's lower redistributive power in the US compared with many European countries (Alesina and Angeletos 2005; Alesina, Di Tella, and MacCulloch 2004; Alesina et al. 2005; Alesina and Ferrara 2005; Almås et al. 2019; Bénabou and Tirole 2006). However, recent studies that have suggested that Europe's lower rates of inequality increases in the last couple of decades compared with the US cannot be explained by more equalizing tax and transfer systems, but rather by different trajectories in the development of pre-redistribution wages (Blanchet, Chancel, and Gethin 2022). Thus, while different, the redistributive tax regimes of both the US and European countries seem to react little to increases in pre-redistribution inequality. Considering that large shares of the population in nearly all Western countries have expressed concerns over the amount of inequality within their nations (see, e.g., Mijs, 2021; Osberg & Smeeding, 2006), beliefs in the fairness of inequality seem insufficient in explaining why the redistributive power of the tax systems is not increasing (Scheve and Stasavage 2016).

Considering the substantial amount of literature in the field, it is striking that extant studies have focused mainly on individuals' fairness attitudes on outcomes – e.g., inequality fairness, fairness of income differentials, or concerns about income differences – while paying little attention to when and why individuals think it is fair to redistribute (see, e.g., Alesina & Angeletos, 2005; Osberg & Smeeding, 2006). Thus, while we know a lot about "when and why economic inequality is seen as fair" (Trump 2020), literature has paid little attention to the mechanisms explaining individuals' fairness perceptions of redistribution itself. Following expectations that people want to live in a just system, I expect that individuals will consider both fairness of the distribution of incomes and fairness of redistribution when they decide to support or oppose increases in redistributive taxation.

Scheve and Statsavage (2016) recently emphasized this point, arguing that perceived (un)fairness in the production of inequality is the deciding factor that enables or hinders governments from introducing redistributive taxes. Specifically, they argued that taxing the rich becomes popular if the production of inequality can be related to governmental interventions, as people otherwise fall back on the standard norm that governments should treat all individuals equally (Scheve and Stasavage 2022). Following this argument, they link the historical adaptation and expansion of progressive income taxation in Western

countries to the unequal conscription rate of the poor and the rich in both world wars, suggesting that this created feelings of injustice that could be related directly to governmental actions, which increased support for taxes targeted at the rich (Scheve and Stasavage 2010). Similar arguments recently have been brought forth to explain the growing popularity of redistributive income and wealth taxation after the Great Recession (Limberg 2019, 2020). Because governments' bank bailout programs primarily benefit the rich, demand for redistribution should increase afterward (Limberg 2022). Thus, the perceived level of legitimacy of redistribution might depend on strong signals against meritocratic distribution of market outcomes that can be traced back to governmental interventions. Thus, unfair inequality does not automatically correspond with fair redistribution.

This links the work on preferences for redistribution to established arguments in the tax compliance literature. Contrary to most of the preference literature, these theories emphasize that people's willingness to contribute to the tax revenue depends on their feelings of justice and whether they think others are contributing as well (Andreoni et al. 1998; Kirchler et al. 2008). In line with this idea, previous empirical results have demonstrated that unjust distributions of burdens can hinder individuals' willingness to redistribute, even if people perceive the inequality of outcomes to be unjust (Schwaninger 2022). Thus, rather than solely maximizing one's own income, individuals also care about reducing unfair inequality. However, the degree of this tax solidarity depends on individuals' feelings of injustice, which are informed by perceptions about who pays for the welfare state. Thus, individual support for redistributive taxation relies on the belief in a just distribution of burdens, i.e., a basic form of tax-based welfare in which everyone contributes their fair share (see, also, Cook & Levi, 2008; Liebig & Mau, 2005; Rothstein, 2001).

To sum up, the fairness literature emphasizes three central theoretical arguments relevant to explaining preferences for redistributive taxation: i) individually perceived injustice might be more important than the amount of inequality itself; ii) processes of inequality legitimization might be more important than different variants of income maximization; and iii) researchers must consider individuals' beliefs regarding inequality fairness *and* redistribution fairness.

## "Other" desires

One could argue that at least two other desires that are dealt with in the literature are crucial and have not been mentioned yet: individuals' desire to act in accordance with others' expectations, which is connected strongly to the term *social norms*, and individuals' desire to favor one's in-group over others, which is also related to the phenomenon of welfare chauvinism. I argue that both can be understood as moderators of the effect of desires to maximize income or to live in a just world on preferences for redistribution.

Social norms affect what individuals think they can and should do (Cialdini and Trost 1998; Evans, Kelley, and Peoples 2010; Fehr and Fischbacher 2004). Thus, social norms can be understood as structurally dependent social beliefs that affect both self-interest (e.g., "Do I think others cooperate and contribute to the public good?") (Cullis, Jones, and Savoia 2012; Doerrenberg and Peichl 2017) and fairness considerations (e.g., "What do I think is a socially accepted level of income inequality?") (Haack and Sieweke 2018; Hargreaves Heap, Matakos, and Weber 2020). Similarly, individuals' tendency to favor one's in-group can be understood as moderators of their desire to maximize their income or to live in a just world. The income-maximizing perspective already is incorporated into preference theories that emphasize the importance of benefit and tax targeting (see, e.g., Beramendi & Rehm, 2016), suggesting that people prefer redistributive systems more if they discriminate in their favor. From a justice perspective, in/out-group discrimination is related to the scope of justice and individuals' deservingness beliefs (van Oorschot 2000), and might explain why the poor oppose redistribution in ethnically diverse countries (Alesina, Miano, and Stantcheva 2023; O'Brien 2017;

Shayo 2009) (however see: Breznau et al. 2022). Thus, both aspects (social norms and in/out-group discrimination) emphasize that individuals also care about others' outcomes when forming their own preferences, which will be discussed in detail when I explain the relational character of inequality and redistribution.

To sum up, this discussion of individuals' desires has demonstrated that a two-desire model remains quite parsimonious while it manages to incorporate most of the theoretical arguments and empirical results. However, debates on the appropriate modelling strategies of material self-interest and the origin of justice perceptions make it clear that the effect of these desires on individuals' preferences depends on what sociologists often describe as "social context." Thus, it is crucial to ask when an individual believes that certain taxes maximize their income and/or create a just world for themselves and others. This highlights the importance of individuals' "definition of the situation" and the situational mechanisms that explain individual belief formation in the context of redistributive taxation. Thus, in the next section, I focus on the process of belief formation by linking structural conditions to micro-level decision making.

## Beliefs and perceptions

Following the arguments of DBO theory, social mechanisms can be understood as specific desire-belief pairs that cause behavioral intentions (Wikström 2006). Beliefs can moderate how desires influence actions and what rationalities (desires) people think are more appropriate, given a particular situation (see, also, the discussion on "action frames" and "modes" by Kroneberg, 2011). Therefore, preference formation should depend not only on individuals' desires, but also on their beliefs, which can be influenced heavily by structural conditions (Hedström 2005). Below, I argue that most research on preferences for redistribution that focuses on either of the two desires mentioned above can be understood as focusing on different variations of combination of desires and beliefs. Hence, the approach of context-dependent social action and belief dependent rationality should help bridge the current divide between "material" (connected to net-income maximization) and "cultural" (connected to fairness concerns) approaches in research on inequality and people's preferences for redistribution (Cavaille 2023; Clark and D'Ambrosio 2015). To do this, I specify the basic process of belief formation, explain the two central approaches on the role of beliefs in the formation of redistributive preferences, and explain how beliefs can link individuals' desires for income and fairness.

Rational choice theories predominantly presume that social action is preceded by a cognitive deliberation process in which individuals choose the best options to maximize their interests. However, this simplified desire-belief model tends to overestimate the role of conscious decisions (Payne et al. 1993; Searle 2001; Wikström 2006). Extant studies' empirical results have indicated that a considerable amount of human behavior is quite automatic or relies on cues and heuristics, rather than consciously considering all available options and choosing the best one (Kahneman 2003). Particularly stable settings tend to favor habituation, in which individuals do not search for the optimal solution and instead accept an adequate alternative (Wood and Neal 2007).[12] To account for these incomplete rationalities, I suggest that individual belief formation can follow two different paths: one related to rational decision making, in which individuals actively try to evaluate perceptions and form beliefs about best alternatives, and one in which beliefs are influenced directly by perceptions through a habituation process (see Figure 2.2). This way, I suggest that beliefs can perpetuate social conditions because i) perceptions are directly influenced by social conditions and individual capabilities, which can bias beliefs (see, also, Iversen & Soskice, 2015), or ii) individuals skip the cognitively demanding process

[12] This also holds for political preference formation, vote choice, and political participation (Aldrich, Montgomery, and Wood 2011; Mullainathan and Washington 2009).

of evaluating available action alternatives and use perceptions directly as indicators of what is possible and adequate in a particular situation (see, also, B. Wegener, 1990).

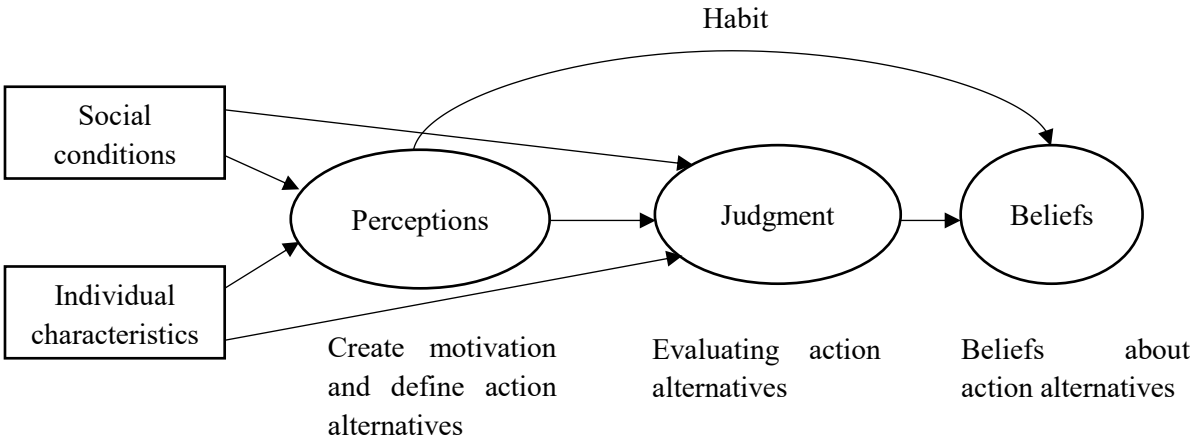


**Figure 2.2: The basic steps in individual belief formation**

Perceptions have two important functions for individual preference formation: i) They connect the macro and the micro level by providing individuals with a sense of what is the case, and ii) they define action alternatives by providing individuals with a range of available options (Wikström 2006). While the former function is crucial in most studies that emphasize the role of perceptions in the context of preferences for redistribution, the latter is hardly ever discussed.

First, perceptions provide individuals with a basic sense of the status quo, on which individuals base their preferences. Consider an income-poor individual who is only interested in maximizing their after-tax income. If this individual believes that their own net income will be higher after a certain tax reform, they should vote in favor; however, if they think that their net income will be lower after the tax reform, they should oppose the reform, i.e., depending on the individual's beliefs about what is the case and what the impact of the reform will be, the same desire (outcome preference) should lead to different behaviors (intentions to act). While simplistic, Slemrod (2006) demonstrated that such types of belief distortion (underestimating status quo taxation's progressive power) can explain why many low-income earners supported the Bush administration's regressive US tax reforms in the early 2000s. Thus, only in combination with the right set of beliefs should objective income maximization become a strong driver of preferences for progressive taxation. Second, perceptions provide individuals with a basic sense of "natural" options, i.e., other alternatives might not come to mind when thinking about tax preferences.[13] For example, regressive income taxes might not be viewed as an option for individuals in Belgium (a country with relatively high levels of tax progressivity) because they are not familiar with them, while in Switzerland (a country with traditionally low levels of tax progressivity), regressive income taxes are debated actively (Martínez 2022). Similarly, for most people, having no income taxes at all might not seem possible, although the United Arab Emirates and the Bahamas, among other nations, do not levy any individual income tax (World Bank 2020).[14] However, marginal income tax rates above 60 or 70 percent might not be perceived as an option presently, although historically, the US and the UK had rates even higher than that in the past (Scheve and Stasavage 2016). Thus, perceptions of the status quo

[13] In his theory on deviant behavior, Wikström (2006) explained that for nonsmokers, rather than thinking about and actively deciding not to smoke, "smoking is not an option" that comes to mind.
[14] This is also true for Norway, which would have similar potential to utilize the petroleum industry's revenue in this way.

do not simply provide estimates of *what is*, but also *what is possible* and, as I will argue later, *what ought to be*.

I submit that these two variants of the process of belief formation (emphasizing different functions of perceptions) may be regarded as the key situational mechanisms that link individuals and the social setting (structural conditions) to their individual preferences. The first variant emphasizes the perceptions' informational role and their importance in rational decision making, arguing that individuals' failure to respond to changing inequalities could be explained through individually biased perceptions. The second variant emphasizes perceptions in providing suitable options and the importance of habituation, arguing that people might use perceptions directly to infer what is possible and what can be viewed as a good option.

## Rational decision making and the role of inequality perceptions (the negative explanation of preference stability)

Since the publication of the seminal Meltzer-Richard model, most research has focused on the question of whether individuals would change their preferences depending on their countries' level of inequality. However, as numerous studies have failed to find the expected positive relationship between inequality and preferences for redistribution (Breznau and Hommerich 2019; Kenworthy and McCall 2008; McCall 2013), the scientific focus has switched to a central precondition, namely individuals' informed beliefs about different macro-level conditions.

The basic idea is that due to certain individual characteristics and macro-level conditions, individuals have biased perceptions of relevant macro conditions, thereby explaining why they fail to adapt their preferences to maximize their material self-interest. Most common arguments focus on people's perceptions of the size of inequality (Gimpelson and Treisman 2018; McCall et al. 2017) and their relative position within the income hierarchy (Boudreau and MacKenzie 2018; Cruces et al. 2013; Engelhardt and Wagener 2018; Karadja et al. 2016), arguing that the heuristics that people use to estimate these macro conditions bias their perceptions, leading to misinformed preferences.[15] Thus, I termed this the *negative explanation of preference stability*, as it is assumed that people simply lack information on changing macro conditions and would prefer other taxes if they were informed properly. This also relates to a greater research endeavor in the social sciences in recent years pointing toward individuals' beliefs to explain inaction (Enke 2020; Jäger et al. 2021; Kustov, Laaker, and Reller 2021; Mijs 2021).

To explain these perceptional biases, most of these studies follow social comparison theories that suggest individuals will use their immediate surroundings to infer inequality in society because they are more salient, socially relevant, and cognitively easy to process (Evans, Kelley, and Kolosi 1992). Thus, people should intuitively compare themselves with those whom they meet most often and whose information on what they are working on, consuming, and earning is most easily available. This way, people will compare themselves predominantly with individuals who are similar to themselves. Various mechanisms account for this phenomenon: The human tendency toward homophily in friendship networks (McPherson, Smith-Lovin, and Cook 2001), labor market segregation (Charles and Grusky 2004), and geographical segregation (Owens 2016; Reardon and Bischoff 2011; Watson 2009) all contribute to income groups' social isolation from one another and decrease the opportunity for cross-class social comparison.[16] This should lead to two results regarding individuals' perceptions of the size

[15] Further studies also have investigated individuals' perceptions of the size of social mobility (Alesina et al. 2018), essentially following similar segregation arguments compared with ones explained above.
[16] Note that Mark Granovetter (1973) referred to similar micro mechanisms to predict that the loss of strong ties should be less detrimental to information flow than weak ties.

of inequality and their relative position within the income hierarchy. First, individuals underestimate the amount of inequality in society, as they miss "endpoints" in society. Second, they are more likely to place themselves at the center of income distribution.

These issues have received considerable attention in recent years. Empirical results suggest that, in line with expectations, people underestimate the total amount of inequality in income (Hauser and Norton 2017) and wealth (Norton and Ariely 2011), and have a strong tendency toward placing themselves in the middle of the income distribution (Cruces et al. 2013). These results are driven partly by an upward bias among those at the lower end of the respective outcome distribution scale and an even more pronounced downward bias among those at the top (Albacete, Fessler, and Lindner 2022; Chambers, Swan, and Heesacker 2014).[17]

As mentioned earlier, the common expectation in most of these studies is that well-informed individuals will react to inequality by demanding more redistribution if this is in their material self-interest. In line with this expectation, some studies have found that informing citizens can affect preferences for redistribution in line with their expectations of strictly income-maximizing voters (Boudreau and MacKenzie 2018; Cruces et al. 2013; Fernández-Albertos and Kuo 2018). However, these effects are often quite small and/or only hold for certain subgroups (Engelhardt and Wagener 2018; Fernández-Albertos and Kuo 2018; Karadja et al. 2016). Moreover, some studies even fail to detect the expected effect at all (Weisstanner and Armingeon 2022) or find that it goes in the opposite direction than expected (Sands 2017). Thus, while some results suggest that information can elicit an effect, it is not clear when (Ciani et al. 2021), and even fully informed individuals tend to deviate from self-regarding utility maximization (Ballard-Rosa et al. 2021). Therefore, a negative explanation of preference stability seems to be inefficient in explaining individuals' preferences for redistributive taxation. I argue that it is exactly at this point that sociology can make a unique and important contribution to the theoretical debate by rescinding the role of perceptions as simple indicators of (mis)information.

## Fairness cues and the role of status quo perceptions (the positive explanation of preference stability)

Inaction is an integral part of every theory of social action (Wikström 2006); thus, it is just as crucial to understand and explain *what people do not do* as it is to explain *what people do*. From its origin, the notion that structural forces limit individual agency's power and often prohibit simple relationships between individual self-interest and social actions always has remained central in sociology. Following this tradition, I argue that future research should focus not only on the question of what factors hinder individuals from making choices among a set of action alternatives, but also on the question of why individuals perceive certain action alternatives (and not others) in specific situations. To answer this question, I suggest that research is needed that analyzes the role of perceptions in identifying action alternatives by providing individuals with a basic sense of "natural" options (Wikström 2006). From this perspective, a lack of information explains not only why people do not vote for the income-maximizing option, but also their structurally informed views on what is the right thing to do given current circumstances (for similar ideas, see, e.g., B. Wegener & Steinmann, 1995; Wilensky, 2002).

The argument that perceptions shape individual fairness considerations highlights an old notion in social psychology that "what is" tends to become the basis of "what ought to be" (Homans 1973). Following this idea, people should use existing structural conditions and institutional settings as a baseline from which to derive a general understanding of what would be fair and good. Therefore, when forming preferences for redistributive taxation people might use existing inequality to infer a just inequality level

[17] This result might be explained in that individuals from lower social classes differentiate between fewer categories in the ordering of social positions compared with those of higher social status (Lindenberg 1977).

(García-Sánchez et al. 2019, 2020; Trump 2018) and use the existing redistribution level to infer the just redistribution level. Thus, individuals should take the size and shape of redistribution into account not only because they want to maximize their interests (Beramendi and Rehm 2016; Berens and Gelepithis 2019; Korpi and Palme 1998; Moene and Wallerstein 2001), but also because they use the status quo as a baseline for what can be viewed as a fair option. Thus, I essentially argue that people oppose higher redistribution despite growing level of inequality not because they lack information about inequality, but because they do not think that this is the right thing to do given current circumstances – essentially providing a positive explanation for preference stability.

Three factors might explain this effect of status quo perceptions: First, we know that humans tend to anchor estimates on recently or frequently seen numbers, thereby biasing estimates in the direction of the anchor (Eidelman and Crandall 2009; Kahneman and Tversky 1979; LeBoeuf and Shafir 2009; Pedersen and Mutz 2018). Under these conditions, increased cognitive accessibility of the status quo should favor status-quo-confirming information and lead to assimilation over contrasting subsequent judgments (Mussweiler 2003). Thus, the status quo should function as a cognitively "natural" reference point of social comparison that biases subsequent judgments in its own direction.

Second, system justification theory argues that the evaluation of new information is biased, in that it does not challenge pre-existing beliefs to avoid psychological discomfort (Costa-Lopes et al. 2013; Jost and Banaji 1994). Thus, people might reinterpret or avoid information about rising inequality levels or a lower relative income position so that they need not acknowledge that they live in an unjust world or that they "did not make it." This also can lead people to actively avoid information even if this information is easily accessible (Bénabou and Tirole 2006; Epley and Gilovich 2016). Thus, people have an incentive to believe that the status quo is just and, therefore, perceptions are not simple indicators of (mis)information, but rather reflect attitude-driven interests shaped by structural conditions and individual characteristics (see, also, the discussion of attitude-driven inequality perceptions by Trump, 2023).

Third, market societies are normatively and institutionally embedded – a phenomenon that tends to strengthen arguments that are in line with the status quo and promotes adaptation as inequalities become normalized (Berger et al. 1972).[18] This approach is related to the *moral economy* idea and highlights the normative power of the status quo in justifying inequality (Koos and Sachweh 2019; Sachweh 2012; Sayer 2007). The basic idea is that institutional settings can render specific inequalities, e.g., income differences, as fair even if people report concerns about the level of inequality in their country. Thus, the status quo should affect people's fairness references through which they apply their moral values. These references can be starkly different depending on the institutional setting, although individuals might hold similar values (e.g., a preference for equity).[19] In line with this expectation, a recent study demonstrated that institutional settings subconsciously produce and reproduce just gender wage gaps even though individuals state that gender differences should not matter in setting individuals' wages (Auspurg, Hinz, and Sauer 2017). Thus, structural inequalities can perpetuate inequalities because fairness references are partly endogenous to structural conditions like the status quo in inequality.

[18] In political science, these concerns also have been debated within the context of *policy feedback theory*. Refer to Schechtl and Tisch (2023) for a recent discussion on these issues and their relevance for tax preferences. Moreover, the literature also suggests that voters often follow examples of others in their attitudes regarding fair levels of taxation or of financial assistance. Elite (e.g. party) or institutional (perceived levels of corruption or institutional quality) cues can be of importance here (Bauhr and Charron 2018, 2020; Kanthak and Spies 2018; Steenbergen, Edwards, and de Vries 2007; Stoeckel and Kuhn 2018).

[19] Actually, empirical studies have suggested that generalized values, e.g., distributive fairness norms in market conditions, seem to be quite similar across different countries with varying redistributive tax regimes (Adriaans and Fourré 2022).

In line with this prediction, laboratory studies demonstrated that the structure of initial endowments affects preferences for redistribution (Côté, House, and Willer 2015; Nishi et al. 2015). Moreover, using a survey experimental approach, Trump (2018) showed that receiving information about unequal incomes in the US and Sweden causes individuals to increase their perceptions of legitimate income inequalities. Similarly, Haack and Sieweke (2018) pointed out that adaptation is a central mechanism that links the collective legitimacy of inequality to individuals' inequality acceptance. In line with these notions, empirical results from other subfields also suggest that just rewards often are based on the typical reward for other people who are similar to oneself in a salient dimension (Auspurg et al., 2017; Berger & Webster Jr., 2006; Jäger et al., 2021; Shamon & Dülmer, 2014), and that status quo biases should even affect ethical evaluations (Bostrom and Ord 2006).

To date, extant research predominantly has focused on the power of the status quo in justifying existing inequalities (see, e.g., García-Sánchez et al., 2019). However, as noted earlier, people care not only about fairness in terms of inequality, but also about the fairness of redistribution, particularly redistributive taxation. Considering that the status quo should bias fairness estimates, redistributive tax regimes might reproduce themselves, as the status quo functions as a stabilizer of individual preferences despite potential structural changes. This notion also relates to the welfare regime literature, arguing that welfare states' structuring forces create stable equilibria that favor long-term stability (Esping-Andersen 1990). Thus, status quo legitimization of redistributive tax structures might explain why previous research has found substantial cross-country differences in redistributive tax regimes and net income inequality even though fairness ideals and inequality concerns are often quite similar (Osberg and Smeeding 2006).

Taken together, the positive explanation of preference stability highlights that situational mechanisms must explain the logic of the situation for the actors. Thus, I argue that researchers have to consider how inequality presents itself to social actors when forming preferences for redistributive taxation (Fiske and Taylor 1984). Following these arguments, information about status quo redistribution might not increase preferences for progressive taxation among the poor – who underestimate status quo tax progressivity, as income-maximizing rationale would predict – but actually could decrease the poor's redistributive preferences because the status quo will lower estimates of what is deemed a fair share of benefits and burdens in society.

However, the notion that one must consider how inequality presents itself to social actors not only relates to the power of the status quo but also emphasizes that inequality and redistribution are essentially relational, i.e., they always contain information about one's *own* and *others'* situation, rewards, and burdens. Thus, aside from status quo effects, one also must consider the socio-comparative character of structural information on inequality and redistribution.

## Perceiving as a process of social comparison and the role of endpoint anchors

To understand the varying effects of information on perceptions, the question of how people think about inequality is essential (Hansen 2022; Horwitz and Dovidio 2017; Starmans et al. 2017; Sznycer et al. 2017). To explain this in more detail, I follow a recent argument by Condon and Wichowsky (2020) that points out that inequality is essentially relational and that individuals make sense of inequality by comparing themselves with others (Tajfel 1981; Tajfel and Turner 1979). Social comparison helps individuals accurately assess their abilities, characteristics, and preferences, as well as process information more efficiently (Fiske and Taylor 1984; Mussweiler and Epstude 2009). Thus, for individuals to estimate and make sense of inequality and, more importantly, their relative position within

the distribution, they are expected to compare their own incomes, benefits, and burdens with those of others.[20]

Focusing on one's relative income position (the central explanatory variable in the model by Meltzer & Richard, 1981), one can say that a specific person earns more than a *poorer* person, or that this person earns less than a *richer* person. Although the framing of these logically equivalent statements should not matter for the "trueness" of the sentence, empirical studies have demonstrated that people's subsequent fairness judgments differ when confronted with information about upward (higher) or downward (lower) comparisons (Bruckmüller, Reese, and Martiny 2017). This influences not only people's fairness estimates, but also their judgments about certain comparisons and the truthfulness of information (Skylark, Carr, and McComas 2018). Thus, people essentially believe that how inequality is described provides information about an absolute standard, i.e., what individuals should have (Chow and Galak 2012; Lowery, Knowles, and Unzueta 2007).

In line with the idea that the direction of comparative statements is crucial, empirical results have demonstrated that individuals perceive differences between the poor and rich as less legitimate when these differences are framed as the disadvantaged group having less (Bruckmüller et al. 2017). Thus, greater inequality is perceived as less legitimate if the framing makes salient how much worse off a disadvantaged group is, but not if it makes salient how much better off an advantaged group is. This connects research on the effects of social comparison to theories on other-regarding preferences, e.g., inequity aversion, which similarly argued that people have a stronger aversion to disadvantageous inequality than to advantageous inequality (Fehr and Schmidt 1999).[21]

Thus, despite its uninformative character, the anchor (the poor vs. the rich) of comparison should affect fairness considerations, might affect individuals' perceptions of where they stand in society, and might influence subsequent preferences for redistribution. Hence, the directionality of information about inequality and redistribution might be a crucial factor in explaining how people react to information presented not only in scientific studies, but also in mass media.

## Linking negative and positive explanations: Perceiving as a process of social comparison and the role of tax solidarity

Another important aspect of social positioning and social comparison that has received relatively little attention in the literature on preferences for progressive taxation to date, but has been studied extensively by scholars investigating people's attitudes about welfare spending, is that people often understand society in terms of groups – e.g., the unemployed, pensioners, or workers – and routinely categorize people by constructing symbolic boundaries that define views about deservingness and desirability (Lamont and Molnár 2002; van Oorschot 2000). This helps people make sense of their place in society and mentally guides the process of belief formation when confronted with new information (Condon and Wichowsky 2020). Thus, beliefs about the unemployed, pension receivers, or the ill are deemed crucial to understanding individual preferences for more or fewer welfare benefits (Aarøe and Petersen 2014; van Oorschot 2000; Schneider and Castillo 2015).

I argue that similar issues are also relevant in the context of income and wealth inequality, as public debates often tend to be connected to distinctions between "the rich" and "the poor" or to different

[20] These questions have been at the center of numerous studies that have tried to link other regarding preferences to individual well-being or preferences for redistribution (Boyce, Brown, and Moore 2010; Dimick, Rueda, and Stegmueller 2018; Schneider 2019).

[21] Note that both these theoretical arguments also can be connected to Kahneman and Tversky's (1974) notion of loss aversion, suggesting that losses loom larger (a higher position compared with the rich) than foregone gains (gaining an equal position against the poor).

income tax brackets. Such categorizations can be understood as points of reference that individuals use in comparisons to identify their own positions within the distribution of benefits and burdens (Cansunar 2020). However, as noted earlier, directionalities should be taken into account. This hold not only for inequality perceptions and information, but also for redistribution. Welfare benefits should emphasize the aspect of *redistribution to a person* and, thus, should make benefit receivers' (predominantly the poor) characteristics salient. Conversely, taxation – particularly progressive taxation – highlights the aspect of *redistribution from a person* and, thus, should make taxpayers' (predominantly the rich) characteristics salient. This is crucial because research found that attitudes toward the rich are structurally different from attitudes toward the poor, suggesting that *prosociality* becomes more important when individuals think about the rich, while *merit* is more important when individuals think about the poor (Hansen 2022; Horwitz and Dovidio 2017). Thus, similar to others, I argue that *redistribution from* and *redistribution to* differ (Cavaillé and Trump 2015; Condon and Wichowsky 2020; Hansen 2022; Horwitz and Dovidio 2017; Lupu and Pontusson 2011).

Redistribution is so strongly connected to categorizations like "the rich" and "the poor" that the most common survey questions about redistribution preferences ask whether respondents think that the "government is responsible for reducing the income gap between the rich and the poor" (ESS), whether people think that "all in all, income differences between the poor and the rich are too large," and whether taxes "for those with high/middle/low incomes" are too high or too low (ISSP).[22] Thus, accounting for how people assess different income classes, in which they subjectively place themselves, and how they perceive contributions of themselves in comparison to others, should be crucial to understanding the relationship between perceptions and preferences in the context of redistribution in general. Following this idea, I argue that income classes can be understood as reference groups when individuals form redistributive preferences. Thus, individuals should conceive tax rates (and commonly related tax brackets) as contributions to the state budget made by different income classes. However, such identifications can lead to motivational or cognitive distortions of perceptions and preferences.

Since the work of Ross and Sicoly (1979), it has repeatedly has been demonstrated that individuals tend to overestimate their relative contribution to joint tasks in various domains (e.g., between team members, spouses, or colleagues) (Deutsch, Lozy, and Saxon 1993; Herz et al. 2020; Kruger and Savitsky 2009). While this so-called *egocentric bias* has been attributed either to motivational mechanisms, e.g., self-enhancement, or to various cognitive mechanisms that point to individuals' limited information when judging the performance of oneself and others, the basic result that individuals tend to overestimate their contributions remains quite consistent. Applying these insights to the taxation context, I argue that individuals should overestimate the relative contribution (in terms of tax rates) of their own income class, i.e., individuals with low incomes should perceive higher tax rates for the poor compared with individuals with high incomes, and high-income earners should perceive higher tax rates for the rich compared with low income earners. This should lead to the poor underestimating the tax system's progressivity relative to the rich and vice versa.

This connects the literature on the importance of self-interest, which partly could motivate perceptual biases (Epley and Gilovich 2016), to the literature on fairness (Trump 2020) and the moral economy of market societies (Koos and Sachweh 2019), suggesting that individuals' perceptions about what *they* and *others* contribute can enable or hinder individuals' demands for more progressive taxes. This directly relates to established theoretical arguments in the tax compliance literature that point out that

[22] Note that the redistributive questions make it impossible to know whether preferences for redistribution stem from a desire to punish the rich, benefit the poor, or both, and that the tax questions target dissatisfaction with the status quo directly, making it impossible to analyze whether dissatisfaction stems from perceptional biases or actual preferences for tax change. Both these issues will be described in more detail in the following chapters.

people's willingness to contribute to the tax revenue depends on their fairness beliefs and whether they think others are contributing as well (Andreoni et al. 1998; Kirchler et al. 2008). Thus, the degree of this tax solidarity depends on individuals' feelings of injustice, which are informed by perceptions about who pays for the welfare state – again evaluating the "prosociality" of others strongly connected to *redistribution from*. Thus, individual support for redistributive taxation should depend on one's beliefs of a just distribution of burdens, i.e., a basic form of tax-based welfare in which everyone contributes their fair share (Liebig and Mau 2005; Rothstein 2001). Thus, individuals' tax preferences should be a function not only of their preferences or fairness beliefs, but also of their biased perceptions about what others contribute to the public good.

Following these arguments, less support for progressive taxation of the rich may be explained not only by lower preferences for redistribution but also by a systematic overestimation of the rich's tax contributions relative to the poor. Moreover, changing individuals' perceptions about the structure of tax contributions should affect their willingness to pay taxes because preferences for redistribution are connected strongly to their beliefs that others are cooperative and fundamentally conform to the norm of reciprocity by contributing to the state revenue (Castañeda 2023; Rothstein 2001). Thus, inequality-driven, biased perceptions may provide people with a justification to withdraw from the principle of tax solidarity with potentially detrimental consequences, particularly for the poor (for similar arguments see also the literature on inequality-driven beliefs see: Mijs 2021; Wegener 1987).

## Summary

In this chapter, I argued that individuals desire to maximize their income and desire to live in a just world, but these desires do not directly explain preferences, as they depend on individual beliefs connected to individual perceptions of macro-level conditions. These perceptions provide individuals with a sense of what is the case and with a range of possibilities that individuals use to infer what good and fair options look like. Thus, perceptions not only are indicators of (mis)information, but also reflect and influence how individuals want to see the world. Following established results, I argue that this highlights two important aspects: that the status quo will influence what levels of inequalities and redistribution individuals want and that researchers must consider the relational nature of inequality and redistribution, as individuals will consider how inequalities and policy changes affect themselves in relation to others.

Following these theoretical discussions, the following empirically oriented chapters in the dissertation will focus on three major theoretical expectations and test the following guiding hypotheses:

**Individuals use status quo taxation as a reference to assess what tax progressivity is fair.**

> Therefore, macro-level tax progressivity should be strongly related to micro-level beliefs about fair tax progressivity (Chapter 3).
>
> Therefore, increasing individuals' perceptions about status quo tax progressivity should increase the level of tax progressivity level they belief is fair (Chapter 4).

**Individuals use the anchors of comparison (rich/poor) to form individual attitudes and perceptions about their position in the income hierarchy and their inequality concerns.**

> Therefore, changing anchors should affect individuals' fairness considerations, perceived relative income positions, and preferences (Chapter 5).

**Individuals estimate their own perceived and fair tax rates in relation to the perceived tax contributions of others.**

Therefore, differences in perceptions, not differences in preferences, might explain large parts of the variance in individuals' desire to change tax progressivity levels (Chapter 6).

Therefore, changing perceptions about contributions by oneself and others should influence redistributive tax preferences (Chapter 6).

# 3) What's a Fair Tax Rate? Cross-Country Evidence on the Link between Status Quo Taxation and Individuals' Beliefs about Fair Tax Rates.

This chapter studies whether individuals 'learn to like' the tax system they live in. I suggest that preferred tax rates and tax distributions are strongly depending on people's perceptions about the status quo in taxation because people tend to use the status quo as an anchor for fairness judgements. Thus, I expect that people will (i) consider larger sizes of the welfare state fair if they live in a country with high average tax rates and that (ii) people accept larger tax progressivity if taxation in their country is already strongly stratified by income. To test these relationships, I use cross-country data from the European Social Survey to show correlational evidence that individuals indeed tend to perceive the actual tax rates in their respective countries to be fair, which results in large cross-country differences in the fairness of taxation. These results may help to understand why national tax systems (like welfare systems) remain quite stable over time, despite substantial differences in the size and evolution of inequality. Furthermore, it provides first evidence on the existence and substantial relevance of a strong relationship between institutional arrangements of taxation on the macro level and individuals perceptions what constitutes fair taxes for themselves at the micro level.

## Introduction

What tax rates do people prefer? In light of the substantial increases in income and wealth inequality in recent decades in many Western countries, studying questions on peoples tax preferences recently gained in popularity among social scientists of different disciplines (see e.g. Cansunar 2021; Limberg 2019; Stantcheva 2021). To answer the question which factors explain variation in tax preferences, researchers in the past frequently turned to theories focusing on preferences for redistribution in general. Following standard economic models (Meltzer and Richard 1981; Romer 1975) the literature, thus, mainly studied the relationship between inequality and demands for redistribution in general and for tax progressivity specifically. In this sense, research predominantly dealt with question how people want to *change* the existing tax system depending on the level of inequality and individuals' income position rather than on what individuals' *ideal* tax system would look like.

However, instead of changing preferences empirical studies mainly find stability even in countries that experienced substantial increases in inequality over the last couple of decades (Breznau and Hommerich 2019; Kenworthy and Pontusson 2005a; Lupu and Pontusson 2011). Thus, most studies conclude that they cannot find convincing empirical evidence on the expectations of the Meltzer-Richard idea of self-interest driven preferences for redistribution. This – from a strict material self-interest standpoint – paradoxical finding of preference stability has recently spurred a substantial body of research that mainly discusses three broad categories of theoretical explanations: perceptual, institutional, and value-based explanations (for a summary see Hing et al. 2019).

Researchers focusing on perceptual explanations argue that individuals use heuristics and rely on limited information when forming their tax preferences. Rather than reacting to changes in objective inequality people rely on their subjective perceptions and these are often strongly biased. Thus, people simple don't perceive the changing inequalities they should react to, but would change their preferences if they have enough information (Cruces et al. 2013). In a similar sense, also most institutional explanations stress the importance of economic self-interest. However, rather than arguing that people have too little

information it is assumed that individuals instead use more information than the standard model would expect. Specifically, this line of research proposes that people are more forward looking and less myopic than believed. Variants of this argument claim that people consider social mobility beliefs when forming preferences (Bénabou and Ok 2001) or that individuals take the current level of tax progressivity into account when they decide whether to support or oppose increases in the redistributive power of the welfare state (Beramendi and Rehm 2016; Berens and Gelepithis 2019).

Together, these studies provide considerable empirical evidence that myopic self-interest is not the single most important predictor of redistributive preferences, that individual perceptions might be more important than objective conditions, and that individuals are influenced by the institutional setting when forming preferences for redistribution. However, these studies still mainly focus on material self-interest to explain individual preferences although most studies stress that the circumstances for rational evaluation of the pros and cons of different tax systems are rather poor. First, the degree of information is low, not only because people have a hard time understanding macro conditions such as the level of inequality but also because the political influence of their single vote is quite limited, therefore, most individuals have little material self-interest in getting informed. Second, institutional alternatives are not easily observed as the political "turnover rate" is mostly quite long. Large tax changes and even more so large changes in the redistributive power of welfare states are quite uncommon both in recent history and in the long run (Alfani 2021; Scheidel 2017; Scheve and Stasavage 2016). This means that most individuals experience only a very limited number of tax rates out of the potential range of tax systems available.[23] Thus, rather than rationally evaluating action alternatives when forming tax preferences, I argue that most individuals follow habits in form of institutional cues about what is possible and what might be right or appropriate.

This relates to the third line of explanation of stable preferences that stresses the role of values and most importantly of individual's fairness beliefs. Recent studies have indicated that perceived illegitimacy of inequality seems to be an important precondition for demanding redistribution (Harth et al. 2008; Reese et al. 2014; Stantcheva 2021). Thus, the task of explaining individuals' tax preferences leads to the question what factors drive perceptions of the legitimacy and justice of inequality and redistribution by taxation. This shifts the focus away from changes in objective or subjective inequality towards changes in fairness attitudes about the distribution and the genesis of inequality and governmental redistribution. Contrary to arguments about biases, fairness arguments might be an important factor enabling individuals to demand redistribution and explaining why individuals refrain from voting for more redistribution in full information conditions (Haack and Sieweke 2018; Trump 2018). Thus, it may be promising to focus on the question when changing inequality leads individuals to adjust their fairness and legitimacy concerns and when it fails to do so. Considering the large preferences stability found by others, I specifically ask what factors may stabilize the legitimacy and justice of taxation?

Considering the importance of fairness, I suggest that the main reason for the limited empirical value of the Meltzer-Richard model is its oversimplification of the complex situational mechanism (Hedström 2005) that links macro level inequality to micro level preferences. Following empirical justice research (Jasso 1980; Jasso and Wegener 1997a) I argue that macro conditions like inequality and the state of redistributive taxation are not only important characteristics for individuals to maximize their interests, but they also constitute the baseline for their justice evaluation. Considering that "what is" often becomes the basis of "what ought to be" (García-Sánchez et al. 2019; Homans 1973) individuals are

[23] This follows the idea that political competition produces information via supplying information of the costs and benefits of different public policies similar to private markets (Hayek 1945). However, in contrast to many markets for goods and services voters have rarely the option to be active consumers of different policies which should reduce the passive information output of these political markets. This might be less true for political systems that rely on the frequent use of direct democracy (Feld and Kirchgässner 2000).

directly influenced by the "moral economy" of the redistributive tax system they live in. Thus, individuals might favour the current tax system simply because they are used to it. In line with these expectations, several empirical studies have recently highlighted the importance of the status quo for fairness considerations because heightened perceived inequalities might be justified and rationalized due to processes of legitimization (Haack and Sieweke 2018; Koos and Sachweh 2019; Mijs 2021; Trump 2018).

In this context, the basic idea is that individuals tend to anchor their fairness evaluations in the status quo: the perceived status quo becomes the basis for what is considered desirable. I suggest that this mechanism potentially explains why individuals do not change their preferences for redistribution although inequality – and thus their potential to gain from redistribution – changes. Thus, changes in fairness attitudes towards governmental redistribution of income might be quite stable despite changes in actual inequality. This means that the perceived legitimacy of different types of taxation may be a crucial predictor for how inclined individuals are to take action against inequality (Trump, 2018). Furthermore, this might provide an additional explanation to the question why national tax regimes (like welfare regimes) remain quite stable over time. This chapter aims to provide a test of the proposed macro-micro link between the tax system and individual fairness considerations with respect to income taxation.[24]

To analyse this question, I study the cross-national differences in the patterns of tax rates individuals consider fair. Specifically, I test how reflexive fair tax rates (what individuals consider a fair tax rate for their income) link to the established tax system in the form of the average tax rate and the tax progressivity in different European countries using data from the European Social Survey.

In the following, I will briefly discuss the state of the art in the literature about preferences for redistribution in general and preferences for taxation in particular. Afterwards I derive my main theoretical argument and specific hypotheses about cross-country differences in the patterns of fair taxes. Finally, I explain the research design and present the results.

## Fairness and tax preferences

### Past literature

Debates about stable preferences for redistribution despite rising levels of inequality have led to two rather distinct models of explanation in the recent literature. The first approach expands the idea of the Meltzer-Richard-model and acknowledges different constraints to the individual's ability to act rationally. These arguments tend to explain why individuals "fail" to form self-interested preferences focusing on limited information and biased perceptions. For instance, the relative income position is central for the median voter model proposed by Meltzer and Richard (1981) as voters must accurately assess their income position in order to be able to maximize their after-tax income (Iversen and Goplerud 2018). Empirical research showed that most people in society have difficulties to accurately guess their relative income position and will adopt more net-maximizing attitudes to taxes if they receive an information treatment on their actual position (Cruces et al. 2013; Engelhardt and Wagener 2018). However, the sizes of these effects are rather small and studies often only find effects for subgroups (Ciani et al. 2021; Weisstanner and Armingeon 2022). Thus, while limited information seems relevant it is unable to explain why preferences for redistribution fail to rise even when people know their relative

[24] This chapter does not claim that tax preferences are solely caused by fairness norms that mainly stem from institutional baselines. I expect that the tax rates in liberal democracies should also reflect the preferences of voters (or important lobby groups). Thus, the causal chain could also go in the opposite direction. This issue will be thoroughly discussed and dealt with in Chapter 4, when I will be using an experimental approach to study the link between perceptions and fairness evaluations. This chapter simply aims to determine whether the expected connection exists in several European countries using a large high-quality survey sample.

income position. While this approach expands the idea of the Meltzer-Richard-model into the realm of limited information, the general idea that one's own relative income is the only relevant determinant of one's redistribution preferences remains unchanged.

The second approach shifts away from the importance of self-interest, which remains an important predictor but now shares explanatory power with other factors (Cavaillé and Trump 2015; Dimick, Rueda, and Stegmueller 2018; Iversen and Goplerud 2018). As Trump (2018) noted recently, the focus on the factors hindering the development of preferences for redistribution might be too narrow. Research has repeatedly found that people often prefer inequality to equality, particularly if they think that these outcomes result from fair allocation processes (Starmans et al. 2017; Trump 2020). people Hence, people might not react to objective inequality, but rather to their subjective views about unfair inequality. In line with this notion, empirical studies have shown that unfair inequality tends to predict individuals' preferences for redistribution better than objective inequality does (Ahrens 2022b; Almås et al. 2010; Bohmann and Kalleitner 2023; Kuhn 2019; Schneider and Castillo 2015). Therefore, researchers should examine the processes behind legitimization and illegitimation of inequalities, as important preconditions for demanding redistribution (Harth et al. 2008; Reese et al. 2014), rather than inequality changes themselves, to understand people's reactions or lack thereof.

**Introducing status quo bias**

Acknowledging the importance of fairness considerations, it became increasingly recognised that the consideration of the context in which individuals find themselves is important in understanding how individuals form redistributive preferences (Haack and Sieweke 2018; Sachweh 2012). This is reflected in an old notion in social psychology that "what is" tends to become the basis of "what ought to be" (Homans 1973). That is, individual fairness beliefs are endogenous, depending on the context an individual is exposed to. Following this idea, I argue that fairness considerations may be anchored in the status quo—in my case, the status quo tax system.

Three factors seem decisive for this process (see also: Trump 2018): First, the human tendency to anchor estimates on recently or frequently seen circumstances (for instance numeric values) (Eidelman and Crandall 2009; Kahneman and Tversky 1979; LeBoeuf and Shafir 2009; Pedersen and Mutz 2018) biases results in the direction of the anchor. Second, system justification theory argues that new information is biased in favor of interpreting it without challenging our own pre-existing beliefs to avoid psychological discomfort (Costa-Lopes et al. 2013; Jost and Banaji 1994). Three, market societies are normatively and institutionally embedded which tends to strengthen arguments that are in line with the status quo and promotes adaption as inequalities become normalized (see also the moral economy approach: Koos and Sachweh 2019; Sayer 2007). Hence, information might moderate one's assessments about one's own fair share of the benefits and burdens in society depending on the normative context individuals are embedded in (Lupu and Pontusson 2011; Shayo 2009).

This process of fairness adjustment proposed here has already been empirically studied by Trump (2018), who showed that receiving information about unequal incomes in the US and Sweden causes individuals to increase the levels of current income inequality that they consider legitimate. Furthermore, Haack and Sieweke (2018) have shown that adaption is a subtle but powerful mechanism that links the collective legitimacy of inequality to individual's acceptance of inequality. More recently, the role of tax transparency and tax salience has also been studied more prominently within the experimental literature (Paetzel, Lorenz, and Tepe 2018; Weimann and Fochmann 2013). Results from these studies already hint at the existence of the proposed status quo mechanism as past taxation experiences can shape one's own tax preference (Sausgruber and Tyran 2011), and differences of initially held preferences for taxation seem to persist even over longer time horizons (Sausgruber and Tyran 2014). In this context, experimental research also highlights the importance of allocation mechanisms (Riyanto

and Zhang 2014) and the structure of initial endowments (Côté et al. 2015; Nishi et al. 2015; Nishi and Christakis 2015) in legitimizing inequality and consequently influencing preferences for redistribution (see also: Bolton, Brandts, and Ockenfels 2005; Eliaz and Rubinstein 2014; Hoffman et al. 1994; Ku and Salmon 2013).

However, while a considerable amount of evidence suggest that people adjust their inequality concerns to the actual levels of inequality, we still lack evidence whether this adjustment process is also affecting individuals' beliefs about the legitimacy of redistribution. Considering that we know that people not only care about fairness of inequality but also about the fairness of redistribution and especially taxation (Kirchler et al. 2008; Liebig and Mau 2005; Scheve and Stasavage 2022), it is crucial to consider whether people simply adjust their fair tax beliefs to the status quo as this would considerably limit individuals' ability limit inequality via governmental redistribution. This institutional influence could constrain individuals' fairness beliefs in two main ways: On the one hand, the total tax revenue ("size of government") (Meltzer and Richard 1981) (approximately the average tax rate) might influence citizens in considering lower tax rates to be fair. This would limit governments funds for social benefits thereby reducing welfare state's redistributive potential at the spending side. On the other hand, the status quo tax progressivity might considerably limit the distance in the perceived fair tax level of the rich compared to the poor reducing welfare state's redistributive potential at the revenue side.

In sum, the literature highlights that it is important to acknowledge citizens' limited information about relevant macro conditions like inequality or the tax system, that would be necessary to allow self-interested decisions about preferences for redistribution. However, limited information alone cannot solve the problem of explaining why inequality failed to change preferences for redistribution in the last couple of decades. I argue that fairness considerations might be crucial and suggest that limited information in addition to people's tendency to anchor fairness beliefs leads individuals to base their fairness judgements on the system currently in place. This should not only hold for inequality concerns but also for what tax rates people consider to be fair. Thus, individuals should perceive present systems of redistribution to be quite fair even if they live in highly unequal countries with low levels of redistributive taxes. Hence, I argue that preferences for redistributive taxation are endogenous to the redistributive tax system in place because fairness attitudes, which influence the formation of preferences for redistribution, depend on the perceived status quo. Rather than focusing on explaining the lack of change, this theoretical approach provides a direct positive explanation for the long-term stability of tax systems and individuals' preferences.

Considering these theoretical expectations, I analyse whether individuals utilize the national tax system to form fairness perceptions about fair tax shares for themselves. Specifically, I test the following hypotheses:

H1: The higher the average tax rate in a country, the higher the tax rate individuals perceive as fair for themselves to pay.

H2: The higher the tax progressivity in a country, the stronger will individual fair tax rates be stratified by income.

## Research design and methods

### Data and tax measures

Do different incomes earners in different countries have different views about their fair tax share? I address this question with data from the European Social Survey (ESS) module "Justice and Fairness" fielded in 2018 (Liebig et al. 2016). The ESS asked respondents to provide their absolute own gross and net incomes in their local currency. Afterwards respondents answered the following question for gross and net income respectively: "Would you say your gross/net pay is unfairly low, fair, or unfairly high?". Respondents could answer on a 9-point rating scale ranging from "-4=extremely unfair low pay" over "0=fair" to "4=extremely unfair high pay" (full question wording is provided in Appendix A). If they responded that their pay is not fair, they received a subsequent question asking for the amount that they would consider to be a fair level of gross or net pay for themselves. I use these questions to estimate the perceived fair level of one's income tax rate ($tax^f$) in percent of one's gross income using the formula described below ( 1 ). Where $inc^f_{gross}$ and $inc^f_{net}$ refer to the individual's assessments of fair monthly gross or net incomes. To calculate a fair tax estimate for individuals who declared their current income as fair, I substitute the actual gross/net income of people as their fair gross/net income.

$$tax^f = \frac{inc^f_{gross} - inc^f_{net}}{inc^f_{gross}} \quad (1)$$

By using this approach, I approximate individuals' fairness beliefs of their own tax rate by the differences in the assessments of market incomes and incomes after taxes and compulsory deductions. Thus, I study what fair tax system emerges if everyone is able to specify the tax rate they consider fair for themselves. Following the literature on social justice I will call these "reflexive" fair tax rates (Jasso and Wegener 1997a). I define taxes as the total tax and social security contributions of an individual's income net of potential deductions (e.g., for children). Refer to Appendix B for further details on the distribution of these fairness beliefs and to Appendix C for a validity check that suggests that this indirect approach to measure reflexive tax fairness shows a similar distribution of answers compared to a question asking respondents directly whether they perceive their current levels of taxes to be fair or unfair (the direct question was part of a pre-test of this ESS module fielded in three countries: Estonia, Great Britain, and Slovenia).

Furthermore, I compare these fairness beliefs with individuals' perceived tax rates ($tax^p$) which I calculate by using a similar indirect estimation strategy described in equation ( 2 ). Where $inc^p_{gross}$ and $inc^p_{net}$ refer to individual's self-reported actual monthly gross or net incomes respectively. I call this the 'perceived' tax rate because it is likely that respondents make mistakes when assessing their actual net incomes, gross incomes or both. These perceived tax rates should provide a first micro level indicator to test the potentially strong relationship between perceived tax rates and the fair tax rates people consider fair for themselves.

$$tax^p = \frac{inc^p_{gross} - inc^p_{net}}{inc^p_{gross}} \quad (2)$$

To my best knowledge this is the first time that a study separates individuals' perceived and fair tax levels in a large internationally comparative setting. Conventional measures of individuals' tax attitudes like in the International Social Survey Programme (ISSP) tended to mix perceptions and preferences by asking respondents how they want taxes to change ("are taxes too high"). Hence, these measures fully

abstract from the different objective status quo taxation in different countries and from the different subjective taxation individuals perceive, which might hide substantial variation both within and across countries. This point is discussed in detail in Chapter 6.

**Sample**

I use the ESS9 integrated data file (V3.1) which contains data from the following countries: Austria, Belgium, Switzerland, Check Republic, Germany, Denmark, Estonia, Spain, Finland, France, Great Britain, Hungary, Ireland, IS, Italy, Latvia, Lithuania, the Netherlands, Norway, Poland, Portugal, Sweden, Slovenia, and Slovakia. I drop cases from Bulgaria, Cyprus, Coratia, Montenegro, and Serbia because the macro dataset I am using does not contain tax data from these countries and alternatives such as from the World Bank or other sources rely on different estimation strategies that are not suitable here (most are tax revenue oriented and do not contain information in income taxation separately or allow for analyses of tax progressivity). I also drop cases from the Check Republic because a survey error in the questions on individuals' incomes makes these answers incomparable to other countries. Thus, I use information on individuals from 23 different European countries. As the ESS only asked questions about gross and net earnings to respondents receiving income from those currently employed or self-employment, I restrict the dataset to this group comprised of 21,118 individuals. I further have to drop cases which either failed to answer one of the questions regarding actual income (7,541) or fair income (8,264), and those who failed to answer one of the control variables (109) which reduces the sample to 11,067 individuals. Afterwards, I apply consistency checks and drop remaining cases that indicated a lower gross than net income (125) and cases that indicated that more than or equal to 61% (~1% of respondents not concentrated in high tax countries) of their income are payed in taxes (145). Similarly, I drop cases that indicated a lower fair gross than net income (133) and cases that indicated more than 61% of their income as taxes to be fair (133). Thus, the final analytical sample comprises of 10,719 respondents from 23 different countries. I include balance checks of the final analytical sample in Appendix D. These results suggest that those remaining in the sample are slightly younger, less likely to be self-employed and married, and more likely to have children. I find no linear or substantial bias with regard to respondents' level of education. Moreover, with exception of the share of self-employed, the effect sizes of all these differences are quite low indicating that – considering these socio-demographic variables – list-wise deletion of missing values does not introduce substantial errors due to nonresponse biases.

**Income and micro level control variables**

The ESS Round 9 is the first iteration of the ESS that measured individual's absolute personal gross and net incomes. Respondents could choose to answer these income questions either with their weekly, monthly or annual income in the local currency. I convert these answers to monthly income by multiplying weekly income by 30/7 and dividing annual income by 12. Afterwards, I calculate country specific deciles to get an easy-to-use comparable income measure across countries. I control for potential confounders affecting both income and respondent's perceived fair tax levels: Gender, Age in years, a binary indicator whether the respondent has underage children (born after 2000), respondent's marital status (not married, married or in a registered civil union), dummy variables on respondent's highest level of education measured in seven ISCED classes, and a dummy variable on respondent's employment relation (employed, self-employed).[25]

[25] Because of an error in the questionnaire no respondents from Latvia received the marital status question if they do not currently live together with their partner. I assume that all others are not currently married or in a registered civil union to not have to drop Latvia from the analyses. From the data on other countries this approach should

**Macro level data and estimation strategy**

To estimate the average tax level and the level of tax progressivity in the respondent's country I use data from the OECD 'Taxing wages' database (OECD 2019). The average tax level ($\tau$) is estimated by calculating the differences between net and gross incomes in a country operationalized by the average rate of income tax and employees' social security contributions (in % of gross wage earnings) of a single person at 100% of average earnings. The tax progressivity is approximated by calculating the difference in the tax rate (incl. employees' social security contributions) of a single person at 167% and 67% of average earnings (henceforth called progressivity index or $\Delta\tau$). I choose these estimates over more conventual indicators of tax progressivity like the kakwani index (Kakwani 1977) or proxies like the top income tax rate (Scheve & Stasavage, 2016), because it closely resembles the tax estimate I use at the micro level: It includes not only the effect of income taxation but also deductions due to social security contributions and it is calculated using the conventional differences in gross and net incomes in the respective countries. As these conventions can vary substantially depending on the tax and social security scheme (OECD 2019) this measure should be most closely related to the perceptions and fairness beliefs asked about in the ESS. As a robustness check, I also calculate regression analyses decomposing the macro level progressivity and average tax rate into its tax and social security contributions component and include these variables separately. These results are structurally similar to the ones reported in the main text (see Appendix E Table A3.2 model 6).

To test the hypotheses, I estimate linear multilevel random intercepts regression models (Rabe-Hesketh, Skrondal, and Rabe-Hesketh 2022) with the individually assessed fair tax level as my main outcome variable and two main predictors on the country level: the average tax level and the level of tax progressivity. For $i$ individuals nested in $j$ countries the estimated regression equation can be written as:

$$tax^{f}_{i,j} = \beta_1 + \beta_2 inc_{i,j} + \beta_3 \tau_j + \beta_4 \Delta\tau_j + \beta_5 inc_{i,j} * \Delta\tau_j + \beta_k X_{i,j} + \beta_l Z_j + \zeta_j + \epsilon_{i,j} \quad \textbf{(3)}$$

Hypotheses 1 expects that the average tax rate in a country will be positively related to individuals' reflexive fair taxes beliefs: $\beta_3 > 0$. Hypotheses 2 expects that the multilevel interaction between respondent's income ($inc_i$) and the countries' tax progressivity index will result in a positive marginal effect of tax progressivity on the relationship between individual income and the individual's reflexive fair taxes beliefs (the logic is that the higher the level of tax progressivity in a country, the larger should be the differences in the fair tax beliefs between the rich and the poor). To test this, I compare the average marginal effect of $inc_i$ at relevant points of $\Delta\tau_j$. All regression models include robust standard errors clustered at the country level. In addition, I also calculate a multilevel regression that includes a random slope for income because they lead to more conservative estimates (Heisig and Schaeffer 2019). However, as the main relationships of interest are nearly identical in this case, I use the estimates from the random-intercept model in the main text and provide the regression estimates of the random-slope model in Appendix E Table A3.2 model 3 & Appendix F Figure A3.8 (the random slope modelling approach has been criticized as it might also lead to over-conservative estimations see: Matuschek et al. 2017). Furthermore, I also calculate models that include additional control variables at the country level: the level of economic development (GDP in purchasing power parities per capita) and the level of market income inequality (before taxes and transfers) as measured by the Gini coefficient. Here I use data from the OECD PPPGDP and IDD database respectively (OECD 2022b, 2022a). Because the inequality information on some countries is still missing for the year 2018 (as of June 2022) I approximate the inequality by using the data from 2017. All other macro level indicators use data on 2018 (see Appendix E Table A3.2 model 4). Finally, I also check whether conventional linear regression models with

lead to less than 0.5% with a wrongly coded marital status. The category self-employed also includes 1.28% of the respondents in the sample who are working for their own family business.

clustered standard errors at the country level result in different estimates and do not find substantial differences regarding the main effects of interest in this study (see Appendix E Table A3.2 model 5)

## Results: Cross-country observational evidence on the status quo-fairness link

Before, showing the results of the regression models I present some descriptive estimates of perceived and fair tax rates that already provide initial evidence for the proposed relationship between the actual tax system and individual's perceived fair tax levels at the micro level. On average over all countries, more than half of the respondents consider their income to be fair (59% gross incomes and 53% net incomes – see Appendix B for the distribution of answers) which relates to older research on income fairness that also finds that a large number of people evaluate their incomes to be fair (Wegener 1987). While the respective shares vary by country, in general, net-incomes are perceived less fair and are more likely to be evaluated as unfairly too low compared to gross incomes. Figure 3.1 shows that this pattern results in lower average fair tax rates compared to the average perceived levels of taxes in all countries in the analytical sample. Thus, individuals on average consider slightly lower taxes fair than what they perceive to be the actual tax rate. More striking, however, is that the average shares of perceived and fair taxes vary considerably between countries. While swiss respondents, on average, consider a tax rate of roughly 12% to be fair, people in Denmark consider a ~35% tax rate to be fair. In sum, I find a strong correlation between average perceived and fair tax rates across countries. Individuals seem to follow the basic sentiment that "taxes are a little bit too high" – but on quite different levels. Thus, measuring individual attitudes toward the status quo tax system, as done previously, might tell us little about the size of taxes people are fine with paying.

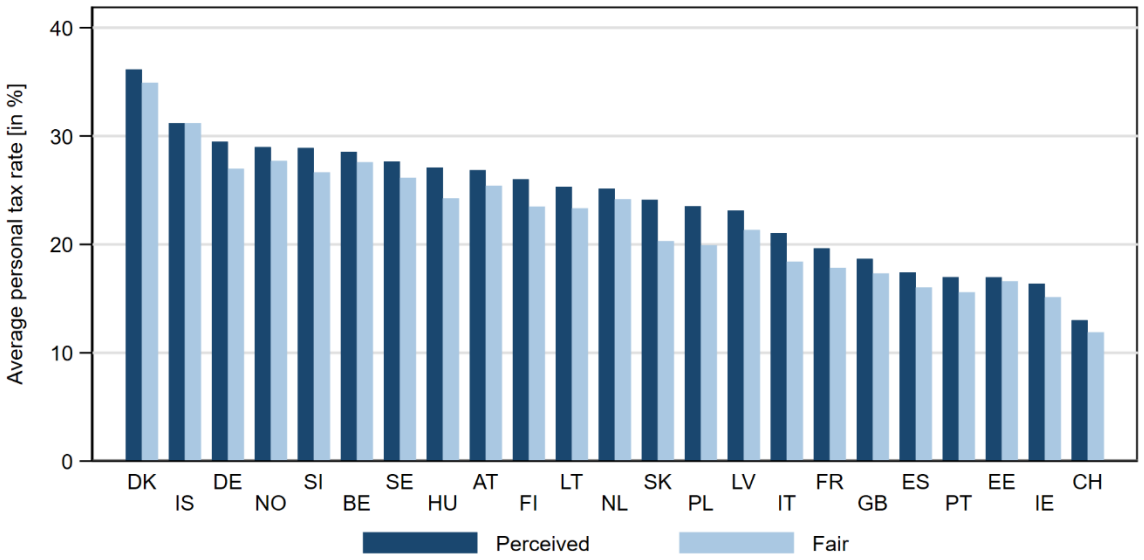


**Figure 3.1: Average individually perceived ($tax^p$) and fair ($tax^f$) tax rates by country.** N=10,719, weighted. Source: ESS.

In a similar manner Figure 3.2 shows the relationship between average perceived and fair tax progressivity within a country. To estimate the tax progressivity here, I calculated the linear regression slope between income and individuals' fair/perceived tax beliefs. Thus, the higher the indicator for tax progressivity the more do individuals' fair/perceived tax rates within a specific country increase with income. A coefficient of 0 would indicate that, within a country, higher income classes assess similar levels of taxes fair for themselves as do lower income classes (= fair/perceived taxes should be/are flat).[26]

[26] While this is only a rough estimate of tax progressivity (because it only approximates the mostly non-linear relationship between income tax rate and income) other estimates like a comparison between tax rates of low-income classes and high-income classes would lack in statistical precision or would increase the complexity

Similar to the results on the average tax rates reported above, the figures shows a high cross-country correlation between perceived and fair tax progressivity. However, the results indicate more variation in whether fair tax progressivity is higher or lower than the perceived tax progressivity. Moreover, the figure shows two outliers with respondents from Hungary considering a much lower tax progressivity to be fair than what is perceived and Poland where the opposite is the case. A potential explanation for this result might be the substantial options for tax deductions that exist in both of these countries.[27]

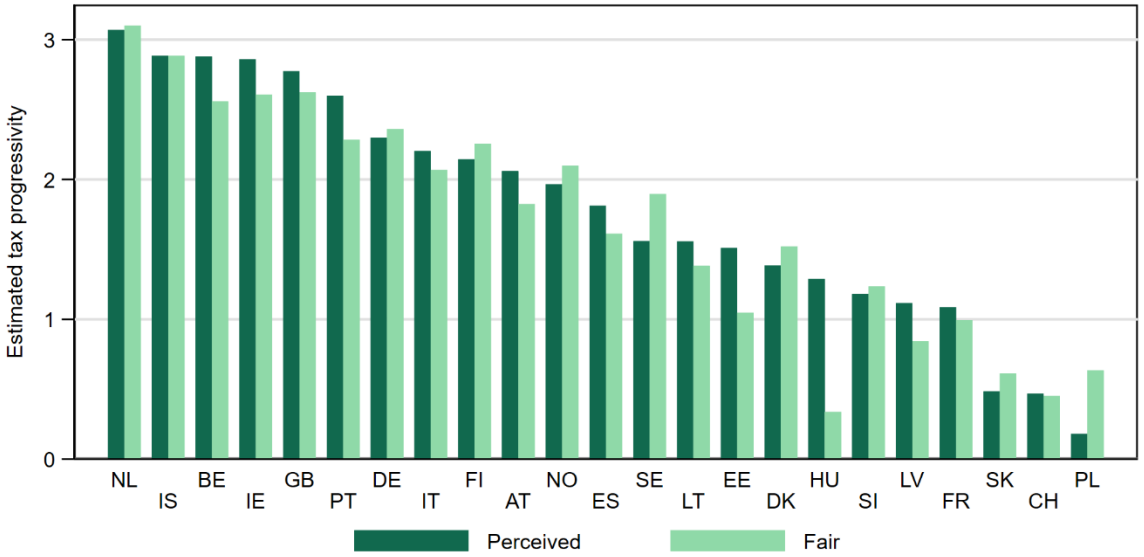


**Figure 3.2: Average perceived and fair tax progressivity by country.** Tax progressivity is estimated using the Pearson correlation coefficient between income and reflexive perceived/fair tax rates. N=10,719, weighted. Source: ESS.

The results already indicate a strong relationship between what people think they pay in taxes and what they would consider fair, both on average and when considering the differences in fair tax beliefs between different income classes (tax progressivity). However, this does not necessarily indicate that fairness beliefs also relate to the actual tax system in place as individuals' tax perceptions could be strongly biased (Slemrod 2006). Thus, I next look at the correlation between fairness beliefs and macro level indictors of the objective amount of average tax rates and progressivity within the different countries. Figure 3.3 indicates a strong cross-country correlation between what individuals consider fair and the actual tax system for both a) average tax rates and b) tax progressivity (Pearson Correlation Coefficient: average tax rate = 0.67; tax progressivity = 0.73).[28] With increasing average tax rates people perceive, on average, higher tax rates to be fair. With increasing tax progressivity, the tax rates individuals consider fair vary more with individuals' income.

dramatically. The advantage of this indicator is that it also relates to the tax progressivity estimate used in the regression analyses. Using other indicators does not affect the main finding of a strong correlation between perceived and fair tax progressivity across countries.

[27] An outlier analysis showed that these results are not caused by outlying and influential cases. Hence, both countries are kept in the sample. Given that these are two cases in which the correlation between perceptions and fair taxes is small this procedure makes the main results only more conservative and does not drive the main findings.

[28] Using an alternative indicator that only utilizes the 66%-166% mean income span of the ESS micro data similar to the calculation of the macro indicator results in a similar correlation of 0.74.

Interestingly, we also see some patterns emerge as most Nordic countries have relatively higher fair tax rates than objective tax rates compared to the overall trend across countries. This could be related to the specific tax mixes in the respective countries. Denmark, for example, finances its social security system via taxes. This could lead to more accurate perceptions of tax rates because respondents in more mixed systems might underestimate social security contributions. Similarly, also Norway, Sweden, and Latvia have comparatively high average tax rates compared to the average rate of social security contributions. This observation is flipped in the case of Iceland with high social security contributions and low taxes. In contrast the countries with more mixed systems to finance the welfare state like FR, IT, PT, BE, DE, and GB are mostly located below the trend line. This could indicate that mixed tax systems lead to higher perceived fairness deficits when respondents think about their differences between gross and net incomes. In contrast, the data reveal no clear patterns within the cross-country relationship between objective tax progressivity and fair tax progressivity. As the two measures (micro/macro) differ more substantially in this case, statements about potential drivers of cross-country deviations from the trend would be speculative.

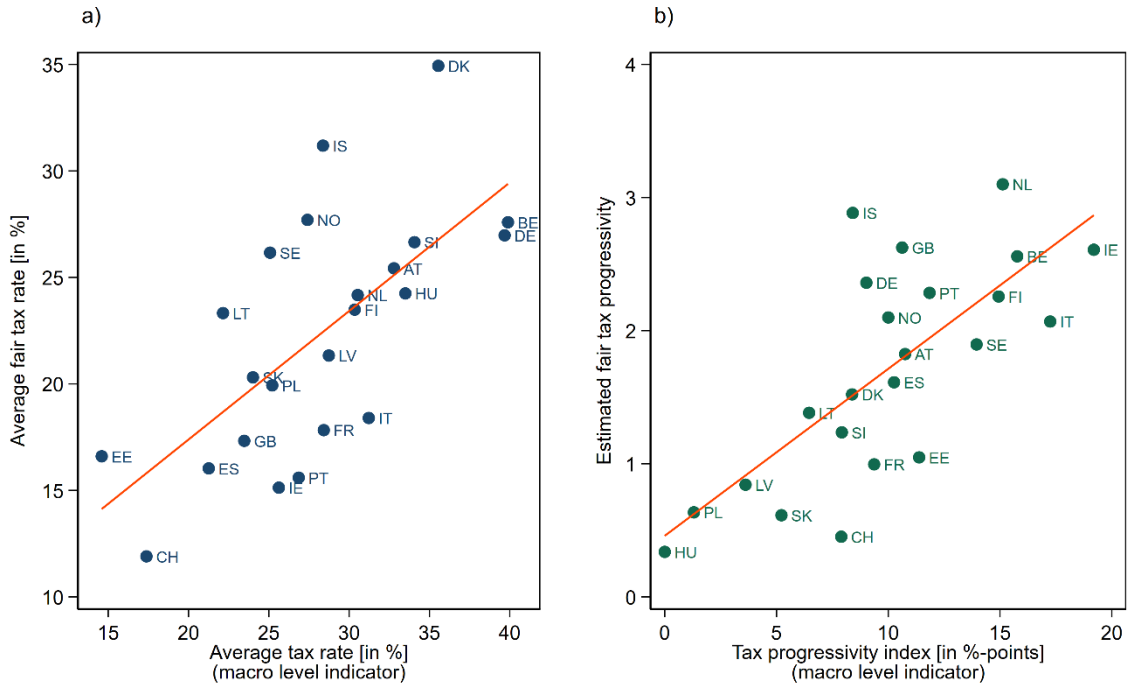


**Figure 3.3: Relationship between individuals' self-reported fair taxes and the objective tax system by country, focusing on a) average tax rates and b) the level of tax progressivity.** Tax progressivity in the survey is estimated using the regression slope between income and reflexive perceived/fair tax rates within the respective country. Refer to the Methods section for a detailed description of the other indicators. The red line shows the linear trend. N=10,719, weighted. Source: ESS, OECD.

Before moving to the results of the regression, I first analyse the amount of variation in fair tax beliefs between countries. According to the Null model, 20.1% of total variance is concentrated at the country level. Hence, as shown in the descriptive statistics, we have substantial variation across countries that could be linked to the actual tax system in place as suggested in the hypotheses.

To ease the interpretation of the results I focus on the predicted marginal effects here but provide the full regression table with all estimates in Appendix E (Table A3.2, model 2). These regression estimates indicate that between-country differences in the tax systems explain most of the variance in individual

fair tax rates between countries in line with both hypotheses: First, individuals living in high income tax countries indicate higher taxes to be fair compared to respondents from low-tax countries. Figure 3.4a displays the marginal predicted means of individual tax fairness depending on the level of taxes in a country. The positive trend indicates, that with rising objective average tax shares in a country respondents perceive higher tax shares to be fair. This relationship is quite strong as a one standard deviation increases in the average tax share (6.8%-points) increases the tax share of gross income that respondents consider fair by about 4%-points (or .38 of a standard deviance of fair taxes, $p<0.001$).

Second, the tax fairness gaps between the rich and the poor are more pronounced in countries with strong income tax progressivity than in countries with low tax progressivity. Figure 3.4b shows the marginal effect of an increase in income by one decile on individuals' beliefs of fair tax rates. We see that rising levels of tax progressivity within a country are associated with a larger effect of income on the levels of fair taxes. A one standard deviation increase in the tax progressivity index (4.9%-points) increases the effect of a one decile increase in income on the tax share of gross income that respondents consider fair by about .8%-points($p<0.001$).

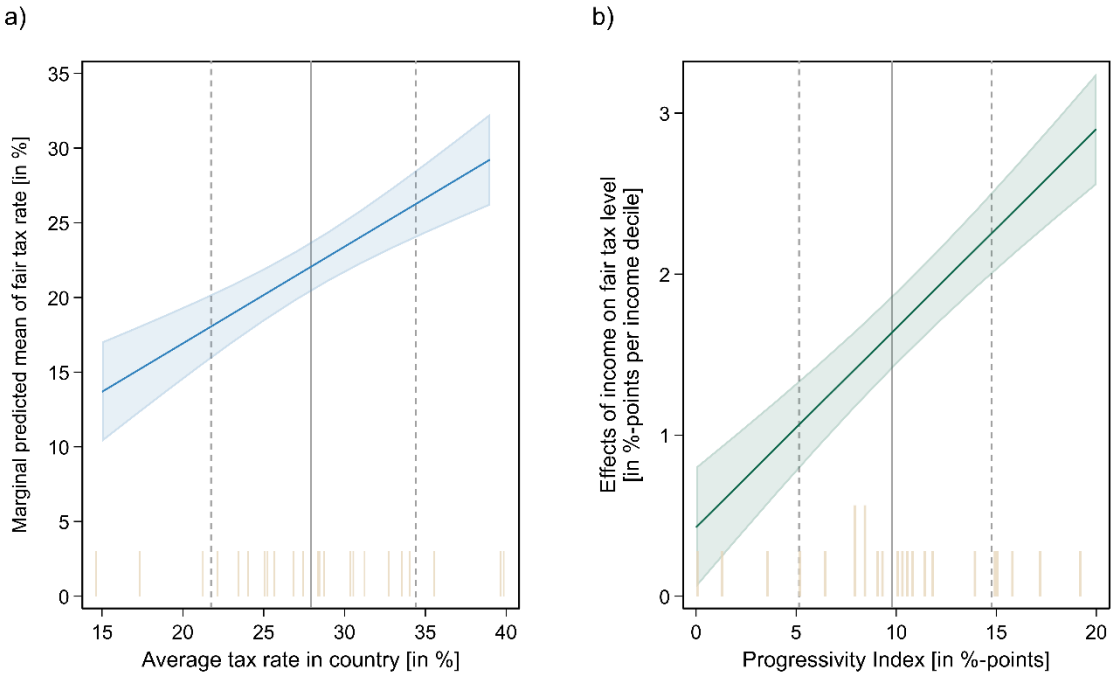


**Figure 3.4: a) Average predicted individually perceived fair own tax rate depending on the average tax rate in a country; b) Average marginal effect of income on individually perceived fair own tax rate depending on the level of tax progressivity in a country.** Multi-level model with random intercepts. 95% Confidence interval (shaded areas) are calculated using heteroskedasticity robust standard errors. Refer to the Methods section for a detailed description of the indicators. Histograms represent the distribution of macro level indicators in the sample of countries. Solid vertical line indicates the mean, dashed lines marks +/- one standard deviation from the mean. Predictions are based on regression estimates reported in Appendix E Table A3.2 model 2. N=10,719, weighted. Source: ESS, OECD.

The results support both hypotheses 1 predicting a positive relationship between average tax rate in a country and fair tax level of individuals and hypotheses 2 predicting that fair taxes will be more stratified by income if tax progressivity in the respondent's country is high. However, do these results hold if one accounts for differences in the level of inequality and the economic development? To evaluate this, I will focus especially on the predicted behaviour of the median income voter. According to the standard Meltzer-Richard-model, one would expect that the median voter prefers higher tax rates (sizes of the

welfare state) if inequality is larger because the distance to the mean income increases with inequality. Thus, the results above may simply reflect differences in the rational interests between the citizens of different countries and not institutional adaptation of fairness beliefs, if countries with higher redistributive power (either larger average tax rates or higher tax progressivity) have higher inequalities. By controlling for inequality, I can test whether individuals' in low tax countries still prefer less taxation although the level of gross income inequality they experience is similar to high tax countries.

Contrary to the rational choice expectation, the results indicate a negative relationship between income inequality and the fair tax level for the median voter (see Figure 3.5). However, in line with the results above, I find that that the fair tax levels of median income earners increase with the average taxes in the country. Thus, fair taxes correlate with objective tax rates even if I hold the level of inequality across countries equal. The level of progressivity has a Null effect on the median voter but it increases differences in the fair tax level between different income groups as would be expected ($\beta$=0.0321, p<.001; see estimates including macro level controls in Appendix E, model 4 & Appendix G Figure A3.9). However, this has little effect on the estimated relationship between institutional tax progressivity and income differences in fair tax progressivity (w/o controlling for the level of GDP and income inequality: $\beta$=0.113, p<.001; controlling for the level of GDP and income inequality: $\beta$=0.124, p<.001). Thus, I find no evidence for a positive relationship between average fair taxes and inequality (the effect would even point in the other direction) and only a small effect indicating that people tend to accept higher tax progressivity if income inequality in their country is higher. In contrast, holding the level of inequality equal, respondents in high tax countries (high average tax or high tax progressivity) think fair taxes for themselves are higher or think a high level of tax progressivity is fair. Hence inequality alone might not be able to legitimize higher tax rates and the status quo tax system might be a strong legitimizing force for individual taxation, which might explain why people's preferences for redistribution do not change in the face of inequality.

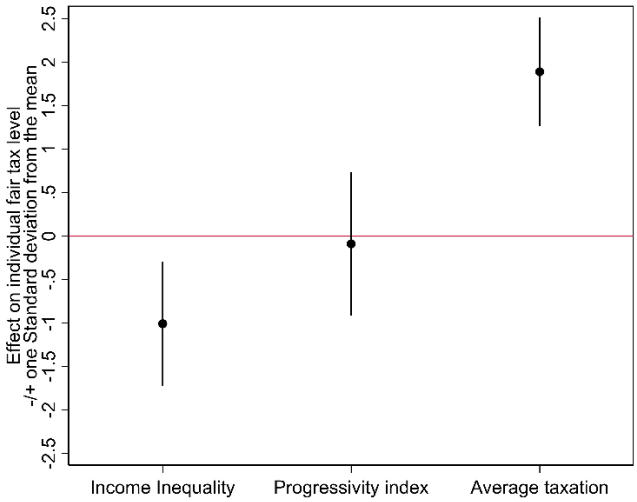


**Figure 3.5: Average predicted marginal effect of different macro variables (x-Axis) on the fair tax rate of median income earners** (respondents at the 5th income decile)**.** Multi-level model with random intercepts. 95% Confidence interval (whiskers) are calculated using heteroskedasticity robust standard errors. Refer to the Methods section for a detailed description of the indicators. Predictions are based on regression estimates reported in Appendix E Table A3.2 model 4. N=10,719, weighted. Source: ESS, OECD.

## Discussion

This chapter analyses whether fairness evaluations of individuals' own tax rates (reflexive fair tax evaluations) are linked to the actual tax system in place. Specifically, I expect that individual's fair tax rates would increase with the average tax rates in a country and that individuals' fair tax rates will be more stratified by income if the tax progressivity in the country is high. To test these hypotheses, I rely on data from the European Social Survey (ESS) and compare tax fairness evaluations of individuals from different income groups in 25 different countries. Descriptive results indicate that, first, individuals living in high income tax countries (e.g. the Netherlands, Belgium or Austria) considered higher taxes fair, compared to respondents living in low-tax countries (e.g. Switzerland or Estonia). Second, the differences in perceived fair tax rates between the rich and the poor are more pronounced in countries with strong income tax progressivity (e.g. Ireland, Italy or Belgium) than in countries with less progressive income tax systems (e.g. Poland or Hungary). Using multi-level regressions, I show that these results generally hold if I control for potential confounders at the individual level and at the macro level. In sum, these results suggest a very close link between what is taxed in a country and what individuals think they themselves ought to be taxed.

While it is regularly argued in public discourse that taxation always sparks opposition, the results indicate that the opposite might be true: The normative power of being taxed is strong. This changes individuals' beliefs about fair tax shares and therefore also the aggregated acceptance of redistribution by the welfare state, both on the spending side (average taxation) and on the revenue side (tax progressivity). These results contribute to the debate about the broader effects of information on political preferences. Past studies usually predict that information about the status quo allows individuals to update their preferences for redistribution by *reducing the bias* in information (Bublitz 2022; Cruces et al. 2013; Engelhardt and Wagener 2018; Fernández-Albertos and Kuo 2018). If individuals, however, are biased by the status quo, information about lower tax progressivity could *bias* preferences (see also: Pedersen and Mutz 2018; Trump 2018). Thus, rather than rational choice adaptation of preferences, information about lower level of redistribution could influence people to think lower levels of inequality are fair and lead to a reduction in preferences for redistribution.

In sum, the cross-country analysis revealed that fairness beliefs vary substantially between countries and income groups and are strongly associated with the tax system in place. However, this constitutes no direct evidence that the status quo in taxation causes these fairness beliefs. First, reverse causality is a distinct possibility. Respondents likely shape the status quo via voting which could result in a harmonized tax-fairness equilibrium that simply reflects differences in preferences between countries. Second, the finding of differences in fairness attitudes between countries and income groups could stem from different mechanisms than the proposed legitimizing effect of the status quo. For example, individuals' could use status quo taxation to get an idea about the size of inequality and adapt their tax preferences accordingly. Because, I can only control for objective inequality and not for individuals perceived inequality, the correlation could stem from confounding misperceptions of inequality. Third, I only investigate reflexive tax attitudes: what individuals think they pay in tax and what they ought to pay. However, to understand individual's policy preferences it might be crucial not only to consider what taxes they accept for themselves but also what they think others are paying and should be paying in taxes, analysing tax perceived and fair tax progressivity not at the macro level but at the micro level.

To overcome these issues, the next chapter, analyses data from an Austrian survey experiment testing whether information about the actual tax system in place (and thus changes in the perceived level of taxation) changes people's perceptions about fair levels of tax shares, while also controlling for inequality perceptions. The idea is that individuals can update their information about the status quo

which allows me to study whether this changes their tax preferences. This avoids potential confounders of tax knowledge and tax fairness, excludes the possibility of reversed causality, and allows for analyses of tax progressivity perceptions and fairness beliefs at the micro level.

# Appendix (Chapter 3)

## A Question wording

In the introduction of the module on income, respondents got informed by the interviewers that they will be asked about their gross and net pay:

*"In the following questions, I will first ask you about your gross pay before tax and compulsory deductions, and then about your net pay after tax and compulsory deductions."*

**Pay frequency:**

*"Thinking about your usual pay, which one do you know best?"*

- *Weekly pay*
- *Monthly pay*
- *Annual pay*
- *Refusal*
- *Don't know*

**Gross/net wage:**

*"What is your usual weekly/monthly/annual gross pay before tax and compulsory deductions? And what is your usual monthly net pay after tax and compulsory deductions?"*
*[Amount in own currency, Refusal or Don't know]*

**Gross/net pay fairness evaluation:**

*"Would you say your gross/net pay is unfairly low, fair, or unfairly high?"*

- If you think your pay is unfairly low, please choose a number from the left-hand side.
- If you think your pay is fair, please choose 0.
- If you think your pay is unfairly high, please choose a number from the right-hand side.

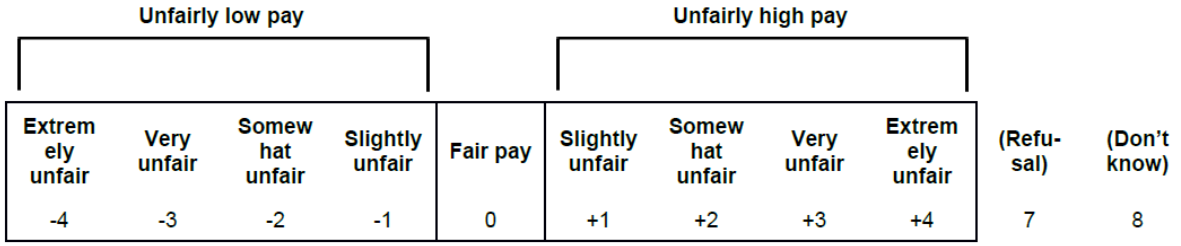


**Figure A3.1: Answer scale of fairness evaluation of gross and net incomes.** Source: ESS-Source Questionnaire.

**Fair amount of gross/net pay:**

*"In your opinion, what would be a fair level of monthly gross pay for you? In your opinion, what would be a fair level of monthly net pay for you?"*
*[Amount in own currency, Refusal or Don't know]*

## B Further details on the indirect measure of tax fairness

### Distribution of fairness evaluations

A relative majority of respondents think that their pay is fair. This holds for both gross and net pay fairness. However, if pay is perceived as unfairly too low, it is more likely evaluated as more unfair if it is net pay than if it is gross pay. Thus, on average, net pay is evaluated less fair than gross pay. Only a small minority think that they earn unfairly too much. As mentioned in the method section I substitute respondents' fair pay with respondents' self-reported amount of gross and net pay if they think that their current pay is fair.

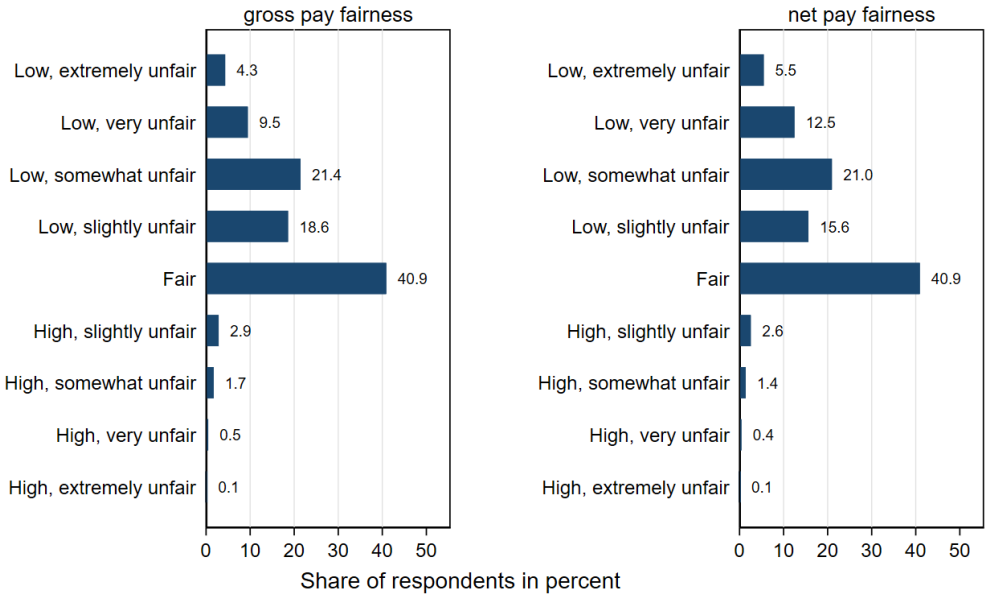


**Figure A3.2: Gross and net pay fairness evolution across all countries.**

### Distribution of perceived and fair tax rates

Histograms of the measures for perceived and fair taxes reveal strong bunching on several focal points within the distribution. Thus, at least some individuals tend to use rough estimates to calculate their differences in gross and net incomes and what difference they think would be fair. In line what one might expect, the answers are more concentrated around these focal points for the normative fair tax rates than for perceived actual tax rates because individuals can rely on their tax experience here. Only very few respondents estimate their tax shares to be above 50%. This also suggests that estimates above 60 percent are outliers which could potentially distort the results. I therefore drop these individuals from the analyses. However, this does not substantially change the main results of this chapter.

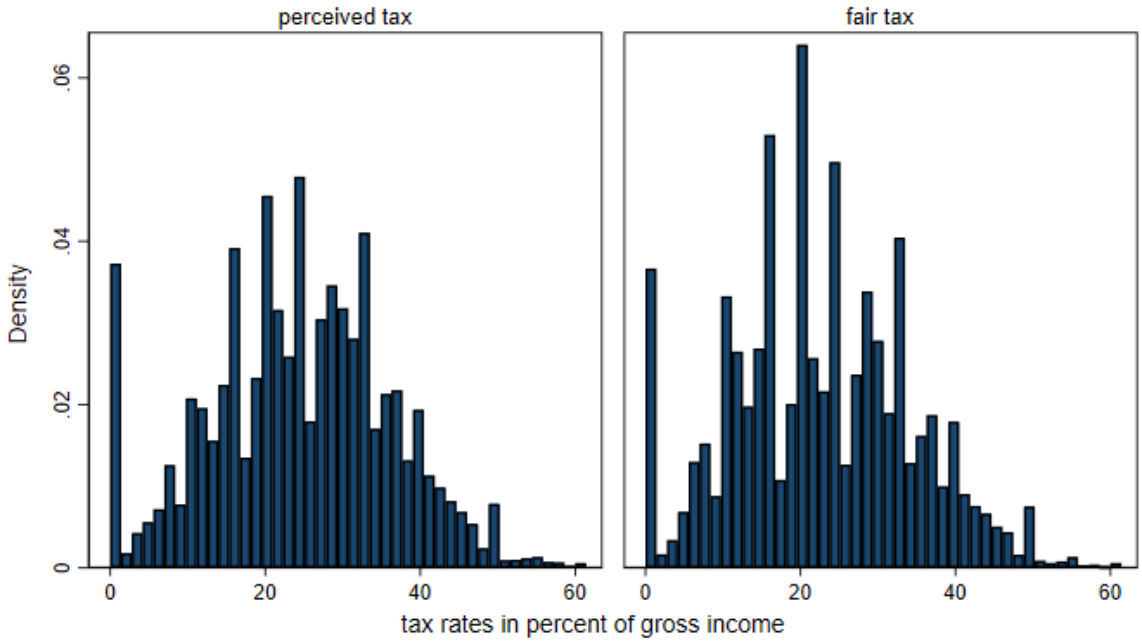


**Figure A3.3: Histograms of fair and perceived tax rates.**

### Relationship between income and reflexive fair tax rates

Figure A3.4 shows that the fair tax level increases with regard to respondent's income position within the country. While respondents from the first 4 deciles think that lower taxes than the average tax would be fair for themselves, the opposite is true for individuals from the upper 3 income deciles. This result is to be expected if individuals account for the tax progressivity in their country and think that progressive taxes are fair. As the distribution shows a nearly linear relationship approximating individuals' fair tax progressivity by using a linear interaction between income and reflexive tax fairness evaluation seems appropriate.

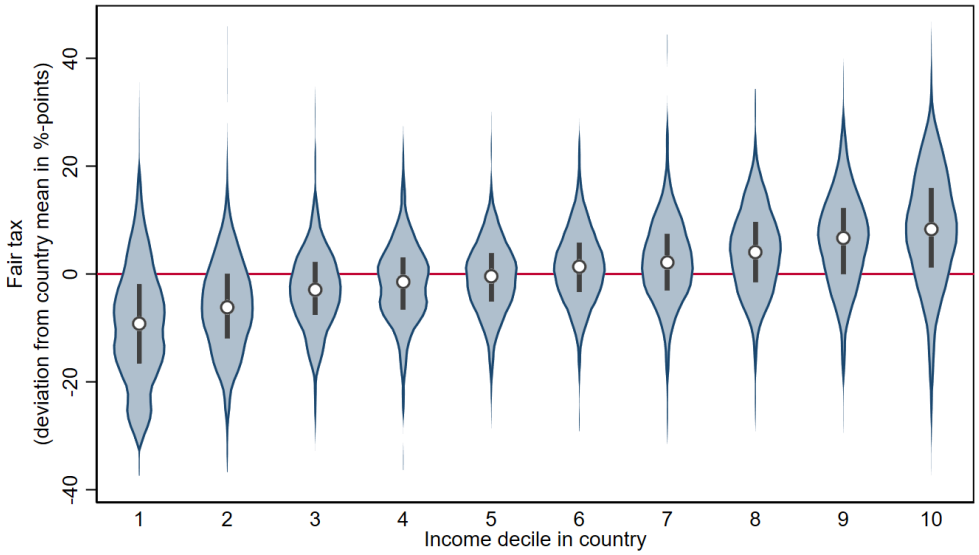


**Figure A3.4: Violin plots of fair tax beliefs (country demeaned) by income decile. White points indicate the median, black bars indicate the interquartile range.**

Figure A3.5 shows the relationship between income and respondent's estimated perceived and fair tax rates by country. The graph further emphasizes the strong relationship between perceptions and fairness evaluations but captures structurally similar information to Figure 3.1 and Figure 3.2 in the main text. The country-specific panels are ordered from left to right and from top to bottom according to the macro level indicator of tax progressivity (HU low tax progressivity – IE high tax progressivity).

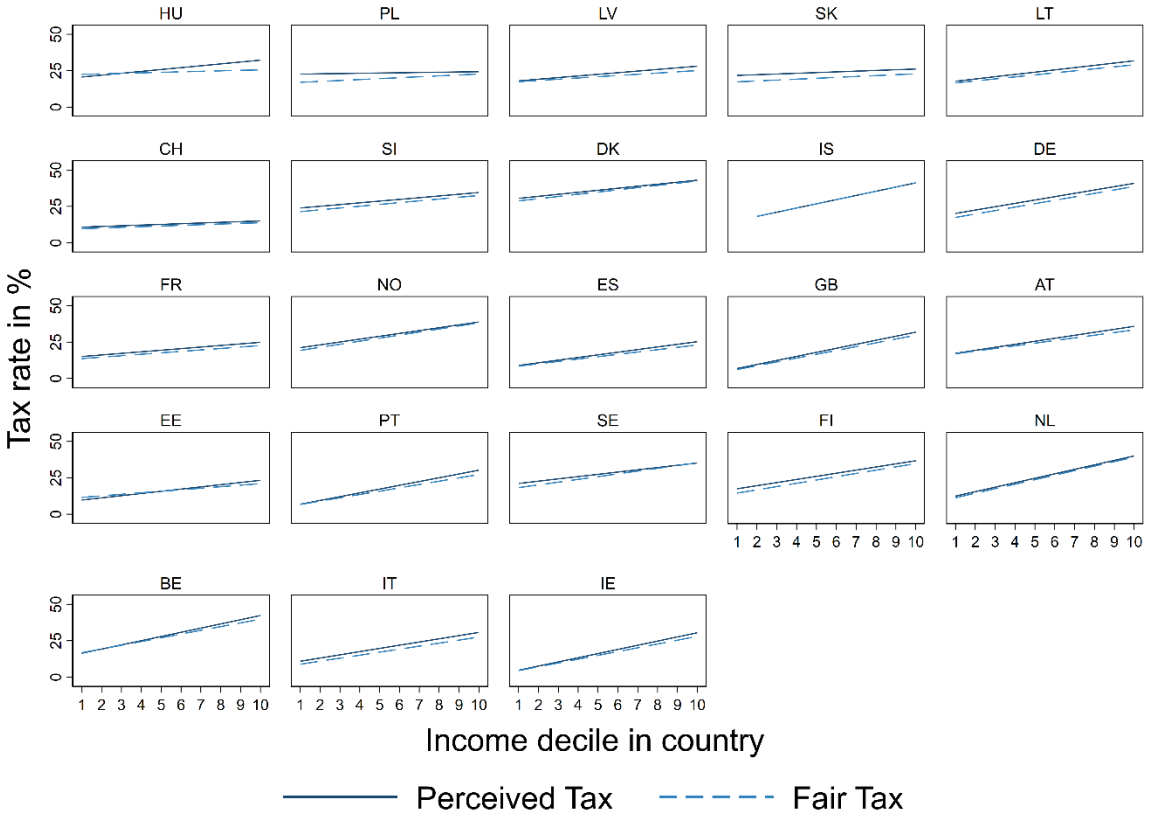


**Figure A3.5: Estimated linear relationship between respondents' income decile and their average perceived as well as fair reflexive tax rate by country.** Ordered by progressivity index.

## C Direct vs. indirect measures of tax fairness

Would respondents perceive tax fairness differently if asked directly? To answer this question, I rely on data from the CRONOS project. This dataset contains responses from 2,929 individuals from Estonia, Great Britain and Slovenia and pretested some of the measures used in the ESS 2018 which I am using in the main analysis. CRONOS asked respondents directly about the fairness of the amount of taxes they pay. Specifically, the question asked: "Thinking about the amount of income tax you paid in the last 12 months, would you say the amount of tax is unfairly low, fair, or unfairly high?" Respondents could answer on a 11 Point Likert scale ranging from -5 = "extremely unfair too low" over 0 = "fair" to 5= "extremely unfair too high". Thus, we can compare the tax fairness resulting from the ESS indirect question using the differences between individual's fair and perceived tax rates ($tax^f - tax^p$) to this direct question about tax fairness asked 1 year earlier.

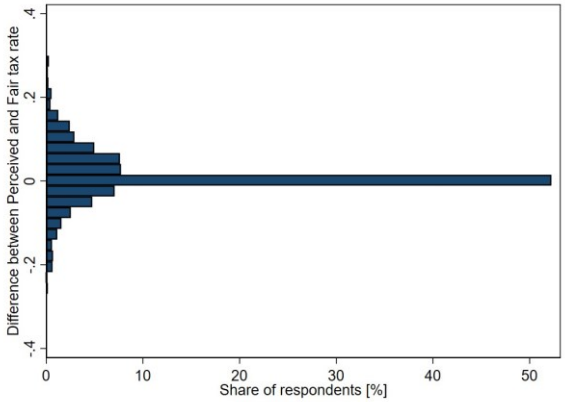


**Figure A3.6: Tax fairness using an indirect estimation approach** (based on the share of fair net and gross income)

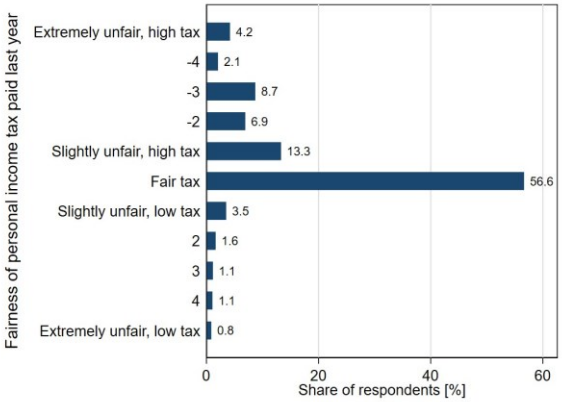


**Figure A3.7: Tax fairness using a direct question**

Looking at the histograms of both variables in Figure A3.6 and Figure A3.7, one sees that both estimate the share of respondents that perceive inequality to be fair at about 50%. Furthermore, in both estimates the share of people reporting the tax share to be unfairly too high clearly exceeds those that report it to be too low. Extreme answers more pronounced at the direct measure. This is especially promising because only 12% of respondents in the ESS gave different fairness beliefs when considering gross and net income fairness. In sum, while this is no direct test it provides some evidence that should not deviate that much as structural characteristics of the distribution of these two measures of tax fairness are quite similar.

## D Balance check for listwise deletion of missing values

**Table A3.1: Balance table of final sample and dropped observations due to missing values.**

| Variable | N | (1) Final Sample Mean/SE | N | (2) Dropped Mean/SE | t-test Difference (1)-(2) |
|---|---|---|---|---|---|
| Gender | 10719 | 1.492 | 9911 | 1.497 | -0.006 |
| | | [0.005] | | [0.005] | |
| Age | 10719 | 43.687 | 9819 | 45.525 | -1.837*** |
| | | [0.121] | | [0.137] | |
| Self-employed | 10719 | 0.113 | 9869 | 0.193 | -0.079*** |
| | | [0.003] | | [0.004] | |
| Education: less than lower secondary | 10719 | 0.020 | 9879 | 0.029 | -0.009*** |
| | | [0.001] | | [0.002] | |
| Education: lower secondary | 10719 | 0.102 | 9879 | 0.122 | -0.020 |
| | | [0.003] | | [0.003] | |
| Education: lower tier upper secondary | 10719 | 0.173 | 9879 | 0.177 | -0.003 |
| | | [0.004] | | [0.004] | |
| Education: upper tier upper secondary | 10719 | 0.190 | 9879 | 0.192 | -0.003 |
| | | [0.004] | | [0.004] | |
| Education: advanced vocational | 10719 | 0.166 | 9879 | 0.142 | 0.023** |
| | | [0.004] | | [0.004] | |
| Education: lower tertiary education | 10719 | 0.165 | 9879 | 0.148 | 0.017 |
| | | [0.004] | | [0.004] | |
| Education: higher tertiary education | 10719 | 0.184 | 9879 | 0.184 | -0.001* |
| | | [0.004] | | [0.004] | |
| Children | 10719 | 0.270 | 9873 | 0.237 | 0.032*** |
| | | [0.004] | | [0.004] | |
| Married | 10719 | 0.509 | 9776 | 0.534 | -0.024** |
| | | [0.005] | | [0.005] | |

Note: The value displayed for t-tests are the differences in the means across the groups. $^{+}p<0.1,^{*}p<0.05,^{**}p<0.01,^{***}p<0.001$

## E Regression table

**Table A3.2: Coefficient estimates of linear multilevel models**

| | (1) RI Fair taxes | (2) RI Fair taxes | (3) RS Fair taxes | (4) RI Fair taxes | (5) Clust. SE Fair taxes | (6) RI Fair taxes |
|---|---|---|---|---|---|---|
| Income | 1.694*** | 0.428* | 0.435* | -0.953** | -1.341 | 0.463*** |
| | (0.146) | (0.191) | (0.183) | (0.357) | (1.452) | (0.0826) |
| Female | 0.500+ | 0.546+ | 0.599* | 0.499** | -0.344 | 0.570** |
| | (0.291) | (0.303) | (0.293) | (0.181) | (0.358) | (0.181) |
| Age | 0.0485*** | 0.0406*** | 0.0335** | 0.0380*** | 0.0714*** | 0.0324*** |
| | (0.0134) | (0.0118) | (0.0118) | (0.00746) | (0.0148) | (0.00744) |
| Edu lower secondary | 1.125 | 0.781 | 0.582 | 0.628 | 1.739 | 0.766 |
| | (0.832) | (0.841) | (0.797) | (0.656) | (1.034) | (0.653) |
| Edu upper sec.1 | 1.816* | 1.523+ | 1.231 | 1.354* | 2.164* | 1.551* |
| | (0.846) | (0.879) | (0.841) | (0.645) | (0.819) | (0.642) |
| Edu upper sec. 2 | 1.522* | 1.318+ | 1.071+ | 1.180+ | 2.501** | 1.248* |
| | (0.690) | (0.713) | (0.649) | (0.639) | (0.899) | (0.637) |
| Edu advanced voc. | 1.594+ | 1.496+ | 1.174 | 1.283* | 2.847** | 1.278* |
| | (0.823) | (0.871) | (0.806) | (0.643) | (0.959) | (0.641) |
| Edu lower tertiary | 1.307+ | 1.099 | 0.765 | 0.812 | 3.450** | 0.884 |
| | (0.772) | (0.837) | (0.794) | (0.652) | (1.064) | (0.649) |
| Edu higher tertiary | 1.759* | 1.464 | 1.208 | 1.299* | 2.977** | 1.324* |
| | (0.830) | (0.890) | (0.832) | (0.651) | (0.925) | (0.649) |
| Self-employed | 1.011+ | 1.031* | 0.860+ | 0.809** | -0.160 | 0.767** |
| | (0.539) | (0.504) | (0.485) | (0.284) | (0.536) | (0.284) |
| children | 0.207 | 0.162 | 0.136 | 0.133 | 0.474 | 0.0969 |
| | (0.208) | (0.202) | (0.211) | (0.199) | (0.277) | (0.199) |
| married | 0.0176 | 0.0337 | 0.0375 | 0.125 | -0.147 | 0.143 |
| | (0.260) | (0.251) | (0.256) | (0.186) | (0.324) | (0.186) |
| progindex | | -0.806*** | -0.788*** | -0.611** | -0.523* | |
| | | (0.145) | (0.127) | (0.214) | (0.234) | |
| Income X progindex | | 0.124*** | 0.124*** | 0.113*** | 0.110*** | |
| | | (0.0143) | (0.0141) | (0.00758) | (0.0204) | |
| Average tax rate | | 0.648*** | 0.479*** | 0.718*** | 0.725*** | |
| | | (0.117) | (0.138) | (0.121) | (0.129) | |
| Income Inequality | | | | -0.666*** | -0.756** | |
| | | | | (0.189) | (0.216) | |
| Inc. X Income Ineq. | | | | 0.0321*** | 0.0391 | |
| | | | | (0.00783) | (0.0325) | |
| GDP | | | | 0.00848 | -0.00729 | |
| | | | | (0.0297) | (0.0363) | |
| Progindex (tax) | | | | | | -1.037*** |
| | | | | | | (0.171) |
| Income X Prog tax | | | | | | 0.111*** |
| | | | | | | (0.00735) |
| Progindex (SSC) | | | | | | -1.015+ |
| | | | | | | (0.560) |
| Inc. X Prog (SSC) | | | | | | -0.0315 |
| | | | | | | (0.0207) |
| Avg. tax rate (tax) | | | | | | 0.878*** |
| | | | | | | (0.132) |
| Avg. tax rate (SSC) | | | | | | 0.333* |
| | | | | | | (0.140) |
| AIC/R2 | 79280.5 | 78974.8 | 78763.7 | 76858.7 | 0.362 | 76807.7 |
| Individuals | 10719 | 10719 | 10719 | 10719 | 10719 | 10719 |
| Countries | 23 | 23 | 23 | 23 | 23 | 23 |

Note: RI = random intercept, RS = random slope (income) and intercept, dependent variable = reflexive (own) fair tax rates. Robust standard errors in parentheses. $^{+}$ $p < 0.10$, $^{*}$ $p < 0.05$, $^{**}$ $p < 0.01$, $^{***}$ $p < 0.001$

## F Regression estimates including a random slope for respondents' income

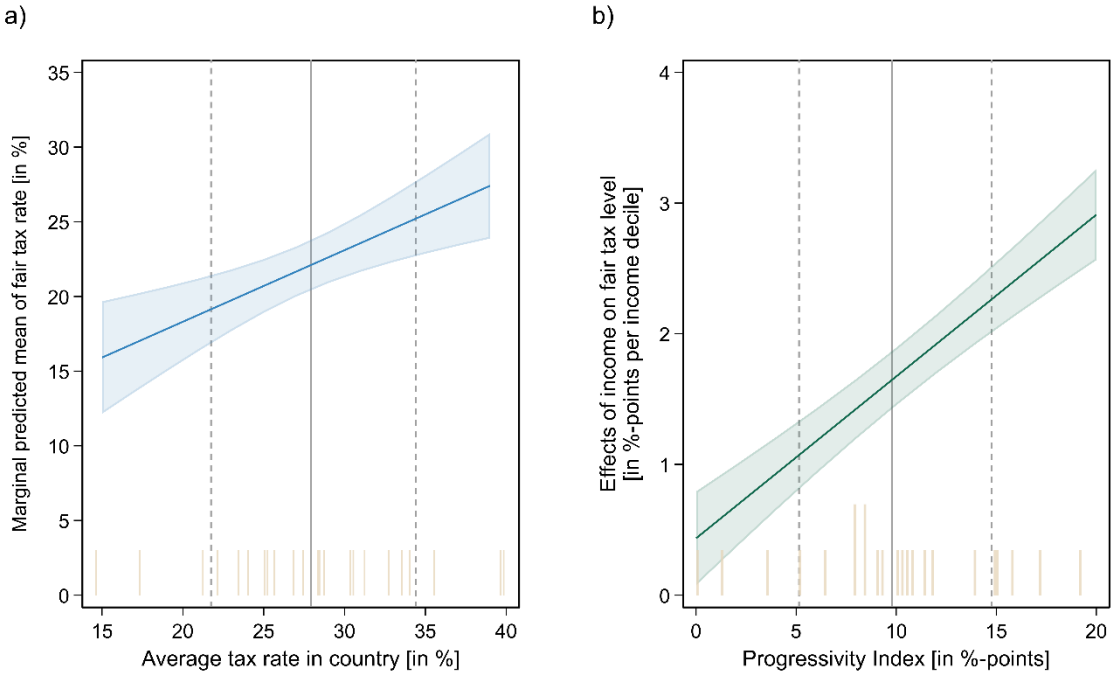


**Figure A3.8: a) Average predicted individually perceived fair own tax rate depending on the average tax rate in a country; b) Average marginal effect of income on individually perceived fair own tax rate depending on the level of tax progressivity in a country.** Multi-level model with random intercepts. 95% Confidence interval (shaded areas) are calculated using heteroskedasticity robust standard errors. Refer to the Methods section for a detailed description of the indicators. Histograms represent the distribution of macro level indicators in the sample of countries. Solid vertical line indicates the mean, dashed lines marks +/- one standard deviation from the mean. Predictions are based on regression estimates reported in Appendix E Table A3.2 model 3. N=10,719, weighted. Source: ESS, OECD.

## G Regression estimates including macro control variables inequality and gdp

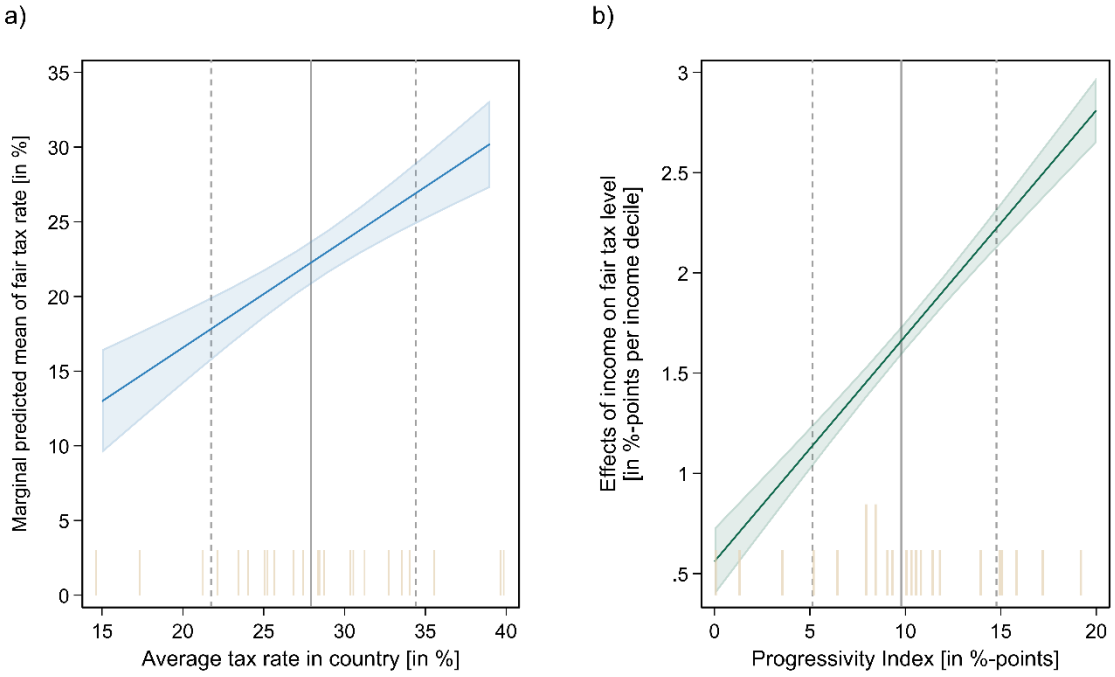


**Figure A3.9: a) Average predicted individually perceived fair own tax rate depending on the average tax rate in a country; b) Average marginal effect of income on individually perceived fair own tax rate depending on the level of tax progressivity in a country.** Multi-level model with random intercepts. 95% Confidence interval (shaded areas) are calculated using heteroskedasticity robust standard errors. Refer to the Methods section for a detailed description of the indicators. Histograms represent the distribution of macro level indicators in the sample of countries. Solid vertical line indicates the mean, dashed lines marks +/- one standard deviation from the mean. Predictions are based on regression estimates reported in Appendix E Table A3.2 model 4. N=10,719, weighted. Source: ESS, OECD.

# 4) Perceived Tax Burdens and Just Tax Progressivity. Evidence from a Survey Experiment

Seminal theoretical models predict that higher levels of inequality lead to more redistribution. However, empirical studies only find mixed support for this mechanism. Several studies suggest that these results stem from the fact that individuals are only partially informed about their relative income position and the state of inequality in society. Two different theoretical approaches explain the impact of accurate information. While advocates of a utility perspective state that informing individuals about increasing inequality will lead to more demand for redistribution, others argue that legitimization mechanisms hinder this process and might lead to more acceptance of inequality. Using data from a representative experimental survey, conducted in Austria in 2018, this chapter focuses on a main tool for redistribution – tax progressivity. Concretely, I examine how information on (i) one's relative income position and (ii) the present structure of tax burdens influences the tax progressivity respondents consider to be fair. The results indicate that respondents on average overestimate tax progressivity but underestimate actual tax burdens across all income levels. While informing people on their relative income position does not affect their preferred just level of tax progressivity, information on actual tax burdens leads respondents to adapt their just tax levels to the current taxation. The latter effect is persistent, and not affected by the inclusion of controls on belief in meritocracy, anticipated upward mobility, and political orientation.

## Introduction

Since the 1970s, inequality has risen substantially inside the countries of the Western world, while tax rates, especially for the richest, are declining (Atkinson 2015; Milanović 2016). This is counterintuitive to the predictions of the standard macro-economic model as increased inequality should lead the median voter to demand more redistribution (Meltzer and Richard 1981; Romer 1975). While studies found that preferences for redistribution can explain increased governmental interventions (Alesina and Giuliano 2015), empirical evidence indicates that individuals do not adjust their preferences for redistribution to rising inequality (Brooks and Manza 2013; Kenworthy and McCall 2008; McCall 2013; Mijs 2021). This apparent lack in the adaption of preferences suggests that the formation process of attitudes is crucial to understand the failing predictions of the Meltzer-Richard-model. Hence, this study focuses on the potential mechanisms affecting the formation of people's attitudes towards redistribution in view of macro-economic changes and individual positions.

In recent years the assumptions of the Meltzer-Richard-model have been subject to several studies, which suggested the expansion of the model (Dimick et al. 2018; Iversen and Goplerud 2018). A prominent approach has been to revoke the full information assumption and implement limited information as a mediator between macro level inequality and micro level perceptions of inequality (Cruces et al. 2013). It is argued that people live in a segregated environment with people of similar income leading to limited information concerning the distribution of incomes in society (Gimpelson and Treisman 2018; Norton and Ariely 2011; Osberg and Smeeding 2006). Thus, people end up underestimating the level of inequality in society, because the similarity of their own social network biases their estimate of the level of inequality in society, which results in lower preferences for redistribution than one would predict using objective levels of inequality. From this perspective, informing individuals about their actual relative income situation should fix the apparent paradox of

rising levels of inequality coexisting with steady or lower levels of preferences for redistribution (Iversen and Soskice 2015; Windsteiger 2022).

A second line of research casts doubts on this proposed information fix of the "relative income hypothesis". In a series of experiments Trump (2018) showed that providing information on national-level income inequality does not result in fairness adjustments of inequality according to utility maximizing predictions. She and others point out that heightened perceived inequalities are often justified and rationalized due to processes of legitimization (Haack and Sieweke 2018; Hing et al. 2019; Mijs 2021). This shifts the focus away from the "rational" constraints of self-interest and draws attention to the role of legitimacy as a strong predictor for how inclined individuals are to take action against inequality (Harth et al. 2008; Reese et al. 2014). Mechanisms like status-quo bias, system justification, and adaption can increase the amount of income differences considered to be legitimate in times of rising inequality. Thus, the "fairness adjustment hypothesis" states that information about an increased level of inequality results in lower preferences for redistribution because individuals increase the level of inequality they find legitimate.

Using data from an experimental survey conducted in Austria in 2018, this study tests both, the relative income hypothesis and the fairness adjustment hypothesis, in the context of fair levels of tax progressivity. The focus on taxes rather than on general redistribution avoids the issue of multidimensionality of redistribution pointed out by others (Barnes 2015; Cavaillé and Trump 2015) and enables more direct questioning compared to general redistribution (Fernández-Albertos and Kuo 2018).[29] To avoid possible endogeneity of information and fairness attitudes the empirical approach adopts a two-level factorial design with information treatments to be able to assess the causal impact of i) information on one's relative income position and ii) information on the level of tax progressivity on one's perceived fair levels of tax progressivity.

Because status quo adjustment is supposed to be independent of the distributional fairness norms an individual holds, this effect should not be confounded by equity norms that have been found relevant for preferences for redistribution as well (Alesina et al. 2005; Mijs 2021). To test that and for other variables that might explain changing attitudes to taxation, I provide robustness checks controlling for stated fairness norms, social mobility expectations and political orientation.

The results indicate that respondents on average overestimate tax progressivity but underestimate the actual tax burdens of all income levels. Subjective income positions are biased towards the middle of the income distribution although underestimation of the rich is more pronounced than overestimation of the poor. While informing people on the relative income position fails to affect individual's stated levels of fair tax progressivity, information on the actual tax burdens leads respondents to adapt their fairness evaluations towards the current taxation. The latter effect is substantial in size and not affected by the inclusion of further control variables.

In sum, this chapter provides evidence that the level of fair tax progressivity depends on the actual perceived tax burden because people tend to use the current system as legitimacy anchor. Different perceptions about the current level of taxation drive overall preferences in tax progressivity and thus, are a prime determinant of preferences for redistribution. The study connects the debate about the impact of information on tax perceptions to current research that stresses the importance of the status quo as legitimacy anchor arguing that fairness is embedded in perception (Jasso and Wegener 1997a).

[29] Progressivity refers to the concentration of tax payments on higher incomes. I make no claim on other policies that may increase redistribution like transfer payments to those with low incomes. Although this focus reduces theoretical applicability it greatly increases external validity as respondents can relate to their concrete tax burdens rather than to abstract notion of redistribution in general.

The following paragraphs give a short overview about recent extensions to the Meltzer-Richard model and describe the two main theoretical explanations for the impact of information on preferences for redistribution in more detail. Afterwards I describe the data and the research design of the study. The next section provides descriptive evidence about misperceptions of relative income positions as well as tax progressivity and relates them to the fairness attitudes of respondents. Afterwards I calculate the effect of information on these attitudes controlling for perceptions and other covariates that are supposed to impact fairness evaluations of tax burdens. Finally, the last section discusses broader implications of these results for our understanding how individuals form preferences for redistribution.

## Related literature

The empirical evidence of rising inequality levels stimulated research in social sciences combining economic approaches with psychological and sociological theories to explain the rising inequality and its acceptance (Alesina and Angeletos 2005; Barnes 2015; Mijs 2021; Piketty 1995; Svallfors 2013). In recent years, debates about redistribution preferences have accelerated a shift away from self-interest, which remains an important mechanism but now shares explanatory power with other factors (Cavaillé and Trump 2015; Dimick et al. 2018; Iversen and Goplerud 2018). These studies suggest that the main reason for the limited empirical value of the Meltzer-Richard model is oversimplification of the complex situational mechanism (Hedström 2005) that links macro level inequality to micro level preferences.[30]

To ease the illustration of this issue I make use of the fact that the Meltzer Richard-model can also be conceptualized within the context of a micro-macro model of collective social action as popularized by Coleman (1986) and further developed by Hedström and others (see e.g. Hedström 2005; Hedström, Swedberg, and Hernes 1998; Raub and Voss 2017). Following Hing and co-Authors (2019) this model is depicted in Figure 4.1. If all assumptions within the model are correct the Meltzer-Richard model reduces to a simple macro-macro relationship between the level of income inequality and the equilibrium preference for redistribution as described above (indicated by the dotted line "MR-model" in Fig. 1). However, for this to be true the three connecting mechanisms on how people (i) perceive redistribution relevant macro conditions, (ii) form beliefs about the present and (iii) adapt taxation preferences have to follow a very strict pattern.

Debates about media distrust and fake news highlighted an important moderator of the established determinants of redistribution preferences: information (Barnes and Hicks 2018; Boomgaarden et al. 2011; Damstra, Boukes, and Vliegenthart 2018). Studies showed that inequality and perceived inequality are at best only weakly linked to actual changes in inequality (Gimpelson and Treisman 2018; Hauser and Norton 2017) which highlights the importance of the sources of information for perception formation (link A in Figure 4.1). This chapter focuses on mechanisms explaining the process of evaluating perceived inequality and its impact on perceptions about fair redistribution in form of tax progressivity highlighting processes B and D in Figure 4.1. The main question asks how information is changing the relationship between individuals' perceptions and their attitudes about fair levels of tax progressivity.

The research on information and people's perceptions about inequality resulted in two main predictions about the impact of information: i) the relative income hypothesis and ii) the fairness adjustment hypotheses. While the first line of research focuses on the immediate information environment of

[30] Although other links might be important as well, studies show that redistribution preferences help to explain the level of government intervention (Alesina and Giuliano 2015) (link C in Figure 4.1). Therefore, analyzing the demand for redistribution might be most important to increase our understanding of the supply of redistribution introduced by the welfare state (Rueda 2017).

individuals and keeps the net maximizing micro model assuming evaluation equals net-maximizing, the latter highlights the role of societal anchor points of fairness stating that net maximizing is only one aspect in the process of evaluation. The next section will explain these two arguments in more detail and derive hypotheses in the context of preferences for taxation.

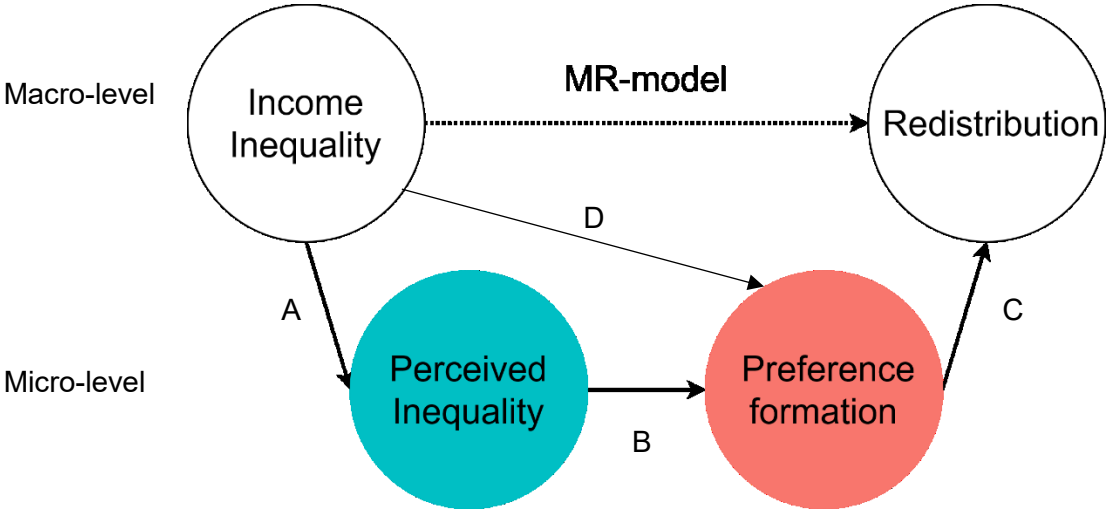


**Figure 4.1: Extended Meltzer-Richard Model of Redistribution (adapted from (Hing et al. 2019))**

## The relative income hypothesis

The relative income position is central for the median voter model as voters must accurately assess their income position in order to be able to maximize their after-tax income (Iversen and Goplerud 2018). However, voters can gain only a limited amount of utility by actively informing themselves about tax issues. Thus, only very few people should seek such information actively (Downs 1957). Therefore, information about one's own relative income in society should be a by-product of daily interactions. This line of argumentation highlights the importance of social networks as well as public information. Research has established that most people have social contacts with people who are similar to themselves (homophily) (Larcinese 2005; McPherson et al. 2001) and people may use their social surrounding as an indicator of inequality in society (Clark, Frijters, and Shields 2008; Cruces et al. 2013). Therefore, people should generally underestimate the right amount of inequality in society. Rich individuals will have a high-income reference group overestimating the median income and underestimating their own relative income position. The opposite should be true for the poor. Following the relative income hypothesis respondents should adapt their social position if they are provided with accurate information and adapt their redistribution preferences to maximize their after-tax income. This results in the following hypothesis:

H1: Individuals who learn they are relatively poorer (richer) than they thought are more (less) supportive of progressive taxation relative to individuals who are equally misinformed, but who do not learn their true position in the income distribution.

Empirical research shows that most people in society have difficulties to accurately guess their relative income position and may adapt more net-maximizing attitudes to taxes if they receive information on their actual position. However, the results remain inconsistent, as several studies found information effects only for certain subgroups: who overestimated their relative income position (Cruces et al. 2013);

who issued right-wing political orientation or have a strong believe that financial success depends on effort and not on luck (Karadja et al. 2016); or for the poor only (Fernández-Albertos and Kuo 2018).

In sum, the relative income hypothesis highlights two aspects: segregation and the role of information provided by public institutions. As social networks should be decisive for knowledge of one's relative income position, strong segregation might render the coexistence of rising inequality and lower demands of redistribution not only possible but quite likely (Windsteiger 2022). Second, in a cross-national perspective the supply of public information by schooling programs or other institutions could alter this inequality information trap (Iversen and Soskice 2015). Hence, if the relative income hypothesis holds true, providing information about income inequality should enable more rational decisions and overall a more equal environment in which democratic decisions can be made.

## The adjustment hypothesis

While the relative income hypothesis expands the idea of the Meltzer-Richard-model into the realm of limited information, the general idea that one's own relative income is the only relevant determinant of one's redistribution preferences remains unchanged. But as Trump (2018) noted recently, this focus on the factors hindering the development of preferences for redistribution might be too narrow. From a broader understanding of rationality individuals are expected to act not only because they benefit from it but also because they believe that it is a good/fair thing to do and they have reasons to believe so (Boudon 2003; Opp 1983). This highlights the role of perceptions of legitimacy and justice as important preconditions for demanding redistribution (Harth et al. 2008; Reese et al. 2014). The importance of these factors in allocation decisions has been pointed out recently by several experimental studies (Balafoutas et al. 2013; Durante et al. 2014; Esarey et al. 2012; Kittel et al. 2017, 2015).

The focus on fairness considerations as an important enabler of demand for redistribution highlights an old notion in social psychology that "what is" tends to become the basis of "what ought to be" (Homans 1973). Three factors seem decisive for this process: First, the human tendency to anchor numeric estimates on recently or frequently seen numbers (Eidelman and Crandall 2009; Kahneman and Tversky 1979; LeBoeuf and Shafir 2009; Pedersen and Mutz 2018) biases results in the direction of the anchor. Second, system justification theory argues that new information is biased in favor of interpreting it without challenging our own pre-existing beliefs to avoid psychological discomfort (Costa-Lopes et al. 2013; Jost and Banaji 1994). Three, market societies are normatively and institutionally embedded which tends to strengthen arguments that are in line with the status quo and promotes adaption as inequalities become normalized (see also: moral economy approach: (Koos and Sachweh 2019; Sayer 2007)). Hence, the issue relates to the normative context as information might moderate one's assessments about one's own fair share of the benefits and burdens in society (Lupu and Pontusson 2011; Shayo 2009).

The proposed adjustment mechanisms of status quo bias and system justification have already been analyzed by Trump (2018), who was able to show that receiving information about unequal incomes in the US and Sweden causes individuals to increase perceive that higher levels of income inequality are legitimate. Furthermore Haack and Sieweke (2018) have shown that adaption is a subtle but powerful mechanism that links the collective legitimacy of inequality to individual's acceptance of inequality. Following these results, I contrast the relative income hypothesis that highlights the importance of bounded rationality, with the adjustment argument focusing on the role of perceptions about the present state of society and its legitimacy.

H2: Individuals who learn that they under- (over)estimated the current level of tax progressivity should be more (less) supportive of progressive taxation relative to individuals who are equally misinformed, but who do not learn the current level of tax progressivity.

To assess the fairness of the distribution of tax burdens, assessments (estimates) about the current state of these burdens are necessary, but empirical studies have shown that these are often highly incorrect (Kalleitner and Kittel 2018; Liebig and Mau 2005; Slemrod 2006). This point is often raised in the discussion about fiscal illusion (Cullis and Jones 1998:404; Wagner 1976). People cannot ascertain the influences of different tax brackets on their income and therefore, tend to underestimate the burden of indirect taxation (Blaufus, Bob, Hundsdoerfer, Kiesewetter, et al. 2013; Sausgruber and Tyran 2005). These effects are not independent of one's income. Higher income groups tend to know more about taxation and its impact and behave more according to their intentions (Blendon et al. 2003; Kalleitner and Kittel 2018). Thus, information inequality on the present distribution of tax burdens might be an important link decoupling preferences for redistribution from inequality changes.

The adjustment hypothesis states that just rewards are based on the typical reward for other people. Following results in other fields (Auspurg et al. 2017; Berger and Webster Jr 2006; Shamon and Dülmer 2014) I expect that this effect will remain consistent if stated beliefs which have been found relevant for preferences for redistribution like one's political position (Karadja et al. 2016), effort orientation (Alesina et al. 2005; Mijs 2021) or social mobility expectations (Alesina and Giuliano 2015; Bénabou and Ok 2001) are controlled for.

## Design and measurement

### Sample

The empirical analysis in this paper is based on data from a web survey experiment fielded in Austria in fall 2018. The module was part of the PUMA survey VI and administered by the Austrian federal statistics agency. The dataset was specifically designed to test the mechanisms discussed in the previous sections. The sample was partly drawn from the federal household register ($N_1$=976) and from an online panel run by the government agency for public statistics in Austria ($N_2$=976) (PUMA 2018). A total of 1088 (response rate: 55.7%) individuals completed the survey. Since the data includes extensive information of people on the sampling list, I partly compensate for nonresponse error by weighting the data. All estimations discussed in the results section include these weights, but the unweighted results are substantively similar.[31] The full dataset is available online (PUMA 2019).

As Cruces et al. (2013) and others have pointed out, there are several possibilities of recovering subjective probability distributions for a continuous variable like income or tax levels (see also Hurd 2009; Manski 2004). Two prominent possibilities include eliciting determined points of the distribution (Eriksson and Simpson 2012; Hauser and Norton 2017) or asking individuals about their perceived relative position in the distribution. The subjective relative income has been in the focus of several studies published recently (Cruces et al. 2013; Engelhardt and Wagener 2018; Fernández-Albertos and Kuo 2018; Karadja et al. 2016). For comparability reasons and consistency, the question wording used here mainly follows these previously tested items. A difference is the focus on individual income rather than on household income. The use of household level income in the literature is mainly produced by a lack of information on incomes of individuals and because tax or redistribution systems in some countries are based on calculations of tax liabilities and benefits on the household level. This is only partly true for Austria, in which especially the progressive income tax is mostly calculated focusing on the income of the individual (exceptions are mostly with regard to children and deductions), thus this study uses question about incomes and tax burdens on the individual, rather than on the household level.

Experimental surveys are widely used to assess the causal impact of treatments (Mutz 2011). In this experiment respondents were randomly assigned to a control group, a relative-income information

[31] Data is weighted by gender, age, highest completed level of education and urbanization of home town.

treatment group, a tax information treatment group and a combined information treatment group (Table 4.1).[32] The following chapter describes the treatments in detail and explains the estimation strategy for the tax and income questions.

**Table 4.1: Allocation of respondents**

| Experimental Groups | Relative income information | Tax information | Probability of Assignment |
|---|---|---|---|
| Control Group | No | No | 0.25 |
| Treatment Group 1 | Yes | No | 0.25 |
| Treatment Group 2 | No | Yes | 0.25 |
| Treatment Group 3 | Yes | Yes | 0.25 |

### Measuring actual and perceived income

Personal gross income was measured using 22 income categories. The respondents had to report their total gross income per month (which is commonly known in Austria). 0.6% of the respondents failed to provide an income and were excluded from the analysis. I avoid directly asking respondents their income in an open-ended response, as this could result in higher measurement error, as well as a higher probability of non-response. However, this approach risks informing respondents about their relative income positions, but results indicate that this issue had no big impact on relative income estimates (see Chapter 5, Appendix B for further information).

After stating their own income, respondents with an income greater than zero were asked to estimate their own perceived relative income position in Austria. The survey varied randomly whether people were asked to assess the share of people over their own income position or below them to avoid an anchoring bias (for further details refer to Appendix C and Chapter 5).

> There are 6.8 million income earners in Austria. Which part of them you guess has a lower/higher yearly gross income than you?[33]

Half of respondents were then provided with their objective relative income position which was calculated using the endpoints of the corresponding gross personal income category they provided earlier in the survey and the official governmental estimates of the overall distribution of incomes in Austria based on tax records (Statistik Austria 2018).

> You guessed X%. Based on your income level, the latest studies conducted by Statistic Austria indicate that there are between Y% to Z% with an income lower/higher than yours.

Depending on the accuracy of the respondent's answer the survey also displayed one of the following messages:

> (1) In fact, there are more individuals with a lower/higher income than yours than you believed.
> (2) You were right about how many individuals have a lower/higher income than yours.
> (3) In fact, there are fewer individuals with a lower/higher income than yours than you believed.

[32] In the realized sample, the random allocation of (unit) non-response might nevertheless trigger some correlations. I therefore also checked the confounding patterns in the realized sample. The only significant correlation of one of the treatments with a sociodemographic variable was 0.08 between the question wording and highest level of completed education. In addition, I did not find any substantial correlation between treatments and respondents' characteristics (refer also to Appendix D).

[33] Notes further specified (i) the group of income earners and (ii) the yearly gross income. The information read as following: (i) "This group includes part- and full-time employees, as well as people receiving pensions. Individuals that have not worked all year long are included as well." (ii) "This income is the total yearly gross income defined as wage income before taxes. This includes the 13$^{th}$ and 14$^{th}$ monthly income. Pensions are also included, but not public transfers like unemployment benefits and study assistance."

**Measuring Tax Rate, Tax Progressivity Preferences and Tax Justice**

Several authors argued that redistribution might have different dimensions (e.g. redistribution from / to) which could explain contrasting results on the effects of independent variables (Barnes 2015; Cavaillé and Trump 2015). For these reasons the paper focuses not on general redistribution preferences but on the perceived and fair total tax burdens measured on pre-defined points in the income distribution.

Present research on tax perception strongly relies on income tax questions, due to its redistribution characteristics and the more salient structure of direct taxes (Fernández-Albertos and Kuo 2018). But the income tax is only one part of the total tax burden. In the EU taxes on production and imports are about as high as taxes on income and wealth or net social contributions (around 13% of GDP) although the rates vary considerably between the member states (Eurostat 2017). An analysis of German data suggests that large numbers of respondents misestimate their tax burdens because they have difficulties to distinguish between taxes (Blaufus, Bob, Hundsdoerfer, Sielaff, et al. 2013) and cannot easily distinguish marginal and average tax rates (Kalleitner and Kittel 2018). This study overcomes this problem using newly established data to provide the respondents with rates of tax burdens including all major direct and indirect taxes (Humer and Moser 2016).This way I am able not only to evaluate whether respondents want more or less redistribution but also which part of society they think should benefit more. As the question who should benefit is likely to be closely linked to the question which parts of society people think deserve benefits, I can also evaluate the influence of specific fairness norms like equity on these issues.

Following the approach of Fernández-Albertos and Kuo (Fernández-Albertos and Kuo 2018) respondents were first asked what percentage of income an individual pays in taxes if the individual's monthly income is 1200 euros. They were then asked the same preferred tax rate question for incomes for an individual earning 2200, 3200, and 6,000 euros/month, respectively.[34]

Afterwards, half of the respondents were provided with information about the current level of tax burdens of the four income groups:

> According to estimates, individuals with the following gross income levels payed on average approximately the following percentages of their income in taxes and dues.
>
> A personal gross income of about 1200 Euros had an average tax burden of about 29%. You answered X%. [Same with income levels: 2200, 3200 and 6000.]

Finally, all respondents were asked to state the percentages of tax rates for the four respective income groups that they consider fair.[35] I use these respondents' tax preferences to calculate two different measures of preferences of tax progressivity (Stroup 2005; Urban 2009). The first measure is the logarithmic ratio of the top tax rate to the bottom tax rate (incomes of 6,000 versus 1200 euros).[36] The second measure of progressivity preferences is the standard income concentration ratio known as the concentration coefficient (Kakwani 1977). This coefficient (C) can be calculated via the following expression:

$$C = 2\frac{\sum_{t-1}^{T} f_t * \mu_t * R_t}{\mu} - 1$$

[34] These earnings correspond approximately to the 20th 50th 75th and 90th income percentiles in Austria according to tax records. Although tax records tend to underestimate actual incomes, I use this source to stay in line with the data used to calculate the tax burdens of individuals. Own translation for the full question wording in English and in the German original (in the presented layout) refer to Appendix A.

[35] For the full question wording refer to Appendix A.

[36] Because the logarithm of zero is not defined I follow the approach of others in the literature and recode this answers to 1 (Fernández-Albertos and Kuo 2018).

Where $f_t$ refers to the population share of group $t$, $\mu_t$ its tax rate, $R_t$ the fractional rank in the income distribution, and $\mu$ the overall tax rate. A higher concentration coefficient indicates greater progressivity of the proposed tax scheme.[37]

### Controls

I measure belief in meritocracy using a German translation of the question wording in the General Social Survey (GSS). Trust in tax authorities is measured utilizing a question of the ESS 4 that asks respondents whether they believe tax authorities treat everybody equally. Expected social mobility is calculated using the difference between current and expected subjective social position in 5 years (the question wording is adapted from the ESS round 6). The social dominance orientation measures how group-based inequality and social hierarchies are accepted and tolerated. It is considered to be a central ideological variable that influences political orientation and correlates highly with a the standard left-right orientation (Aichholzer 2019). I utilize the KSDO-3 measure suggested by Aichholzer (2019) (C. alpha = 0.45) which represents a shortened version of the SDO-7 scale by Ho et al. (2015) (detailed question wording in Appendix B).
I further control for the level of education (measured in 14 categories, recoded to four categories using the ISCED classification), employment status, age in years and gender (refer to Appendix D for descriptive statistics on these variables).

## Results

### Observational Results

Figure 4.2 displays the distribution of perceived income deciles and its correspondence to the calculated actual positions using the midlevel of the gross income categories provided by the respondents. The distribution reveals a disproportionately high number of mid- to high-income earners who participated in the survey. The general trend follows the relative income position quite accurately, resulting in a correlation between objective and relative income of 0.46. However, I observe higher shares of middle incomes (3-7 income deciles) than what would be expected assuming an equal distribution of error. This is also supported looking at Figure 4.3 which displays the average answers of respondents in the 22 income categories. As expected, lower income groups tend to overestimate their relative income, while the rich tends to underestimate their position. Thus, the descriptive results support the relative income argument that individuals will level the amount of inequality, underestimating their relative income difference from the median.

[37] To compute the concentration coefficient, I assume that all four income groups the respondent is asked about are of equal size. I choose not to drop non-monotonic answers which does lead to concentration coefficients below 0. This results in 43 respondents with a concentration coefficient smaller than 0 for the perceived taxes and 6 respondents for the fair taxes. I recalculated the regression analyses reported below dropping these cases and found no substantial differences to the results reported here.

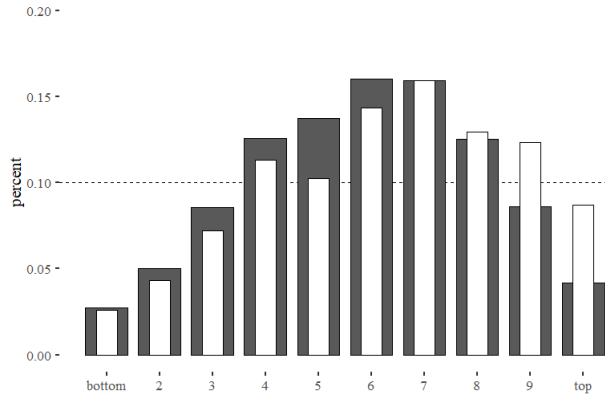


**Figure 4.2: Distribution of perceived (black) and actual (white) income decile.** N= 1,006.

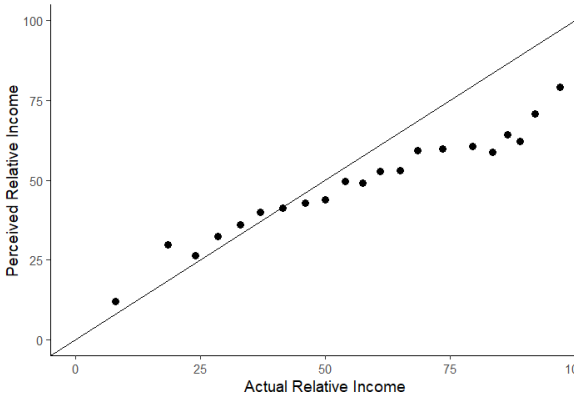


**Figure 4.3: Actual and perceived relative income over the income distribution.** The solid 45-degree line illustrates the no-bias case. N= 1,006.

I now analyze perceptions of actual and fair levels of tax progressivity in the control group using the two measures described above. Figure 4.4 displays a violin plot of the perceived- and fair logarithmic ratio between top and bottom tax ratios. As indicated by the solid vertical line, most people (73.7%) overestimated this measure compared to the current rate in Austria. Quite similar results can be reported when looking at the tax concentration displayed in Figure 4.5. Again, the majority (62.6%) overestimated the progressivity of the tax system. These results stem from the fact that respondents underestimated the tax burdens for all income classes, but this error grows larger the lower the income of the evaluated tax bracket which leads to the overestimation of the level of progressivity (refer to Appendix E for violin plots of perceived and fair tax responses of each income class respectively).

Comparing fair and perceived tax progressivity one clearly sees that respondents indicate higher top bottom tax ratios would be fairer compared to their perceived ones ($t = 6.13$, $df = 506$, $p<0.01$) and describe a higher tax concentration as fair than those perceived ($t = 8.00$, $df = 511$, $p<0.01$). In sum, this indicates that respondents tend to overestimate the level of tax progression and would indicate that even more tax progression would be fair. This result would be in line with a relative income interpretation in the context of rising inequality. But do fairness perceptions depend on one's relative income position and the perception of the actual tax progressivity? The following chapter will investigate these questions focusing on the effects of the information treatments.

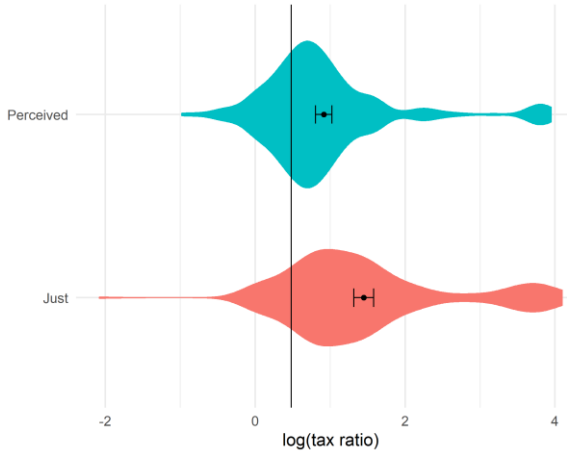


**Figure 4.4: Violin plot of perceived and fair tax ratio in the control group.**[38] The solid vertical line illustrates the actual log tax ratio in Austria. Point estimates display the mean and 95% confidence intervals. $N_{perc.} = 260$, $N_{fair} = 265$.

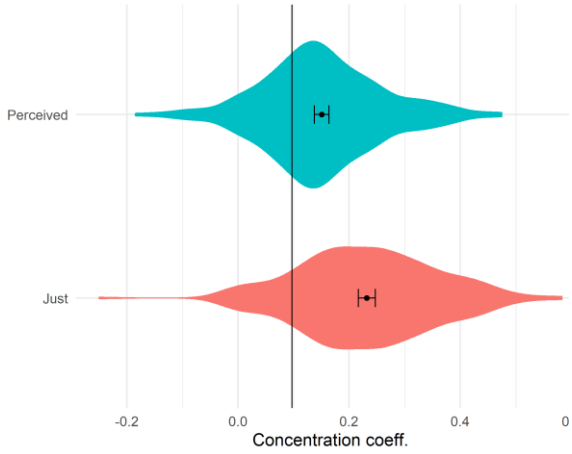


**Figure 4.5: Violin plot of perceived concentration in control group.** The solid vertical line illustrates the tax actual concentration in Austria. Point estimates display the mean and 95% confidence intervals. $N_{perc.} = 260$, $N_{fair} = 264$.

### The relative income hypothesis

Because the relative income hypothesis argues that the impact of information on the relative income should depend on the prior misconceptions, I split the sample into three groups.[39] Respondents of the first group underestimated the relative income position prior to the information treatment, the second overestimated the relative income position and the third estimated the relative income position correctly. Underestimation (overestimation) is defined by estimating one's own relative income position lower (higher) than the lower (upper) boundary of the respondent's gross income category. This corresponds to error bands of 3–10 percentage points.[40]

Table 4.2 indicates the relevant estimates of the regressions.[41] I do not find statistically significant effects of the relative income information treatment on one's levels of just tax progressivity, regardless of the measure used. Furthermore, I do not find evidence for the proposed net-maximizing mechanism as also the relative income position of an individual fails to reach statistically significant levels except for model 5 or shows a small borderline statistically significant effect in the opposite direction as predicted (model 3).[42] To stay comparable to previous studies (Cruces et al. 2013; Fernández-Albertos and Kuo 2018; Karadja et al. 2016) I do not control for respondent's perceived tax progressivity here. However, controlling for perceived tax ratio or perceived tax concentration does not substantially change the effects of either the info treatment or the income percentile.

[38] I show estimates of the group which did not receive information on the relative income position only to avoid a possible bias in the distribution.
[39] An alternative approach of calculating information effects estimating interactions used by others (Albacete, Fessler, and Lindner 2022; Karadja, Mollerstrom, and Seim 2016) produces substantially similar results.
[40] Respondents received further information about the direction of the misconception based on this calculation as mentioned above in the data section. The results remain robust if I drop the lowest income category which had the highest possible error bands.
[41] For descriptive statistics on all variables refer to Appendix D.
[42] This result remains the same if the objective relative income position is replaced by the perceived relative income position with one exception the income becomes significant -0.013 $p<0.05$ in model 2 which follows the expectations of the relative income hypothesis.

**Table 4.2: OLS-Estimates of the effect of relative income information on perceptions about fair tax progressivity**

| | Just Tax ratio | | | Just Concentration | | |
|---|---|---|---|---|---|---|
| | (1) Prior is Poorer | (2) Prior is Richer | (3) Prior is Correct | (4) Prior is Poorer | (5) Prior is Richer | (6) Prior is Correct |
| Info treatment | 0.0003 | 0.341 | -0.049 | 0.009 | 0.031 | 0.005 |
| Relative income pos. | (0.118) | (0.212) | (0.270) | (0.013) | (0.026) | (0.035) |
| Income percentile | 0.001 | -0.011 | 0.012$^{+}$ | 0.0001 | -0.002$^{*}$ | 0.001 |
| | (0.003) | (0.007) | (0.007) | (0.0004) | (0.001) | (0.001) |
| Observations | 327 | 102 | 68 | 326 | 102 | 67 |
| $R^2$ | 0.090 | 0.163 | 0.227 | 0.094 | 0.177 | 0.156 |
| Adjusted $R^2$ | 0.059 | 0.061 | 0.076 | 0.062 | 0.077 | -0.013 |

Note: $^{+}$p<0.1, $^{*}$p<0.05, $^{**}$p<0.01, $^{***}$p<0.001. Standard errors in parentheses. Controlled for gender, highest level of education, employment status and question anchor (estimates not shown). Sample only contains respondents who received no treatment or the relative income position information treatment only.

### The adjustment hypothesis

The adjustment hypothesis argues that the level of fair tax progressivity is anchored in perceptions of current tax progressivity and that information should lead individuals to adapt their perceived fair levels to the current situation. Again, I divide the sample according to the prior misconception of the two tax measures.[43] To do so, I split the sample by 1/4 standard deviation in perceived tax progressivity indicating over-/underestimation.

The statistically significant main effects of perceived tax ratio and the perceived concentration respectively indicate the tendency that higher perceived tax progressivity leads to higher levels of perceived fair tax progressivity levels (Table 4.3, model 1 and 4). Informing people about the current level of tax progressivity leads individuals to demand less progressivity if they overestimated tax progressivity in line with the expectations of the adjustment hypothesis. Contradictory to the expectations, however, information about the current level of tax progressivity does not lead respondents to increase their just levels of tax progressivity if respondents underestimated the amount of tax progressivity in Austria. I attribute these insignificant results in model 2 and 4 to the very small number of respondents who underestimated the level of tax progressivity. The info treatment had no statistically significant effect on those who correctly estimated the level of tax progressivity as one would expect. Similar to the results reported above concerning the relative income treatment, the relative income position again does not reach significant levels or shows weakly significant effects in both directions.[44] In sum the results indicate a consistent legitimacy anchoring in the perceived amount of taxation that is adaptable to information. This way the information does not revoke the baseline effect of perceptions but moves the legitimacy anchor.

[43] Again the alternative approach of calculating information effects estimating interactions produces substantially similar results.

[44] An exception is the negative effect of income in model 4. These results remain the same if the objective relative income position is replaced by the perceived relative income position with one exception the income becomes significant -0.010 p<0.01 in model 1. This does not change any of the information effects or the baseline effect of perceived tax progressivity.

**Table 4.3: OLS-Estimates of the effect of tax-progressivity information on perceptions about fair tax progressivity**

| | Just Tax ratio | | | Just Concentration | | |
|---|---|---|---|---|---|---|
| | (1) Prior is Higher | (2) Prior is Lower | (3) Prior is Correct | (4) Prior is Higher | (5) Prior is Lower | (6) Prior is Correct |
| Perceived tax ratio | 0.660*** | -0.192 | 0.356 | | | |
| | (0.070) | (0.409) | (0.537) | | | |
| Perceived tax conc. | | | | 1.248+ | -1.118+ | 0.543 |
| | | | | (0.736) | (0.605) | (1.676) |
| Info treatment taxation | -0.517*** | 0.203 | 0.141 | -0.331** | 0.055 | 0.021 |
| | (0.110) | (0.259) | (0.118) | (0.108) | (0.071) | (0.052) |
| Income percentile | -0.0002 | 0.013+ | -0.007+ | -0.010** | 0.0003 | -0.0001 |
| | (0.003) | (0.007) | (0.004) | (0.003) | (0.002) | (0.002) |
| Observations | 281 | 56 | 128 | 293 | 81 | 89 |
| $R^2$ | 0.356 | 0.299 | 0.148 | 0.106 | 0.268 | 0.067 |
| Adjusted R2 | 0.330 | 0.124 | 0.067 | 0.071 | 0.151 | 0.002 |

Note: +p<0.1, *p<0.05, **p<0.01, ***p<0.001. Standard errors in parentheses. Controlled for gender, highest level of education, employment status (not shown). Sample only contains respondents who received no treatment or the tax information treatment only.

Finally, I combine the two samples and analyse the treatment effects in combination. To avoid further fragmentation of the sample I estimate the effects of the information treatments with an interaction between dummy variables indicating prior bias compared to respondents correctly estimating current tax progressivity or their relative income position (specified similar as above to split the samples) and a binary variable indicating the treatment. As visible in Figure 4.6 and Figure 4.7 the effects closely resemble the results indicated in Table 4.2 and Table 4.3. Again, coefficients of the information on the relative income position do not reach statistically significant levels in any of the models. Thus, the analyses fail to provide evidence in line with H1 derived from the relative income hypothesis. Note however, that the effect of relative income position is now statistically significant and negative as one would expect. Displaying consistent effects of tax information in line with the adjustment hypotheses, the estimations support H2. Again, the levels of perceived tax progressivity have a substantial effect on the reported just levels of tax progressivity. This holds also true if I use a split-sample approach, again providing evidence that the tax information treatment leads respondents who overestimated the tax progressivity to decrease their reported just levels of tax progressivity (for regression estimates of the full sample, see Appendix F).

To further check the robustness of these effects, I add several controls to the model. The information effects and anchoring should not depend on effort appreciation, mobility perspectives or political orientation of the individual. The estimates reported in Figure 4.6 and Figure 4.7 (Appendix F, Table A4.3) suggest that this holds true. Although these factors are important the adjustment mechanism seems to be independent of an individual's political orientation, justice norms, trust in tax authorities or expected social mobility. All variables have effects in the expected direction: Belief in effort (meritocracy) reduces one's fair levels of tax progressivity (only sig. for tax concentration); higher expected social upwards mobility reduces one's fair levels of tax progressivity (only sig. for tax ratio); higher values on the social dominance scale indicating lower acceptance of group-based inequality and social hierarchies (which is also a proxy for left-leaning political orientation) increase one's fair levels of tax progressivity; increased beliefs that tax authorities treat everyone equally leads to lower levels of fair tax progressivity. The latter effect might be explained by the fact that those who believe that tax authorities treat everyone equally correlates with those who appreciate the status quo leading to lower

perception – fairness differences than for those who think state authorities give special advantages to certain people.

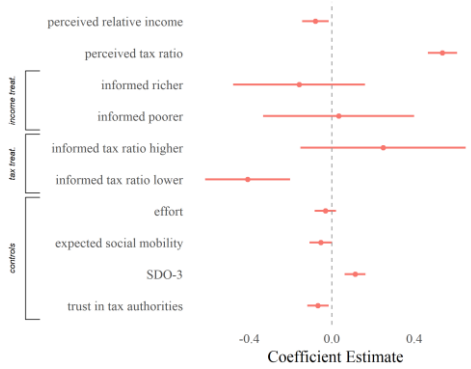


**Figure 4.6: Regression estimates (OLS) of effects on fair tax ratio[45]**

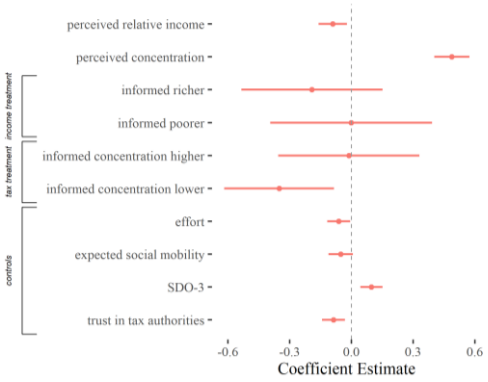


**Figure 4.7: Regression estimates (OLS) of effects on fair tax concentration**

Note (Figure 4.6 & Figure 4.7): All continious variables are mean centered and divided by their standard deviation (Z-standardized). Whiskers indicate 95% confidence intervals. Regressions further controll for gender, highest level of education, employment status, question anchor, main effects of treatments and prior bias (not shown). Refer to Appendix F Table A4.3 for the full regression estimates.

## Discussion and Conclusion

Income, relative income position and information on one's income position do not predict a respondent's perceived level of fair tax progressivity. Thus, providing information about higher levels of inequality (or lower levels of tax progressivity) might not fix the paradox of rising inequality and lower level of preferences for redistribution. Informing people about the amount of redistribution in society might even increase inequality as the paper finds strong evidence that perceived tax progressivity is a strong predictor of the amount of tax progressivity considered fair and that tax information induces people to adapt their perception of fair tax progressivity to the present state. This reduces the fair tax ratio between top and bottom and the amount of fair tax measured by the Kakwani tax concentration index. Hence informing people about a low level of redistribution in an unequal society might decrease the amount of redistribution found to be legitimate. These results are in line with earlier studies that focused on the impact of information on income inequality (Trump 2018).

While, I have so far interpreted the results to indicate fairness adjustments to the status quo it could be that the case that these effects are driven by self-interest if overestimation of tax progressivity is concentrated among the rich and they decrease the level of tax progressivity they perceive fair when they are informed that the actual tax progressivity is lower (self-serving fairness adjustments). Moreover, while these results are related to the ones presented in Chapter 3, I did not focus on individuals' reflexive tax burden but on the perceived and fair tax progressivity of individuals. To address both these concerns, I also tested whether informing people about the tax rates their income tax group pays leads people to adapt their fair tax beliefs. Results reported in Appendix G suggest that this is the case for people who underestimated their tax rate prior to the information treatment (which was the most common misperception). Thus, status quo adjustment leads individuals not only to adjust their beliefs about fair levels of tax progressivity but also about fair levels of their own tax rate which connects well with the results reported in Chapter 3. Is this adjustment self-serving in the form that only the poor

[45] I show estimates of the group which did not receive information on the relative income position only to avoid a possible bias in the distribution.

increases their reflexive tax fairness because they expect future redistribution anyway? Accounting for possible heterogenous treatment effects between income groups, I find that low, middle, and even high-income earners all increase their reflexive fair tax rates suggesting that status-quo adjustment is not simple self-serving belief adjustment.

This study enriches the existing literature on the formation of preferences for redistribution in several ways: First, by focusing on differences between perceived and actual taxation, results indicate a strong relevancy of the status quo bias in perceived taxation fairness. Second, measuring tax preferences on various income levels made it possible to go beyond general redistribution preferences and assess the shape and target group of the preferred tax burdens. Finally, the analysis connects the debate about the impact of information on tax perceptions with current research that stresses the importance of fairness norms and political orientation for preferences over redistribution. While the results indicate the relevancy of these factors, the impact of perceptions remains crucial. Future work might build on these results and focus on the link between perceptions and fairness attitudes.

This chapter provided necessary causal evidence in support of the adjustment mechanism suggesting that at least parts of the strong correlations between actual tax progressivity and just tax progressivity found in Chapter 3 is driven by people's tendency to adapt their fairness beliefs to the status quo. However, the study also indicated that, again, relative income information fails to change people attitudes about redistribution via taxation, although people have highly biased perceptions about their relative income positions prior to the information treatment. One reason for this failure to adapt could be that people's perception are not simple indicators of their information but also reflect how they want to see the world and their place within it. Hence, perceptions might represent quick guesses that express more their attitudes, about what is wrong with society or their situation (e.g. concerns about inequality or relative deprivation), than their actual perceptions about where they stand relative to others in society. A second related reason might be that individuals are not only biased by the structural conditions such as segregation but also by the methods researchers use to elicit individuals' perceptions of their relative income position. Especially the direction of comparison (richer/poorer) might influence people to process not only inequality information differently but also to use these anchors of comparison as a hint for what could be considered fair in a given situation. The following chapter tests these arguments.

# Appendix (Chapter 4)

## A: Questionnaire of the Survey Experiment

(in the German original, screenshots of the presentation layout)

Perceived relative income position:

Stellen Sie sich vor, Sie bekommen Ihr derzeitiges Einkommen 14-mal im Jahr ausbezahlt.

**Welcher Anteil der rund 6,9 Millionen Einkommensbeziehenden[1] in Österreich schätzen Sie, hat dann ein höheres Brutto-Jahreseinkommen[2] als Sie?**

[1]In dieser Gruppe sind unselbstständige Vollzeit- oder Teilzeit-Erwerbstätige, Lehrlinge sowie Pensionisten und Pensionistinnen enthalten. Auch Personen, die nicht das gesamte Jahr über Einkommen bezogen haben, sind inkludiert.

[2]Unter Einkommen verstehen wir die jährliche Summe der Bruttobezüge, definiert als Lohneinkommen vor Steuern. Dies inkludiert das 13. und 14. Monatsgehalt. Pensionen sind ebenfalls inkludiert. Staatliche Transfers, wie Arbeitslosenunterstützung und Studienbeihilfen, sind nicht inkludiert.

Tragen Sie hier den geschätzten Anteil ein: _____ %

Info treatment on the relative income position (example):

**Ihre Schätzung lautete 25%.**

**Auf Basis der letzten Daten der Statistik Austria und einer Hochrechnung aus Ihrem derzeitigen Einkommen haben etwa 56%–61% der österreichischen Einkommensbeziehenden ein höheres Jahreseinkommen als Sie.**

**Tatsächlich gibt es mehr Personen mit einem höheren Einkommen als Sie angenommen haben.**

Perceived tax progressivity:

**Wie viel schätzen Sie zahlt eine Person mit folgenden durchschnittlichen monatlichen Brutto-Gesamteinkommen[1] insgesamt an Steuern und Abgaben?**

Hierunter verstehen wir sowohl Einkommenssteuern, Kapitalertragssteuern als auch Sozialversicherungsbeiträge und Konsumsteuern (wie etwa die Mehrwertsteuer).

[1] Die Person bekommt dieses Gehalt 12-mal im Jahr. Das 13. und 14. Monatsgehalt sind in diesem Betrag bereits inkludiert.

Eine Person mit einem Einkommen von 1200 Euro zahlt _____ % an Steuern und Abgaben.

Eine Person mit einem Einkommen von 2200 Euro zahlt _____ % an Steuern und Abgaben.

Eine Person mit einem Einkommen von 3200 Euro zahlt _____ % an Steuern und Abgaben.

Eine Person mit einem Einkommen von 6000 Euro zahlt _____ % an Steuern und Abgaben.

Info treatment on actual tax progressivity in Austria (example):

**Berechnungen zufolge zahlten Personen mit den folgenden Bruttoeinkommen durchschnittlich in etwa die folgenden Prozentsätze an Steuern und Abgaben:**

Ein persönliches Bruttoeinkommen von etwa 1200 Euro wurde durchschnittlich mit rund **29%** belastet. Sie haben **29%** geantwortet.

Ein persönliches Bruttoeinkommen von etwa 2200 Euro wurde durchschnittlich mit rund **35%** belastet. Sie haben **35%** geantwortet.

Ein persönliches Bruttoeinkommen von etwa 3200 Euro wurde durchschnittlich mit rund **40%** belastet. Sie haben **40%** geantwortet.

Ein persönliches Bruttoeinkommen von etwa 6000 Euro wurde durchschnittlich mit rund **47%** belastet. Sie haben **47%** geantwortet.

Perceived fair tax progressivity:

**Welchen Prozentsatz an Steuern und Abgaben des monatlichen Bruttoeinkommens würden Sie als gerecht ansehen?**

Für eine Person mit 1200 Euro monatlichen Bruttoeinkommen wären _____ % an Steuern und Abgaben gerecht.

Für eine Person mit 2200 Euro monatlichen Bruttoeinkommen wären _____ % an Steuern und Abgaben gerecht.

Für eine Person mit 3200 Euro monatlichen Bruttoeinkommen wären _____ % an Steuern und Abgaben gerecht.

Für eine Person mit 6000 Euro monatlichen Bruttoeinkommen wären _____ % an Steuern und Abgaben gerecht.

## B: Question wording of control variables:

(Asked after the survey experiment. Own translation from the German original.)

| Concept | Item | Answer-Scale |
|---|---|---|
| Luck/effort orientation | Some people say that people get ahead by their own hard work; others say that lucky breaks or help from other people are more important. Which do you think is most important? | 7 point scale (only luck to only equity) |
| Trust in tax authorities | Please tell me whether you think the tax authorities in Austria give special advantages to certain people or deal with everyone equally? | 7 point scale (Give special advantages to certain people, Deal with everyone equally) |
| Subjective social position (present) | There are people who tend to be towards the top of our society and people who tend to be towards the bottom. On this card there is a scale that runs from top to bottom. Where would you place yourself on this scale nowadays? | 10 point scale with endpoint labeling 1=top, 10 = bottom. |
| Subjective social position (future) | There are people who tend to be towards the top of our society and people who tend to be towards the bottom. On this card there is a scale that runs from top to bottom. Where would you place yourself on this scale nowadays? | 10 point scale with endpoint labeling 1=top, 10 = bottom. |
| Social dominance orientation | An ideal society requires some groups to be on top and others to be on the bottom. | 5 point scale (Strongly favor, strongly oppose) |
| Social dominance orientation | It is unjust to try to make groups equal. | 5 point scale (Strongly favor, strongly oppose) |
| Social dominance orientation | We should work to give all groups an equal chance to succeed. | 5 point scale (Strongly favor, strongly oppose) |

## C: The effect of endpoint priming

The survey varied randomly weather respondents had to estimate the share of people in Austria which had a lower or higher income than themselves respectively. I included this variation in the question as it has been argued that endpoint anchoring might result in different levels of errors of low- and high-income groups. A comparison of errors displayed in Figure A4.1 and Figure A4.2 reveals that this argument holds true in this study. Summarizing it can be said that upward comparisons reduce overall downward bias, but induce upward bias in lower income classes. I control for the priming affect in all regression analyses of the paper, while the effect reaches significant levels in some models the inclusion of the variable does not affect the results presented here. For further details on this effect and a test whether the bias stems from motivational or cognitive mechanisms see the following chapter.

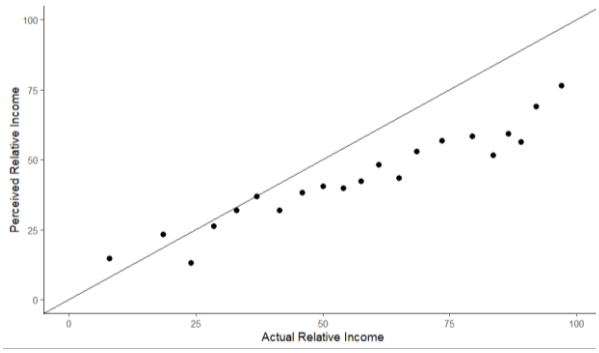


**Figure A4.1: Actual and perceived relative income over the income distribution of those asked to estimate the share of lower incomes**. The solid 45-degree line illustrates the no-bias case. N= 1,006.

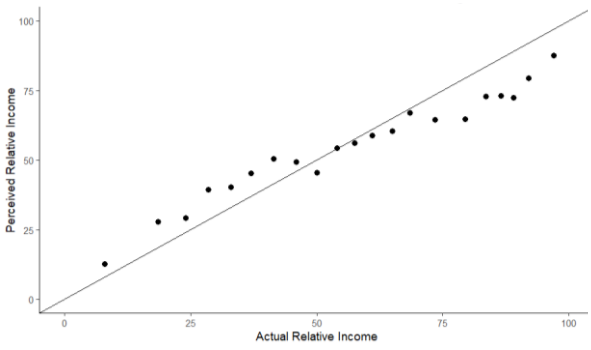


**Figure A4.2: Actual and perceived relative income over the income distribution of those asked to estimate the share of higher incomes.** The solid 45-degree line illustrates the no-bias case. N= 1,006.

# D: Description of Variables and Balance Checks

### Table A4.1: Description of Variables

| Variables | Short description | N | Min | Max | Mean | SD |
|---|---|---|---|---|---|---|
| Just Tax ratio | Logarithm of top to bottom ratio of fair income tax rates | 1,081 | -2.30 | 4.25 | 1.31 | 0.97 |
| Just Concentration | Concentration coefficient of fair income tax rates, calculated as described in (Kakwani 1977) | 1,079 | -0.56 | 0.63 | 0.22 | 0.11 |
| Perceived tax ratio | Logarithm of top to bottom ratio of perceived current income tax rates | 1,064 | -1.61 | 4.09 | 0.92 | 0.86 |
| Perceived concentration | Concentration coefficient of perceived current income tax rates, calculated as described in (Kakwani 1977) | 1,061 | -0.30 | 0.48 | 0.15 | 0.10 |
| Info treatment income | Dummy Variable equaling 1 if the respondent received information about their actual relative income position | 1,088 | 1 | 2 | 1.51 | 0.50 |
| Info treatment taxation | Dummy Variable equaling 1 if the respondent received information about the actual tax rates in Austria | 1,088 | 1 | 2 | 1.50 | 0.50 |
| Question priming | Dummy Variable equaling 1 if persons were asked to estimate the share of people with incomes above their income position, 0 if respondents were asked to indicate the share below their income position | 1,088 | 1 | 2 | 1.51 | 0.50 |
| Income percentile | Indicating the actual relative income position of the respondent calculated using the midpoint of the income categories and a pareto-estimate for the open-end top category | 1,010 | 8.00 | 97.00 | 60.78 | 24.60 |
| Perceived income percentile | Indicating the relative income position of respondents compared to those below the individual, thus a value of 20 indicates that the respondent answered that 20% have a lower income than herself or answered that 80% have a higher income if question priming =1 | 1,086 | 1.00 | 7.00 | 4.57 | 1.15 |
| SDO-3 | 0=strongly dominated orientated 4= not | 1,085 | 1.33 | 5.00 | 3.46 | 0.77 |
| Effort orientation | Luck vs. Effort scale measured as described in Appendix B | 1,085 | 1.50 | 5.00 | 3.52 | 0.68 |
| Expected social upwards mobility | Calculated as future expected subjective social position – present subjective social position | 1,070 | -6.00 | 7.00 | 0.25 | 1.38 |
| Gender | Sex of the respondents: 0 = male 1 = female | 1,087 | 1.00 | 2.00 | 1.49 | 0.50 |
| Trust in tax authorities | 0=give special advantages to certain people 6=treat everyone equally | 1,087 | 1.00 | 6.00 | 2.27 | 1.73 |
| Age | Age of the respondent. | 1,087 | 16.00 | 74.00 | 42.48 | 16.05 |
| Highest Level of Education | Highest completed level of education. 1= primary ISCED 2011 level 0-1; 2= lower level secondary, 3= higher level secondary; 4= tertiary education | 1,088 | 1 | 4 | 2.70 | 0.92 |
| Employment status | Main activity in the last month: Coded = 1 Employed, 2=in Education/Training, 3 = unemployed, 4= other (Housework looking after children, parental leave, military service, unable to work because of health issues) | 1,083 | 1.00 | 4.00 | 1.57 | 0.90 |

**Table A4.2: Correlations between treatments and respondent's characteristics (balance check)**

| Correlations | Education | Age | Gender | Gross income | Employ-ment status | Question priming | Info treatment income |
|---|---|---|---|---|---|---|---|
| Education | | | | | | | |
| Age | -0.08** | | | | | | |
| Gender | 0.02 | -0.10*** | | | | | |
| Gross income | 0.30*** | 0.31*** | -0.34*** | | | | |
| Employment status | -0.20*** | 0.36*** | 0.04 | -0.28*** | | | |
| Question priming | 0.08* | -0.02 | 0.02 | 0.04 | -0.03 | | |
| Info treatment income | 0.04 | 0.02 | 0.00 | 0.01 | 0.02 | 0.00 | |
| Info treatment taxation | 0.00 | 0.03 | 0.01 | -0.03 | 0.02 | 0.00 | 0.01 |

Note: * p < .05. ** p < .01. *** p < .001.

## E: Viloin plots for perceived and fair tax burden by income group

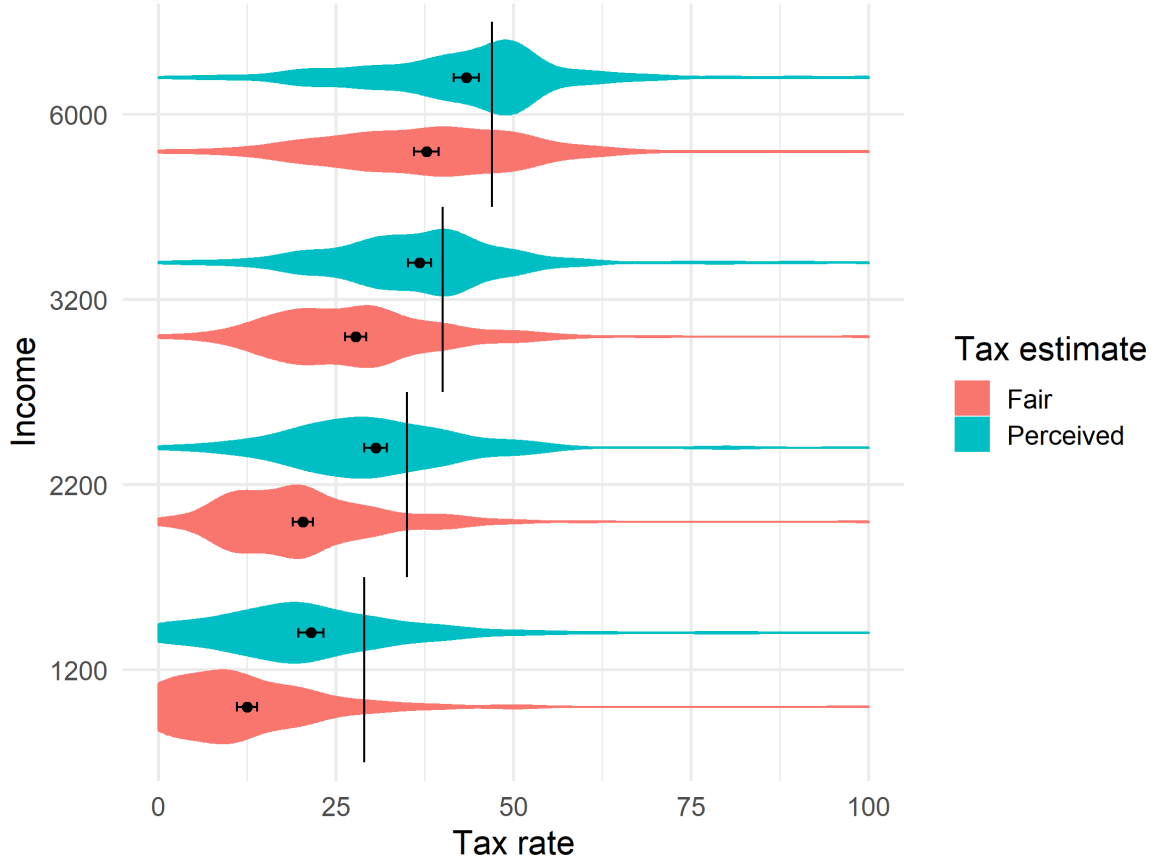


**Figure A4.3: Violin plots for perceived and fair tax burden by income group.** The solid vertical lines illustrate the actual tax shares in Austria. Point estimates display the mean and 95% confidence intervals.

## F: OLS-Estimates of the combined sample using a split sample approach

**Table A4.3: OLS-Estimates of the combined sample (unstandardized coefficients)**

| | Just Tax ratio | | | Just Concentration | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | Prior is Higher | Prior is Lower | Prior is Correct | Prior is Higher | Prior is Lower | Prior is Correct |
| Perceived tax ratio | 0.639*** | -0.249 | 0.757*** | | | |
| | (0.050) | (0.294) | (0.161) | | | |
| Perceived concentration | | | | 0.668*** | -0.044 | 0.895+ |
| | | | | (0.053) | (0.127) | (0.467) |
| Info treatment taxation | -0.503*** | -0.067 | -0.156** | -0.051*** | -0.008 | -0.008 |
| | (0.087) | (0.191) | (0.060) | (0.008) | (0.015) | (0.013) |
| Info treatment income | -0.036 | -0.292 | -0.024 | 0.011 | -0.016 | -0.006 |
| | (0.089) | (0.190) | (0.061) | (0.008) | (0.016) | (0.013) |
| Income percentile | -0.006* | 0.004 | -0.001 | -0.0003 | 0.0001 | -0.0004 |
| | (0.003) | (0.006) | (0.002) | (0.0002) | (0.0005) | (0.0004) |
| SDO-3 | 0.041 | -0.039 | 0.087* | 0.017** | 0.004 | 0.012 |
| | (0.059) | (0.125) | (0.040) | (0.005) | (0.011) | (0.008) |
| Effort orientation | -0.024 | 0.144+ | -0.050+ | -0.009** | 0.009 | -0.008 |
| | (0.038) | (0.074) | (0.027) | (0.003) | (0.007) | (0.006) |
| Expected upward | -0.081* | -0.065 | 0.024 | -0.005 | -0.010+ | 0.007+ |
| mobility | (0.038) | (0.059) | (0.024) | (0.003) | (0.006) | (0.004) |
| Trust in tax authorities | -0.084*** | -0.131* | -0.046* | -0.008*** | -0.008+ | -0.005 |
| | (0.025) | (0.054) | (0.019) | (0.002) | (0.005) | (0.004) |
| Observations | 399 | 66 | 492 | 584 | 165 | 205 |
| $R^2$ | 0.407 | 0.517 | 0.112 | 0.337 | 0.147 | 0.118 |
| Adjusted $R^2$ | 0.380 | 0.347 | 0.080 | 0.318 | 0.048 | 0.038 |

Note: +p<0.1, *p<0.05, **p<0.01, ***p<0.001. Standard errors in parentheses. Controlled for gender, highest level of education, employment status (not shown). Split by over-/underestimation of tax progressivity.

## G: The status quo adjustment of respondents' reflexive fair tax burden

Following the approach of Fernández-Albertos and Kuo (2018) respondents were asked to declare their perceived tax rates for four different income levels. In the main text I use these 4 income taxes perceptions and fairness beliefs to calculate tax progressivity estimates and analyse what explains individuals' beliefs about the fair redistributive power of the welfare state. However, this raises concerns whether people may simply react in line with their material self-interest by adapting their own fair income taxes upwards if they are poor and have been informed that they underestimated the level of tax progressivity or by adapting their own fair income taxes downwards if they are rich and have been informed that they overestimated the level of tax progressivity. To test this possibility, I collapse the income categories in four income groups and analyse individuals' reflexive tax burdens separately. The bandwidth of these groups correspond to the incomes most closely to the four incomes of which respondents evaluated the tax rates. This approach also provides a test whether the adjustment mechanism can also be found in reflexive fair tax evaluations similar to Chapter 3.

Following the approach in the main text, I split the sample into three groups: those that overestimated their own tax burden, those that underestimated it and those who were about accurate (within +/1/4 standard deviation in perceived tax). In line with the adjustment hypothesis, I expect that information will lead individuals to adapt their fairness attitudes to be more in line with the status quo. Individuals who learn that they under- (over)estimated their current level of taxation in Austria should perceive higher (lower) levels of taxation to be fair relative to individuals who are equally misinformed, but who do not learn the current level of taxation.

Results (see Figure A4.4) indicate that individuals—when informed about the current state of taxation—adapt their preferences to the status quo, independently of their initial preferences for more or less taxation. Individuals who get informed that they underestimated their tax rate estimate higher fair tax levels than those who do not get informed. As expected, I find the opposite relationship if participants overestimated their tax rate. However, the latter difference is not statistically significant, mostly due to the smaller numbers of participants overestimating their tax rate. These results support the conclusion of the main text that tax perceptions are indeed causally linked to individuals' tax fairness beliefs and connects the results of Chapter 4 to Chapter 3. These results also partly contradict expectations of a model assuming that preferences are driven by a desire to maximize one's individual net income because, people increased(!) the tax burden they estimate to be fair if they are informed that their tax burden is higher.

However, this increase could still be motivated by self-serving belief adaptation if tax rate underestimation is concentrated among the poor and they increase fairness beliefs after receiving information because they increase average fair tax rates expecting to disproportionally benefit from governmental redistribution at the benefit side. Contrary to this expectation, I find that this increase is not limited to respondents from lower income groups but also present for middle- and high-income earners (see Figure A4.5). Thus, even high-income groups increase their fair tax levels if they are informed that on average people in their income group pay higher taxes which suggest that the results reported in the main paper are not driven by elaborate self-interest calculations (poor people expecting to profit from higher tax rates) or a compounding effect resulting from different misperceptions and self-interested adaptations of the rich and the poor. Finally, the results link up well with the results of Chapter 3 indicating that individuals' fair tax beliefs of their reflexive tax rates highly correlate with the tax system in place as I find that when people receive information about the status quo taxation they adapt their estimates about own fair tax burdens to align more with the status quo tax rates.

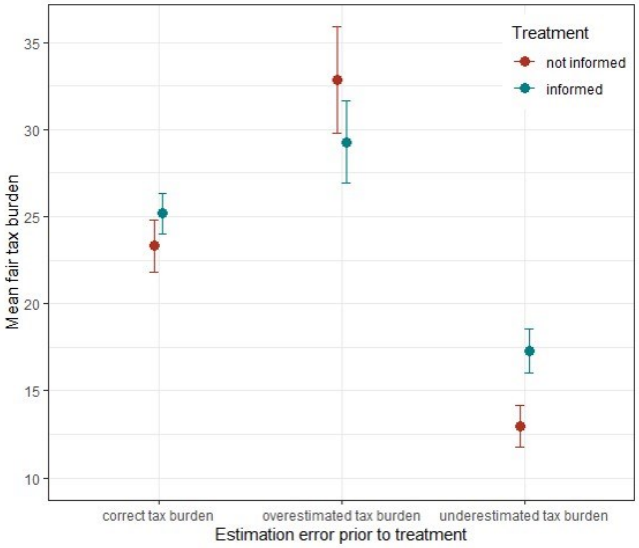


**Figure A4.4: Average fair tax rates by estimation error and treatment group.** The plot shows average marginal predictions using the same modelling approach (and control variables) as reported in Table 4.2 in the main text. Whiskers indicate 95% Confidence intervals calculated using robust standard errors.

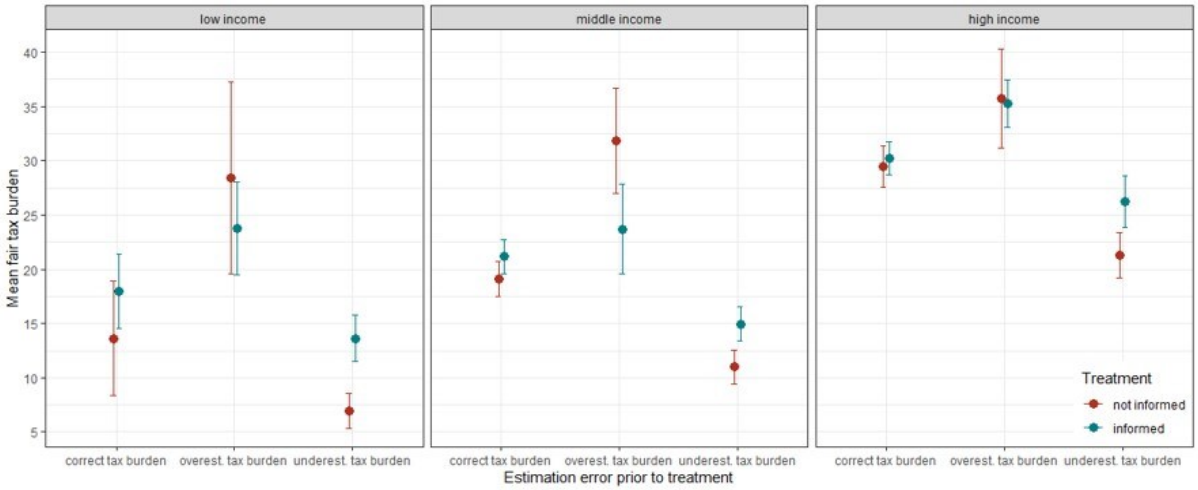


**Figure A4.5: Average fair tax rates by estimation error, treatment group and income level.** The plot shows average marginal predictions using the same modelling approach (and control variables) as reported in Table 4.2 in the main text. However, the sample is split into three groups depending on respondents' personal incomes. Low income earners income tax group 1, middle income earners income tax group 2/3, high income earners income tax group 4. Whiskers indicate 95% Confidence intervals calculated using robust standard errors.

# 5) Subjective Relative Income and the Priming Effect of Endpoint Anchors

In recent years, misperceptions have become one of the main factors that should explain why individuals often do not adapt their preferences and beliefs after changes in macro-conditions such as inequality. This way the literature has understood perceptions as simple indicators of misinformation but, so far, failed find consistent evidence that shows correcting these misperceptions leads to the expected updates in preferences. I suggest that understanding inequality perceptions as the product of social comparisons might help to explain these findings. Focusing on the direction of comparison, I predict that the choice of upward or downward oriented comparisons systematically biases respondents' perceived relative income positions and their fairness attitudes because people (i) tend to anchor estimates at their endpoints and (ii) use the way inequality is described as a clue of what individuals should have. Using data from an experimental survey conducted in Austria, I show that a low-income anchor systematically decreases subjective income positions compared to a high-income anchor. Moreover, the anchor chosen also affects respondents' fairness beliefs and their subjective social status. A second study replicates these results and provides several tests that suggest that these differences are created by an anchor and adjustment bias. Finally, I successfully test a method showing how studies can avoid this bias in the future. In sum, the results indicate that previous studies have often corrected misperceptions they have themselves created, which raises concerns about the external validity of previous results. To avoid these issues in the future, I suggest to stop interpreting perceptions as simple to use indicators of misinformation.

## Introduction

In the last two decades, scholars interested in the relationship between inequality and redistribution have highlighted the importance of perceptions to explain people's preferences and behavior (Bobzien 2020; Gimpelson and Treisman 2018; Niehues 2014; Norton and Ariely 2011). As standard econometric models often assume that individuals are fully informed about inequality and their relative position in the income distribution (Meltzer and Richard 1981), misperceptions have been brought forward as one of the main explanations of failure to find convincing evidence that individuals adapt their redistribution preferences to rising inequality (Cruces et al. 2013). The simple idea is that individuals strive to make optimal choices and thus need information, but structural biases and costly cognitive effort can hinder them from obtaining accurate estimates.

Consequently, the most common explanation for these misperceptions has focused on the role of limited information. People may use their social network to approximate the distribution of incomes in society. As these networks are often characterized by homophily and affected by structural segregation, people will underestimate the full inequality and tend to locate themselves more towards the middle of the distribution. In line with this expectation, several studies have found that people underestimate the size of inequality and that low-income earners tend to overestimate their relative income position while high income earners tend to underestimate it (Fernández-Albertos and Kuo 2018; Hvidberg et al. 2023; Knell and Stix 2020; Norton and Ariely 2011).

However, recent studies highlighted several issues regarding this interpretation. First, empirical results from information treatments correcting these misperceptions often fail to generate the expected updates in preferences (Fehr, Mollerstrom, and Perez-Truglia 2022; OECD 2021) (see also the result reported

in Chapter 4). Second, perceptions might be, at least partially, the product of individual's political or normative predispositions, creating a spurious correlation between perceptions and preferences rather than providing evidence that perceptions affect preferences (Trump 2023). Third, and potentially most concerning for existing research, several studies found strong variation depending on the methods used to measure people's perceptions of inequality, suggesting that the misperceptions which previous studies put forward as indicators of a missing link between structure and preferences were often produced by the studies themselves (Eriksson and Simpson 2012; Jachimowicz et al. 2022; Pedersen and Mutz 2018).

Together these issues highlight a fundamental problem in the literature: the misinterpretation of inequality perceptions as simple indicators of misinformation (see also Graham 2023). On the contrary, I suggest that perceptions of inequality and people's relative positions in society have to be understood as products of social comparisons that involve several structural, cognitive, and motivational mechanisms. This way, I expect people will not only react to the size of inequality but will also be sensitive to the way inequality is structured and framed especially in relation to the self (Condon and Wichowsky 2020). I will demonstrate this by focusing my research on the effects of the direction of comparisons (upwards or downwards) on individuals' perceived relative positions and connected fairness attitudes. Following extensive literature on social comparisons and self-assessments, I expect that people will have different perceptions about their own position in society depending on the specific comparative anchor (rich/poor) they use and that this will also affect their beliefs about how inequality *should* look like.

In a first step, I test these hypotheses using a representative survey experiment conducted in Austria in which I randomly vary the comparative anchor when assessing respondent's subjective relative income position. The result suggests that people have substantially higher relative income perceptions when they estimate their position using an upward compared to a downward anchor. Moreover, different comparisons result in different justice attitudes and the anchor bias affects respondents' perceptions about one's overall subjective status in society.

In a second step, I investigate the proposed mechanism directly to test whether cognitive or motivational mechanisms explain this anchor bias. Contrary to the motivational explanation, I find no consistent evidence that respondents' values affect the anchor bias, even if I experimentally manipulate these values. Instead, the assessments of neutral points in the distribution (not involving the self) are biased as well, suggesting that a cognitive anchor and adjustment bias that highlights anchor consistent information generates most of the bias. Testing a common strategy to debias these estimates, I find that a double anchor has no effect. However, I suggest and successfully test a new strategy involving a difference in difference estimation that manages to successfully debias the estimates.

These results have several implications for the related literature. First, the fact that biases do not only result from limited information but also from how people look at inequality suggests that the role of limited information might have been overinterpreted in earlier studies. Second, following others (Lindenberg 1977; Wegener 1987), the study emphasizes the importance of the direction of social comparisons and shows that the salience of endpoint anchors affects individuals' views about the size and fairness of inequality. Third, I find substantial methodological issues when using common single anchor strategies to assess individuals' subjective relative income position and provide strategies to avoid these pitfalls in the future.

## Theoretical Background and State of Research

In recent years, the surge of terms like "fake news", "post-truth", or "post-fact" and the related notion of an increasing importance of differences in the sources of information people use stimulated an increasing interest in people's perceptions about the state of society (for a critique see Altay, Berriche,

and Acerbi 2023; for a summary of arguments see Nyhan 2020). The basic idea is that people might come to different conclusions, not because of varying preferences or ideals but due to different notions about the state of the present. In line with this idea, laboratory and survey experiments provided robust evidence that perceptions are decisive preconditions for individual action, especially in the context of economic inequality and support for redistribution (Harth et al. 2008; Reese et al. 2014). In addition, studies sometimes found striking similarities between supporters of opposing political parties, different age groups, or low- and high-income earners with regard to *ideals* but large differences in *perceptions*[46] on several issues such as job market opportunities (Mutz 2018), the number of immigrants (Sides and Citrin 2007), the distribution of income (Bobzien 2020), wealth (Norton and Ariely 2011) or social mobility (Davidai and Gilovich 2015), and the level of tax progressivity (see other chapters in this dissertation). Thus, measuring people's concrete perceptions about general or specific characteristics of their society might be essential to disentangle the otherwise convoluted effects of perceptions and ideals on preferences or actions.

The notion that perceptions are crucial to understand individuals' actions also emphasizes the idea that individual preferences and actions depend not only on beliefs about individuals' own benefits and burdens but also on their beliefs about the benefits and burdens of others (Becker 1974; Duesenberry 1962). Thus, perceptions provide an important route to understand structural influences on individual decision making (Wegener 1987).[47] First, from a simple rational choice perspective, others' resources should influence individuals' decisions due to varying material interests in public choice decisions (Downs 1957). For example, following the basic Meltzer-Richard (1981) model of the size of government, it is crucial for individuals to know where they rank relative to others in terms of income to decide on one's optimal rate of governmental redistribution. This captures the idea that individuals sometimes deviate from utility maximizing choices not because of conflicting interests or because norms or fairness beliefs lead them to do so, but because they lack the necessary information.

Second, perceptions can influence people directly because individuals do not only care about their own *absolute* material outcome but also about their *relative* position in society (Feather 2015; Fehr and Schmidt 1999; Festinger 1954; Halleröd et al. 2006; Homans 1961; Hyman 1942; Otten 2020; Runciman 1966). In line with this idea a person's subjective-well-being has been found to depend on the level of one's income relative to that of relevant others (Boyce, Brown, and Moore 2010; Clark et al. 2008; Easterlin 2001; Ferrer-i-Carbonell 2005; Luttmer 2005; Schneider 2016). Furthermore, studies also showed the importance of income rank and perceived socioeconomic status on various other outcomes such as for person's self-concept, level of aspiration, employee satisfaction, and various health parameters (Boyce et al. 2010; Brown et al. 2008; Callan, Kim, and Matthews 2015; Kraus, Tan, and Tannenbaum 2013; Schneider 2019; Suls, Martin, and Wheeler 2002). This captures the motivational dimension of perceptions: individuals have an interest in ranking high among their relevant peers and feel discomfort if they do not.

[46] I use the term *ideals* here to describe individuals' beliefs about how something should be. Contrary to the term *preferences,* the notion of ideals lacks a concrete behavioral intention and instead highlights subjective norms and attitudes (Fishbein and Ajzen 2010; for a similair definition see Guenther and Alicke 2010). I define *perceptions* as people's views on the factual state of specific traits (see also Davidai and Gilovich 2015). For a recent discussion on the problems surrounding the distinction between perceptions and preferences in political economy see Trump (2023).

[47] In addition, individuals' preferences are not only affected by one's beliefs of other resources but can also be indirectly influenced by externalities of inequality (such as higher crime rates, etc.) (Haller and Hadler 2006; Rueda and Stegmueller 2016).

Thus, individuals' relative positioning should be crucial to understand their preferences and actions because they (i) rely on accurate perceptions to form preferences that match their interests and because they (ii) are directly influenced by where they feel they rank in society.

However, people have severe difficulties accurately estimating their position in society and the related distributions. Scholars pointed out that people misperceive average incomes, tend to underestimate the disadvantages of discriminated groups (e.g. of different race) (Chambers et al. 2014), find it difficult to estimate the distribution of incomes or wealth in society (Albacete et al. 2022; Gimpelson and Treisman 2018; Kiatpongsan and Norton 2014; Niehues 2014; Norton and Ariely 2011), do not accurately predict social mobility (Alesina et al. 2018), and also have troubles adapting their estimates to change or estimating change (e.g. of inequality) in the past (Chambers et al. 2014). Hence, misperceiving one's own and others' relative positions in society is quite common.

Limited information due to homophily and structural segregation might be one important explanation for these inaccuracies (Cruces et al. 2013; Knell and Stix 2020; Schulz, Mayerhoffer, and Gebhard 2022). As individuals' social networks tends to contain individuals who are similar to themselves, people might underestimate the true variance within the population if they use their social network as a reference for evaluating their position in society (Evans et al. 1992; Hout 2008; Kelley and Evans 1995). However, recently published studies point out that simple lack of information cannot explain the full variety of people's perception (Page and Goldstein 2016) and note that simple rational Bayesian updating fails to explain the lack of preference adaptation when information is provided (Fehr et al. 2022; OECD 2021; Trump 2018). Moreover, research found stark differences between different methods to elicit respondents' estimates of societal distributions like income (Eriksson and Simpson 2012; Goldstein and Rothschild 2014; Jachimowicz et al. 2022; Pedersen and Mutz 2018). These results cast doubt on whether the estimated misperceptions provide evidence for actual misinformation or rather capture biases produced by the specific method used to elicit these perceptions. Hence, emphasizing that people lack information cannot explain how people form estimates about their relative positions and how they react to new objective information.

I suggest that understanding the formation of perceptions on individuals' position within different societal distributions, first and foremost, as a process of *social comparison* may help to increase our understanding of the wider impacts of (mis)perceptions and may also explain the influence of different methodologies on people's (mis)perceptions. Following Wood (1996), I understand social comparisons as tool in the quest for self-knowledge that involves three major processes: acquiring social information, thinking about the social information in relation to the self, and reacting to social comparisons. This highlights the importance of several cognitive and motivational processes involved in comparisons and opens the scientific debate to the wider field of literature investigating how people compare themselves with others and what mechanisms are involved when people form perceptions about their position within society (Buunk and Gibbons 2007; Gerber, Wheeler, and Suls 2018).

I propose that the way people think about their relative positions in society affects their subsequent judgements and beliefs. This follows the idea that the way information (even if this information is constructed in one's mind) is framed directly influences social judgements (Chow and Galak 2012; Hodges and Hollenstein 2001; Holyoak and Gordon 1983; Hoorens and Bruckmüller 2015; Lowery, Chow, and Crosby 2009; Mussweiler 2001; Pahl and Eiser 2006; Skylark et al. 2018; Tversky 1977; Tversky and Gati 1978). I will exemplify this by studying the impact of the direction of comparison when people estimate their subjective relative income perceptions. While this is only one aspect within the wider realm of social comparisons, I believe that the approach adopted here will also help to increase our general understanding of how perceptions link to preferences and justice beliefs.

The fact that people might react differently when inequality framed as differences to the *poor* than when inequality framed as difference to the *rich* has recently been pointed out in a literature review by Jachimowicz and co-authors (2022). Following others, they pointed out that the various effects of inequality perceptions may not only depend on its size but also on its direction (see also Condon and Wichowsky 2020). This highlights the crucial role of comparison groups that has been a constant in the research on the effects of social comparisons (Merton 1968). However, to date, these insights have not yet been adequately linked to people's understanding about their relative position in society. This study intends to close this gap and also highlight the wider importance of switching from understanding perceptions as simple indicators of misinformation to accepting that people's perceptions capture a multitude of social processes.

## Relative positions as social comparisons

People can frame the observation of ordered differences either within a 'larger' ("A is larger/longer/higher/more than B") comparative or a 'smaller' comparative ("B is smaller/shorter/lower/less than A") (Skylark et al. 2018). In the context of income comparisons one can say that a specific person earns more than a poorer person, or that she earns less than a richer person. Although the framing of these logically equivalent statements should not matter for the validity of a specific sentence, studies have found that people's inferences differ if they compare themselves upwards or downwards (Hoorens and Bruckmüller 2015; Skylark et al. 2018). Due to the communication norm which establishes that the words chosen to describe a relationship communicate information, people tend to believe that the direction of comparison communicates information about inequality (Lowery et al. 2009). This norm presumably helps people make sense of inequality by aiding the cognitive process of comparisons as it provides individuals with a standard to compare themselves to (Grice 1989). Thus, from this language perspective, people believe the way inequality is described provides a clue about an absolute standard; that is, what individuals *should* have.

Considering that people think that the way inequality is communicated contains information about ideal states or standards, upward or downward comparisons should lead to different conclusions about what they think is just. In line with these expectations, studies have established that people tend to think that terms like 'more than' imply that those above have more than the standard, while terms like 'less than' imply that the those below have less than the standard (Chow, Lowery, and Knowles 2008; Lowery et al. 2007; Miller, Taylor, and Buck 1991). Based on this and other previous work on comparative framing (Bruckmüller et al. 2017; see e.g. Wänke and Reutner 2011), I expect that this should evoke two notions: first, if the question asks about upward comparisons, ego (e.g. ego's relative income position) becomes the standard (as referents tend to be used as standard), which should lead to a feeling that others above (the subject of comparison e.g. high-income earners) have more than the standard. Second, if the question asks about those having less than ego, this should lead to a feeling that others below (e.g. low-income earners) have less than the standard. Thus, upward anchors should increase concerns about distributional fairness beliefs that may support inequality at the top such as equity or entitlement and decrease concerns within distributional fairness ideals that support better conditions for those at the bottom such as need or equality (concerning the inequality justifying nature of certain distributional justice principles see Frank 2016; Sandel 2020).

H1a: Downward comparison increase fairness concerns about the poor (having too little) and decrease fairness concerns about the rich (having too much) in comparison to upward comparisons.

In addition, studies found that participants perceived differences between the poor and the rich as less legitimate when these differences were framed as the disadvantaged group having less (e.g., Branscombe et al., 2007; Lowery et al., 2007; Powell et al., 2005). In contrast, when inequalities were framed as the advantaged group having more, the perceived magnitude of differences and legitimacy beliefs were

unrelated (Bruckmüller et al. 2017). The finding that upward inequality weighs more than downward inequality closely relates to Fehr and Schmidt's theory about inequality aversion (Fehr and Schmidt 1999). This theory hypothesizes that individuals exhibit a strong aversion against disadvantageous inequality (ego/others have less than what is just) and a significantly weaker aversion against advantageous inequality (ego/others have more than what is just) (Bohmann and Kalleitner 2023; for a recent meta-analysis see Nunnari and Pozzi 2022). This is in line with recent findings showing that downward comparisons increase preferences for redistribution less so than upward comparisons (Condon and Wichowsky 2020). Thus, individuals should perceive inequality to be less legitimate if the framing makes salient how much worse off the subject is to an upward comparative but not if it made salient how much better off the subject is to a downward comparative. Hence, I expect:

H1b: Upward comparisons lead to higher individual concerns about the level of inequality in society than downward comparisons.

In addition to these direct effects, the direction of comparisons may also have indirect effects as the comparison anchor (rich/poor) likely affects people's perceptions about their relative position in the income hierarchy (refer also to the following discussion on motivational and cognitive reasons for this anchor bias in this chapter). A stable assumption in social research is that people's relative position in the income hierarchy and their subjective social status are closely connected factors in capitalist societies (Hyman 1942; Wilkinson and Pickett 2009). Following this idea, Schneider (2019) suggested that inequality hurts individuals' subjective well-being because of their lower subjective perceptions about their position in society.[48] To date, studies that try to causally analyze this link between inequality and individuals' subjective social status are rather limited due to the problem of endogenous selection of comparison groups (but see Bottan and Perez-Truglia 2022). However, considering that the direction of comparison should affect individual perceived income positions, I can use this variation to test whether thinking one is higher up in the income hierarchy causally translates to perceiving a higher subjective social status.

H2: A positive (negative) effect of the direction of comparison on the individual perceived relative income position will lead to an increase (decrease) in individual subjective social status.

Analyzing the various effects of direction of comparisons on individuals' fairness beliefs and attitudes provides us with a first idea of why the direction of comparison matters for individuals' judgements beyond the level of inequality people perceive. However, to understand these effects, it is crucial to know what social mechanisms can explain them. The literature proposes at least two general mechanisms that should explain why people use either upward or downward comparisons and the bias they produce to self-assessments. The first explanation focuses on egoism and the goal to think well of oneself (motivated avoidance); the second one focuses on enhanced cognitive accessibility of selective information when using certain targets of comparison (cognitive/non-motivational). In the following I discuss these two explanations in short and derive hypotheses to test which mechanism can explain variation in subjects' perceived relative position due to different directions of comparison.

**Motivational processes and the desire to do well**

In his seminal downward comparison theory, Wills (1981) highlights the important role of motivational aspects in the process of comparisons. He proposed that exposure to a less fortunate other (downward target) boosts subjective well-being and helps to restore self-esteem. In turn, upward comparisons should have a negative effect. Although empirical studies showed that upward comparisons do not have to be aversive (Collins 1996, 2000; Mussweiler 2003) and downward comparisons can be negative as well

[48] This assumes that individuals are generally status seeking (and increasingly so with higher incomes) (Delhey et al. 2022; Mattan, Kubota, and Cloutier 2017; Veblen 1934).

(Buunk et al. 1990), the idea that motivational aspects play an important role in comparisons has remained popular. The basic idea is that people tend to think that they are good (or at least above average), but they are always somewhat unsure of their position, so they look upward to confirm their closeness to the better ones (Botton 2004; Gerber et al. 2018). This highlights the role of motivated reasoning in the formation of perceptions, meaning that people's desires can affect their beliefs about where they stand in society (Epley and Gilovich 2016; Zimmermann 2020).

A branch of the literature that focuses specifically on the process of estimation within social comparisons is closely connected to the human tendency to place oneself above the average when rating favorable traits like openness, attractiveness, or knowledge. This bias was termed the better-than-average effect (BTAE) and recent research highlighted the role of self-enhancement motives in this process (Brown 2012). Following Guenther and Alicke (2010), the BTAE can be understood as an anchored comparison where judgments about the average are anchored in the self. Thus, anchoring leads individuals to adapt the average to highly favorable self-judgments. The reason for this assimilation is that when two items belong to the same category, the outcome of the comparison is assimilation rather than contrast (Mussweiler 2003; Schwarz and Bless 1992; Tajfel and Wilkes 1963). More specifically, the "subordinate" object is assimilated toward the "superordinate" object (Guenther and Alicke 2010). As the self is typically rated higher than the average other, this results in assimilating the average other toward the self.

Following these results from BTAE judgments, I expect that, in upward comparisons, the own relative position in society will be shifted to the more favorable position of the rich. In contrast, when individuals estimate the share of people earning less than themselves, the poor occupy the position of the subordinates; thus, they should be shifted into the direction of self-judgments. This combination leads to lower estimates of one's relative positions in downward comparisons because the poor appear more similar to oneself, and to higher estimates of one's relative position in upward comparisons because the self appears more similar to the rich. The same would also result if individuals are simply following a assimilation strategy if they are presented with endpoint anchors to avoid cognitive disharmony in society with the salient anchor(Kawakami et al. 2012). Hence, I expect:

H3: People will report higher perceived relative income positions if they are asked to estimate the share of people with higher incomes than themselves in comparison to a question where individuals are asked to report the share of people with lower incomes than themselves.

This hypothesis rests on the assumption that people think that income is a favorably evaluated entity in which they want to move upwards. Thus, the effect should be more pronounced among those who consider earning a high income an important goal in life (Brown 2012). Instead, when evaluating an undesired trait, people may switch from assimilation to contrasting if a motivational goal such as one's self esteem is threatened by scoring too high (Guenther and Alicke 2010). Thus, individuals who favor traits that are positively connected with the evaluated position should be prone to contrast themselves from the low anchor leading to lower differences between relative position estimates when using downward compared to upward anchors.

H4: The more an individual attaches importance to a certain trait related to the estimated distribution [such as earning a high income] the lower the perceived positional difference when using a downward anchor compared to an upward anchor.

**Anchoring and the importance of cognitive ease**

In contrast to research that emphasizes motivational mechanisms, a social cognition approach takes an informational perspective on the social comparison process (Buunk and Gibbons 2007). In particular, it is assumed that to understand the consequences social comparisons have for self-evaluation and self-

perception, one needs to examine what self-knowledge is rendered accessible during the comparison and how this knowledge is used to evaluate the self.

Since Tversky and Kahneman's (1974) ground breaking work on the formation of human judgements, we know that people often form estimates starting with information they know and then tend to insufficiently adjust until they reach an acceptable value. In their original experiment to test this "anchoring-and-adjustment heuristic", Tversky and Kahneman asked participants to estimate the population of a city ("Is the population of Chicago more or less than 200,000?"). Afterwards they asked the same respondents to provide an absolute estimate ("What is the actual population of Chicago?"). They and several studies afterwards noticed that the second estimate is strongly biased in the direction of the value of the initial comparative assessment (see also Hardman 2009:34–35 for a short overview). More recently, Harris and Speekenbrink (2016) showed that this anchoring can transcend cross-scale (e.g. non-numerical to numerical) and can affect not only subjective estimates but also costly behavior (see also Navarro-Martinez et al. 2011; Stewart 2009).

Although this process of insufficiently adjusting away from an initial impression, perspective or value (Epley and Gilovich 2006) has repeatedly been shown, research is still debating the specific mechanisms involved. The accounts advanced to explain anchoring effects include anchoring-and-adjustment, numeric and magnitude priming, selective accessibility, an attitudinal perspective of anchoring, and scale distortion (for a review see Furnham and Boo 2011; for a short discussion see Turner and Schley 2016). However, while these explanations differ considerably on the exact nature of how the anchor influences judgments, they share the notion that the anchor is a source of information that influences judgments by guiding cognitive ease (Turner and Schley 2016). In line with this idea, Epley and Gilovich (2006) and Mussweiler and Strack (1999; 1997) demonstrated that the standard anchoring paradigm for exogenous anchors described above is produced not by insufficient adjustment as the term coined by Kahneman and Tversky would suggest but rather by enhanced accessibility of anchor consistent information.[49] Similar to these results, Chapman and Johnson (Chapman and Johnson 1999) suggest that anchors affect judgments by increasing the availability and construction of features that the anchor and target hold in common and reduce the availability of features of the target that differ from the anchor. Hence anchoring like social comparisons in general depend on similarity vs. contrast effects.

The anchoring and adjustment process that affects judgements of factual and social information may also be common when forming judgments about the self. Cervone and Peake (1986) showed that anchors strongly affect self-efficacy judgments and the differences in own task persistence afterwards. Moreover, research on people's perspectives found strong evidence on anchor biases showing that people start egocentrically and then inadequately adjust away from their own perspective (Epley et al. 2004). Thus, anchoring affects judgements about the self and others as well as comparative judgements.

Following the notion that anchors guide cognitive ease of anchor consistent information, I expect that people will report higher perceived relative income positions if they are asked to estimate the share of people richer than themselves in comparison to a question where individuals are asked to report the share of people poorer than themselves. This results in an identical prediction regarding the differences in relative position between bottom and top anchors compared to H3 following a motivational perspective. However, contrary to the motivational perspective, individuals' attitudes towards the traits in question should not play any role, as contrasting should depend on cognitive priming and not on the desire to inflate one's social position. Instead, from a cognitive perspective, the anchor bias should become stronger when judgements do not involve assessments about the position of oneself since thinking of contrasting anchor information should be more difficult if individuals cannot rely on their

[49] While this is true for exogenically introduced anchors, this is not the case for anchors people generate themselves (Epley and Gilovich 2001; 2006). Thus, I specifically focus on exogenically introduced anchors here.

own self-experience. In contrast, a motivational explanation would consider individuals' desires to egocentrically boost their own position to be non-existent or at least strongly reduced when other persons become the standard of comparison. Hence, following a cognitive logic I expect:

H5: Individuals' relative position estimates of other's income will be higher if they are asked to estimate the share of people with higher incomes in comparison to a question where individuals are asked to report the share of people with lower incomes.

To test these hypotheses, this chapter follows a two-step approach. First, study 1 tests whether different anchors of comparison to elicit people's relative income positions produce different positional estimates and affect subsequent fairness beliefs and estimates about their subjective social status using a large random general population household sample. The central goal of this study is to estimate the size of the expected estimation bias and to determine its relevance for the political economy literature. Second, study 2 provides experimental evidence on the nature of the bias testing whether motivational or cognitive mechanisms are more likely to explain the bias using a student sample. The goal of this study is to replicate study 1 using different distributions than income, to provide convincing evidence of the general nature of the effect and to test different strategies researchers can use to reduce bias.

## Study 1

### Data

Similar to Chapter 4, the empirical analysis of study 1 is based on data from a web survey experiment fielded in Austria in fall 2018. The module was part of the PUMA survey VI and administered by the Austrian federal statistics agency. The sample was partly drawn from the federal household register ($N_1$=976) and from an online panel run by the government agency for public statistics in Austria ($N_2$=976) (PUMA 2018). A total of 1088 (response rate: 55.7%) individuals completed the survey. I partly compensate for nonresponse error by weighting the data. All estimations using the full analytical sample discussed in the results section include these weights, but the unweighted results are substantively similar.[50]

### Measures

To estimate individual perceived relative positions in the income hierarchy, I use the single question approach most commonly applied in the literature (Bottan and Perez-Truglia 2022; Bublitz 2022; for an overview see: Ciani et al. 2021; Cruces et al. 2013; Engelhardt and Wagener 2018). This question asks respondents with an income greater than zero to estimate the share of people in the country with less income than themselves. However, in contrast to most studies, I do not only use a bottom anchor but randomly vary whether people are asked to assess the share of people below or above their own income position to estimate the bias produced by these comparative anchors. Thus, the question reads as follows:

> There are 6.8 million income earners in Austria. Which part of them you guess has a lower/higher yearly gross income than you?[51] [open answer restricted to 0-100 %]

Throughout both studies I will refer to the average relative income position measured within respondents of the treatment group that had an upward anchor (higher than you) as $M_H$, and to the average estimate within the group who had a downward anchor (lower than you) as $M_L$. The difference ($M_H - M_L$) will

[50] Data is weighted by gender, age, highest completed level of education and urbanization of hometown.
[51] Notes further specified (i) the group of income earners and (ii) the yearly gross income. The information reads as following: (i) "This group includes part- and full-time employees, as well as people receiving pensions. Individuals that have not worked all year long are included as well." (ii) "This income is the total yearly gross income defined as wage income before taxes. This includes the 13th and 14th monthly income. Pensions are also included, but not public transfers like unemployment benefits and study assistance."

be denoted as Δ. Note that I transform the answers of the upward anchor question to reflect the perceived relative position compared to a downward anchor $M_H = \overline{100 - p_i^H}$ (where $p_i^H$ denotes the perceived position $p^H$ of respondent $i$ using an upward anchor) to make the answers comparable between the groups ($M_L$ is simply given as the average of all perceived positions using a downward anchor $p_i^L$). Thus, both $M_H$ and $M_L$ denote the respondents' treatment specific average relative income position with 0 indicating the lowest possible relative income position and 100 the highest.

To calculate individuals' objective relative income positions, I use a question that asks individuals to place themselves within one of 22 monthly gross income categories. By asking respondents to provide their personal income, I avoid usual problems with varying household sizes, like having to explain respondents the principles of equivalized household incomes (see e.g. Cruces et al. 2013). I did not ask respondents for their income in an open-ended response, as this could result in higher measurement error, as well as a higher probability of non-response. However, providing respondents with incremental income categories risks informing them about their true position in the income distribution (Fernández-Albertos and Kuo 2018). Robustness checks for this issue are provided in Appendix B. These analyses suggest that respondents are more accurate at the edges of the income distribution which could suggest that they used the income scale as an indicator of their income position but the error in subjective relative positions remains substantial in size. Moreover, crucially for this study, I do not find variation in the bias created by the different question wordings between different income groups.[52] Thus, the fact that this study uses a scale to measure respondents' income positions should not affect the results. To fully exclude this possibility, study 2 asks respondents to state their income in Euro using an open-ended question and manages to replicate the effects.

To measure individuals' fairness values, I use the 4-item reduced BSJO (basic social justice orientation) scale that measures respondents support of four main distributive justice principles: equality, need, equity, and entitlement (Adriaans and Fourré 2022; Hülle, Liebig, and May 2018). Respondents could answer on a rating scale ranging from (1=disagree strongly to 5=agree strongly). The question wording is similar to the one used in round 9 of the European Social Survey. In addition, I follow other major studies regarding the relationship between individuals' relative positions within society and their "taste" for inequality (Larsen 2016; Mijs 2021) and measure people's inequality concerns using the same question as in the ISSP social inequality module, which asks respondents whether they think "inequality in Austria is too large" (5-point rating scale ranging from 1= strongly oppose to 5= strongly favor). Finally, I use the commonly asked question to measure respondents' subjective social status that requests respondents to place themselves on a ladder ranging from 1=top to 10= bottom (Schneider 2019). Full question wording can be found in Appendix A.

**Sample**

Only 7 respondents failed to provide an income and were excluded from the analysis. In addition to these, I dropped 71 respondents with zero income who did not receive the questions on their perceived income positions and 5 additional cases who did not provide an answer to the relative income question receiving a final sample of 1005 respondents. As the full sample included further experimental treatments, as mentioned in Chapter 4, I only used the full sample to calculate the average main treatment effect of the question anchor on respondents' subjective relative income positions. To test how the question anchors affect other variables of interest such as their fairness values and their subjective social status, I used the subsample of those not receiving the relative income information treatment and the taxation information treatment (N=236) to avoid any post-treatment bias.

[52] I also include graphical representation of the main tests in the analyses to show that the effects are substantially similar across the income distribution.

I report balance checks of both these samples in Appendix C. These show that randomization generally worked. I find only small differences with regard to respondents' objective incomes due to a slight overrepresentation of respondents in the highest income group. However, this does not translate into a significant difference in the objective relative income position, the main variable of interest in this study. Moreover, respondents with a university degree are slightly overrepresented in the upward anchor group. However, the tests on differences in means remain substantially similar when I control for education differences. Furthermore, all regression analyses include the level of education as a control. I find no substantial differences among the treatment groups in the subsample of respondents receiving no information treatments.

**Results**

The survey varied randomly whether respondents had to estimate the share of people in Austria with a lower or higher income than themselves, respectively. The mean relative income in the group asked about the share of incomes below the respondent is $M_H$=45.0, whereas the group of higher incomes answered $M_L$=54.8 (2-sided t-test of weighted difference in means $\Delta$= 9.82, t = 7.24, df = 1000, p < 0.001).[53] Thus, in line with hypothesis H3 I find that people report higher perceived relative income positions if they are asked to estimate the share of people with higher incomes than themselves in comparison to a question where they are asked to report the share of people with lower incomes than themselves.

Figure 5.1 displays the different estimates depending on the objective income of respondents. Two aspects seem most striking. First, estimates are clearly biased towards the middle of the distribution which is indicated by the smaller slope of perceived incomes compared to the 45-degree line indicating a zero-bias case. This is in line with earlier results emphasizing the strong tendency of respondents to locate themselves in the middle of the income distribution (Cruces et al. 2013; Fernández-Albertos and Kuo 2018; Karadja et al. 2016; Knell and Stix 2020) (also called 'middle class bias' Fehr et al. 2022; or 'center bias' Hvidberg et al. 2023).[54] Second, the difference generated by the anchors is substantial in size (also compared to the middle bias) and remains quite stable over the whole range of incomes. Compared to changes in actual income, the effect of a using a higher question anchor instead of a lower question anchor is equivalent to an increase in actual relative income of 9.8 percentiles, which on the median corresponds to an increase in yearly gross income of 23% or roughly 5500 EUR.

Looking at heterogenous treatment effects, I find that the bias is higher for low educated individuals compared to high educated individuals and for individuals in education compared to those employed or retired. In addition, the effect is slightly smaller for women compared to men. However, none of these differences remain statistically significant (at p<.10) after controlling for all these sociodemographic differences and respondents' actual income position simultaneously. Thus, while it seems that the differences created by the question anchor are smaller for those more experienced (educated and with

[53] The unweighted means are substantially similar ($M_H$: 56.5, $M_L$: 47.2). Respondents have a strong tendency to round their estimates to 10s (68% of all answers) or 5s (23% of all answers). Because a Shapiro-Wilk test suggests that the distribution of estimates is significantly different from normality (one would expect an equal distribution if bias towards the middle is not that strong) I also calculated a Wilcoxon rank sum test (also called Mann-Whitney U test) which suggests a qualitatively similar result (W = 96770; p<0.001). All other tests will also include non-parametric tests that will only be mentioned if they provide different results.

[54] Note that this might result not only from segregated comparison groups (one's social network tends to be similar in socio-economic position) but also from the human tendency to decrease the likelihood of large probabilities and increase the likelihood of small probabilities (Gonzalez and Wu 1999; Kahneman and Tversky 1979; Steiner and Stewart 2016). This can be easily seen in Figure A5.2 in Appendix D displaying the actual numerical answers provided by the respondents. While I cannot test this formally here, the result suggests that previous literature (Cruces, Perez-Truglia, and Tetaz 2013; Windsteiger 2022) could have overemphasized the segregation component in this middle bias.

labor market experience) compared to those with less experience, they remain substantial in size and never change direction (see Appendix B).

As a consequence of this anchor effect, the estimates of respondents' misperceptions change dramatically. The mean relative error of respondents' estimates is -1.4 in the higher and -14.4 in the lower condition. The absolute value of error is 14.6 in the higher condition and 19.0 in the lower condition. In a nutshell, we can conclude that upward comparisons reduce overall error and downward bias but increase the upward bias in the estimates of lower income classes. Considering the large effect of the question anchor, previous experiments designed to correct misperceptions using one of these questions correct, to a large extent, estimates that were produced by the specific measure used to elicit respondents' beliefs. While this might not affect the validity of the experiments, it strongly limits their ability to inform us about the direction and degree of misperceptions and the potential effects of objective information in the field.

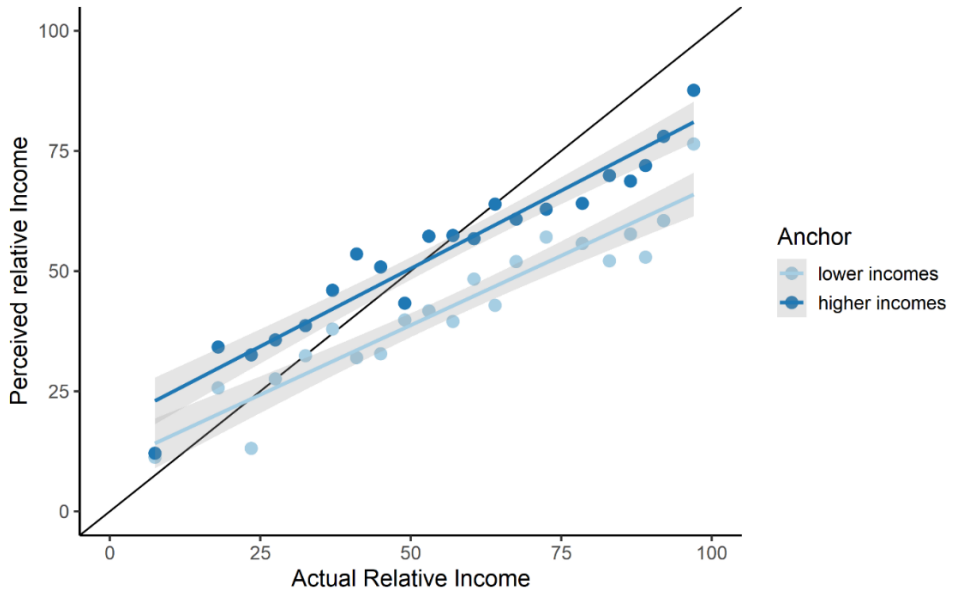


**Figure 5.1: Actual and perceived relative income over the income distribution by anchor.** The solid 45-degree line illustrates the no-bias case. N= 1,005, weighted.

So far, I have shown that the question anchor has a strong and consistent effect on individuals' perceived relative income positions. However, does this effect on perceptions translate into differences in respondents' answer behaviors and/or do these questions have direct consequences on how respondents think about fair distribution of benefits and burdens in society because these anchors highlight different points in the income distribution (rich vs. the poor)? To answer these questions, I conduct a causal mediation analysis. Figure 5.2 illustrates these analyses graphically. Following hypotheses H1a and H1b above, I expect that using an upward-directed question anchor will have direct positive effects (D) on support of equality, need and inequality concerns, while it should reduce support for equity and entitlement compared to using a downward anchor. Moreover, following hypothesis H2, I expect that the question anchor will also influence how people perceive their position in society leading to higher subjective social status (SSS) and higher future SSS due to an indirect effect, as upward anchors lead respondents to have higher estimates of their relative income position (AB). To calculate these effects, I follow the estimation strategy described in (Imai et al. 2011; Imai, Tingley, and Yamamoto 2013) using the R *mediation* package (Tingley et al. 2019). Due to the strictly exogenous variation of the question anchor, I do not need to control for potential confounders within the direct effect (D) or the effect on the mediator (A) but, as suggested, I control for covariates in the effect of the mediator on the dependent variables (B).

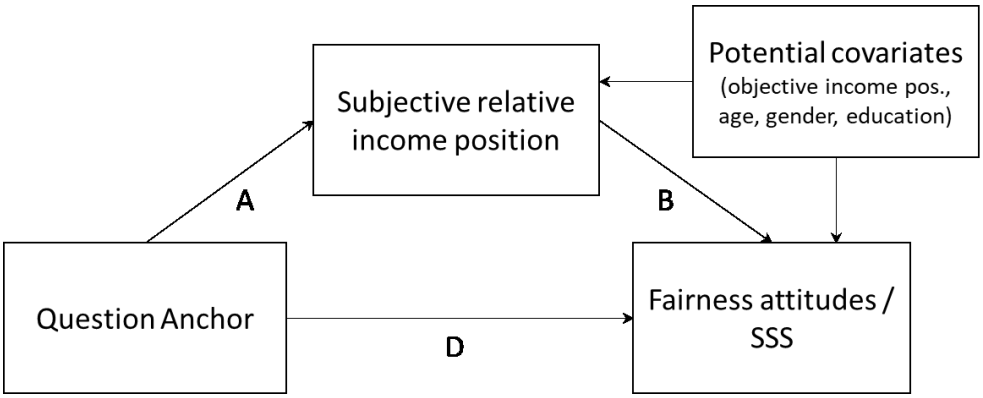


**Figure 5.2: Model of the causal mediation analyses of the effect of changing the question anchor of the relative income position question (higher/lower) on various fairness evaluations and individuals' subjective social status (SSS).** Paths A, B and D refer to the estimated effects in Table 5.1.

I will now analyze the results of these causal mediation analyses reported in Table 5.1. Similar to the results reported above, I find a strong and positive effect of using a high question anchor on respondents' subjective relative income positions in the subsample (average effect on the mediator = AEM). However, does the anchor also affect fairness attitudes? Following H1a/b I expected that a higher anchor would increase respondents' appreciation of equality and need and their concerns about inequality while decreasing respondents support of equity and entitlement. In line with this expectation, I find a positive direct effect (average direct effect = ADE) of using a high anchor on equality and a negative effect on equity. While the coefficient estimates of the question anchor for need, entitlement, and inequality concerns all point in the expected directions, they are not statistically significant. In line with H2, I find substantial conditional effects (average causal mediation effects = ACME) on respondents' present and future subjective social status. That is, respondents' higher perceived income rank translates into higher perceived present and expected subjective social status. Thus, upward comparisons increase relative income estimates which in turn increases people's subjective social status.

**Table 5.1: Estimates of linear "causal" mediation analyses.**

| Anchor higher | Equality | Need | Equity | Entitlement | Inequality concerns | SSS | future SSS |
|---|---|---|---|---|---|---|---|
| (Ref.: lower) | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| AEM | 11.90*** | 11.90*** | 11.90*** | 11.90*** | 11.90*** | 11.90*** | 11.90*** |
| (effect on med. A) | [15.97, 7.82] | [15.97, 7.82] | [15.97, 7.82] | [15.97, 7.82] | [15.97, 7.82] | [15.97, 7.82] | [15.97, 7.82] |
| ACME | -0.03 | -0.03 | 0.01 | 0.09 | -0.01 | 0.17* | 0.24** |
| (indirect effect AB) | [-0.16, 0.10] | [-0.10, 0.05] | [-0.08, 0.09] | [-0.03, 0.23] | [-0.12,0.09] | [0.02, 0.34] | [0.06, 0.45] |
| ADE | 0.34+ | 0.06 | -0.28** | -0.08 | 0.11 | -0.12 | -0.06 |
| (direct effect D) | [-0.01, 0.69] | [-0.14, 0.27] | [-0.50, -0.06] | [-0.42, 0.27] | [-0.18,0.41] | [-0.55, 0.25] | [-0.59, 0.46] |
| Total Effect | 0.31+ | 0.03 | -0.27** | 0.02 | 0.10 | 0.05 | 0.17 |
| (AB + D) | [-0.02, 0.64] | [-0.15, 0.22] | [-0.47, -0.07] | [-0.33, 0.34] | [-0.16,0.37] | [-0.36, 0.40] | [-0.34, 0.67] |
| n | 236 | 236 | 236 | 236 | 236 | 236 | 236 |

Note: AEM: average effect of the treatment on the mediator. ACME average causal mediation effects, ADE Average direct effects. Controls (not shown) include: Objective income, gender, age, and education. Scales of all variables range from 1 to 5 except for SSS and future SSS that ranges from 1 to 10. 95% confidence intervals in square brackets are calculated using a quasi-Bayesian approximation with 1000 simulations +p<0.1, *p<0.05, **p<0.01, ***p<0.001.

The analyses have shown that upward comparisons raise individuals perceived relative income positions compared to downward comparisons and that this also has consequences for the analysis of fairness

perceptions and relative positioning in society in general. However, do these effects stem from cognitive biases due to the selective salience of certain information or due to motivational effects as individuals want to avoid lower ranks in society? To test these social mechanisms, I next turn to study 2.

## Study 2:

### Data and measures

Study 2 consists of a set of split sample experiments embedded in a web survey. Participants were 282 students (158 undergraduate, 124 graduate) enrolled in economic sociology courses (undergraduate: *sociology for economists*, graduate: *economic sociology* as well as *labor market sociology*) who voluntary participated in the survey in October 2019.[55]

In addition to the question on individual relative income position from study 1, this survey also includes questions on individuals' perceptions regarding their relative positions on the distance travelled by air and their relative wealth positions as well as the relative income position of a person earning 1650 Euro (the median gross income in Austria at that time). In the study participants were randomly assigned to one of four treatment groups indicated in Table 5.2. In treatment group 1 participants answered all relative position questions by indicating the perceived share of people below their position. The opposite is true for treatment group 4 where participants indicated their relative positions estimating the share of people above their positions. Treatment group 2 follows the approach of treatment group 1 except for the relative income position which included a double anchoring question in which respondents had to separately enter the perceived share of people above and below them. The same is true for treatment group 3 with the exception that the presentation order of the question anchors is inverted. Balance checks on the main experimental variations are provided in Appendix E. These show that the experiment worked well in randomly allocating respondents to the different treatment groups.

**Table 5.2: Experimental conditions in study 2**

| Questions | T1 | T2 | T3 | T4 |
|---|---|---|---|---|
| Relative income position | Lower | Both, lower first | Both, higher first | Higher |
| Median income position | Lower | Lower | Higher | Higher |
| Flight hours/$CO_2$ emissions[1] | Lower | Lower | Higher | Higher |
| Wealth | Lower | Lower | Higher | Higher |
| Sample share | 1/3 | 1/6 | 1/6 | 1/3 |
| N | 92 | 45 | 48 | 90 |

Note: [1]Question wording (carbon dioxide emissions or flight duration) varied randomly between subjects ($CO_2$: N = 130, hours: N = 126).

Ahead of these questions, participants were asked to provide their objective income (in absolute Euros), their flight distance (in total flight hours) and their net wealth (calculated and measured as tangible property + financial wealth – debt), respectively. For the full question wordings refer to Appendix A. I use these answers to estimate the objective relative positions of the participants in the Austrian population with regard to the three different variables of interest: income, wealth, and flight duration and check for heterogenous treatment effects. For a detailed description on the estimation and the data sources used refer to Appendix F.

[55] Students received no incentive to participate in the survey but they were promised and received a presentation of the results which can be considered a non-material incentive to participate and provide accurate answers (Dillman, Smyth, and Christian 2014:28).

## Sample

Of the 282 students who participated in the survey, twelve were excluded from the analyses because they did not finish the questionnaire. I apply listwise deletion of missing data in the respective tests. In addition, I provide robustness checks in Appendix K that use only those participants who provided valid answers to all questions in the survey and also controls for heterogenous treatment effects if participants reported technical difficulties in the survey. Results show no substantial differences compared to the analytical sample used in the main manuscript.

## Results

The first analysis replicates the main anchor effects of study 1 using the student sample. The results indicate a 9.9 percentage points difference between respondents estimating their relative income position with a low anchor compared to respondents estimating it with a high anchor, ($M_L$ = 23.1, $M_H$ = 33.0; t = -3.02, df = 143, p = 0.003).[56] Furthermore, the trend lines in Figure 5.3a are flatter than the 45-degree line which again indicates a bias to the middle.[57] Secondly, I tested the robustness of this result using a similar relative question with regard to respondents' household net wealth. Again, respondents were asked either to indicate the share of people below their net wealth position or above it. The analysis indicates that a high anchor resulted in higher estimates of relative positions ($M_H$ = 53.5) compared to a low anchor ($M_L$ = 38.9), ($\Delta$=14.6, t = -4.44, df = 225, p < 0.001).[58] Figure 5.3b illustrates the coexistence of a strong bias towards the middle which has been reported for subjective relative net wealth positions before (Albacete et al. 2022). To sum up, these first analyses show that the study managed to replicate the findings of study 1 and find a strong and robust estimation bias that leads individuals to estimate higher relative positions in questions using upward compared to downward anchors.

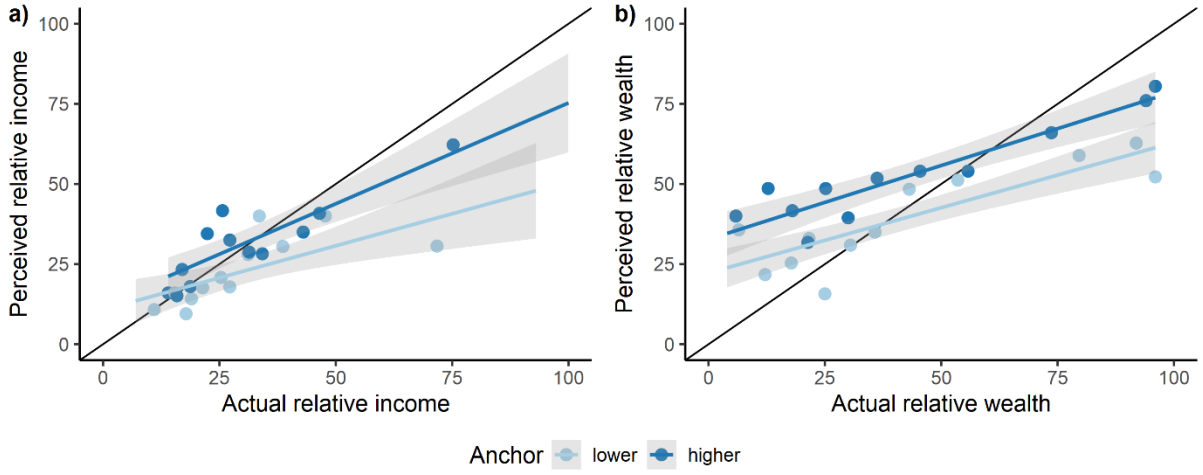


**Figure 5.3: Actual and perceived (a) relative income position and (b) relative wealth position by question anchor. Every point represents roughly a twelfth of the treatment group specific respondents in the sample.** Solid lines indicate subgroup specific linear trends that are calculated using the individual data. Grey areas mark 95% confidence intervals. $N_a$=150, $N_b$=227.

[56] As a Shapiro-Wilk test suggests that the distribution of estimates is significantly different from normality (one would expect an equal distribution if bias towards the middle is not that strong), I also calculated a Wilcoxon rank sum test (also called Mann-Whitney U test) which suggests a qualitatively similar result (W = 1834.5; p<0.001). All other tests will also include non-parametric tests that will only be mentioned if they provide different results.
[57] Note that 79% of our student sample belong to the 2nd to 4th income decile. However, this selectivity should not affect our results because study 1 showed that the anchoring effect is unaffected by respondents' actual income position. I also provide robustness check controlling for respondents' actual income position in Appendix K.
[58] The difference remains nearly unchanged if I drop potential survey satisficers (those with large estimation errors) ($\Delta$=14.8, t = -3.95, df = 179, p < 0.001).

Next, I analyze the data to test potential motivational causes of anchor effects using three different approaches. First, if egoism and a drive to feel good about oneself (motivational mechanisms) and not selective salience of anchor confirm information (cognitive mechanisms) explains the anchor bias, the bias should be reversed if the underlying trait or estimate is generally considered to be bad. To test this, I used similar high/low anchor questions on participants' relative position in society regarding their flight behavior. As frequent or long-distance flights are generally considered to be bad among respondents of my sample,[59] those who consciously or unconsciously want to feel good (or not that bad) about themselves should reduce their estimated relative position if a higher anchor is used. Specifically, people should switch from the standard assimilation to contrasting from the high anchor reducing the difference in relative position estimates created by the different endpoint anchors.

Results indicate a higher relative flight position for participants answering the higher anchor question ($M_H = 54.4$) compared to participants using the same question including a lower anchor ($M_L = 46.6$), ($t = -2.28$, $df = 228$, $p = 0.023$). [60] Although the bias in percentage points differences (7.76) is smaller compared to the values reported for income and wealth, the difference between this and the estimate using incomes or wealth is not statistically significant at conventional critical values (Z-standardized difference between income and flight behavior $\Delta=0.15$, $t= 0.82$, $p=0.41$; Z-standardized difference between wealth and flight behavior $\Delta=0.21$, $t= 1.52$, $p=0.13$); see also Appendix G Figure A5.3). Thus, although Figure 5.4 hints at some potential increase in contrasting among those reporting large flight distances, I find a similar upward bias when using upward anchors compared to downward anchors as observed when respondents estimate their financial subjective relative positions.

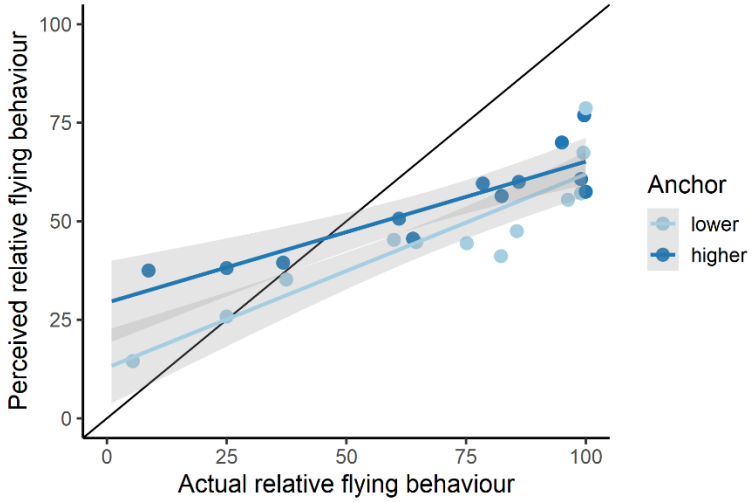


**Figure 5.4: Actual and perceived relative flying behavior by question anchor.** Every point represents roughly a twelfth of the treatment group specific respondents in the sample. Solid lines indicate subgroup specific linear trends. Grey areas indicate 95% confidence interval. N=229.

Second, to further test whether motivational reasons moderate the relationship between anchor and bias, I asked respondents to indicate how they "value to be rich", "like to earn much", and whether they think "pollution through flights poses a threat for the environment" or consider it "bad to travel by air" (the last two variables are combined in a sum index; for full question wordings refer to Appendix A).

[59] To test this assumption, I asked participants whether they consider it "bad to travel by air": 64% partly or strongly agree while only 19% partly or fully disagree.

[60] A nonparametric test also suggests statistically significant differences ($W = 5507.5$, $p = 0.029$). The difference decreases slightly in size if we drop those with high estimation errors and is only significant at level <0.10: ($\Delta=6.4$, $t = -1.68$, $df = 180$, $p = 0.094$).

Considering that motivational aspects should produce the anchor bias, I expect (H4) that those who value the underlying trait highly will show a lower bias compared to those who value it as unimportant (for a similar approach refer to Brown 2012). The estimates reported in Table 5.3 indicate that people who value a certain trait/behavior position themselves higher up in the relative ranking, suggesting that motivational mechanisms indeed matter for individuals' perceptions about their relative positions in society (although these effects, while pointing in the expected directions, are not statistically significant). However, considering the main effect of the anchor studies here, I fail to show the proposed effect of smaller anchor biases for those who value a distribution related value more highly in case of relative positions in income and flying behavior. For respondents' subjective wealth positions, the effect is weakly statistically significant at the p<.10 critical level. However, a potential reason for this result could also be that respondents who value to be rich know that the wealth distribution is highly unequal and thus are not as prone to overestimate their position when the question uses and upward anchor. This shows the weakness of simple tests for heterogenous treatment effects since moderators can be affected by unobserved confounders.

**Table 5.3: OLS estimates of regressions. SRIP (Subjective relative income position), SRWP (Subjective relative wealth position), SRFP (Subjective relative flight position).**

| | SRIP | | SRWP | | SRFP | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Objective Percentile | 0.520*** | 0.523*** | 0.430*** | 0.428*** | 0.425*** | 0.427*** |
| | (0.082) | (0.083) | (0.048) | (0.047) | (0.048) | (0.048) |
| Anchor higher (Ref. lower) | 9.019** | 8.986** | 12.549*** | 12.762*** | 8.125** | 8.189** |
| | (2.970) | (2.980) | (2.844) | (2.828) | (3.003) | (3.006) |
| Value earning | 0.203 | -0.434 | | | | |
| | (1.502) | (2.160) | | | | |
| Anchor * Value earning | | 1.234 | | | | |
| | | (2.997) | | | | |
| Value being rich | | | 1.009 | 3.727+ | | |
| | | | (1.444) | (1.999) | | |
| Anchor * Value being rich | | | | -5.578+ | | |
| | | | | (2.858) | | |
| Value flying less | | | | | -1.978 | -0.861 |
| | | | | | (1.509) | (1.992) |
| Anchor * Value flying less | | | | | | -2.623 |
| | | | | | | (3.053) |
| Constant | 6.956* | 6.946* | 21.462*** | 21.460*** | 17.177*** | 17.134*** |
| | (3.262) | (3.272) | (2.770) | (2.753) | (3.928) | (3.931) |
| Observations | 148 | 148 | 225 | 225 | 222 | 222 |
| Adjusted $R^2$ | 0.252 | 0.248 | 0.321 | 0.329 | 0.278 | 0.277 |

Note: +p<0.10 *p<0.05**,p<0.01,***p<0.001. Value earning, Value rich, and Value flying less are Z standardized. Appendix H Figure A5.4 provides a visualization of the conditional marginal effects of interest.

Third, the last test of the relevance of motivational mechanisms for the anchor effect avoids the issue of potential unobserved confounders of values and relative estimates by exogenously inducing participants to think more or less negatively about the scale in question. I obtain that by varying the question wording of the relative position question regarding flight behavior. Half of the participants had to answer where they place themselves in the Austrian society with regard to their flight hours, while the other half had to indicate where they stand relatively in "greenhouse gases produced" due to their flight behavior. I checked whether the question managed to evoke further concerns about the downsides of flying by

comparing respondents' attitudes regarding the "value flying less"-index. Results show that the $CO_2$ treatment raised concerns compared to the flown kilometers condition (t = 2.10, df = 243, p = 0.036). Hence, the treatment increased concerns about the negative effects of air travelling and can be used to test whether increased concerns result in increased biases to reduce one's perceived position relative to one's objective flight position.

As indicated in Figure 5.5 (for the full regression estimates see Appendix G), the bias created by the higher anchor in the $CO_2$ condition is still statistically significant and increased the average perceived relative position by about eight percentage points compared to the lower anchor ($\Delta$=8.40, t = 2.05, p = 0.04) and is even larger compared to the hours condition ($\Delta$=6.25, t = 1.49, p = 0.13). However, this difference fails to reach statistically significant levels ($\Delta CO_2$/hours =2.15, t= 0.37, p=0.71). Hence, I do not find evidence for a motivational reduction in the anchor bias due to experimentally caused emphasizes on the negative value of the underlying estimate.

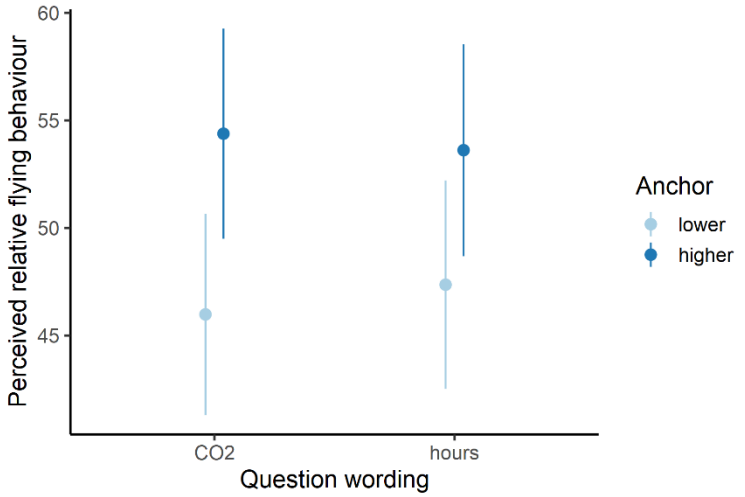


**Figure 5.5: Linear predictions of subjective relative flight position depending on question wording and anchor**. Whiskers indicate 90% confidence intervals. Prediction based on estimates reported in model 2 Table A5.13, Appendix G.

In conclusion, all three of our motivational tests fail to produce consistent evidence in favor of the supposed motivational mechanism, indirectly suggesting that cognitive mechanisms might be more important here. To test this cognitive explanation, I investigated whether a neutral point in the distribution such as the median income also produces an anchoring bias. Judging the median income, participants in the low condition estimated that 37.3% of Austrians have a lower income while the participants in the high condition estimated this share to be 49.2%. Like the results above involving estimates about one's own position, the bias is directionally consistent and similar in size (t = -6.48, df = 220, p<0.001). Moreover, the size of error is similar to the error in own relative income position (2.56, t = 1.26, df = 303, p = 0.208) and does not depend on respondents' objective income (see Appendix J Figure A5.6). This suggests that cognitive processes that increase the visibility of anchor consistent traits are at the center of the anchoring bias investigated here.[61]

## Strategies to debias relative position estimates

So far, the study found that question anchors have robust effects on relative income positions and that these are mainly produced by cognitive mechanism as these anchors highlight selective information

[61] As the difference is strongly influenced by a few outliers, I drop respondents with large estimation errors (1st and 10th decile of errors) in this case. However, the difference would be even larger if I would use all cases in the sample ($\Delta$ = 17.9, t = -8.34, df = 258, p<0.001).

consistent with the specific anchor used. What can researchers do to reduce this bias and get more accurate estimates on respondents' perceptions of their relative income positions? A simple but potentially effective option would be to ask respondents about their relative income position using both upward and downward comparatives at the same time. This follows the idea that emphasizing opposite traits should debias estimates and work better than explicitly stating that the anchor (in our case the word low / high) does not give any information about the underlying distribution or the true value (Chapman and Johnson 1999). Fernández-Albertos and Kuo (2018) already tried this approach to avoid a potential anchor bias and also to get an easy consistency check as both numbers had to add up to 100.

To test whether this approach can indeed reduce the anchor bias, I use respondents' answers to the relative income question when respondents were provided with a double anchor randomizing the order of appearance of the anchors. Respondents had to insert both values as I intended to test whether people would choose estimates that will add up to 100 (see also the section on robustness checks below). In the following test, I only use those respondents who passed this consistency check. Contrary to the prediction that providing both anchors would lead to a reduction in biases, the difference in estimates remains large and depends on which anchor is provided first (high first: $M_L = 36.0$; low first: $M_L = 27.3$). The difference is not significant due to the small sample size (N=60) but quite similar in size compared to the other treatments ($t = 1.44$, $df = 58$, $p = 0.1558$). A simple explanation for this result might be that respondents failed to reconsider the initial answer after reading and answering the second question and only subtracted the first answer from 100 (see Appendix I). This is in line with the literature suggesting that effortful "cognitive 2" thinking might be necessary for successful debiasing (Kahneman 2011; Wegener et al. 2010). Hence, at least for non-incentivized survey questions investigated here, standard double anchors are not sufficient in debiasing estimates.

A more promising strategy that does not rely on respondents' cognitive efforts is to debias respondents' answers using a "neutral" reference point. The basic idea is that, by using a known absolute income as a reference point, one can calculate the distance of respondents' own subjective relative position to the biased neutral point which should eliminate the cognitive part of estimation bias because both should be similarly biased by the specific comparative anchor used. Thus, using this approach, we can estimate respondents' perceived relative positions cancelling out the effects of floating endpoint anchors such as "low" or "high". Fortunately, the relative position estimate of the median income can be used as such a "neutral" reference point. That is because both median and own income position should be biased by the anchor so that the difference should eliminate the anchor bias revealing respondents' perceived income position relative to the median income, which is the main variable of interest in the standard economic model for the size of government (Meltzer and Richard 1981). In line with this expectation, I find that the resulting perceived income positions differ much less and are statistically insignificant when using a high or a low-income anchor ($\Delta = 4.67$, $t = 1.31$, $df = 114$, $p = 0.193$). Thus, this simple "difference-in-difference" approach can successfully cancel out most of the biases introduced by the anchors and reveal a more accurate picture of individuals' perceived distance to the median income.

## Robustness checks

The study includes two consistency checks to evaluate whether the bias is driven by respondents having difficulties understanding the survey questions. First, the double anchor enables me to check whether participants' estimates about the share of people above and below their relative position add up to 100. Of the 78 participants who answered this question 17 failed to pass this test (22%). Interestingly only one of these estimates exceeds the 100% threshold while all others underestimate it, and the share reduces to 15% if we allow small errors (>90%) that could indicate that respondents simply wanted to express the variance in their relative positions. I checked if participants with a migration background (from a non-German speaking country) or participants that reported comprehension or technical

problems explain these inconsistencies with a binary logistic regression. Although all coefficients point in the expected direction, they fail to reach statistically significant levels (see Appendix E, Table A5.12). Dropping these cases has no substantial effect on the resulting anchor bias compared to using the full analytical sample (see Appendix I).

The second consistency check can be calculated for treatment groups 1 and 2. As respondents estimated both, their personal relative income position and the relative position of an imaginary person earning the median income of 1650 Euros a month, we can check whether participants stayed consistent in their answers. For example, if a participant earns 2000 Euros and estimates the share of people earning less than herself to be 50% and afterwards assesses the share of people earning less than 1650 Euros and provides the answer 60%, the answers are logically inconsistent.[62] Out of 150 respondents, 24 provided inconsistent answers of this kind (16%). Again, we checked if participants with a migration background (from a non-German speaking country) or participants that reported comprehension or technical problems explain these inconsistencies with a binary logistic regression. Having been born in a country with a non-German language significantly predicts failing the inconsistency check.[63] To account for potential language barriers confounding the treatment estimates, I include a robustness check that controls for migration background or reporting technical difficulties with completing the survey in Appendix K, Table A5.14. These results indicate no substantial changes from the estimates provided in the main manuscript.

A further potential concern regarding the results provided could be that they are driven by a few outliers with very large estimation errors or by a few "satisficers" who rush through the survey. To test this, I checked if the anchor effect is driven by respondents who spend very little time on answering the question or had large misperceptions. Dropping respondents in the first and last decile of estimation errors (absolute distance of difference in perception and objective relative position) results in a difference of 10.3 percentage points ($t = -3.39$, $df = 115$, p-value $< 0.001$), nearly identical to the 9.9 percentage points of the full sample. Answer time specific analyses reported in Appendix L reveal no clear evidence that the bias is driven by respondents with shorter answer durations. Furthermore, dropping estimation or time outliers also reveals no substantial changes in regression models including further control variables to account for potential variation in respondents' comprehension issues suggesting that the bias is not (solely) driven by outliers or satisfiers (see Appendix K, Table A5.12, Table A5.13, and Table A5.14).

## Discussion

The existing literature has interpreted perceptions mainly as indicators of misinformation. In contrast, I suggest that perceptions are the result of complex process of social comparison, suggesting that individuals are not only sensitive to the size of inequality but also to how it is framed. Focusing on the direction of comparison and following previous research in social comparisons and human self-assessments, I suggest that the endpoint anchors (poor/rich) people used when assessing the size of inequality affects their subjective relative income positions and their fairness beliefs. I test these hypotheses using a representative survey experiment conducted in Austria in which I randomly vary the

[62] The inconsistent answers could also arise if people guessed that the number of 1650 Euros must be specifically selected and therefore answered 50%. 6 of those which provided inconsistent answers choose this threshold which suggests that at least some respondents intended to correct their estimates in this way. This idea is also consistent with an attitudinal perspective of anchoring in that sense that respondents think anchors provide information (Wegener et al. 2010).

[63] However, note that if we exclude those which provided a 50% answer (see for details note 5) language loses its significance and noting comprehension problems becomes significant. This hints at the possibility that while initially overwhelmed by relative income questions some participants with a foreign language learned to understand question and adapted their answers accordingly.

comparative anchor when assessing respondents' subjective relative income position. The result suggests that people have substantially higher relative income perceptions when they estimate their position using an upward compared to a downward anchor. Moreover, different comparisons result in different fairness attitudes, and the anchor bias affects respondents' perceptions about one's overall subjective status in society. Hence anchor biases can directly affect selected fairness attitudes and change individuals' beliefs about their overall standing in society due to biased estimates about their relative income position.

In a second study, I investigate the proposed mechanism directly to test whether cognitive or motivational mechanisms explain this anchor bias. Contradicting the motivational explanation, I find no consistent evidence that respondents' values affect the anchor bias, even if I experimentally manipulate them. On the contrary, the assessments of neutral points in the distribution (not involving the self) are biased as well, suggesting that a cognitive anchor and adjustment bias that highlights anchor consistent information produces most of the bias created. Testing a common strategy to debias these estimates, I find that a double anchor has no effect. However, I suggest and successfully test a new strategy involving a difference in difference estimation that manages to successfully debias the estimates.

The fact that upward and downward comparisons have different effects on people's subjective relative incomes and fairness beliefs has at least two main consequences. First, from a substantial standpoint, the ratio of upward and downward comparisons itself becomes a relevant factor that might influence decision making. On this issue, Duesenberry (1949), in his seminal study on individual consumption and savings behavior, already postulated that social comparisons of income are not symmetric and predicted a larger tendency for upward comparisons (see also Boyce et al. 2010; Davidai and Gilovich 2015; Ferrer-i-Carbonell 2005). This also relates to the broader literature on advantage versus disadvantage framing (Bohmann and Kalleitner 2023; Fehr and Schmidt 1999; Lowery et al. 2009). Thus, future studies may investigate to what comparative groups people are exposed to in their daily lives and in the media to investigate whether the rich or the poor are framed in ways that favor contrasting or assimilation (Buunk and Gibbons 2007; Summers et al. 2022). Some studies of the portrayal of merit in popular culture already point in that direction (Carbone and Mijs 2022).

Second, from a methodological standpoint, the anchor effect introduces a bias to perception estimates if researchers use either an upward or a downward comparison question to measure individual's (mis)perceptions. The issue that endpoint anchoring might result in different levels of perceived incomes or social status positions has been known for a while (Hurd 2009; Lindenberg 1977; Wegener 1987). However, common measures to elicit individual (mis)perceptions in the current literature nevertheless often use only one-directional comparison, relying on the assumption that the direction of comparison does not distort peoples estimates (and biases) (Bottan and Perez-Truglia 2022; Bublitz 2022; Cruces et al. 2013; Engelhardt and Wagener 2018; Fernández-Albertos and Kuo 2018; Karadja et al. 2016). The findings presented in this study suggest that this assumption is not warranted. This adds to the growing literature expressing substantial concerns with the methods used to elicit individuals' (mis)-perceptions in the political economy literature (Eriksson and Simpson 2012; Goldstein and Rothschild 2014; Graham 2023; Page and Goldstein 2016; Pedersen and Mutz 2018). In fact, the results suggest that a substantial part of the misperceptions found in previous literature might have been produced by the specific question anchors different studies use. Thus, future studies might want to avoid questions using endpoint anchors or use the debias strategy I presented.

The relative income questions that I study here are only one of the many strategies proposed to measure people inequality perceptions and where they think they stand in the income distribution (Jachimowicz et al. 2022). Some of them have shown that they produce more accurate intuitions about distributions than the methods described here (see e.g. Goldstein and Rothschild 2014; Page and Goldstein 2016). However, we still do not know whether those more accurate estimates represent distributions people

actually use when they decide to support a certain legislation or vote for a specific party. The evidence only suggests that under the right circumstances people are better equipped to reach more accurate estimates about distributions than in other cases. Further research is needed to increase our understanding of the influence of the specific context in which people form estimates about their position in society and what perceptions people actually base their decisions on. Contributing to this research endeavor this study suggests that perceptions are not simple indicators of misinformation; instead, they involve different social mechanisms that can tell us as much about how people want inequality to be as about how they think inequality is right now.

In sum, this chapter highlights that relative income perceptions are essentially also indicators of comparison that reflect how people see their own situation relative to specific others. However, this comparative nature should not only apply to individuals' inequality perceptions but also to their perceptions about the current state of redistribution in general and tax progressivity specifically. Hence, people will likely conceive tax rates (and commonly related tax brackets) as contributions to the state budget made by different income classes. Therefore, perceptions might not only influence people's fairness beliefs directly via the legitimizing nature of the status quo but also through other mechanisms that influence how people perceive their tax contributions relative to others. Similar to how they perceive their income position to be different if they compare it to the rich or the poor people might perceive their own and others tax contribution differently if they evaluate the rich as others or they themselves are rich. This may not only influence individuals' perceived tax progressivity but also their feelings of tax solidarity and thus may determine whether they a willing to support redistributive taxation or not. The following chapter tests these arguments empirically.

# Appendix (Chapter 5)

## A: Question wording:

Own translation from the German original. See the main text for the question wording of the relative income question. See Chapter 4 for the question wording of the sociodemographic indicators including income.

*Study 1:*

| Concept | Item | Answer-Scale |
|---|---|---|
| Subjective social position (present) | There are people who tend to be towards the top of our society and people who tend to be towards the bottom. On this card there is a scale that runs from top to bottom. Where would you place yourself on this scale nowadays? | 10 point scale with endpoint labeling 1=top, 10 = bottom. |
| Subjective social position (future) | There are people who tend to be towards the top of our society and people who tend to be towards the bottom. On this card there is a scale that runs from top to bottom. Where would you place yourself on this scale nowadays? | 10 point scale with endpoint labeling 1=top, 10 = bottom. |
| Citizens' concerns about inequality | The social inequality in Austria is too large. | 5 point scale (Strongly favor, strongly oppose) |
| Distributive justice - equality | A society is fair when income and wealth are equally distributed among all people. | 5 point scale (agree strongly to disagree strongly) |
| Distributive justice - equity | A society is fair when hard-working people earn more than others. | 5 point scale (agree strongly to disagree strongly) |
| Distributive justice - need | A society is fair when it takes care of those who are poor and in need regardless of what they give back to society. | 5 point scale (agree strongly to disagree strongly) |
| Distributive justice - entitlement | A society is fair when people from families with high social status enjoy privileges in their lives. | 5 point scale (agree strongly to disagree strongly) |

*Study 2:*

*Personal Income:*

**How high is your current personal monthly gross income? Please round to hundreds.**

The gross income is defined as wage income before taxes. Please also include payed overtime. Do not count the 13th and 14th monthly income or one-time benefits like boni or public transfers like unemployment benefits and study assistance.

Monthly income: ____€

*Relative income position of the median income:*

**Imagine a person earning 1650 Euro gross income a month (14 times a year). Which part of the roughly 6.9 million income earners[1] you guess has a lower/higher yearly gross income[2] than this person?**

[1] This group includes part- and full-time employees, as well as people receiving pensions. Individuals that have not worked all year long are included as well.

[2] This income is the total yearly gross income defined as wage income before taxes. This includes the 13th and 14th monthly income. Pensions are also included, but not public transfers like unemployment benefits and study assistance.

Enter the estimated share here: ___%

*Personal flight duration:*

**Please provide the total flight time of your travels during the period of July 01, 2019 – September 30, 2019.**

Please enter the sum of business and vacation travel.

Please enter 0 hours if you did not travel by air during this period.

Within Europe: ___hours

Intercontinental: ___hours

[if 0 then the questionnaire switched to a similar question that asked about the total flight time in the summer of 2018]

*Subjective relative flight behavior [either carbon footprint or flight time]:*

**There are 1.2 million airline passengers[1] between July and September. Which part of them you guess has a lower/higher flight-carbon footprint[2] than you?**

[1] People without flights during this period are therefore excluded.

[2] Again, this refers to the sum of vacation and business travel

Enter the estimated share here: ___%

**There are 1.2 million airline passengers[1] between July and September. Which part of them you guess has a lower/higher flight time[2] than you?**

[1] People without flights during this period are therefore excluded.

[2] Again, this refers to the sum of vacation and business travel

Enter the estimated share here: ___%

*Household wealth:*

**First, about the tangible assets. Please provide an estimate of the amount of: Principal Residence (if the household owns it), other real property, business property, vehicles, and valuables (e.g. jewelry and other valuable items):**

Please provide an approximate estimate in Euros.

Tangible assets: ____€

**Now for the financial assets. Please provide an estimate of the total amount of assets in: current accounts (salary accounts), savings deposits, building savings agreement, life insurance, investment funds, bonds, shares:**

Please provide an approximate estimate in Euros.

Financial assets: ____€

**Now about your debt. Please provide an estimate of the amount from both secured (mortgage loans) and unsecured loans (overdrafts, credit card loans, loans from friends, etc.):**

Please provide an approximate estimate in Euros.

Dept: ____€

*Subjective relative flight behavior [either carbon footprint or flight time]:*

**Imagine the net wealth of all households in Austria. Which part of the roughly 3.8 million households[1] in Austria you guess has a <u>lower/higher net wealth</u> than you?**

[1] This group includes employed full-time or part-time workers, apprentices and pensioners. Persons who did not receive income for the entire year are also included.

Enter the estimated share here: ___%

*Attitudes and values [always asked after the relative position questions]:*

**Now I will briefly describe some people. Please listen to each description and tell me how much each person is or is not like you.**

a) It is important to her/him to be rich. She/He wants to have a lot of money and expensive things.
b) A high income is important to her/him. She/He wants to earn as much as possible.

Response scale:

- Very much like me
- Like me
- Some-what like me
- A little like me
- Not like me
- Not like me at all
- (Don’t know)

**Generally speaking, how dangerous would you estimate the damage caused by air pollution due to aircrafts?**

- Extremely dangerous
- Very dangerous
- Quite dangerous
- Hardly dangerous
- Not dangerous at all
- (Don’t know)

**Overall, it is bad to travel a lot by airplane.**

- Applies completely
- Likely applies
- Partly applies partly does not apply
- Likely does not apply
- Does not apply at all
- (Don’t know)

## B: Robustness checks for income scale differences and heterogenous treatment effects by sociodemographic subgroup

To check if the answer scale used to elicit respondents' objective personal incomes affect our results, I use the fact that the potential information gained from the scale should be higher for those at the margins of the income distribution. Thus, I exclude the lowest and highest two income deciles and compare the correlation between relative income and objective income to the same correlation using the full analytical sample. (Full sample: Pearson's R = 0.50, N=669; Restricted Sample: Pearson's R = 0.78, N= 305). Hence, while I find the expected difference in the correlation, it still remains far from perfect (=1) even for those with very high or very low incomes. However, to avoid potential misinterpretations, the results reported in the main text include graphs showing the error over the whole income distribution. Crucially for this study, the anchor bias of respondents at margins of the income distribution compared to those in the middle is similar in size ($\Delta$mid=10.2, t = 7.23, df = 667, p < 0.001; $\Delta$edge=9.65, t = 3.94, df = 292, p < 0.001).

The questionnaire also included an item asking whether respondents "understood all the questions well". Respondents could answer this question on a 4-point rating scale ranging from "fully agree" to "fully disagree". Table A5.1 shows the distribution of answers and the average perception error in relative income position of the respondents. While the bias grows with reported comprehension problems it is sizeable and statistically significant for all subgroups, even those who reported no difficulties.

**Table A5.1: Mean size of income anchor bias depending on respondents' reported ease to understand the survey questions**

| Survey was easy to comprehend | n | Mean error in perceived relative income position | Difference in perception |
|---|---|---|---|
| Fully agree | 648 | 15.75 | 9.23*** |
| Somewhat agree | 264 | 16.32 | 7.71*** |
| Somewhat disagree | 59 | 21.07 | 11.48* |
| Fully disagree | 31 | 15.77 | 20.21* |

Note: 2-sided t-test for differences in means. *=p<0.05, ***=p<0.001

**Table A5.2: Mean perceived relative income position by socio-demographic subgroup**

| category | Anchor | Mean perceived relative income position | n | se | Diff (anchor high-low) |
|---|---|---|---|---|---|
| Primary | lower incomes | 36.07 | 26 | 4.06 | 15.35 |
| Primary | higher incomes | 51.42 | 41 | 3.82 | |
| Voc. training | lower incomes | 43.49 | 182 | 1.42 | 10.80 |
| Voc. training | higher incomes | 54.29 | 187 | 1.53 | |
| Secondary | lower incomes | 45.02 | 156 | 1.77 | 8.86 |
| Secondary | higher incomes | 53.88 | 174 | 1.70 | |
| University | lower incomes | 56.55 | 140 | 1.83 | 8.57 |
| University | higher incomes | 65.12 | 99 | 2.15 | |
| Employed | lower incomes | 47.99 | 370 | 1.09 | 11.17 |
| Employed | higher incomes | 59.16 | 347 | 1.09 | |
| In education | lower incomes | 17.69 | 40 | 2.60 | 15.57 |
| In education | higher incomes | 33.26 | 36 | 4.44 | |
| Retired | lower incomes | 46.62 | 78 | 1.92 | 4.35 |
| Retired | higher incomes | 50.97 | 96 | 2.15 | |
| Men | lower incomes | 49.61 | 257 | 1.40 | 11.38 |
| Men | higher incomes | 60.99 | 266 | 1.29 | |
| Women | lower incomes | 40.45 | 246 | 1.30 | 7.76 |
| Women | higher incomes | 48.21 | 235 | 1.41 | |

**Table A5.3: OLS-regression estimates testing for heterogenous treatment effects by socio-demographic subgroup**

| | Subjective relative income position |
|---|---|
| | (1) |
| Objective relative income position | 0.527*** |
| | (0.041) |
| Question anchor: Higher incomes | 13.793* |
| Ref. Lower incomes | (6.307) |
| Gender: Women | 0.069 |
| Ref: Men | (1.680) |
| Age | -0.019 |
| | (0.074) |
| Education: Vocational training | -5.262* |
| Ref: Primary | (2.636) |
| Secondary | -1.792 |
| | (2.871) |
| Tertiary | 3.547 |
| | (3.120) |
| Employment status: In education | -9.411* |
| Ref: Emplyed or Self-employed | (3.706) |
| Retired | 4.161 |
| | (2.653) |
| Unemployed | -1.098 |
| | (4.309) |
| Higher incomes X Objective relative income position | 0.045 |
| | (0.057) |
| Higher incomes X Women | -2.686 |
| | (2.313) |
| Higher incomes X Age | -0.045 |
| | (0.104) |
| Higher incomes X edu4Vocational training | 1.399 |
| | (3.298) |
| Higher incomes X Secondary | -2.746 |
| | (3.697) |
| Higher incomes X University | -4.173 |
| | (4.276) |
| Higher incomes X In education | 2.084 |
| | (5.268) |
| Higher incomes X Retired | -5.932 |
| | (3.640) |
| Higher incomes X Unemployed | -3.071 |
| | (5.524) |
| Constant | 17.062*** |
| | (4.799) |
| Observations | 998 |
| $R^2$ | 0.473 |
| Adjusted $R^2$ | 0.463 |

Note: +p<0.10, *p<0.05, **p<0.01, ***p<0.01.

## C: Balance checks (study 1)

**Table A5.4: Balance table for the subgroup not treated with information about one's relative income position or tax rates in Austria**

| | | lower incomes N=127 | | higher incomes N=117 | | | |
|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Diff. in Means | Std. Error |
| Rel. inc. position | | 60.7 | 25.4 | 63.3 | 22.9 | 2.6 | 3.1 |
| Income in EUR | | 2487.9 | 1788.2 | 2595.0 | 1781.7 | 107.1 | 228.7 |
| Age | | 42.4 | 14.0 | 44.8 | 14.8 | 2.4 | 1.9 |
| | | N | Pct. | N | Pct. | | |
| Gender | Mann | 60 | 47.2 | 68 | 58.1 | 0.1$^{+}$ | 0.06 |
| | Frau | 67 | 52.8 | 49 | 41.9 | | |
| Education | Primary | 7 | 5.5 | 8 | 6.8 | 0.01 | 0.03 |
| | Voc. training | 54 | 42.5 | 41 | 35.0 | -0.07 | 0.06 |
| | Secondary | 34 | 26.8 | 40 | 34.2 | 0.07 | 0.06 |
| | University | 32 | 25.2 | 28 | 23.9 | -0.01 | 0.06 |
| Answer time (RI) | | 44.7 | 21.8 | 40.5 | 21.4 | -4.2 | 2.8 |

Note: Differences in ordinal or nominal variables calculated using dummy variables; $^{+}$p<0.10, $^{*}$p<0.05, $^{**}$p<0.01.

**Table A5.5: Balance table for full analytic sample**

| | | lower incomes N=504 | | higher incomes N=501 | | | |
|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Diff. in Means | Std. Error |
| Rel. income pos. | | 61.6 | 25.0 | 59.0 | 24.4 | -2.6 | 1.6 |
| Income in EUR | | 2529.4 | 1744.8 | 2318.8 | 1592.1 | -210.6* | 105.4 |
| Age | | 43.4 | 15.2 | 44.2 | 15.4 | 0.7 | 1.0 |
| | | N | Pct. | N | Pct. | | |
| Gender | Mann | 257 | 51.0 | 266 | 53.1 | 0.02 | 0.03 |
| | Frau | 246 | 48.8 | 235 | 46.9 | | |
| Education | Primary | 26 | 5.2 | 41 | 8.2 | 0.03$^{+}$ | 0.02 |
| | Voc. training | 182 | 36.1 | 187 | 37.3 | 0.01 | 0.03 |
| | Secondary | 156 | 31.0 | 174 | 34.7 | 0.04 | 0.03 |
| | University | 140 | 27.8 | 99 | 19.8 | -0.08$^{**}$ | 0.03 |
| Answer time (RI) | | 47.3 | 21.8 | 43.1 | 22.8 | -4.2$^{**}$ | 1.4 |

Note: Differences in ordinal or nominal variables calculated using dummy variables; $^{+}$p<0.10, $^{*}$p<0.05, $^{**}$p<0.01.

## D: Checking for the effects of estimation and time outliers (study 1)

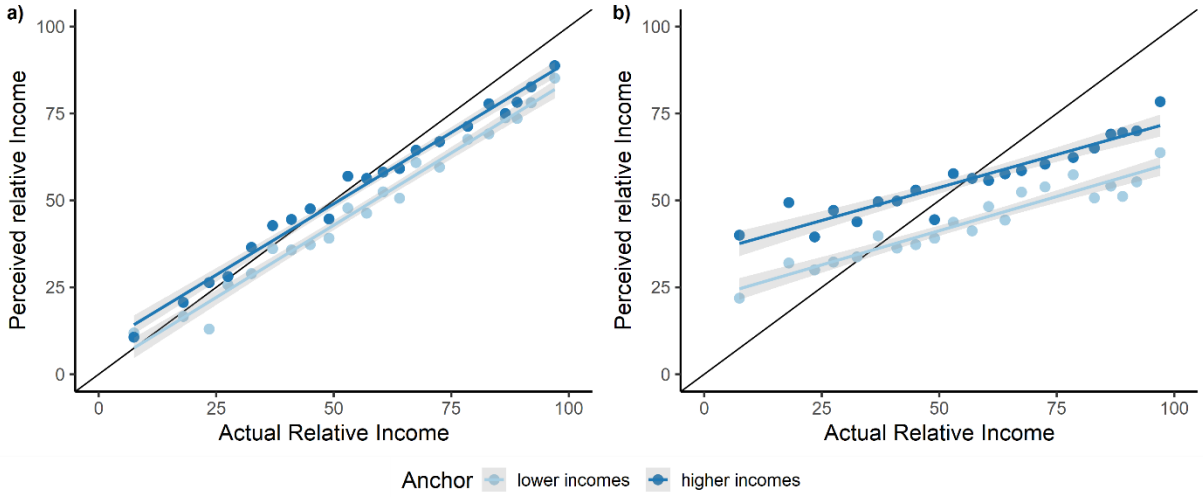


**Figure A5.1: Actual and perceived relative income position excluding outliers in a) estimation error or b) time to answer the survey question on one's perceived relative income position.** Solid coloured lines indicate subgroup specific linear trends. 45-degree line indicates the no bias case. Outliers are defined as a) the top quintile in estimation error and b) the top and bottom decile in answer time. Grey areas indicate 95% confidence interval. $N_a$=797, $N_b$=778.

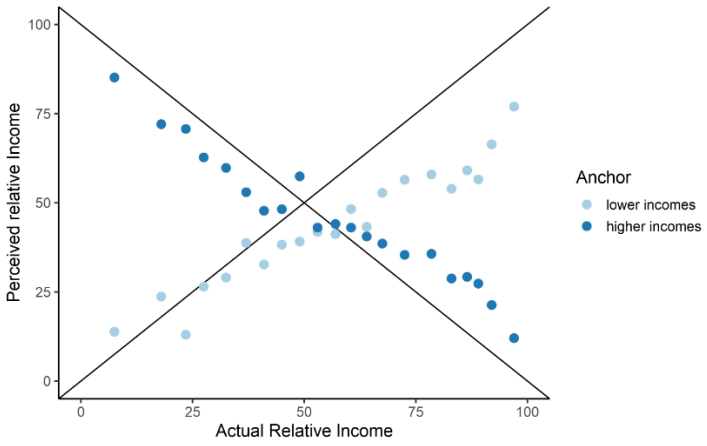


**Figure A5.2: Actual and perceived relative income by question anchor displaying the actual numerical answers of respondents.** 45-degree lines indicate the no bias cases. N= 1005.

# E: Missing values and balance checks (study 2)

**Table A5.6: Proportion of missing values per question**

| | n missing | Total N |
|---|---|---|
| Relative income position | 42[a] | 270 |
| Income in EUR | 4 | 270 |
| Relative position of a person with median income | 9 | 270 |
| Relative wealth. position | 40 | 270 |
| Net wealth | 41 | 270 |
| Relative flight position | 40 | 270 |
| Flight duration | 40 | 270 |

Note: [a] of those 33 are missing because they did not receive this question because they reported an actual income of 0.

**Table A5.7: Balance table for main anchor experiments (Income/wealth & double anchor)**

| | | CO2 higher N=63 | | CO2 lower N=67 | | | | hours higher N=63 | | hours lower N=63 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Diff. in Means | Std. Error | Mean | Std. Dev. | Mean | Std. Dev. | Diff. in Means | Std. Error |
| Relative income position | | 35.8 | 20.5 | 30.0 | 18.5 | -5.7 | 3.7 | 26.7 | 12.5 | 28.3 | 12.8 | 1.6 | 2.4 |
| Relative wealth position | | 46.5 | 30.4 | 42.7 | 29.8 | -3.8 | 5.6 | 42.2 | 28.9 | 39.5 | 30.6 | -2.7 | 5.6 |
| Relative flight position | | 67.4 | 31.5 | 70.3 | 33.4 | 3.0 | 6.0 | 70.4 | 28.5 | 67.8 | 30.2 | -2.6 | 5.5 |
| Ever in payed employment | | 0.03 | 0.2 | 0.03 | 0.2 | -0.002 | 0.03 | 0.06 | 0.2 | 0.06 | 0.2 | 0.0 | 0.04 |
| Gender | | 0.6 | 0.5 | 0.6 | 0.5 | -0.06 | 0.09 | 0.7 | 0.5 | 0.6 | 0.5 | -0.1 | 0.09 |
| Age | | 25.3 | 6.3 | 23.1 | 3.1 | -2.2* | 0.9 | 23.6 | 3.1 | 23.6 | 4.2 | 0.04 | 0.7 |
| German speaking CoB | | 0.3 | 0.5 | 0.4 | 0.5 | 0.07 | 0.09 | 0.5 | 0.5 | 0.3 | 0.5 | -0.2* | 0.09 |
| | | N | Pct. | N | Pct. | | | N | Pct. | N | Pct. | | |
| University course | 1 | 33 | 52.4 | 36 | 53.7 | | | 34 | 54.0 | 35 | 55.6 | | |
| | 2 | 10 | 15.9 | 12 | 17.9 | | | 10 | 15.9 | 10 | 15.9 | | |
| | 3 | 4 | 6.3 | 7 | 10.4 | | | 9 | 14.3 | 7 | 11.1 | | |
| | 4 | 9 | 14.3 | 6 | 9.0 | | | 6 | 9.5 | 9 | 14.3 | | |
| | 5 | 4 | 6.3 | 3 | 4.5 | | | 3 | 4.8 | 2 | 3.2 | | |
| | 6 | 3 | 4.8 | 3 | 4.5 | | | 1 | 1.6 | 0 | 0.0 | | |

Note: Differences in ordinal or nominal variables calculated using dummy variables; $^{+}p<0.10$, $^{*}p<0.05$, $^{**}p<0.01$.

**Table A5.8: Balance table for the CO2/hours priming**

| | | Main anchor experiment lower N=92 | | higher N=90 | | | | Double anchor high first N=48 | | low first N=45 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | Diff. in Means | Std. Error | Mean | Std. Dev. | Mean | Std. Dev. | Diff. in Means | Std. Error |
| Relative income position | | 30.9 | 17.2 | 32.5 | 18.8 | 1.6 | 2.9 | 27.1 | 12.9 | 25.6 | 11.8 | -1.5 | 2.7 |
| Relative wealth position | | 41.7 | 30.8 | 44.7 | 30.1 | 3.0 | 4.9 | 43.7 | 29.1 | 39.6 | 28.9 | -4.2 | 6.8 |
| Relative flight position | | 64.7 | 33.4 | 68.0 | 30.4 | 3.2 | 5.0 | 70.8 | 29.3 | 79.6 | 24.7 | 8.8 | 6.5 |
| Ever in payed employment | | 0.05 | 0.2 | 0.08 | 0.3 | 0.02 | 0.04 | 0.06 | 0.2 | 0.07 | 0.3 | 0.004 | 0.05 |
| Gender | | 0.6 | 0.5 | 0.6 | 0.5 | -0.03 | 0.08 | 0.7 | 0.5 | 0.4 | 0.5 | -0.3** | 0.1 |
| Age | | 23.4 | 3.9 | 24.5 | 5.5 | 1.1 | 0.8 | 24.3 | 3.7 | 23.4 | 3.1 | -1.0 | 0.8 |
| German speaking CoB | | 0.4 | 0.5 | 0.4 | 0.5 | -0.01 | 0.08 | 0.5 | 0.5 | 0.3 | 0.4 | -0.2+ | 0.1 |
| | | N | Pct. | N | Pct. | | | N | Pct. | N | Pct. | | |
| University course | 1 | 49 | 53.3 | 51 | 56.7 | | | 28 | 58.3 | 25 | 55.6 | | |
| | 2 | 16 | 17.4 | 14 | 15.6 | | | 6 | 12.5 | 8 | 17.8 | | |
| | 3 | 10 | 10.9 | 8 | 8.9 | | | 5 | 10.4 | 4 | 8.9 | | |
| | 4 | 12 | 13.0 | 10 | 11.1 | | | 5 | 10.4 | 5 | 11.1 | | |
| | 5 | 3 | 3.3 | 5 | 5.6 | | | 2 | 4.2 | 2 | 4.4 | | |
| | 6 | 2 | 2.2 | 2 | 2.2 | | | 2 | 4.2 | 1 | 2.2 | | |

Note: Differences in ordinal or nominal variables calculated using dummy variables; $^{+}$p<0.10, $^{*}$p<0.05, $^{**}$p<0.01.

**Table A5.9: Binary logistic regression estimates explaining respondents' propensity to fail the consistency checks**

| | Failed consistency check 1 | Failed consistency check 2 |
|---|---|---|
| | (1) | (2) |
| Non-German migration background | 0.276 | 0.889$^{+}$ |
| | (0.664) | (0.505) |
| Had problems understanding everything (1-4) | 0.607 | 0.561 |
| | (0.518) | (0.402) |
| Had some technical issues (1-4) | 0.216 | 0.361 |
| | (0.325) | (0.271) |
| Constant | -2.586$^{**}$ | -3.440$^{***}$ |
| | (0.997) | (0.750) |
| Observations | 62 | 138 |
| Log Likelihood | -31.967 | -55.650 |
| Akaike Inf. Crit. | 71.933 | 119.3 |

Note: $^{+}$p<0.10, $^{*}$p<0.05, $^{**}$p<0.01, $^{***}$p<0.01.

## F: Calculating income/wealth/flight percentiles:

To estimate the income percentiles, I use data on income percentiles provided by the governmental statistics agency which relies on income taxation records (Statistik Austria) of the year 2016 which was the latest available at the time of conducting the survey (Fischer 2017). This approach likely underestimates respondents' actual relative income percentiles due to the general income increase of about 5.8% between 2016 and 2018 (calculated at the median). To estimate the net wealth percentiles, I use data provided to me by the authors of the official report of the household finance and consumption survey (HFCS) 2017 for Austria. This data is identical to the one presented in Figure 7 of this report (Fessler, Lindner, and Schürz 2019). As the authors do not provide specific percentiles in the ranges 1-5 and 95-100 due to data limitations, I only calculate relative wealth positions for this range. To estimate net wealth, I use a shortened set of questions that are structurally similar to the ones used in the HFCS. In line with the approach there, I calculate net wealth as the sum of tangible assets and financial assets minus dept.

Austria reports no official statistics on the flown km or hours within its population. However, the Austrian governmental statistics agency conducts a regular survey on the "travel customs of Austrians" (Reisegewohnheiten der Österreicher und Österreicherinnen) that asks 3500 randomly chosen individuals aged 15 and older in Austria four times a year about their travel locations and means of transport in the previous quarter. I use the anonymized microdata of this dataset of the latest full year available to me at the time of conducting the survey (2016) to estimate the travel percentiles (in minutes) of the Austrian population for the summer quarter (July to September) (Laimer and Lebersorger 2017). To do that I first calculate a travelling population centralized average Austrian departure airport using the geolocations of all Austrian airports and the number of passengers who departure from this airport. Afterwards, I use the geolocations of the country midpoints of the 53 destination categories within the micro dataset (mostly countries and the 9 federal states of Austria) to calculate the distance between these destinations and the "generalized" departure airport using the "Haversine formula" that calculates the great-circle distance (shortest distance between two points on the surface of a sphere) approximating the flight distance. I assume direct flights as well as only direct round trips (distance times 2) and only use destinations where respondents indicated that they travelled by plane. To transform the distances (km) to flight durations (minutes) I calculated a linear regression using a subset of popular travel destinations and their distances in km as well as minutes using data from distance.to (Georg 2022). I use the resulting regression coefficients to predict the flight durations of all trips within the dataset. A plausibility check of some flights revealed that they match average travel times reported by airlines. To estimate approximations for the Austrian general population I use the design and poststratification weight provided alongside the data and calculate percentiles afterwards. Because the flight duration was generally increasing between 2016 and 2019 and because of the necessary assumptions (only direct flights) it is likely that I underestimate the flight duration in the general population. While this limits my ability to compare the subjective estimates to the "true" relative positions, this has no consequences for my ability to estimate the effect of the question anchor on respondents' subjective relative positions.

## G: Relative flying behavior separated by question wording

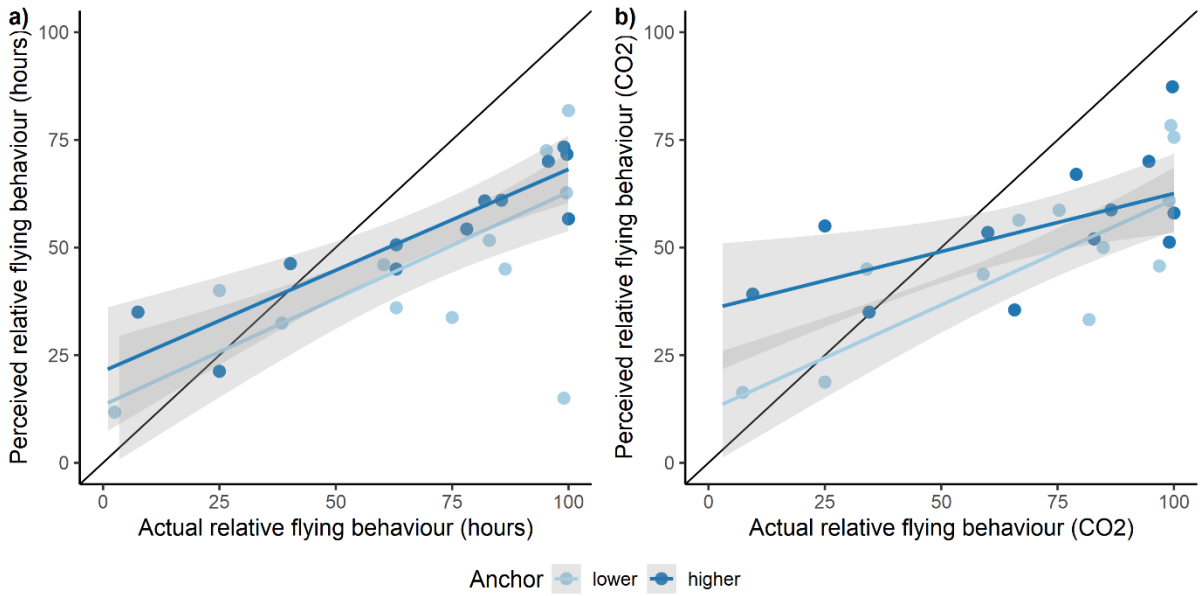


**Figure A5.3: Actual and perceived relative flying position asking for a) hours or b) $CO_2$ emission by question anchor.** Every point represents roughly a twelfth of the treatment group specific respondents in the sample. Solid lines indicate subgroup specific linear trends. Grey areas indicate 95% confidence interval. $N_a$=117, $N_b$=112. The clustering of respondents among relatively frequent (or long distance) fliers could be due to the student sample or because the objective estimates likely underestimate the true flying behavior in the Austrian population see Appendix F.

**Table A5.10: OLS-Regression estimates of subjective relative flight position**

| | |
|---|---|
| Actual relative flight position | 0.432*** |
| | (0.048) |
| Anchor: higher (Ref: lower) | 8.402* |
| | (4.097) |
| Question wording: hours (Ref: $CO_2$) | 1.382 |
| | (4.078) |
| Anchor * Question wording | -2.149 |
| | (5.860) |
| Constant | 16.269*** |
| | (4.385) |
| Observations | 229 |
| Adjusted $R^2$ | 0.271 |

Note: +p<0.10, *p<0.05, **p<0.01, ***p<0.01.

## H: AME of potential moderators of the anchor effect on respondents' subjective relative positions

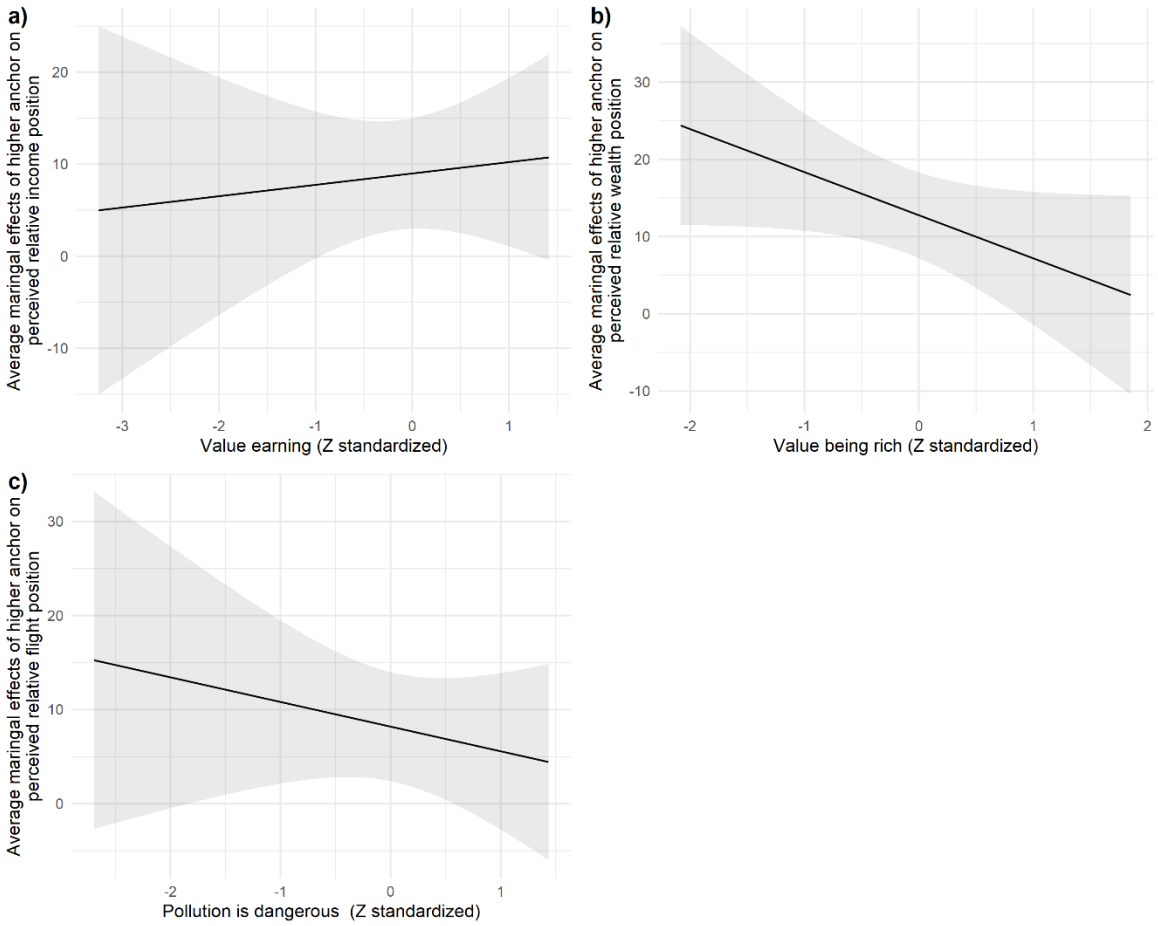


**Figure A5.4: Conditional average marginal effects of the higher question anchor on the perceived relative a) income position, b) wealth position, and c) flight position of respondents depending on respondents' trait specific values**. For details see also Table 5.3 in the main text.

## I: Double anchor regression estimates

Using the double anchor participants indicated that 30.9% of people are below them answering lower question and 38.4% asking the higher question. While smaller compared to differences with a single anchor reported above, the difference is still substantial and statistically significant (t = 1.80, df = 150, p = 0.073). This difference is robust for excluding respondents failing the consistency check of providing estimates that add up to 100%. Hence, providing a double anchor cannot debias the estimates.

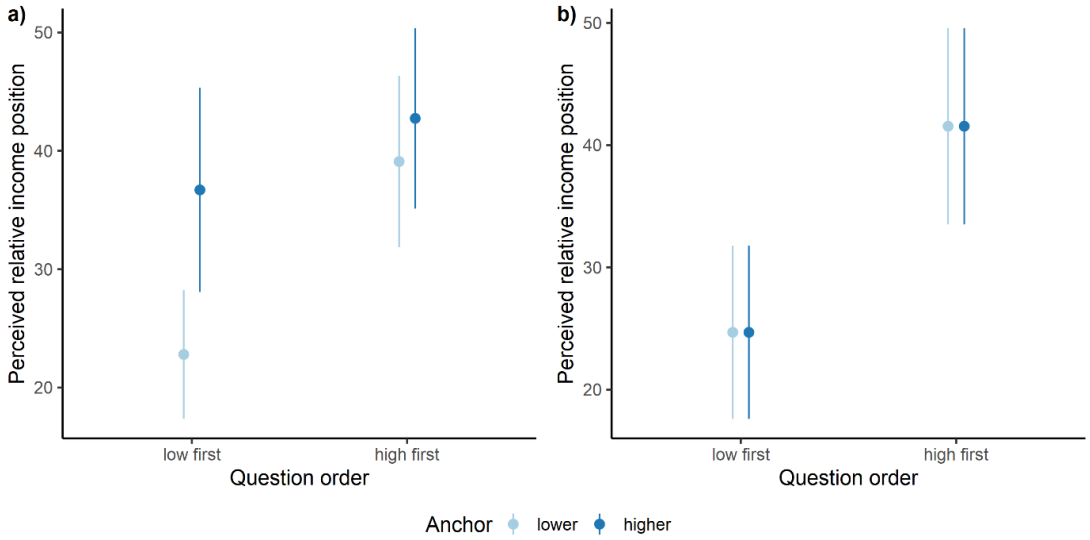


**Figure A5.5: Actual and perceived relative income position using a double anchor using a) the full analytical sample, b) only those passing the consistency check (sum to 100).** Every point represents roughly a twelfth of the treatment group specific respondents in the sample. Solid lines indicate subgroup specific linear trends. Grey areas indicate 95% confidence interval. Na=122, Nb=92.

**Table A5.11: OLS-Regression estimates of subjective relative income position**

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Actual relative income position | 0.173$^{+}$ | 0.173$^{+}$ | 0.209$^{*}$ | 0.209$^{*}$ |
| | (0.095) | (0.095) | (0.106) | (0.106) |
| Anchor: higher (Ref: lower) | 8.689$^{**}$ | 13.900$^{**}$ | 0.000 | 0.000 |
| | (2.878) | (5.169) | (0.000) | (0.000) |
| Question wording: higher first (Ref: lower first) | 11.171$^{*}$ | 16.298$^{**}$ | 16.858$^{**}$ | 16.858$^{**}$ |
| | (5.580) | (5.496) | (6.450) | (6.450) |
| Higher * high first | | -10.255$^{+}$ | | 0.000 |
| | | (5.708) | | (0.000) |
| Constant | 12.311 | 9.705 | 9.113 | 9.113 |
| | (7.746) | (7.757) | (8.414) | (8.414) |
| Observations | 122 | 122 | 92 | 92 |
| $R^2$ | 0.102 | 0.112 | 0.157 | 0.157 |
| Adjusted $R^2$ | 0.079 | 0.082 | 0.129 | 0.119 |

Note: M1 and M2 use the full analytical sample, while M2 and M4 use only those passing the consistency check that the sum of the answers provided (lower and higher) has to sum up to 100. Standard errors in parentheses. $^{+}$p<0.10, $^{*}$p<0.05, $^{**}$p<0.01, $^{***}$p<0.01.

## J: Median income biases relative to respondents' objective income

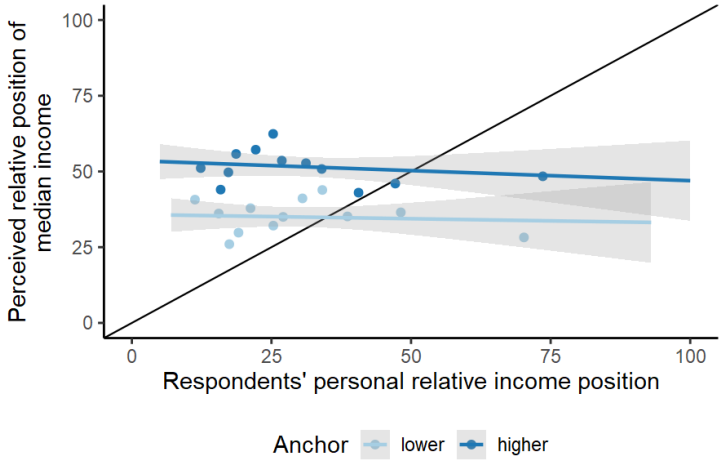


**Figure A5.6: Perceived relative income position of the median income relative to respondents' actual personal relative income position.** Every point represents roughly a twelfth of the treatment group specific respondents in the sample. Solid lines indicate subgroup specific linear trends. Grey areas indicate 95% confidence interval. N=261.

## K: Long regression and further control variables

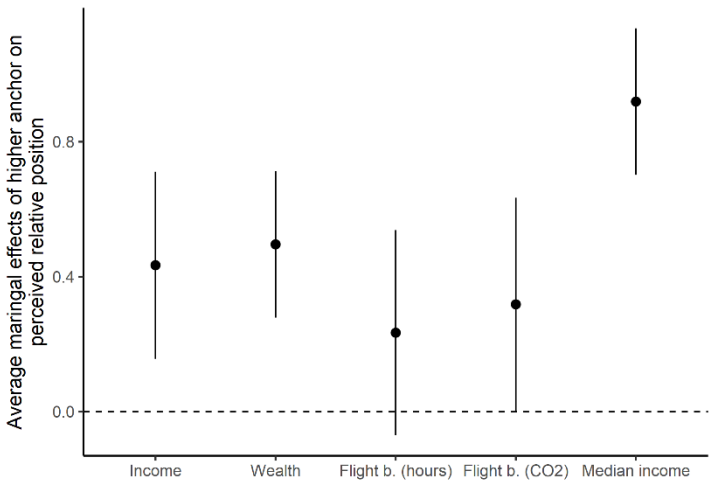


**Figure A5.7: Average marginal effects of higher anchor on perceived relative positions by category of estimated distribution.** OLS regression model is calculated using a long format with nested relative position evaluations (for income, wealth, etc.) within respondents. All subjective relative position estimates have been previously Z standardized. The point estimates therefore indicate the effects in category specific standard deviations. Whiskers indicate 95% confidence intervals calculated using cluster robust standard errors at the respondent level. n=867 evaluations of N=275 respondents.

**Table A5.12: OLS-Regression estimates of subjective relative positions (long approach)**

| | Income | | | Wealth | | | Flight behavior | | | Median income | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Anchor: higher | 0.482** | 0.412** | 0.435** | 0.564*** | 0.484*** | 0.493*** | 0.298* | 0.274* | 0.273* | 0.919*** | 0.842*** | 0.846*** |
| | (0.159) | (0.152) | (0.151) | (0.127) | (0.112) | (0.111) | (0.131) | (0.123) | (0.124) | (0.110) | (0.127) | (0.129) |
| Controls | - | yes | yes | - | yes | yes | - | yes | yes | - | yes | yes |
| Control Interactions | - | - | yes | - | - | yes | - | - | yes | - | - | yes |
| Num.Obs. | 150 | 137 | 137 | 230 | 219 | 219 | 230 | 205 | 205 | 261 | 201 | 201 |
| R2 Adj. | 0.052 | 0.246 | 0.266 | 0.076 | 0.339 | 0.347 | 0.018 | 0.267 | 0.274 | 0.209 | 0.185 | 0.164 |

Note: Controls include objective percentile in the respective distribution, relevant value, university course, technical problems, understanding issues, non-german country of birth.

**Table A5.13: OLS-Regression estimates of subjective relative positions (long approach w/o estimate outliers)**

| | Income | Wealth | Flight behavior | | | Median income |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 (both) | 4 (CO2) | 5 (hours) | 6 |
| Anchor: higher | 0.291** | 0.177+ | 0.164 | 0.177 | 0.221 | 0.701*** |
| | (0.092) | (0.092) | (0.101) | (0.154) | (0.152) | (0.110) |
| Controls | yes | yes | yes | yes | yes | yes |
| Control Interactions | yes | yes | yes | yes | yes | yes |
| Num.Obs. | 109 | 175 | 161 | 82 | 77 | 175 |
| R2 Adj. | 0.716 | 0.675 | 0.609 | 0.606 | 0.632 | 0.189 |

Note: drops first and last decile of relative estimation error. Standard errors in parentheses. +p<0.10, *p<0.05, **p<0.01, ***p<0.01.

**Table A5.14: OLS-Regression estimates of subjective relative positions (long approach w/o answer time outliers)**

| | Income | Wealth | Flight behavior | | | Median income |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 (both) | 4 (CO2) | 5 (hours) | 6 |
| Anchor: higher | 0.371* | 0.601*** | 0.273+ | 0.251 | 0.296 | 0.746*** |
| | (0.155) | (0.124) | (0.142) | (0.210) | (0.212) | (0.150) |
| Controls | yes | yes | yes | yes | yes | yes |
| Control Interactions | yes | yes | yes | yes | yes | yes |
| Num.Obs. | 110 | 164 | 158 | 82 | 76 | 154 |
| R2 Adj. | 0.286 | 0.401 | 0.260 | 0.230 | 0.267 | 0.187 |

Note: drops first and last decile of answer time in the respective relative positioning question. Standard errors in parentheses. +p<0.10, *p<0.05, **p<0.01, ***p<0.01.

## L: Answer time and anchor difference in respondents' subjective relative position estimates

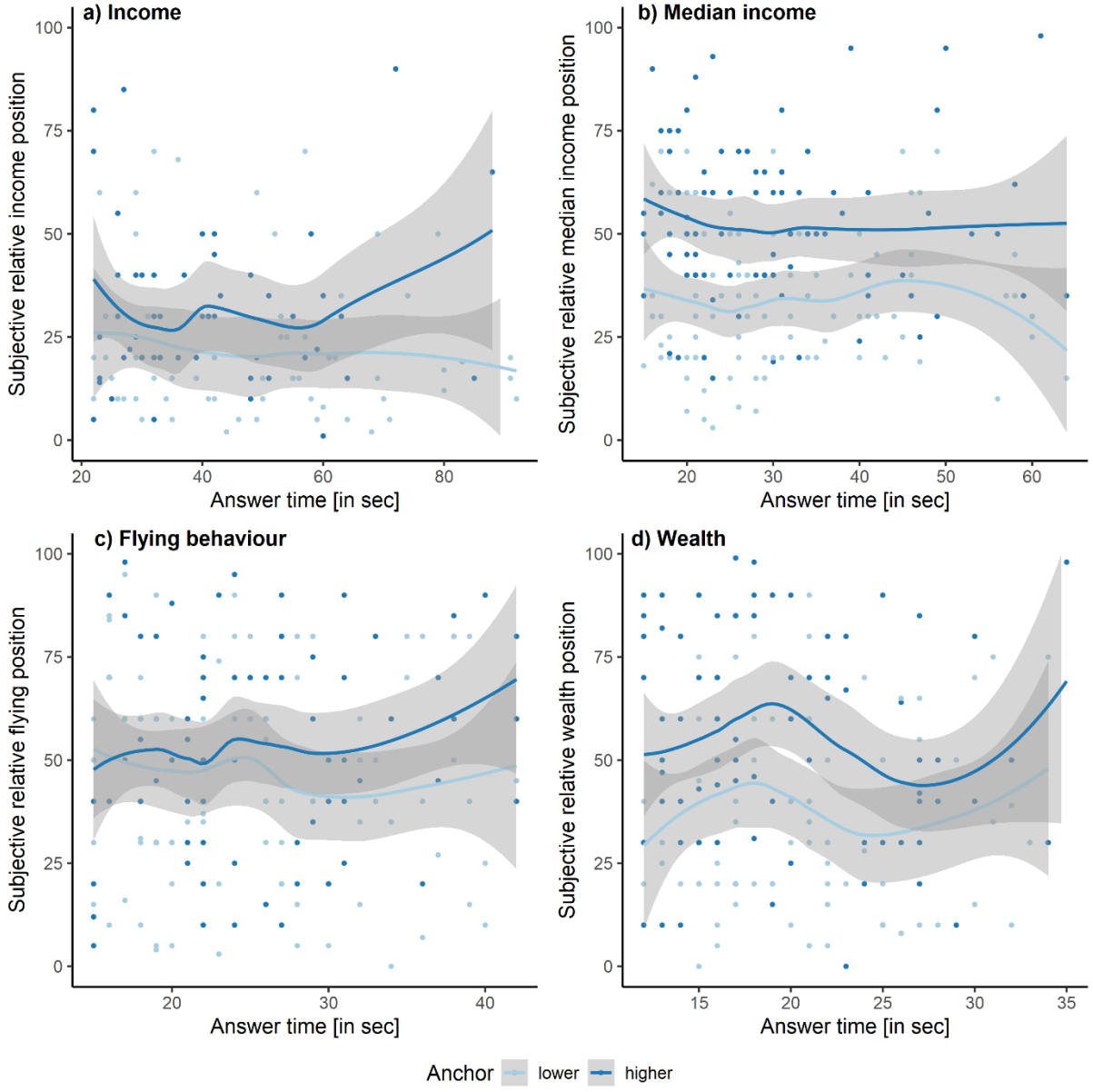


**Figure A5.8: Respondents subjective relative a) income position, b) median income position, c) flying behavior, d) wealth position depending on the time spend answering the specific question.** The points indicate respondents' actual positions. The solid lines indicate the local average estimates calculated using a LOESS approximation. The grey area indicates the 95% confidence intervals.

# 6) Taxed fairly? How Differences in Perception Shape Attitudes towards Progressive Taxation

**Abstract**

Empirically, the poor are more likely to support increases in the level of tax progressivity than the rich. Such income-stratified tax preferences can result from differences in preferences of *what should be taxed* as argued by previous literature. However, it may also result from income-stratified perceptions of *what is taxed*. This study argues that the rich perceive higher levels of tax progressivity than the poor and that tax perceptions affect individuals' support for progressive taxation. Using data from an Austrian survey experiment this argument is tested in three steps: First, in line with past research, individuals' income position is connected to individuals' tax preferences as a self-interest rationale would predict. However, second, results show that this variation is mainly driven by income-stratified tax perceptions. Third, randomly informing a subset of the sample about actual tax rates, the study finds that changing tax perceptions causally affects support for redistributive taxation among those who initially overestimated the level of tax progressivity. Results indicate that tax perceptions are relevant for forming tax preferences and suggest that individuals are more polarised in their perceptions of who pays how much taxes than in their support for who should pay how much tax.

## Introduction

Inequality is on the rise in many countries around the globe. Progressive taxation is one effective tool to reduce inequality but popular support is a prerequisite for an increase in tax progressivity (Limberg 2020; Scheve and Stasavage 2016). However, while cross-sectionally the poor support more redistribution than the rich, a growing number of empirical results suggests that rising levels of inequality do not result in an increased demand for redistribution as basic economic models focusing on income-maximising rationales would predict (Breznau and Hommerich 2019; Trump 2023). Current research has focused on two potential explanations for this result, suggesting that either people's lack of information might hinder the adaptation of preferences (Cruces et al. 2013) or that individuals' fairness attitudes are unaffected by inequality changes leading them to think that increases in governmental redistribution are unjustified (Trump 2018). However, despite a considerable number of studies in the field, we still lack research on how individuals form preferences considering both: the importance of their perceptions of the status quo and their fairness attitudes.

Combining both strands in the literature, arguing for the importance of biased perceptions and of individuals' fairness concerns, this paper argues that individuals' support for redistributive taxation is shaped by their perceptions of the tax system. First, when individuals form their preferences whether taxes are "too high" or "too low", their understanding of the current tax system should be crucial (Berens and Gelepithis 2019). Thus, different perceptions of *what is* taxed rather than differences in *what should* be taxed could explain individuals' (lack of) demand for progressive taxes. Second, considering that individuals are willing to accept higher costs if this helps others and if others are willing to contribute as well (Andreoni et al. 1998; Bansak, Hainmueller, and Hangartner 2017), individuals' support of progressive taxation should depend on their perceptions of what oneself and others are contributing to the tax revenue. This way, tax perceptions are not simple indicators of people's (mis)perceptions but a baseline on which individuals materially and morally justify their preferences and interests.

However, tax perceptions are not only crucial to understand the inequality-redistribution link because they should affect redistributive preferences but also because they are likely systematically linked to individuals' income positions and thus to the amount of inequality in a country. Past research has shown that individuals are only poorly informed about the tax system and may rely on heuristics using their own tax rate as a reference to estimate the overall tax structure (Slemrod 2006). Following the well-documented mechanism that individuals tend to overestimate their relative contribution in joint tasks (egocentric bias) (Ross and Sicoly 1979), this study expects that individuals will tend to overestimate their own contribution to the tax revenue relative to others. This should lead the rich to perceive higher top-income tax rates compared to the poor and the poor to perceive higher bottom-income tax rates compared to the rich. Consequently, the rich will systematically perceive higher levels of tax progressivity relative to the poor. These biased perceptions should increase polarization in support for more or less progressive taxation.

While large shares of the population in nearly all Western countries express concerns with the size of inequality in their country (Mijs 2021; Osberg and Smeeding 2006), it remains unclear why the redistributive power of the tax systems is not increasing (Scheve and Stasavage 2016). This study suggests that inequality concerns do not necessarily translate into more redistribution because individuals care about the distribution of the tax burden. Following expectations of egocentrically-biased tax perceptions, the rich and the poor should be especially prone to overestimate their contribution relative to the other group. Given that, growing income polarization will likely undermine perceived tax solidarity as both the poor and the rich will be more unsatisfied with the contributions of others compared to the no bias case. Hence, growing inequality should decrease perceived tax solidarity and lower support for redistributive taxation. Income-stratified tax perceptions might therefore be one important link explaining the missing relationship between inequality and demands for redistribution.

Following these arguments, this study tests whether tax perceptions can help us to understand the mechanisms linking individual income positions and tax preferences. To do that, this investigation follows a three-step approach using survey data from Austria, a country with particularly high and strongly progressive income taxes. Firstly, the analysis checks whether individual preferences for increased tax progressivity are positively related to income as theories assuming an income-maximising rationale would predict. Secondly, the study tests whether net-income-maximising support for tax changes results from individual differences in tax preferences or from different perceptions about the status quo tax progressivity. Finally, the paper uses a survey-experimental approach to study whether informing individuals about the tax progressivity in Austria, and thus changing perceptions of what oneself and others are paying in taxes, can causally change individuals' support for redistributive taxation.

This study theoretically and empirically contributes to work on the link between income inequality and preferences for redistribution in general and support for progressive taxation in particular: Building on literature studying perceptions in the context of redistributive preferences and combining these insights with institutionalist ideas and the role of fairness concerns, this study highlights the importance of structural perceptions to explain individual support for progressive taxation. Further, this paper adds to the growing methodological literature that highlights the shortcomings of established measures for support for redistribution and progressive taxation by pointing out that simple indicators of the demand for change make it impossible to distinguish whether this demand arises from differences in preferences or perceptions. Finally, considering rising levels of inequality of market incomes demand more redistributive interventions, a growing literature investigates individual support for redistributive taxation. This study contributes to this literature suggesting that perceptual biases of own and others'

tax contributions might undermine people's beliefs in tax solidarity and reduce their support for redistributive taxation.

This chapter is structured as follows: Section 2 reviews existing literature and develops the theoretical argument on the role of perceptions in the formation of taxation preferences. Section 3 describes the data and method used to test the theoretical argument. Section 4 presents the analysis studying the importance of perceived tax rates for tax preferences using survey data from Austria. Section 5 concludes.

## Theoretical framework

### Economic self-interest, perceptions, and fairness

Nearly all studies on political preferences in general and on tax preferences in particular consider economic self-interest as a crucial explanatory mechanism. In short, it is argued that individuals with higher incomes should prefer less redistributive taxes compared to those with lower incomes and, longitudinally, rising levels of inequality should be met by increased demands for progressive taxation (Cansunar 2021; Lü and Scheve 2016). The empirical evidence, however, is mixed. Especially the basic prediction that rising levels of inequality should lead to rising preferences for redistribution or support for progressive taxes has seen inconsistent results, with some arguing that this effect only holds in certain institutional or economic contexts (Beramendi and Rehm 2016; Berens and Gelepithis 2019; Limberg 2020), or for certain individuals (Garcia-Muniesa 2019), while others find no effect at all (Breznau and Hommerich 2019; Trump 2023).

To explain these inconsistent findings, researchers have pointed out that individuals often have inaccurate information about the size and shape of inequality and may use these biased perceptions as a basis when forming political preferences (e.g. Bublitz 2022; Cruces et al. 2013; Fernández-Albertos and Kuo 2018). This literature keeps the standard rational choice argument that people will adjust their preferences according to their material self-interest but argues that misperceptions hinder them to do so. In line with this prediction, most of the empirical studies that follow this approach conclude that individuals are only poorly informed about their own income position and that individuals tend to adjust their political preferences once they get information about their actual position (Bublitz 2022; Engelhardt and Wagener 2018; Karadja et al. 2016). However, recent studies pointed out that these effects are heterogeneous across individuals, sometimes inconsistent, and tend to be small in effect size (Ciani et al. 2021; Weisstanner and Armingeon 2022).

Another explanation, why people may not adapt preferences according to a self-interest rationale, suggests that individuals care for factors beyond material self-interest. Among these variables, fairness considerations have received much attention recently (Osberg & Smeeding, 2006; Roosma et al., 2016; Stantcheva, 2021; for a summary, see Hing et al., 2019). The basic idea is that fairness norms (Alesina and Angeletos 2005; Trump 2018) or other-regarding preferences (Dimick et al. 2018) might lead people to prefer redistribution and tax progressivity even if they themselves do not directly benefit from these. In line with these explanations, empirical studies have shown that unfair inequality performs better in explaining changes in preferences for redistribution over time than changes in overall inequality (Ahrens 2022b) and that fairness norms affect the degree of individual inequality acceptance (Almås et al. 2019). Hence, individual fairness beliefs are crucial to explain support for redistribution but it is still debated when and why inequality is seen as fair (Trump 2020) and we lack even more information when governmental redistribution is seen as a legitimate answer to combat (unfair) inequality (Barnes 2022).

While the literature on preference formation has seen important contributions by both lines in the literature – arguing for the importance of biased perceptions and fairness norms – studies that deal with

the implications of both of these arguments are scarce. Focussing on a self-interest rationale, the perceptions literature, so far, primarily studied perceptions of relative income positions and inequality. However, following arguments and ideas on the importance of other-regarding preferences, individuals should not only consider their myopic self-interest but also take the shape of redistribution and taxation into account (Levi 1991). Thus, tax perceptions should be crucial to understand how fairness considerations shape the formation of individual tax preferences. Basically, what level of taxes an individual is fine with paying should depend on what this person thinks *she* and *others* are contributing.

**How tax perceptions shape preferences for redistributive taxation**

Although fairness arguments have only recently received more attention in the study of preferences for redistribution and taxation (Ahrens 2022b; Alesina and Angeletos 2005; Scheve and Stasavage 2016; Stantcheva 2021), the study of what individuals consider fair or unfair has a long tradition in the social sciences. A key finding of these studies is that individuals often use the perceived status quo as basis for their fairness judgments (Costa-Lopes et al. 2013; Homans 1973). This also seems to hold in the context of political preferences as inequality perceptions affect inequality acceptance (Trump 2018). Thus, people should use what they think they themselves and others are contributing to and receiving from the welfare state to form estimates about fair levels of burdens and benefits.

This links the work on preferences for redistribution to established theoretical arguments in the tax compliance literature. These theories point out that people's willingness to contribute to the tax revenue depends on their fairness beliefs and whether they think others are contributing as well (Andreoni et al. 1998; Kirchler et al. 2008). In line with this idea, previous empirical results have shown that unjust distributions of burdens can hinder individuals' willingness to redistribute even if people perceive the inequality of outcomes to be unjust (Schwaninger 2022). Thus, rather than solely maximising one's own income, individuals also care about reducing unfair inequality. However, the degree of this tax solidarity depends on individuals' feelings of injustice which are informed by perceptions about who pays for the welfare state. Thus, individual support for redistributive taxation relies on the belief of a just distribution of burdens, that is, a basic form of tax-based welfare in which everyone contributes their fair share (see also: Levi 1991; Liebig and Mau 2005; Rothstein 2001). When it comes to the question of how individuals form their preferences for redistributive taxation, considering individuals' tax perceptions, thus, should be crucial.

This raises the question, how individuals form perceptions about tax rates and, hence, estimates about the distribution of the 'tax burden'. To answer this question, this study relies on theoretical insights from research in social and cognitive psychology that have a long tradition of investigating how people estimate relative contributions and how they form beliefs about fair or unfair shares of burdens. Empirical studies investigating individuals' tax perceptions show that people only have limited knowledge about the tax structure (Slemrod 2006)(Slemrod 2006). Instead of accurate information, individuals are likely relying on heuristics which could bias perceptions (Cruces et al. 2013; Pedersen and Mutz 2018).

Despite its continuous character, income often manifests itself in public debates in the distinction between the rich and the poor or of different income tax brackets. Such income classes can be understood as points of reference that individuals use in comparisons to identify their own position within the distribution of benefits and burdens (Cansunar 2021). Following this idea, this paper argues that income classes can be understood as reference groups when individuals form redistributive preferences. Thus, individuals should conceive tax rates (and the commonly related tax brackets) as contributions to the state budget made by different income classes. Such identifications can, however, lead to motivational or cognitive distortions of perceptions and preferences.

Since the seminal work of Ross and Sicoly (1979), it has repeatedly been shown that individuals tend to overestimate their relative contribution to joint tasks in various domains (for instance, between team members, spouses, or colleagues) (Deutsch et al. 1993; Herz et al. 2020; Kruger and Savitsky 2009). While this so-called *egocentric bias* has been attributed either to motivational mechanisms such as self-enhancement or to various cognitive mechanisms that point to individuals' limited information when judging the performance of oneself and others, the basic result that individuals tend to overestimate their contributions remains quite consistent. Applying these insights to the context of taxation, this paper argues that individuals should overestimate the relative contribution (in terms of tax rates) of their own income class. That is, individuals with low incomes should perceive higher tax rates for the poor compared to individuals with high incomes and high-income earners should perceive higher tax rates for the rich compared to low income earners. This should lead the poor to underestimate the progressivity of the tax system relative to the rich and vice versa.

The fact that individually perceived tax progressivity may be systematically biased depending on people's income position has several major consequences. First, previous literature may have underestimated the challenges in isolating pure self-interest because income potentially captures perceptual biases that may not be evidence of a self-interest rationale. That is, lower support for progressive taxation of the rich may not only be explained by their lower preferences for redistribution but also by a systematic overestimation of their own tax contributions relative to the poor. This calls into question established methods estimating preferences as deviation from the status quo that simply ask respondents' whether they consider the current income taxation as "too high" or "too low". If perceptions of as well as preferences for taxation depend on income, not considering perceptions may result in a biased estimate for the effect of income on support for progressive taxation. However, the relative nature of such survey questions has been rarely acknowledged (e.g. Berens and Gelepithis 2019; Roosma et al. 2016) (however, see Bobzien 2020; Stantcheva 2021 for exceptions).

Second, changing individuals' perceptions about the structure of tax contributions should affect their willingness to contribute to the tax revenue. Preferences for redistribution are strongly connected to individuals' beliefs that others are cooperative and fundamentally conform to the norm of reciprocity by contributing to the state revenue (Castañeda 2023; Rothstein 2001). Hence, individuals' tax preferences should not only be a function of their preferences or fairness beliefs, but also of their biased perceptions about what others contribute to the public good. In line with this expectation, previous studies could show that *egocentric biases* in perceived contributions can explain distributive justice judgements, independent of considerations for equity and self-interest (Burrus and Mattern 2010). Moreover, empirical studies found that informing individuals about their own contribution status (net-payer/receiver) and the compliance of others can influence redistributive preferences and the willingness to contribute to the redistributive tax system (Engelhardt and Wagener 2018; Wenzel 2005). This way, this study connects the literature on the importance of self-interest, which could partly motivate perceptual biases (Epley and Gilovich 2016), to the literature on fairness norms (Scheve and Stasavage 2016), and the moral economy of market societies (Koos and Sachweh 2019) and suggests that individuals' perceptions about what *they* and *others* contribute can enable or hinder individuals to demand more progressive taxes.

Third, the connection between tax perceptions and income position opens a new path on how inequality can affect demand for redistribution: perceived tax solidarity. Following these arguments, rising levels of inequality should lead to increasing underestimation of the relative contribution of others, resulting in rising dissatisfaction with the redistributive tax system among the rich and the poor. Thus, inequality-driven biased perceptions may provide people with a justification to withdraw from the principle of tax

solidarity with potentially detrimental consequences especially for the poor (for similar arguments see also the literature on inequality-driven beliefs see: Mijs 2021; Wegener 1987).

So far, this paper made three main arguments. First, since past research has shown that fairness is a relevant mechanism influencing people's preferences, and fairness ideas are influenced by the status quo, perceptions of the redistributive structure of the welfare state should affect individual redistributive preferences. Second, if perceptions are important one has to decompose support for more or less progressive taxation into its perception and preference component. Third, both components are likely to be linked to income positions. Rational choice arguments expect that preferences are linked to income: with increasing income people should prefer less progressive taxes (see 'preferred' line in Figure 6.1a). Likewise, perceptions of tax progressivity should depend on individuals' own income positions due to an egocentric bias: With increasing income, people's perceived tax rates of the rich should increase and their perceived tax rates of the poor should decrease. This leads to a positive relationship between income and perceived tax progressivity (see 'perceived' line in Figure 6.1a). Perceptions could therefore be crucial to understand the underlying theoretical mechanism as the empirically observed income-stratified support for more or less progressive taxes could either stem from differences in preferences or from differences in perceptions. Considering the expected positive relationship between perceived tax progressivity and income, (i) accounting for potentially income-stratified tax perceptions should reduce the predictive power of income for support for more or less progressive taxation (see arrows in Figure 6.1b), and (ii) informing individuals about the actual tax progressivity should lead, lower income classes who underestimate tax progressivity and higher income classes who overestimate tax progressivity, to increase their support for redistributive taxation because they are informed that others contribute relatively more to the public good than they initially believed. Taken together, this paper proposes four empirical hypotheses to test in this study.

$H_1$ Individuals' income is negatively correlated with support for more progressive taxation.

$H_2$ The lower (higher) one's income, the lower (higher) the individually perceived level of tax progressivity. [This follows because the closer a specific tax rate is to one's income position, the more likely it is that the individual overestimates it.]

$H_3$ The negative correlation between income and support for more progressive taxation is in part explained by differences in perceived tax progressivity.

$H_4$ Learning that one initially overestimated (underestimated) the level of tax progressivity increases (decreases) support for redistributive taxation among the rich and decreases (increases) support among the poor.

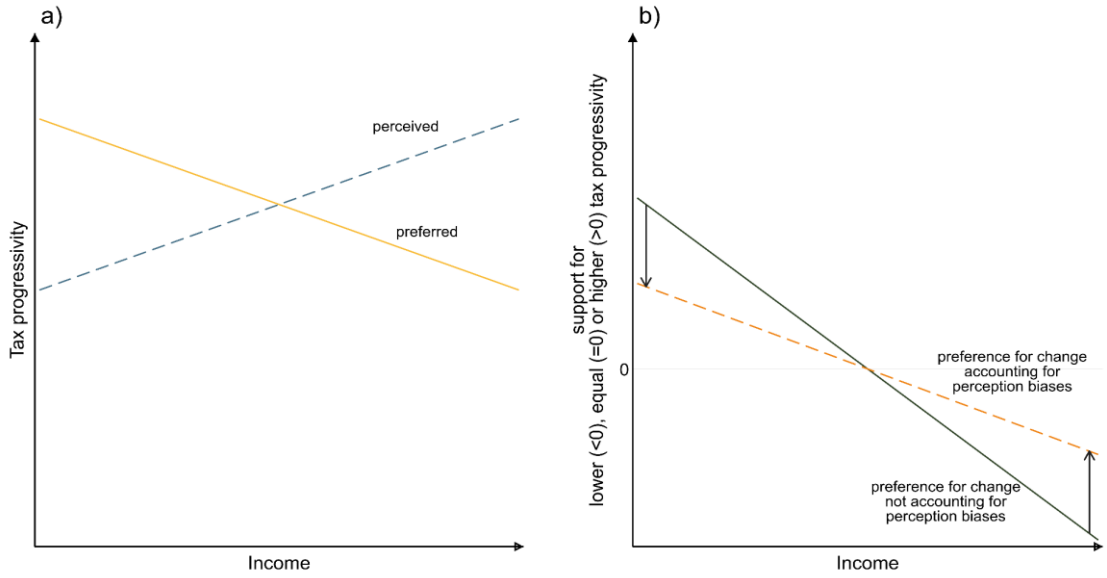


**Figure 6.1: Model illustration of a) the hypothesised link between perceived and preferred tax progressivity to income; and b) the hypothesised impact of perceptual biases on the relationship between income and support for higher/lower progressive taxes.**

## Method and Data

To test the role of tax perceptions in explaining support for redistributive taxation, this investigation analyses Austrian survey data that asked respondents directly about their perceived tax rates and about tax rates they consider fair. Austria can be seen as a typical case of advanced economies with regard to the overall trajectory of income inequality and the redistributive power of the welfare state (Elkjær and Iversen 2023). It has a highly progressive income tax system which should make redistributive conflicts between low- and high-income earners salient (Beramendi and Rehm 2016). It can therefore be seen as a most likely case to find differences in self-interest-motivated tax preferences across different income groups.

The Austrian web survey, which was part of the PUMA (platform for survey and method analyses) survey VI was fielded in fall 2018. The sample was partly drawn from the federal household register ($N_1$=976)) and from an online probability-based panel run by the government agency for public statistics in Austria ($N_2$=976). A total of 1088 (response rate: 55.7%) individuals completed the survey. Among other experimental elements, the survey included a treatment informing half the respondents about actual tax rates for different income levels, which is used in the second part of the analyses. Individuals who received the taxation treatment are excluded in the first part of the analyses because it might bias individuals' fairness evaluations. The final sample contains N=526 respondents after listwise deletion of missing values (4%). Since the data includes extensive data of people on the sampling list, non-response error can be partly compensated for by weighting the data. All estimations discussed in the results section include these weights. Data is weighted by gender, age, highest completed level of education, and urbanisation of hometown.

*Dependent variables: support for more or less progressive taxation*. This study measures individual support for progressive taxes using two sets of questions that asked respondents for their perceived and fair tax rates of four different income levels. The perception question was formulated as follows: *'How*

*much do you estimate a person with the following average total monthly gross income*[64] *pays in taxes and contributions? By this, we mean income taxes, capital income taxes as well as social security contributions and consumption taxes (such as value-added tax).'* Respondents are then asked to estimate a numerical value: *'A person with an income of €[1200/2200/3200/6000] pays [...]% in taxes and contributions.'* After having answered this question battery, individuals are asked: *'What percentage of gross monthly income in taxes and contributions would you consider fair?'* (own translations, see Appendix A Figure A6.1 and Figure A6.2 for the original German text).

To estimate individuals' perceived and fair tax progressivity, the study follows others in the literature and calculate the Kakwani concentration coefficient of taxes (e.g. Fernández-Albertos and Kuo 2018). It approximates the redistributive power of the tax system in terms of a reduction in Gini-coefficient based income inequality (Kakwani 1977). The Kakwani tax concentration ranges between -1 and 1 and increases with the level of tax progressivity. Negative values indicate a regressive tax system, 0 indicates a flat tax system, and positive values indicate a progressive tax system. The coefficient ($C$) can be calculated via the following expression:

$$C = \frac{\sum_{t-1}^{T} f_t * \mu_t * R_t}{\mu} - 1$$

Where $f_t$ refers to the population share of group $t$, $\mu_t$ to its tax rate, $R_t$ denotes the fractional rank in the income distribution, and $\mu$ the average tax rate.[65] With this formula two Kakwani-based measures of tax progressivity are calculated using individual's perceived and fair tax levels respectively. To improve the readability of coefficients and standard errors these coefficients are multiplied by 100. To measure individual's support for lower/higher levels of tax progressivity, we calculate the difference in the individual's fair and perceived levels of tax progressivity.

*Variables of interest: Own income position*. This study operationalises the respondent's income position by the total personal gross income measured in 22 income categories. The midpoints of the closed intervals are used as scores for those categories. The midpoint of the open-ended top category is extrapolated from the next-to-last category using a formula based on the Pareto curve as suggested by Hout (2004).

*Controls.* The regression models control for socio-economic characteristics that may affect income as well as perceived and preferred tax rates. A variable for sex (ref. male) is added. The models also control for education level by differentiating between primary, vocational, secondary, and university education and further control for employment status: whether an individual is employed, in education, retired, unemployed or out of the labour force. Besides the tax information treatment, the survey included a treatment that informed individuals about their relative income position within the income distribution. As this treatment may affect how individuals perceive and evaluate tax rates, all regression models contain a binary variable indicating whether an individual received an income treatment as control.[66]

In a second step, the paper studies whether tax perceptions are not only correlated with income positions and tax preferences but also causally affect tax preferences. To do that the study analyses survey

[64] Additional information given to the respondent: *'The person receives this salary 12 times a year. The 13th and 14th monthly salary are already included in this amount.' The income rates correspond to the 20th, 50th, 75th, and 90th percentile of Austria's gross income distribution.*

[65] To compute the concentration coefficient, we follow Fernández-Albertos and Kuo (2018)and assume that all four income groups the respondent is asked about are of equal size.

[66] Sperate dummy variables for upwards/downwards anchors produce essential similar results to the one dummy approach used here.

experimental data that treated a subsample of respondents with information about actual levels of tax progressivity after eliciting their tax perceptions. This sample contains N=1044 after listwise deletion of missing values (4%).

*Dependent variable (survey experiment): support for redistributive taxation*. This study uses agreement to the question *'I am willing to contribute my share to the financing of the state's services, even if others use it more than I do.'* as a proxy for individual's support for redistributive taxation. Respondents could answer this question on a 7-point rating scale ranging from 0='does not apply at all' to 6='applies completely'.

*Information treatment (survey experiment)*. After being asked about perceived tax rates for four different income levels, a randomly assigned half of the respondents received information about the actual tax levels for these income groups (see Appendix A, Figure A6.3). This information treatment should allow respondents to update their perceptions. To estimate these tax rates, the paper used the latest tax calculations available at the time of conducting the survey that uses a similar definition of taxes (Humer and Moser 2016).

*Estimation.* For the first part of the analysis, the study calculates OLS estimates and presents average marginal effects of income on perceived tax progressivity, fair tax progressivity, and support for lower/higher tax progressivity. This provides us with correlational evidence on how income relates to tax attitudes. Afterward, variation in perceptions stemming from income differences is excluded by calculating the residuals of the model that regresses income on tax perceptions. Finally, these residuals are used as a dependent variable to study the effect of income on support for more/less tax progressivity after accounting for different perceived rates of tax progressivity by different income groups.

*Estimation (survey experiment).* In the second part of the analysis, the study utilises a survey experiment in which a random subsample was informed about the actual tax rates. This enables us to study whether learning about tax rates affect individuals' willingness to contribute to the tax system. Because the information treatment should show different effects depending on the type of initial (mis)perception sub-groups are constructed depending on whether individuals overestimated, correctly estimated or underestimated the Austrian tax progressivity. The study treats an estimation as correct if the estimate lies within 1/2 standard deviation below or above the actual tax progressivity. Afterwards three simple OLS regressions are calculated explaining support for redistributive taxation for each estimation group (correct estimation, overestimation, underestimation) including a dummy for the information treatment, the income class (above or below the median evaluated income), and an interaction of the two. Further, a control variable for the relative income treatment is added.[67] Balance checks are provided in Appendix C. All models include robust standard-errors.

## Results

### Tax perceptions and preferences over the income distribution

Before providing the regression estimations, the empirical analysis presents descriptive results on individuals' perceived and fair tax levels. Figure 6.2 shows perceived and preferred average tax rates for four different income levels in the Austrian survey data. Across all income groups (x-axis) and

[67] This control is included because the experiment followed a 2x2 design. Thus, a quarter of the sample got both treatments.

evaluated tax groups[68], the tax rate individuals evaluate as fair is always lower than the perceived tax rate. The rising levels of perceived and fair tax rates by evaluated income group indicate that, on average, individuals of all income groups perceive the current tax system to be progressive and consider a progressive tax system fair. In contrast to what models focusing on individual self-interest predict, the results indicate little variation across income groups in what individuals think should be taxed. In fact, high-income earners report nearly identical average fair tax rates compared to other income groups. Contrary, perceived tax rates, especially for the highest evaluated income group, vary more strongly across individual income groups than fair tax rates suggesting a systematic relationship between income and tax perceptions.[69]

Compared to the actual tax levels, individuals, on average, tend to underestimate tax levels, except for the gross income of €6000 were this difference is not statistically significant (€1200: perceived 21%, actual 29%; €2200: perceived 30% actual 35%; €3200: perceived 37% actual 40%; €6000: perceived 44% actual 47%). This pattern could hint at the fact that individuals might underestimate the size and regressive power of indirect taxes and provides further evidence that individuals' have difficulties in distinguishing between different types of taxes (Blaufus, Bob, Hundsdoerfer, Sielaff, et al. 2013). However, focuses not on the average distance to the estimated actual tax levels (which could depend on many factors such as the specific tax type chosen in this study), but on income specific differences in perceptions. If perceptions correlate with income, the relative distance to the true value also changes with income suggesting that the relative impact of information should depend on an individual's level of income irrespective of whether all income classes over or underestimate the actual levels of taxes. However, future studies might distinguish between different tax forms to get a better understanding of how individuals perceive different tax forms and how these tax mixes link to preferences for redistribution.

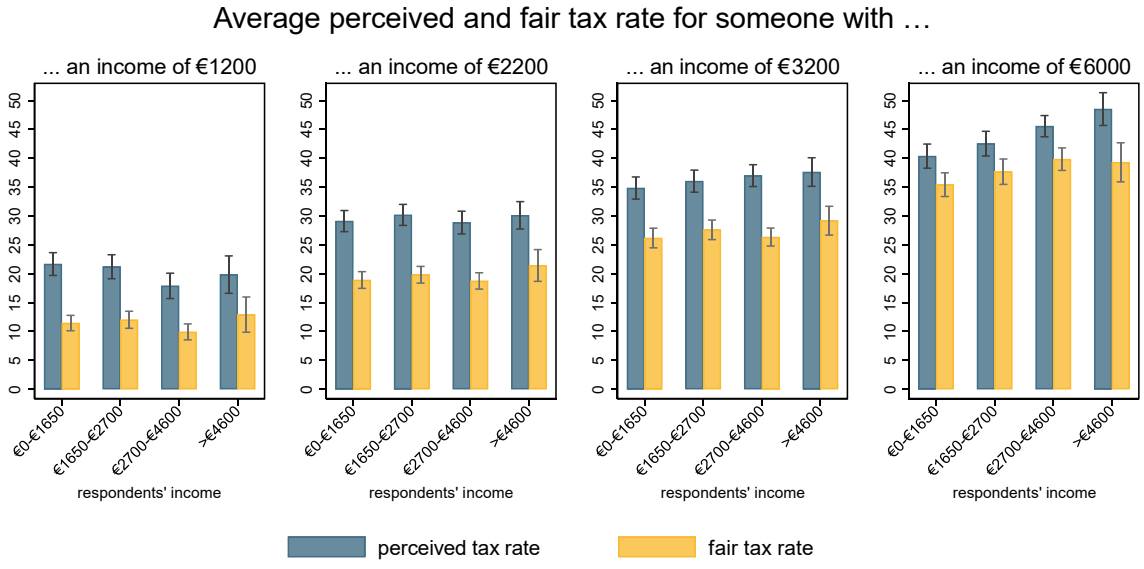


**Figure 6.2: Average perceived and fair tax rate for different income levels [€1200/€2200/€3200/€6000] by respondent's income.** N= 526 each. Source: PUMA 2019. Own calculations.

[68] For readability the income categories are collapsed into four income groups for this figure. The bandwidth of these groups corresponds to the incomes most closely to the four incomes of which respondents evaluated the tax rates.

[69] A robustness check including the group of respondents receiving the tax information treatment (excluded in Figure 6.2) produces a similar relationship, see Appendix B.

**Perceptions or preferences: Explaining individual's demand for tax changes**

Figure 6.3(a) shows linear predictions for respondent's perceived and fair tax progressivity by respondents' income (see Appendix D Table A6.5 for the regression estimates). The reported predictions show that both individuals' perception of tax progressivity and their estimates of fair tax progressivity increase with income. The estimates also confirm the descriptive results and suggest that the relationship between perceived tax progressivity and income (€1000 increase: $\beta$=2.00, $p$<0.001) is larger than the relationship between fair tax progressivity and income ($\beta$=0.78, $p$=0.145). Thus, in line with H2, the study finds that the size of perceived tax progressivity is positively related to income. In contrast, the results indicate no statistically significant relation between fair tax progressivity and individuals' level of income.

What can these results tell us about the factors influencing individuals' preferences to change the tax system? Figure 6.3 (b) shows linear predictions for respondents' support for more or less tax progressivity if one does not account for income-stratified differences in perceptions (solid line) and if one accounts for these income-stratified differences in perceptions (dashed line). Following arguments emphasizing the role of economic self-interest it is expected that support for tax progressivity decreases in respondents' income. In line with this argument, the regression estimates indicate a negative relationship between respondents' level of income and their support for more progressive taxation ($\beta$= -1.17, $p$=0.022) supporting H1. However, in line with H3, this negative relationship vanishes if perceptual biases across income groups are account for ($\beta$= 0.45, $p$=0.378)[70]. Thus, while the study finds that differences in support for more or less tax progressivity between different income groups are indeed positively related to an individual's income position. These differences are mostly driven by different perceptions of the current level of tax progressivity by low and high-income earners. Hence, differences in support to change the level of tax progressivity across different income groups are more strongly connected to tax perceptions rather than what individuals think that they themselves and others ought to be taxed.

[70] Note that this follows logically from Figure 6.3a because the regression coefficient of income on respondent's fair tax levels has to be identical to the regression coefficient of income on support for changes in tax progressivity if income differences in perceptions are fully accounted for. Hence, Figure 6.3b) just illustrates the difference already visible in Figure 6.3a).

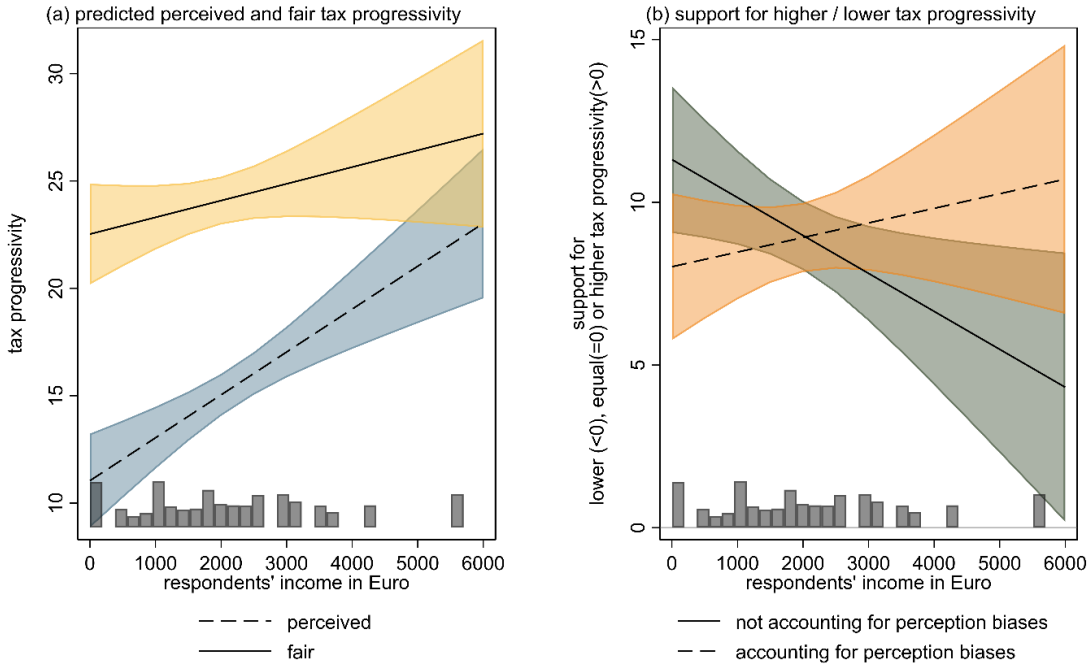


**Figure 6.3: (a) Linear prediction of perceived and fair levels of tax progressivity by income. (b) Support for progressive taxation by income not accounting (solid) and accounting (dashed) for income-based perception biases.** Grey area indicates 95% confidence interval calculated with robust standard errors. Weighted. See Appendix D, Table A6.5 for the regression table. Source: PUMA 2019. Own calculations.

To ensure that these empirical results are not driven by the specific estimation strategy of preferred tax progressivity, the Appendix provides several robustness checks with alternative operationalizations of the dependent variable: (i) using the difference between respondents' perceived/fair tax rates of high income earners (€6000) and low income earners (€1200) and (ii) using a flexible estimation approach that avoids the calculation of a combined measure of tax progressivity. All results reported in Appendix E and F provide substantially similar results - both with regard to the positive relation between tax progressivity perceptions and income, and concerning the relationship between income on support for more progressive taxation when accounting for perceptions differences across income groups. The appendix also contains robustness checks accounting for potential nonlinear income effects using income quintiles. These provide similar results to the one presented here suggesting that income outliers do not drive the results (see Appendix D). In addition, calculations also show that the negative relationship between income and support for more tax progressivity can be replicated in other countries using the standard ISSP measure which is structurally similar to the measure for support for higher/lower tax progressivity used in this study (see Appendix G). This suggests that the results are not an artefact of the demanding question wording and directly connects it to similar results using established measures in the literature.

**Can perceptions change tax attitudes?**

This paper argues that people form estimates about fair levels of taxation and benefits depending on what they think they themselves and others are contributing to the welfare state. However, evidence for a strong correlation between tax perceptions and support for tax changes is not sufficient to conclude that changes in tax perceptions directly affect individual support for redistributive taxation. To test this direct connection, the following analyses test whether a randomly assigned tax information treatment affects individuals' support for redistributive taxation. In line with H4 specified above it is expected that

those who are informed that they underestimated (overestimated) the tax rates of others relative to their own tax rate, should have a higher (lower) support for redistributive taxation compared to those with the same misperceptions who do not receive the information treatment. Thus, the study expects heterogeneous treatment effects depending on (1) respondents' initial degree of (mis)perception of the tax progressivity and (2) respondents' income position. For instance, high-income earners who overestimated tax progressivity and are informed that tax progressivity is lower should increase their support for redistributive taxation as they are informed that low-income earners are contributing relatively more and high-income earners contribute relatively less than they initially believed.

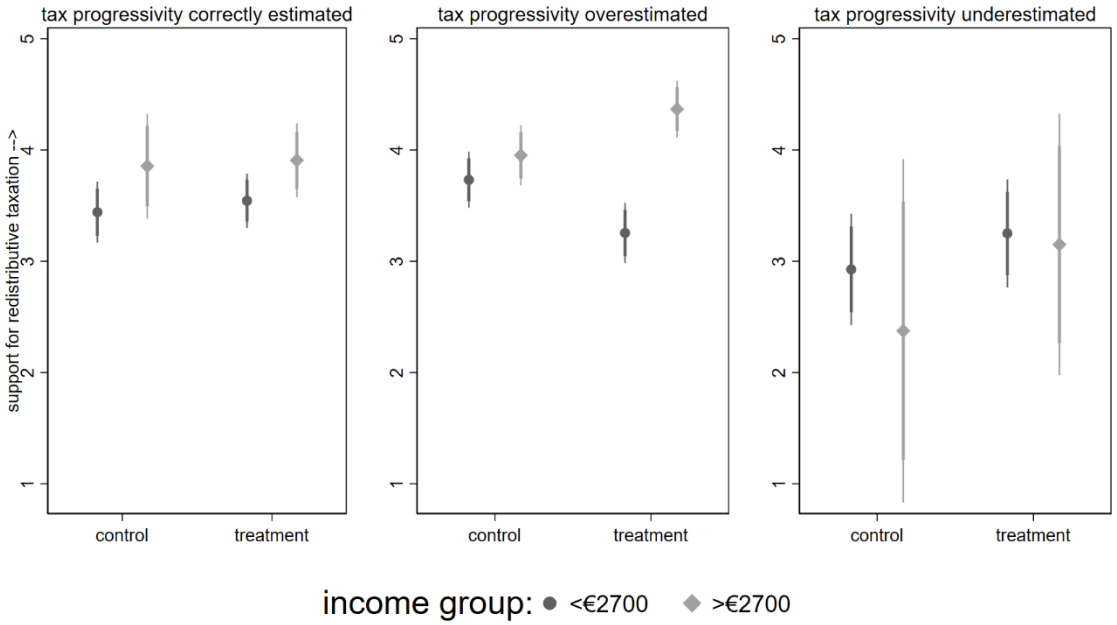


**Figure 6.4: Mean support for redistributive taxation of treatment and control-group by income group and initial (mis)perception of tax progressivity in Austria.** 95% ci (thin), 87% ci (thick). Source: PUMA 2019. Own calculations.

Figure 6.4 shows the average support for redistributive taxation depending on whether individuals correctly estimated (42.7% of respondents), overestimated (46.6%), or underestimated (10.7%) the level of tax progressivity. Each diagram shows the average agreement of the treatment and the control group for low-income individuals (<€2700) and high-income individuals (>€2700). As expected, the figure indicates no statistically significant difference between the treatment and control group for individuals with an approximately correct estimation of tax progressivity (Figure 6.4, left).[71] Looking at individuals who overestimated the level of tax progressivity, the estimates indicate that low-income respondents in the treatment group tend to show lower levels of support for redistributive taxation compared to respondents in the control group (Cohen's $d$=0.31, $\beta$=-0.48, $p$=0.040). This relationship is reversed for respondents with high incomes who – after receiving the treatment – show more support compared to respondents in the control group ($d$=0.26, $\beta$=0.41, $p$=0.046). Thus, as expected, the information treatment clearly increases differences in support for redistributive taxation between low- and high-income earners for those overestimating the level of tax progressivity (Wald test: $F$=8.13, $p$=0.005). Figure A6.10 in Appendix H also shows that this difference increases if the analyses is limited to those

[71] This also suggests that the treatment itself did not affect people's preferences if the information level is low (perceptions are similar to the actual tax progressivity). Effects on others are thus more likely due to the information provided and not due to arbitrary effects stemming from the information treatment itself.

who had initially even larger errors in their perceived tax progressivity. This provides further evidence that the treatment effect is in fact driven by those who changed their tax perception after receiving the information treatment. Using an alternative indicator to calculate individual's perceived tax progressivity produces essentially identical treatment effects (see Figure A6.11 in Appendix H). The results do not show statistically significant differences between income groups and treatment and control group for individuals who underestimated tax progressivity. Note, however, that the estimates are quite imprecise here because only very few respondents (especially in the high-income group) underestimated the level of tax progressivity. Thus, the study finds partial evidence in line with H4 showing that changing tax perceptions can indeed increase income-stratified differences in support for redistributive taxation among those who initially overestimated the size of tax progressivity.

## Conclusion

In the context of rising inequality in many countries around the world, the question of how to design governmental redistribution is a pressing matter. Using survey data from Austria, this paper analyses individual support for redistributive taxation. Specifically, the study investigates whether tax perceptions can help us to understand how individual income positions link to redistributive tax preferences? Following the literature on perceptions and heuristics stressing the role of egocentric biases, the study theoretically argues and empirically shows that poor individuals perceive lower levels of tax progressivity relative to rich individuals and vice versa. These differences in perceptions account for a large part of the variation in support for changes in the level of tax progressivity between the rich and the poor. Using a survey experiment, the analyses show that changing such perceptions has a direct effect on those who initially overestimated the level of tax progressivity increasing individual support for redistributive taxation among the rich and decreasing support among the poor. Thus, this article provides evidence that accounting for alternative explanations of preference formation, such as tax perceptions, can fundamentally improve our understanding of the link between relative income positions and redistributive preferences.

This study contributes to a growing literature focusing on the importance of perceptions when studying theoretical mechanisms that link economic context to individual-level preferences (e.g. Bobzien 2020; Cruces et al. 2013). Methodologically, the results indicate that measuring tax perceptions is important to accurately operationalize and understand the mechanisms explaining support for more or less progressive taxation. By asking respondents directly about their perceived and fair tax levels for specific income groups, one can improve on existing methods and identify whether different answers reflect variation in estimates about *what is* taxed or *what should* be taxed. This analysis focuses on a specific form of tax contributions: the total redistributive power of the revenue side of the welfare state. The fact that taxes for low-income earners are mostly indirect, while taxes for high-income earners are predominantly direct could indicate that the overall tax rates for the rich are more visible and thus less likely to be underestimated than the tax rates for the poor (see also Blaufus, Bob, Hundsdoerfer, Sielaff, et al. 2013). Thus, further studies are needed to establish whether differences in the tax composition of different income groups contribute to the inequality in the perceptions of who contributes.

Theoretically, the findings may provide a pathway how perceptions can link self-interest and fairness mechanisms that have been predominantly used as polar opposites in the literature. Previous studies have primarily focused on the role of inequality perceptions as an important mediator for self-interested preferences linking inequality at the macro level to preferences at the micro level (Cruces et al. 2013) or suggesting that perceptions provide a baseline for what people consider to be just (Trump 2020). The findings suggest that people care about 'who gives' to the welfare state (Beramendi and Rehm 2016) confirming the notion that the perceived structure of the tax systems is important to explain individual support for progressive taxation (Berens and Gelepithis 2019; Limberg 2020). However, tax perceptions

may be partly motivated by individuals' desire to increase their after-tax income. Such motivated beliefs may justify one's desire to increase or decrease the level of progressive taxation. Thus, perceptual biases may function as a mechanism that enables justified self-interested discontent with the status quo. Further research is needed to be able to disentangle whether perceptual biases are motivated by individuals' self-interest or are shaped by fairness concerns. In this regard, future studies might distinguish between perceptual biases in own or others' contributions and measure reciprocity concerns directly to provide further insights why changing individuals' perceptions about the structure of the tax system affects their support for redistributive taxation.

Finally, the results also speak to the ongoing debate on taxing the rich: This paper finds evidence that the poor and the rich are more polarised in their perceptions of who pays how much taxes than in their support for who should pay how much tax. That is, the rich are more likely to oppose increases in the level of tax progressivity than the poor because they perceive higher levels of tax progressivity relative to the poor. In times of growing income polarisation, such income-stratified perception biases should increase undermining individuals' perceived tax solidarity. Informing high-earning taxpayers about others' contributions to the welfare state, might be one way to decrease these biases and increase support for progressive taxation strengthening tax solidarity in the welfare state context.

# Appendix (Chapter 6)

## A Original question wording and layout (in German)


**Figure A6.1: PUMA Questionnaire wave 6: 'Politik, Steuergerechtigkeit und Gesundheit'.** Items P6M204a-d. Source: PUMA 2019.

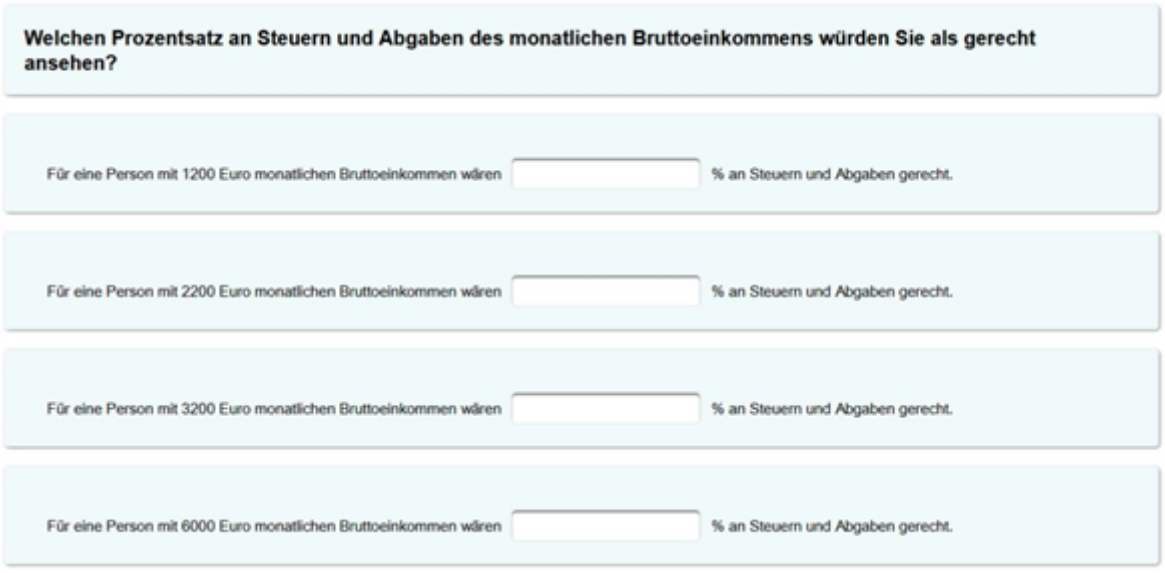


**Figure A6.2: PUMA Questionnaire wave 6: 'Politik, Steuergerechtigkeit und Gesundheit'.** Items P6M206a-d. Note: Source: PUMA 2019.

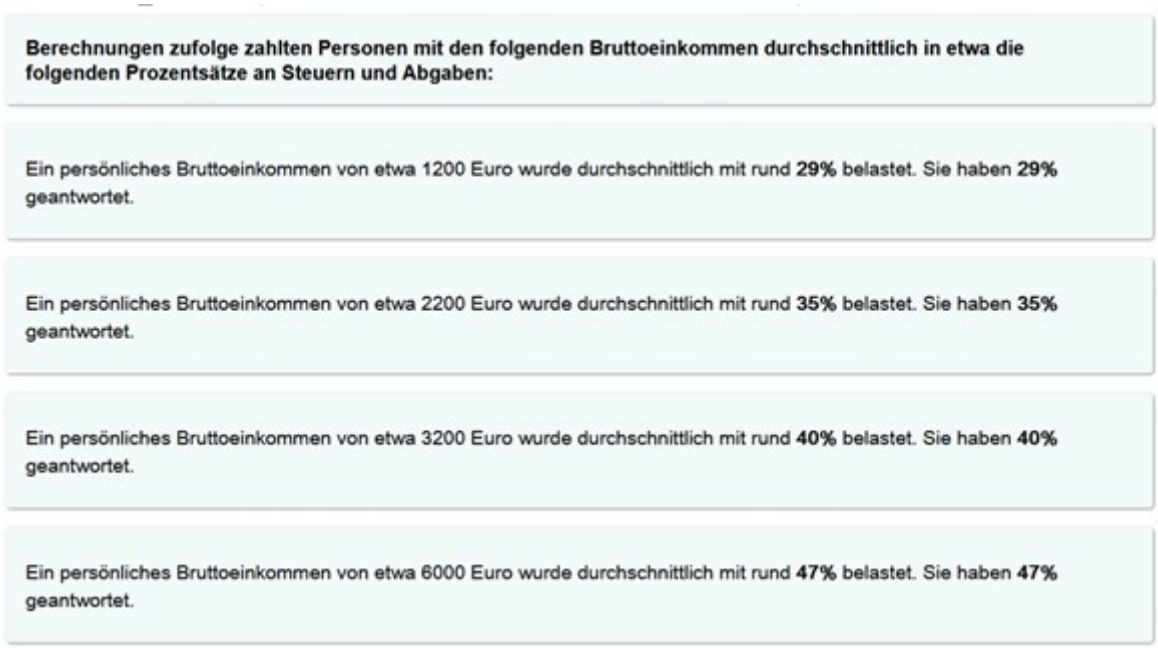


**Figure A6.3: Information treatment: actual tax rates for four income levels.** Source: PUMA 2019.

## B Descriptive relationship between individuals' perceived tax rates and income position (full sample)

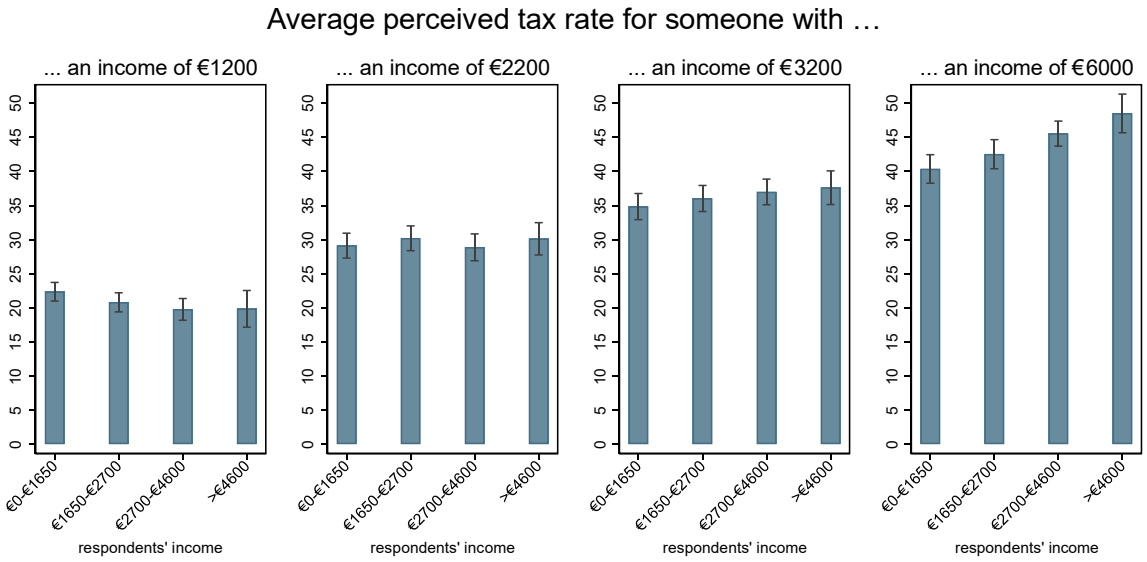


**Figure A6.4: Average perceived tax rate for different income levels [€1200/€2200/€3200/€6000] by respondent's income (full sample).** N= 1044 each. Source: PUMA 2019. Own calculations.

## C Balance checks

Results indicate no statistically significant differences between treatment and control groups in the main sample (Table A6.1) as well as in the tax progressivity misperception specific subgroups (see: correct estimation Table A6.2, underestimation Table A6.3, overestimation Table A6.4). The results indicate some differences with regard to the gender composition within the group underestimating the tax progressivity; these differences are not statistically significant due to the small number of respondents in this group. Including gender as a control (in all subgroup specific regressions) does not substantially alter any of the results reported in the main text.

**Table A6.1: Balance check within the full sample of respondents. T-tests for the differences in the means between control group and treatment group.**

| | group 1 | group 2 | t-test |
|---|---|---|---|
| | Control | Treatment | p-value |
| Variable | Mean/SE | Mean/SE | (1)-(2) |
| Personal gross income | 2209.173 | 2141.458 | 0.456 |
| | [66.469] | [61.812] | |
| Female | 0.481 | 0.486 | 0.859 |
| | [0.022] | [0.022] | |
| Primary ed. | 0.089 | 0.085 | 0.801 |
| | [0.012] | [0.012] | |
| Vocational ed. | 0.335 | 0.347 | 0.661 |
| | [0.021] | [0.021] | |
| Secondary ed. | 0.344 | 0.340 | 0.883 |
| | [0.021] | [0.021] | |
| Tertiary ed. | 0.232 | 0.228 | 0.874 |
| | [0.018] | [0.018] | 0.456 |
| N | 526 | 518 | |

**Table A6.2: Balance check within the sample who *correctly estimated* the level of tax progressivity. Refer to the method section for the definition of correct estimation. T-tests for the differences in the means between control group and treatment group.**

| | group 1 | group 2 | t-test |
|---|---|---|---|
| | control | treatment | p-value |
| Variable | Mean/SE | Mean/SE | (1)-(2) |
| Personal gross income | 2066.392 | 1982.456 | 0.540 |
| | [103.821] | [89.999] | |
| Female | 0.509 | 0.513 | 0.938 |
| | [0.034] | [0.033] | |
| Primary ed. | 0.090 | 0.101 | 0.689 |
| | [0.020] | [0.020] | |
| Vocational ed. | 0.316 | 0.346 | 0.499 |
| | [0.032] | [0.032] | |
| Secondary ed. | 0.349 | 0.311 | 0.402 |
| | [0.033] | [0.031] | |
| Tertiary ed. | 0.245 | 0.241 | 0.921 |
| | [0.030] | [0.028] | 0.540 |
| N | 212 | 228 | |

**Table A6.3: Balance check within the sample who *underestimated* the level of tax progressivity. Refer to the method section for the definition underestimation. T-tests for the differences in the means between control group and treatment group.**

| | group 1 | group 2 | t-test |
|---|---|---|---|
| | control | treatment | p-value |
| Variable | Mean/SE | Mean/SE | (1)-(2) |
| Personal gross income | 1590.789 | 1882.609 | 0.215 |
| | [144.064] | [189.946] | |
| Female | 0.491 | 0.370 | 0.220 |
| | [0.067] | [0.072] | |
| Primary ed. | 0.105 | 0.109 | 0.956 |
| | [0.041] | [0.046] | |
| Vocational ed. | 0.404 | 0.435 | 0.752 |
| | [0.066] | [0.074] | |
| Secondary ed. | 0.333 | 0.348 | 0.879 |
| | [0.063] | [0.071] | |
| Tertiary ed. | 0.158 | 0.109 | 0.474 |
| | [0.049] | [0.046] | |
| N | 57 | 46 | |

**Table A6.4: Balance check within the sample who *overestimated* the level of tax progressivity. Refer to the method section for the definition of overestimation. T-tests for the differences in the means between control group and treatment group.**

| | group 1 | group 2 | t-test |
|---|---|---|---|
| | control | treatment | p-value |
| Variable | Mean/SE | Mean/SE | (1)-(2) |
| Personal gross income | 2473.730 | 2343.210 | 0.335 |
| | [97.669] | [93.110] | |
| Female | 0.453 | 0.481 | 0.527 |
| | [0.031] | [0.032] | |
| Primary ed. | 0.082 | 0.062 | 0.382 |
| | [0.017] | [0.015] | |
| Vocational ed. | 0.336 | 0.333 | 0.951 |
| | [0.030] | [0.030] | |
| Secondary ed. | 0.344 | 0.366 | 0.600 |
| | [0.030] | [0.031] | |
| Tertiary ed. | 0.238 | 0.239 | 0.992 |
| | [0.027] | [0.027] | |
| N | 256 | 243 | |

## D Regression estimates different measures for income

**Absolute personal gross income:**

**Table A6.5: OLS estimates used in Figure 3 of the main text.**

| | (1) perceived tax prog. | (2) fair tax prog. | (3) support for tax prog. increase not accounting for perception biases | (4) support for tax prog. increase accounting for perception biases |
|---|---|---|---|---|
| Personal gross income | 2.00*** | 0.78 | -1.17* | 0.45 |
| (in €1000) | (0.45) | (0.53) | (0.51) | (0.51) |
| Women (Ref.: Men) | 0.97 | 4.11 | 3.05 | 3.05 |
| | (1.57) | (2.13) | (2.06) | (2.06) |
| Vocational (Ref.: Primary) | 0.78 | 3.80 | 2.60 | 2.60 |
| | (1.59) | (2.03) | (1.99) | (1.99) |
| Secondary | 0.28 | 1.70 | 1.31 | 1.31 |
| | (1.68) | (2.25) | (1.99) | (1.99) |
| Tertiary | 1.27 | -3.54 | -4.71 | -4.71 |
| | (1.80) | (2.27) | (2.44) | (2.44) |
| In education (Ref.: | 3.25* | 4.67* | 1.41 | 1.41 |
| (Self-)Employed) | (1.61) | (1.88) | (1.77) | (1.77) |
| Retired | -1.35 | 7.86* | 9.24* | 9.24* |
| | (3.85) | (3.55) | (4.60) | (4.60) |
| Out of labor force | 1.08 | 0.41 | -2.63 | -2.63 |
| | (3.82) | (2.65) | (3.11) | (3.11) |
| Unemployed | 0.46 | 0.29 | -0.05 | -0.05 |
| | (0.98) | (1.16) | (1.13) | (1.13) |
| Relative income treatment | 0.97 | 4.11 | 3.05 | 3.05 |
| (Ref.: not treated) | (1.57) | (2.13) | (2.06) | (2.06) |
| Constant | 8.58*** | 17.78*** | 9.05*** | 5.75* |
| | (2.03) | (2.53) | (2.39) | (2.39) |
| N | 526 | 526 | 526 | 526 |
| R2 | 0.07 | 0.08 | 0.07 | 0.07 |

Note: Robust standard errors in parentheses. Source: PUMA 2019, own calculations. * p < .05, ** p < .01, *** p < .001.

**Personal gross income quintiles (allowing for nonlinear effects)**

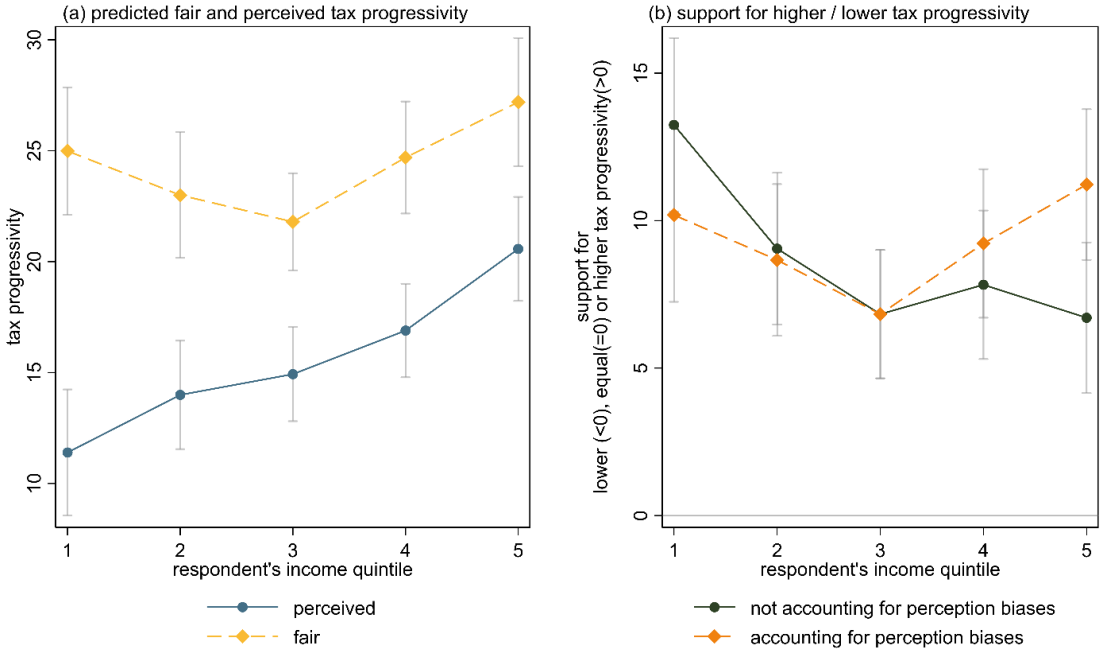


**Figure A6.5: Linear prediction of (a) perceived and fair levels of tax progressivity by income quintile, (b) support for progressive taxation by income quintile not accounting (solid) and accounting (dashed) for income-based perception biases.** 95% ci calculated with robust standard errors. Source: PUMA 2019. Own calculations.

In line with H2, compared to middle incomes (income quintile 3 in Figure A6.5) respondents with low incomes (quintile 1) perceive lower (β=-3.53, p=0.066) and respondents with high incomes (quintile 5) perceive higher (β=5.64, p <.001) levels of tax progressivity. Contrary to that, the results indicate no statistically significant difference in fair tax progressivity between low- and middle-income earners (β=3.19, p=0.105) and even increases in fair tax progressivity estimates between middle- and high-income earners (β=5.39, p=0.003). Thus, perception differences are more substantial than fairness differences and basically increase linearly with income supporting H3.

Focusing our attention on respondents' preferred changes in tax progressivity, the estimates indicate higher preferences to increase tax progressivity among low income earners compared to middle income earners (β=6.42, p=0.002), but no statistically significant differences between high- and middle-income earners (β=-.12, p= 0.938). Accounting for differences in respondents perceived tax progressivity, the results show some evidence that middle income earners want less progressive taxes than middle income earners but the effect is smaller compared to the same difference not accounting for preference biases (β=3.36 p=0.103). Contrary to the expectations of self-interested preferences, the estimates again indicate that high income earners want more progressive taxes than middle income earners (β=4.39 p=0.006) if one accounts for differences in tax perceptions between different income classes.

## E Using an alternative simplified measure for tax progressivity

As a simplified alternative to the Kakwani-based measure of tax progressivity, the following analysis estimates individuals' perceived tax progressivity calculating the difference between individuals' perceived/fair tax rate of people earning €6000 and the perceived/fair tax rate of people earning €1200. Thus, this measure of tax progressivity indicates how many percentage points respondents think that incomes with €6000 are taxed higher/should be taxed higher than incomes with €1200. Following the approach described in the main manuscript, an individual's support for more or less tax progressivity is calculated using the difference between the perceived tax progressivity and the fair tax progressivity. Similar to the Kakwani-based measure for support for more or less progressive taxation, a positive value represents support for higher tax progressivity than currently perceived, while a negative value represents support for lower tax progressivity than perceived.

The estimates visualized in Figure A6.6 confirm the results reported in the main text using the Kakwani-based measure of tax progressivity. First, Figure A6.6a shows the relationship between perceived tax progressivity and income (€1000 increase: $\beta$=3.18, $p<0.001$) is larger than the relationship between fair tax progressivity and income ($\beta$=0.67, $p=0.260$). This result is in line with H2 predicting that high-income earners will have higher perceived levels of tax progressivity compared to low-income earners. Second, Figure A6.6b shows a negative relationship between respondents' level of income and their support for more progressive taxation ($\beta$= -2.52, $p<0.001$) as expected (H1). However, similar to using the Kakwani based tax progressivity indicator and in line with H3, this negative relationship vanishes if one accounts for perceptual biases across income groups ($\beta$= 0.02, $p=0.752$).

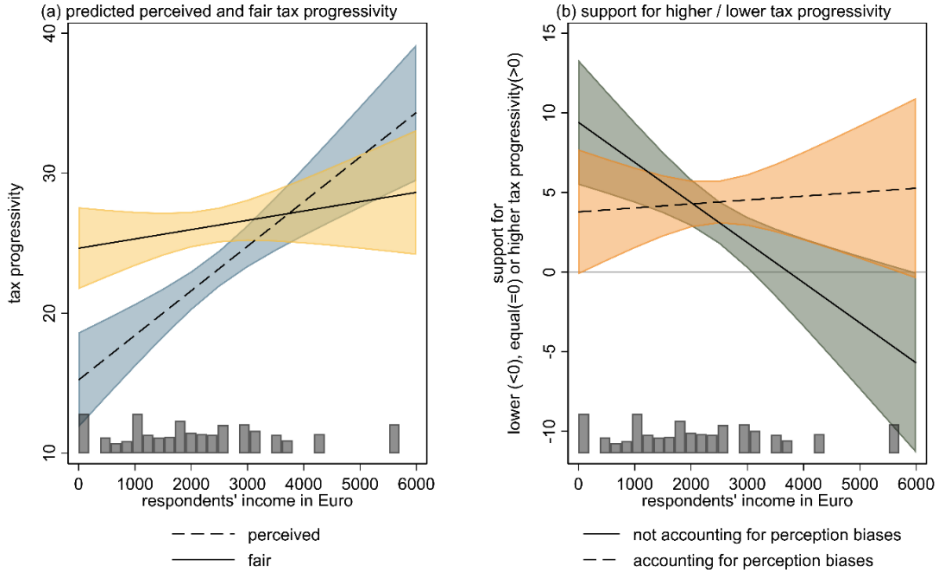


**Figure A6.6: (a) Linear prediction of perceived and fair levels of tax progressivity by income. (b) Support for progressive taxation by income not accounting (solid) and accounting (dashed) for income-based perception biases.** Grey area indicates 95% confidence interval calculated with robust standard errors. Weighted. See Appendix E, Table A6.5 for the regression table. Source: PUMA 2019. Own calculations.

## F Testing the link between preferred tax change and income by evaluated income group (PUMA)

An alternative approach to calculating a specific measure for respondent's preferred change in the level of tax progressivity is be to treat respondents' evaluations of the taxes of incomes of the different income groups as four separate variables and analyse their relationship with income separately. This approach utilizes the fact that respondents' support for tax rate increases should be increasing with the corresponding income group if they prefer more progressive taxes. Following H1, the study expects that respondents' incomes should be negatively correlated with support for tax rate increases of high-income earners, while they should be positively correlated with support for tax rate increases of low-income earners.

The following provides the results of this alternative approach as a robustness check. To calculate these estimates, the data is reshaped to a long format in which the dependent variables (support for tax changes for four different income levels) are nested within individuals. To allow for the effect of income to vary by the evaluated income group, the models include an interaction of these two variables. Our analysis, thus, focuses on differences in the average marginal effects of income on support for lower/higher taxation for the four different income brackets evaluated by the respondents. Afterwards, the analyses use the variables of perceived tax rates and fair tax rates separately and study which of these variables has a stronger relationship with respondents' income position. In addition to all control variables used in the analysis reported in the main text, the regression models also abstract from individuals' general taste towards taxation by demeaning the tax preferences on the respondent level. The intuition is that some individuals may *generally* consider taxation to be too low or too high. This study, however, is not interested in general ideas about the size of generated tax revenue but aim to investigate the relative distribution of these tax burdens across different groups.[72] All models include standard-errors clustered at individual-level.

Figure A6.7 displays linear predictions for respondent's preferences for lower (>0), equal (=0) or higher tax rates (<0) for four income levels depending on respondent's objective income. Estimates show that, with increasing income, individuals are less likely to think that taxes for an income of €6000 should be higher while the relationship between income and preferred tax changes for the lowest income category of €1200 is reversed. For this income category the preferred tax change even switches signs: while low-income individuals would argue that people earning €1200 pay too much in taxes, respondents with high incomes consider these taxes too low. In absolute terms, low-income individuals would want to increase differences in tax rates of the lowest and highest income group by about 8%-points (an increase by roughly 40% compared to the actual tax difference of 18 %-points in Austria at that time), while the individuals with the highest incomes in our sample would want this difference to remain stable or even increase. The effects for the middle-income categories are more ambivalent but still follow the expected directions. In sum, the estimates support H1 that low-income earners are more in favor of increasing taxes for high-income earners than high-income earners and low-income earners are less in favor of increasing taxes for low-income earners than high income earners. Thus, low income earners de facto prefer higher increases in the level of progressivity of the tax system than high income earners. In general, these estimates support the results reported in the main text that uses a single indicator to measure respondents' preferences to increase/decrease the level of tax progressivity.

[72] This only changes the average outcome and does not affect the differences in the relationships between income and preferences for more or less taxes of different income levels we are interested in.

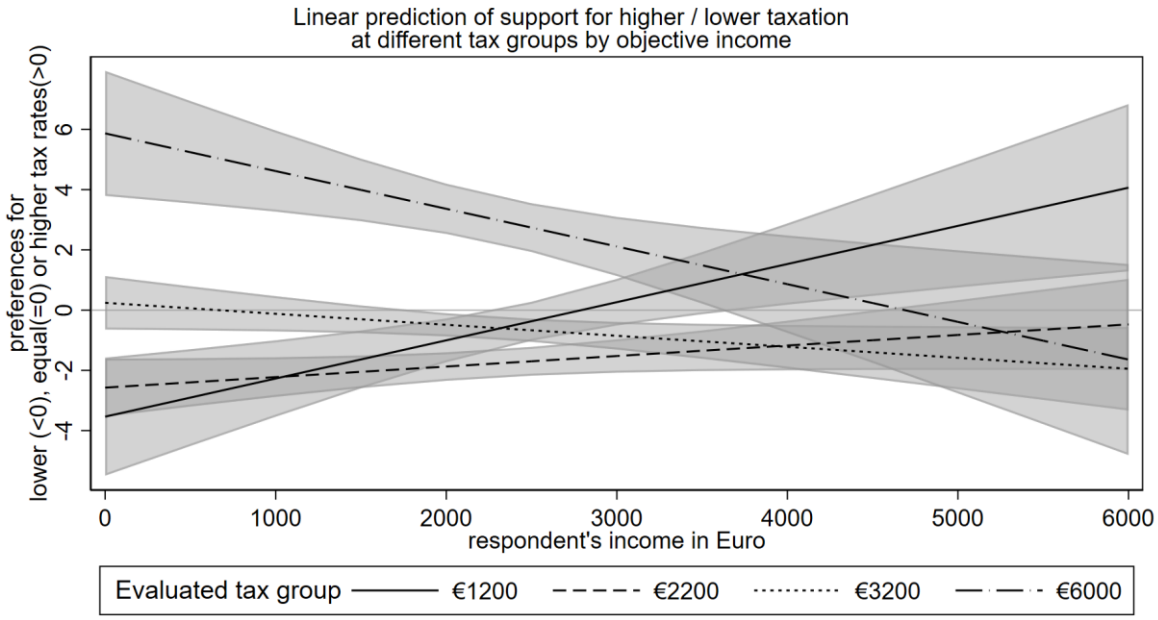


**Figure A6.7: Support for changes in tax rates for different income levels [in %-points] by objective income.** Grey areas indicate 95% ci calculated with robust standard errors. Regression models include controls for employment status, years in education, sex, and income treatment as well as their interactions with the evaluated income group. Source: PUMA 2019. Own calculations.

To study the relative importance of perceptions and preferences, the analyses compare the average marginal effects of respondent's income position for the different income groups on perceived and fair tax rates. Figure A6.8 shows the average marginal effect of an increase in income by €1000 on (a) perceived tax rates and (b) fair tax rates. If individuals evaluate the lowest income level (€1200), the perceived tax rate decreases with income ($\beta$=-1.06, p=0.035). If individuals evaluate the highest income level (€6000), we observe the reversed effect: Increases in income are associated with increasingly perceiving higher tax rates ($\beta$ =1.54, p=0.002). A similar pattern can be observed when looking at differences in the average marginal effects of income depending on the fair tax level by evaluated income level (see Figure A6.8 (b)). However, here the estimates are substantially smaller and not statistically significant (1200: $\beta$=-0.07, p=0.847, 6000: $\beta$ = 0.39, p=0.452). Wald-tests show that the differences in the marginal effects between the highest and the lowest income group is statistically significant for the effect of income on perceived inequality (F=23.34, p<0.001) but not for an effect of income on fair inequality (F=0.92, p=0.339). Thus, as predicted (H2), low-income individuals perceive lower levels of tax progressivity relative to high-income individuals. Further, differences in preferences for more or less taxes between different income groups are mostly driven by different tax perceptions of low- and high-income earners (H3).

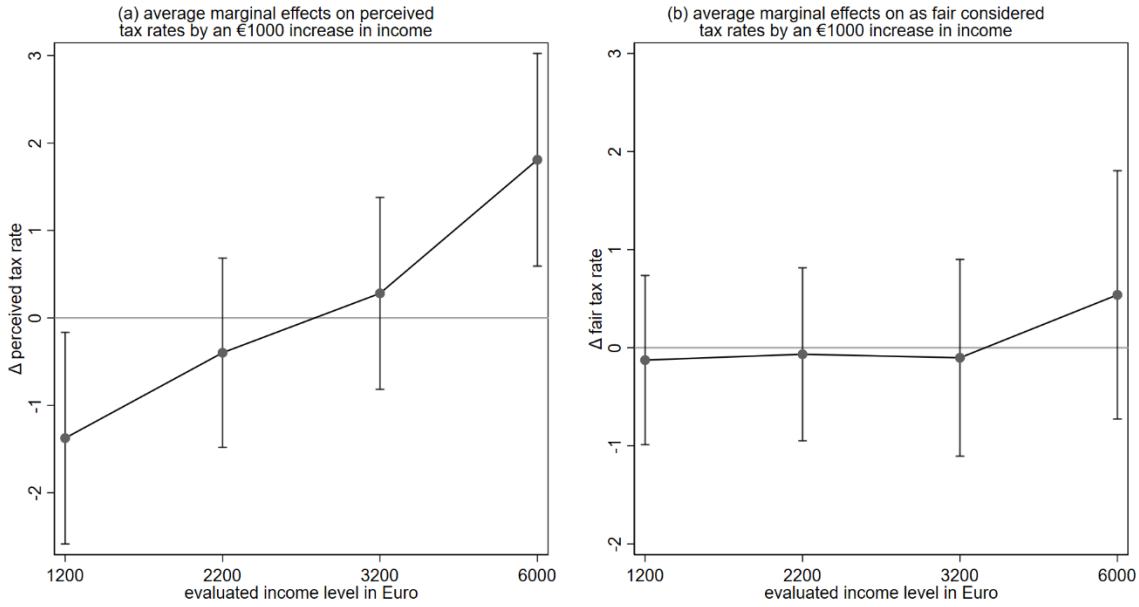


**Figure A6.8: Average marginal effects of an income increase of €1000 on (a) perceived tax rates and (b) as fair considered tax rates by evaluated income level.** 95% ci clustered at individual level. Regression models include controls for employment status, years in education, sex, and income treatment as well as their interactions with the evaluated income group. Source: PUMA 2019. Own calculations.

## G Testing the link between preferred tax change and income by evaluated income group (ISSP)

To investigate how our estimate to measure peoples' preferences for more or less progressive taxes relates to more established instruments in the literature, the following analysis compares it to the tax preference questions used in the ISSP 2016 - Role of Government module. Following Barnes (2015), te analytical sample is limited to the advanced industrial countries available within the data set (AU, CH, DE, DK, ES, FI, FR, GB, JP, NO, SE, US, NZ). As this module measures individual's preferences to tax low / middle / high incomes less or more than currently the case, one would expect to receive similar relationships with respondents' income as reported in Appendix F, Figure A6.7. Following the same estimation strategy, the ISSP data is reshaped from a wide format to a long format so that taxation preferences for low, middle, and high incomes are nested within individuals. Afterwards, the analysis calculates regression estimates using OLS allowing for different relationships between respondent's income position and the evaluated tax rate (for high, middle, and low incomes) by including interactions of these variables. The model includes equivalized household income to operationalize an individual's income position. To achieve a comparative measure across all countries, we assign each respondent the middle point of their respective income category, equivalize it according to household size, and then construct a continuous variable that measures the log deviations from the country means. In addition to all control variables (reported in the caption of Figure A6.9) the models also abstract from individuals' general taste towards taxation by demeaning the tax preferences on the respondent level (see also Appendix F). To interpret the regression results, the analyses focuses on differences in the marginal effects of the relationship between income position and support for higher/lower taxation of different income levels. All models include country-fixed-effects and estimates clustered standard-errors.

Figure A6.9 shows linear predictions of preferences for lower, equal or higher taxation for low, middle, and high incomes by income. The estimates indicate that increasing income is associated with being less likely to consider taxation for high incomes much too low ($\beta$=0.081, $p<0.001$) and with decreasing likelihood of reporting that taxation for low incomes is (much) too high ($\beta$= -0.090, $p<0.001$). These findings show that the higher (lower) the income, the less (more) likely are respondents to think that high incomes are taxed too low and the higher (lower) the income, the less (more) likely are respondents to think that low incomes are taxed too high. The figure indicates no substantial relationship between support for more or less taxes for middle incomes and respondent's level of income. These results suggest that the patterns of tax preferences on low- and high-income earners are similar to the patterns received using the Austrian data which measures tax preferences as differences between perceived and fair tax rates directly and specifies concrete target incomes (€1200 etc.) instead of general terms (tax es for low incomes etc.). In sum, the results suggest that our point of departure (income stratified cross-sectional differences in preferences for more or less progressive taxes) can also be found in a cross-country analysis using a different more simplified estimation strategy to elicit people's preferences. This suggests that our more complex and cognitively demanding measurement strategy likely does not drive this result.

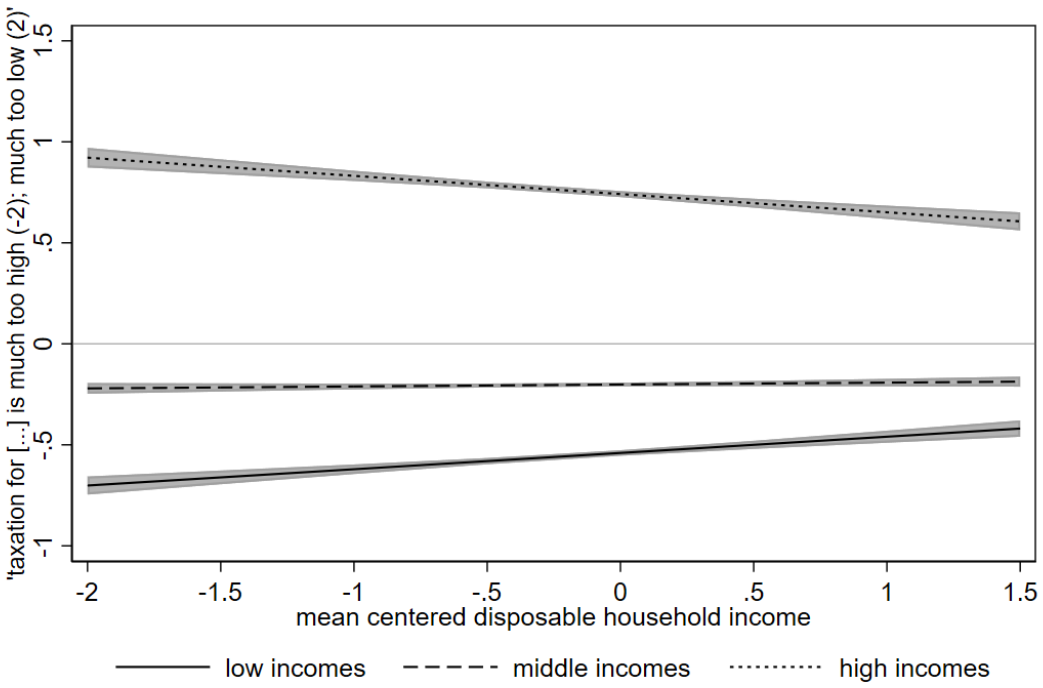


**Figure A6.9: Support for taxation of different evaluated income levels by respondents' income (demeaned).** 95% ci calculated with robust standard errors. N= 39,084 nested in N=13,028 individuals. Controlled for age, income, education, occupational status, gender, general tax preference and their interaction with the evaluated income levels as well as country-dummies. Included countries: AU, CH, DE, DK, ES, FI, FR, GB, JP, NO, SE, US, NZ. Weighted. Source: ISSP 2016. Own calculations.

## H Experiment robustness checks

Following hypothesis 4, the study expects heterogeneous treatment effects depending on respondents' initially correctly estimated, overestimated, or underestimated the tax progressivity in Austria. However, the selection of a specific cut-off values when a perception is counted as 'accurate' is relatively arbitrary. Hence, Figure A6.10 (left) provides average marginal effects for the treatment on individuals overestimating the tax progressivity depending on different definitions of correct estimation. If the information treatment in form of changing perceptions affects the dependent variable, one expects increasing effects the larger the error. In line with this expectation, Figure A6.10 (left) indicates increasing effect sizes for both income groups (high-incomes and low-incomes) the larger the initial error in perceptions, increases in the positive treatment effect on support for redistributive taxation of high-income earners, as well as decreases in the negative treatment effect on support for redistributive taxation of low-income earners. This leads to an increase in the differences in the treatment effect if the perception error grows larger (Figure A6.10 right).

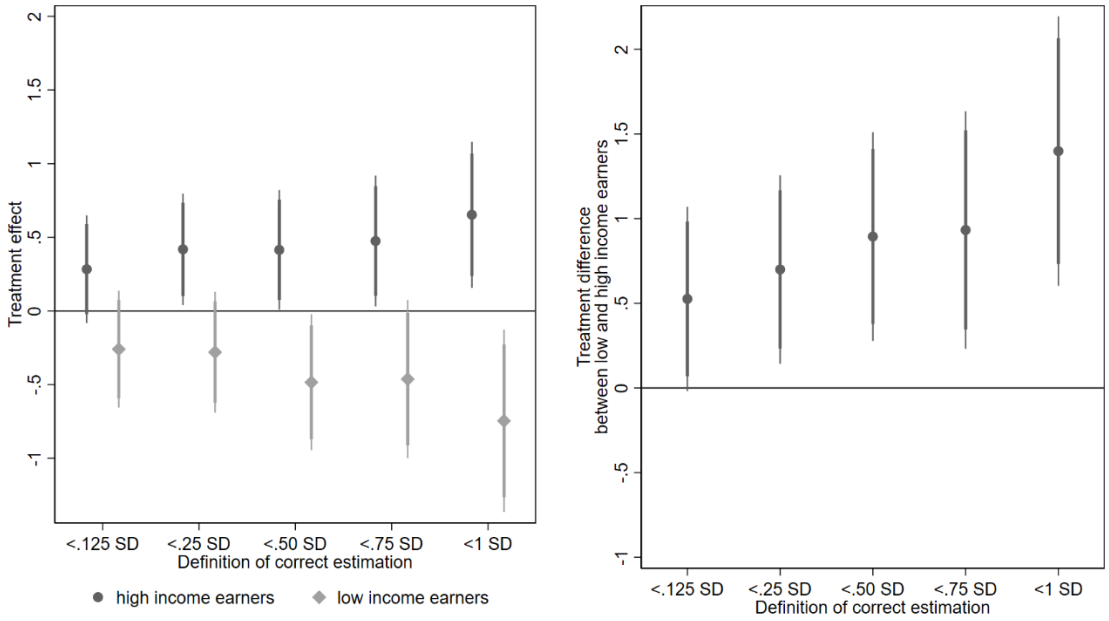


**Figure A6.10: (left) Average marginal effect of the information treatment within the group overestimating the tax progressivity (using the Kakwani based measure) on preferences for redistributive taxation depending on the income group and the definition of correct estimation of the status quo tax progressivity and (right) the difference of the treatment effect of preferences for redistributive taxation between high- and low-income group depending on the definition of correct estimation of the status quo tax progressivity.** 95% ci. Source: PUMA (2019). Own calculations.

In a second step, it is tested whether using a different measure for tax progressivity (high/low differences see Appendix E) would result in different treatment effects. Figure A6.11, using this alternative measure, shows nearly identical treatment effects compared to the Kakwani-based estimates suggesting that the results reported in the main text are not depending on the specific estimation strategy for progressive taxation.

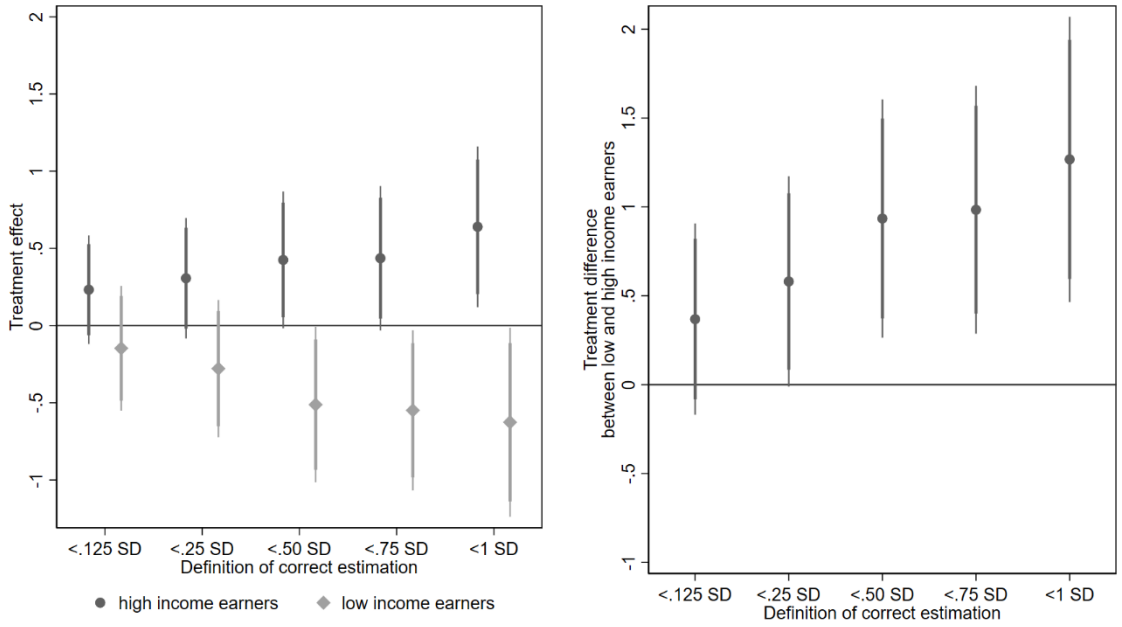


**Figure A6.11: (left) Average marginal effect of the information treatment within the group overestimating the tax progressivity (using the high tax/low tax differences based measure) on preferences for redistributive taxation depending on the income group and the definition of correct estimation of the status quo tax progressivity and (right) the difference of the treatment effect of preferences for redistributive taxation between high- and low-income group depending on the definition of correct estimation of the status quo tax progressivity.** 95% ci. Source: PUMA (2019). Own calculations.

# 7) Discussion and Conclusion

*Our new Constitution is now established, and has an appearance that promises permanency; but in this world nothing can be said to be certain, except death and taxes (Benjamin Franklin 1836:410).*

## Summary of findings

This dissertation set out to answer the question of when and why people want more redistributive taxes. Following the rise of income inequality in the United States and in several countries in Europe, especially after the great recession, traditional econometric models predicted rising preferences for redistribution; however, contrary to this expectation, public demands for redistributive taxes have remained at similar levels or even decreased. In this dissertation, I argue that we can understand this phenomenon by acknowledging the role of limited public information about inequality and tax rates and the importance of fairness heuristics in hindering or enabling individuals to demand redistribution by taxes.

Combining the literature of various fields, as traditional in the field of fiscal sociology since its very beginning (Martin, Mehrotra, and Prasad 2009; Musgrave 1992; Schumpeter 1918), I propose a theoretical framework that assumes that individuals are motivated by two desires: income maximization and the desire to live in a just world. Utilizing a desire belief opportunity model of decision making at the micro level, I suggest that for desires to motivate preferences, they depend on individuals' beliefs about action alternatives and appropriate forms of action in a given situation. This highlights the role of situational mechanisms that must explain the logic of the situation for the actors—that is, how macro conditions link to individual perceptions and how these perceptions are used by individuals to form beliefs about the available and optimal tax options. Hence, this dissertation focuses on the process of human belief formation, concentrating on the question of when and why individuals think that a certain form of redistribution maximizes their income or can be considered fair.

Following established arguments in analytical sociology, social psychology, and social justice research, I argue that perceptions serve two important functions: providing individuals with a sense of what is the case, on which they can base their preferences, and defining action alternatives by providing individuals with a range of "natural" options. The first idea focuses on the role of perceptions as indicators of people's (mis)information on which they base their rational preference formation. This approach is strongly linked with what I call the "negative explanation of preference stability," suggesting that stable preferences for redistribution in times of rising inequality can be explained by people's limited or biased information about relevant macro conditions. The second function of perceptions suggests that individuals may not only use perceptions for rational decision-making but also as direct indicators for what is possible and good. This is strongly connected with the notion that individuals use the status quo as an indicator of what is possible and good, skipping the cognitively effortful process of preference evaluation. I call this approach a "positive explanation of preference stability" because this idea suggests that perceptions can motivate individuals to change their outcome preferences to be more in line with the status quo than they would prefer if the institutional setting or economic conditions were different.

While this positive explanation of preference stability or the "adjustment hypothesis" is quite established in inequality research, suggesting that inequality can essentially legitimize itself (see, e.g., Trump 2018), I expected that this should also hold for the redistributive tax system, predicting that individuals will use the status quo taxation as a reference to assess what tax progressivity is fair. This follows arguments that unfair inequality does not automatically translate to fair redistribution and could be one explanation why

individuals sometimes do not support increases in redistribution, although this would be in their material interest and despite the fact that they think that current levels of inequality are unfair (Nishi and Christakis 2015; Schwaninger 2022).

Using cross-country data from the European Social Survey, Chapter 3 empirically tests this redistributive adjustment hypothesis. Analyzing individuals' reflexive (own) perceived and fair tax rates, I found strong correlations between the average perceived and fair tax rates across individuals and countries. Individuals seem to follow the basic sentiment that "taxes are a little bit too high"—but on quite different baselines (perceptions) that correlate with the actual tax system in place. Thus, measuring individual tax attitudes in the form of dissatisfaction with the status quo, as done previously, tells us little about the size of taxes people are fine with paying. Using multilevel regression models, I test this macro–micro relationship, focusing on the link between objective structural conditions and individuals' tax fairness beliefs. These results indicate that with increasing average tax rates in a country, people, on average, perceive higher tax rates to be fair, and with increasing tax progressivity in a country, the tax rates individuals consider fair vary more with individuals' income. Hence, macro-level tax progressivity is strongly related to micro-level beliefs about fair tax progressivity. This also holds true if I control for the level of income inequality in a country. Thus, people prefer higher tax progressivity in high tax progressivity countries compared to low-tax progressivity countries even if the level of gross income inequality is similar. This challenges the assumption of stable outcome preferences in most econometric models, suggesting that individuals' desire to maximize their net incomes might be confined by the institutional setting they live in.

These analyses provide initial evidence for the existence and substantial relevance of the relationship between institutional arrangements of taxation on the macro level and individuals' perceptions of what constitutes fair taxes for themselves at the micro level. However, these tests lack causal evidence and leave out the possibility of reversed causality or confounding errors due to omitted variable bias. To overcome these problems, Chapter 4 follows up on the results of Chapter 3 and tests the adjustment hypothesis in an experimental setting, analyzing whether increasing individuals' perceptions about status quo tax progressivity through an information treatment increases the level of tax progressivity they believe is fair.

Using data from a representative experimental survey conducted in Austria in 2018, Chapter 4 examines the causal impact of information about one's relative income position and the present structure of tax rates on the tax progressivity that respondents consider fair. Following up on the cross-country evidence, the results indicate that perceived tax progressivity is a strong predictor of the amount of tax progressivity considered fair. Going beyond correlational evidence, I show that tax information causally induces people to adapt their beliefs about fair levels of tax progressivity to the status quo of tax progressivity. This reduces the fair tax ratio between top and bottom tax rates and the amount of fair tax progressivity measured by the Kakwani tax concentration index because overestimation of tax progressivity was most common in the sample. Therefore, lowering individuals' perceptions about the level of status quo tax progressivity decreases the level of tax progressivity they believe is fair, which could have detrimental economic consequences, especially for the poor. These results are robust for the inclusion of alternative predictors of fair tax progressivity, such as social mobility expectations, political orientation, trust in government, and inequality misperceptions, as well as for providing individuals with accurate information about their rank within the income hierarchy.

Chapter 4 provides causal evidence in support of the adjustment mechanism, suggesting that at least parts of the strong correlations between actual tax progressivity and just tax progressivity found in Chapter 3 are driven by people's tendency to adapt their fairness beliefs to the status quo. However, the study also showed that relative income information fails to change peoples' attitudes about fair levels of redistribution via taxation, although people have highly biased perceptions about their relative income

positions prior to the information treatment. I suggest that one reason for this result is that perceptions have commonly been misinterpreted as simple indicators of people's (mis)information. In contrast, I suggest that one must consider how inequality presents itself to social actors. This not only relates to the power of the status quo but also emphasizes that inequality and redistribution are essentially relational (i.e., they always contain information about one's *own* and *others'* situations, rewards, and burdens). Thus, aside from status quo effects, one must also consider the socio-comparative character of structural information and individual perceptions about inequality and redistribution, as people will likely make sense of inequality or redistribution by comparing their own incomes, benefits, and burdens with those of others. This has consequences for both income perceptions and tax perceptions.

Following up on a large body of research on social comparisons and human self-assessments, I suggest that people use the way inequality is described as a cue about what people should have (Lowery et al. 2009; Skylark et al. 2018). This is particularly the case if fairness judgments relate to either upward- or downward-directed inequality (Bruckmüller et al. 2017). Hence, focusing on the direction of comparison, I suggest that the endpoint anchors (poor/rich) people use when assessing the size of inequality affect their subjective relative income positions and their beliefs about what inequality should look like.

Using data from the Austrian experimental survey used in Chapter 4, Chapter 5 shows that endpoint anchors have a large consistent effect on individuals' relative income estimates, producing higher relative income perceptions if people estimate the share of income earners richer than themselves compared to if people estimate the share of income earners poorer than themselves. Using causal mediation analyses, I show that anchors not only affect individuals' relative income perceptions but also have a direct impact on subsequent fairness attitudes and indirectly affect people's subjective social status. These results provide direct evidence that individuals are not only sensitive to the size of inequality but also to how it is framed, showing that the salience of endpoint anchors affects individuals' views about the size and fairness of inequality. Using a second experimental survey consisting of Austrian university students, I replicate the anchor effects on relative income perceptions and show that these findings translate to different types of distributional perceptions (wealth, air travel distances, and carbon dioxide emissions) and are mainly produced by cognitive anchoring and adjustment bias. To avoid biases in the future, I suggest and successfully test a new difference–difference approach that manages to substantially reduce the anchor bias in an individual's relative income estimates.

However, as mentioned, the comparative character of perceptions and belief formation in the context of individuals' formation of redistributive preferences should not only affect how people assess their relative income positions but also how they evaluate the state of tax progressivity by comparing their own tax contributions to others. Following this argument, Chapter 6 (co-authored with Licia Bobzien) points out that the common cross-sectional finding that the poor are more likely to support increases in the level of tax progressivity than the rich might not be evidence for different outcome preferences (differences in preferences of *what should be taxed*) but of income-stratified perceptions of *what is taxed*. Following the idea that individuals estimate their own perceived and fair tax rates in relation to the perceived tax contributions of others, I suggest that people are likely to overestimate their own tax contributions because of perceptional biases in public good contributions linked to egocentrism. This should lead the rich to perceive higher levels of tax progressivity than the poor (increasing polarization of perceived tax progressivity) and may consequently affect individuals' support for progressive taxation, as both the poor and the rich should be relatively unsatisfied with the contribution of the other income class. Using data from an Austrian survey experiment similar to Chapter 4, the results show that individuals' income position is connected to their tax preferences, as a self-interest rationale would predict. However, decomposing tax preferences into their perception and preference components reveals that income-stratified preferences are driven by differences in what people think is taxed and not by

differences in what people think they and others should be taxed, which is in line with the expectations of egocentrically overestimated tax contributions. Randomly informing a subset of the sample about actual tax rates of themselves and others (reducing egocentric overestimation of one's own relative tax contribution) changes individuals' support for redistributive taxation and increases tax solidarity, especially among the rich. Hence, informing the rich about others' contributions to the public good could be an important way to increase tax solidarity in times of growing inequalities in the future.

## Contribution to the existing literature

Taken together, this dissertation provides several important contributions to the existing scientific literature. First, from a theoretical perspective, the dissertation highlights the complex role of situational mechanisms and clearly distinguishes two essential functions of perceptions for belief and preference formation. This distinction between perceptions as indicators of information and perceptions as institutional cues about what is possible and what is fair has the potential to explain diverging previous empirical results of information experiments by acknowledging that individuals often act in a habitualized manner if they form preferences for redistribution instead of engaging in a cognitively demanding process of evaluating the pros and cons of all available options (Payne et al. 1993; Searle 2001; Wikström 2006; Wood and Neal 2007). In short, I provide evidence that tax preferences and fairness evaluations follow a strong "what you see is all there is" framework of decision making (Kahneman 2011). This result connects well with recent research that shows that it is common for individuals in economic decisions that involve statistical reasoning to simply use what is in front of them and that alternatives sometimes do not even come to mind, which favors conservative decision-making (Enke 2020; Enke and Graeber 2023). Moreover, this may indirectly explain why semi-conscious forms of decision-making and heuristical biases have been deemed particularly important to explain individual economic preferences, such as motivated reasoning, numerical anchoring, system justification, or moral adaptation to the status quo (Arceneaux and Nicholson 2023; Haack and Sieweke 2018; Jost, Banaji, and Nosek 2004; Samuelson and Zeckhauser 1988). Redistributive tax preferences are likely seldom actively discussed and cognitively demanding, and individuals have little economic interest in gathering political tax knowledge because the power of an individual's single vote is low. This context simply does not favor active cognitive decision-making, especially if the process of preference formation is not accompanied by a strong political debate in which individuals can update their perceptions at a lower cost (Boomgaarden et al. 2011; Feld and Kirchgässner 2000; Slemrod 2006).

However, this overestimation of the role of conscious decision-making in explaining individuals' preferences for redistribution is not only confined to the desire to maximize one's income but also relates to their views about what is fair, as individuals tend to use what is as indicators of what can be considered fair (Berger et al. 1972; García-Sánchez et al. 2019; Homans 1973; Marshall et al. 1999). Hence, information about the status quo does not simply correct misperceptions but also influences what level of inequality people consider legitimate (Trump 2018) or, as this dissertation shows, what level of redistribution is legitimate. This relates to recent studies on people's views about just gender wage gaps that also suggest that these beliefs cannot be explained by limited information on what wages are adequate for which jobs but by cultural environment that legitimizes gender wage gaps so much so that also women implicitly think gender wage gaps in favor of men are fair (Auspurg et al. 2017). Similar to these results and theoretical arguments in social justice theories, I suggest that the status quo establishes a baseline on which individuals make their justice evaluations, which biases justice evaluations in favor of the status quo even if individuals might think that inequality is too high or wage gaps should not exist.

Related mechanisms have also been discussed in political science in the context of policy feedback theory, which has played an astonishingly limited role in the study of individuals' preferences for redistribution so far (Busemeyer, Abrassart, and Nezi 2021; Fernández and Jaime-Castillo 2013; for a

recent exception see Schechtl and Tisch 2023). Policy feedback arguments suggest that under certain circumstances, policies can create a positive feedback loop after they are enacted, suggesting that policies may change the social norm that may make extremes impossible to think of or guide outcome preference to the status quo, which may be an important mechanism explaining some of the findings of this dissertation and may help to link moral economy arguments to system justification theory by highlighting the importance of institutional and elite cues that establish a social norm in which individuals expect and prefer low levels of tax progressivity (Stoeckel and Kuhn 2018).

Moreover, this dissertation has provided evidence that inequality might not be enough for individuals to conclude that redistribution is an adequate approach to combating inequality. Commonly, this is explained by the idea that people react to unfair inequality and not to objective inequality per se (Ahrens 2022b; Almås et al. 2011). However, previous studies have shown that even unfair inequality might not be enough to motivate people to support redistribution in general and redistribution via progressive taxation in particular (Osberg and Smeeding 2006; Scheve and Stasavage 2023; Schwaninger 2022). In line with this expectation a recent study found that 80% of the British population stated concerns with the level of inequality but only 40% are in favor of increasing the level of governmental redistribution. Hence, at least for parts of the population, unfair inequality might not be enough to warrant increases in governmental redistribution. One reason for why individuals do not change their preferences in times of rising (unfair) inequality might be that the status quo affects not only inequality fairness, as previously argued, but also individuals' views on what level of redistribution is legitimate. In line with this argument, previous literature has already suggested that special conditions are necessary to create an adequate setting for individuals to demand more redistributive taxes. These studies emphasized the role of debates about state-related procedural injustice, which became particularly salient in times of budget crises (Limberg 2022; Scheve and Stasavage 2016). However, these crises may also create the necessary active debates of political alternatives, as people otherwise may simply lack the imagination of the possibility and reasonability of higher progressive taxation, which are preconditions for public demand for redistributive taxation.

In sum, these theoretical arguments suggest that it is unlikely that tax redistribution, driven by increased public demand, stabilizes net income inequality in times of rising wage inequality, as the conventional Meltzer–Richard idea would suggest. This could indirectly explain why preredistribution is key to explain different inequality trajectories in the United States and many European countries (Blanchet et al. 2022; Elkjær and Iversen 2023), as both tax systems reacted little to challenges of skill-biased technological change, but institutional reforms in the United States allowed for more preredistributive inequality compared to the welfare institutions in many European countries (Farber et al. 2021; Goldin and Katz 2009; Kenworthy and Pontusson 2005b).

Lastly, the dissertation points out that forming perceptions and beliefs about inequality and redistribution always involves a process of social comparison, which highlights the role of a range of social mechanisms that are normally involved when individuals compare themselves to others. Crucially, this argument emphasizes that the framing of inequality may be as important as its size and connects well with established ideas in relative deprivation theory and other-regarding preferences in economics. In line with these arguments, this dissertation shows that it is crucial to consider whether individuals look up or down when evaluating their relative income positions and their relative contributions to the state's tax revenue. Hence, redistribution from may be structurally different from redistribution to—not only because it concerns different policy areas but also because it highlights different social groups ("the rich" and "the poor") and fairness dimensions (prosociality and effort) (Hansen 2022; Horwitz and Dovidio 2017). Thus, following arguments in the welfare benefit literature about the deservingness of the poor (van Oorschot 2000), we have to consider public views about the (un)deservingness of the rich to understand when individuals think it is adequate to increase the redistributive power of the tax system

(Roosma et al. 2016; Scheve and Stasavage 2016). In line with this argument, I found that support for redistributive taxation is strongly connected to individuals' beliefs that others are cooperative and fundamentally conform to the norm of reciprocity by contributing to state revenue (Castañeda 2023; Rothstein 2001). Perceiving others' contributions is important to increase willingness for non-egoistic redistributive preferences in tax progressivity. Hence, individuals' tax preferences are not only a function of their preferences or fairness beliefs but also of their biased perceptions about what others contribute to the public good. Hence, views about the public good provisions of others may justify one's desire to increase or decrease the level of progressive taxation and may function as a mechanism that enables justified self-interested discontent with the status quo.

Second, the dissertation also contributes several methodological innovations, especially in the context of measurement strategies of individuals' views about tax fairness and their perceptions of the level of tax progressivity and relative income positions. By concentrating on taxes, I avoid conflicting redistribution from and redistribution to, which is common in the literature but has been criticized in the past, as both follow different social mechanisms and highlight different fairness issues (Cavaillé and Trump 2015). To the best of my knowledge, this dissertation is also the first to estimate perceived and fair tax rates separately among a wide variety of European countries, avoiding usual problems with established measurement strategies that are either highly complex and cognitively demanding creating high shares of missing answers (e.g., progressivity preference estimates in the ISSP and ESS) or cannot determine whether preferences for change stem from differences in perceptions or differences in outcome preferences (ISSP) (for related critique of established measures in the field see, e.g., Barnes 2015; Pedersen and Mutz 2018; Stantcheva 2021).

The cross-country evidence presented in the dissertation revealed a mountain of variance hidden between country-level baselines that would suggest that people want to pay fewer taxes everywhere in Europe. However, this dissatisfaction with the status quo tells us little about how much people are fine with paying taxes if the institutional context allows. While in the short-run it may be politically relevant whether people think their taxes are 'too high', this overshadows the effective importance and theoretically more intriguing fact that people in high-tax countries can think that twice the level of taxes are fair compared to people living in low-tax countries. Furthermore, the dissertation provides new measures to elicit tax progressivity perceptions at the individual level that specify concrete income levels to avoid misconceptualization of income groups (everyone is middle income), which, otherwise, could confound the mechanisms of relative income misperceptions and tax misperceptions (see also the arguments by Cansunar 2021). This dissertation concentrated on individual perceptions and fairness beliefs regarding the full tax progressivity of the revenue side of the welfare state, including the regressive power of indirect taxation (Blasco, Guillaud, and Zemmour 2023; OECD 2020), which could explain the overestimation of the progressive power of the welfare state found here. While this provides new evidence on how people react to tax definitions, as previous studies mainly focused on progressive income taxation specifically, this also indicates that more fine graded measures are needed to analyze whether different tax mixes in different countries may contribute to tax progressivity misperceptions and hence potentially reduce support of progressive taxation.

Furthermore, the results of this dissertation point out that measuring tax perceptions is important to accurately operationalize and understand the mechanisms explaining support for more or less progressive taxation (Berens and Gelepithis 2019; Limberg 2020). By asking respondents directly about their perceived and fair tax levels for specific income groups, one can improve existing methods and identify whether different answers reflect variations in estimates about *what is* taxed or *what should* be taxed. In this context, previous literature may have underestimated the challenges of isolating pure self-interest because income potentially captures perceptual biases that may not be evidence of a self-interest rationale. That is, lower support for progressive taxation of the rich may not only be explained by their

lower preferences for redistribution but also by a systematic overestimation of their own tax contributions relative to the poor, as I found in Chapter 6. This calls into question established methods estimating preferences as deviation from the status quo that simply ask respondents' whether they consider the current income taxation as "too high" or "too low" (ISSP). If perceptions of and preferences for taxation depend on income, not considering perceptions may result in a biased estimate of the effect of income on support for progressive taxation. However, the relative nature of such survey questions has rarely been acknowledged (e.g. Berens and Gelepithis 2019; Roosma et al. 2016). Moreover, preferences for change is likely motivated by different social mechanisms if they are driven by perceptions or fairness ideals. Thus, disentangling perceptions and fairness views or outcome preferences is crucial to understanding how tax attitude polarization connects to structural conditions, such as income inequality, and to explaining what factors can change these attitudes.

Additionally, the dissertation speaks to the growing literature studying relative income perceptions, which has become one of the most popular topics in the literature, starting especially with Cruces et al. (2013), who highlighted the importance of relative and absolute income misperceptions to explain preferences for redistribution. However, the previous literature has had trouble replicating these results and still cannot easily determine when and why information about inequality and relative income positions fails to change individuals' inequality concerns and redistributive preferences (Ciani et al. 2021). Moreover, studies have also pointed out the enormous variance of estimates and misperceptions that different methodological approaches find (Jachimowicz et al. 2022; Nyhan 2020). Following up on these results, I show that small changes in question wording, such as the manipulation of the comparison anchor, can lead to starkly different misperceptions, as upward comparisons reduce overall error and downward bias but increase the upward bias in the estimates of lower income classes compared to downward comparisons. Considering the large effect of the question anchor, previous experiments designed to correct misperceptions using one of these questions correct, to a large extent, misperceptions produced by the specific measure used to elicit respondents' beliefs. While this might not affect the validity of the experiments, it strongly limits their ability to inform us about the direction and degree of misperceptions and the potential effects of objective information in the field. Hence, we need a deeper understanding of the social mechanisms that drive individuals' (mis)perceptions to avoid such methodological pitfalls in the future. This dissertation makes the first contribution to this endeavor by pointing out that the anchor bias is created by the increased salience of anchor confirm information, which enables me to suggest and successfully test a new difference-in-difference approach to estimate individuals' relative income positions and reduce these anchor biases.

Finally, the results of the dissertation also have societal relevance. Following the ideas of Thomas H. Marshall (1950) this dissertation also targets the question of whether economic inequality can lead to social polarization even if civil and political rights are equal (see also Iversen and Soskice 2015). From a simple material rational choice perspective, extensive increases in inequality will be avoided in democratic societies when citizens are well informed about the level of inequality because they should increase their demands for redistribution. However, if the effects of information and perceptions about the size of inequality are endogenous to structural conditions, inequality can perpetuate itself.

In line with these concerns, the results indicate that providing information about the status quo may not only enable individuals to make rational decisions, as was previously argued, but may also change the baseline on which individuals form their decisions and can, in fact, lead to legitimized low levels of tax progressivity and, thus, higher inequality. This is especially the case if the institutional context favors overestimation of tax progressivity, which I found is quite common if one asks individuals about the total redistributive power of the revenue side of the welfare state and might be explained by individuals' failure to account for the regressive impact of indirect taxation. In this context, information may perpetuate the status quo of tax progressivity, as people use what is the case as a base for what is possible

and desirable. Thus, the literature so far has been overly optimistic regarding the ability of democratic societies to guarantee stable levels of economic inequality via governmental redistribution, as individuals' fairness norms are highly endogenous to levels of inequality and redistribution.

Moreover, the connection between tax perceptions and income position opens a new path to how inequality can affect the demand for redistribution: perceived tax solidarity. As shown in this dissertation, the poor are more prone to underestimate tax progressivity, while the rich tend to overestimate tax progressivity. These misperceptions should grow when the level of inequality increases if this increases the level of income polarization and segregation, as has been shown is commonly the case (Zilberstein and Lamont 2023). Following these arguments, rising levels of inequality should lead to an increasing underestimation of the relative contributions of others, resulting in increased dissatisfaction with the redistributive tax system among the rich and poor. Thus, inequality-driven biased perceptions may provide people with a justification to withdraw from the principle of tax solidarity with potentially detrimental consequences, especially for the poor (for similar arguments see also the literature on inequality-driven beliefs see: Mijs 2021; Wegener 1987). However, the results of this dissertation might also point out some opportunities to avoid this vicious cycle of inequality. Publicly providing information on who contributes to the tax revenue of the welfare state can change demands for redistributive taxation, especially among the rich, who increase their support for redistributive taxation if they are informed that the poor pay more than expected (which is the most common misperception). At the same time, more information on the context of taxation may also decrease the potential lock-in effect of fairness estimates in the status quo. This would elevate some of the inequalities produced by differences in the economic endowments of different social classes.

In addition, I could show that upward or downward comparisons evoke different perceptions about where people position themselves in society and highlight different fairness frames. Thus, it is crucial to investigate not only people's misperceptions about the size and shape of inequality but also how they and the sources they use frame inequality. In this context, the dissertation could show that the ratio of upward and downward comparisons itself should be a relevant factor that influences decision-making. Thus, future studies may investigate the comparative groups people are exposed to in their daily lives and in the media to investigate whether the rich or the poor are framed in ways that favor contrasting or assimilation (Buunk and Gibbons 2007; Summers et al. 2022). Some studies of the portrayal of merit in popular culture already point in that direction (Carbone and Mijs 2022), but more investigations are necessary to determine how people form such beliefs in their day-to-day interactions and when consuming different forms of media (Summers et al. 2022).

## Limitations and demand for future research

Like any study, this dissertation has several limitations that also suggest pathways for future research. First, I relied mainly on cross-sectional data because panel data with the potential to disentangle tax perceptions, fairness attitudes, and preferences are unavailable. Future studies might try to establish longitudinal evidence to test whether people learn to like the tax system in which they live. Some studies have already investigated tax issues from a longitudinal perspective but have mainly focused on objective outcomes and macro-level correlations (Barnes 2020; Buggeln 2022; Limberg and Seelkopf 2022; Seelkopf, Lierse, and Schmitt 2016). I suggest that more research is needed on perceptions, fairness views, and preferences to understand the social mechanisms involved when people form their redistributive tax preferences. In this setting it would be especially beneficial if international comparative studies investigate whether different tax levels and mixes affect individuals' demand for progressive taxation.

Moreover, future research is needed to determine the concrete social mechanisms that affect individuals' tax perceptions. As noted earlier, self-interested motivated reasoning is a distinct possibility that may explain why the rich overestimate tax progressivity and the poor underestimate it (Epley and Gilovich 2016). However, as noted in the literature, perceptions likely also represent attitudes shaped by deep-rooted political values (Trump 2023). Both of these explanations have different consequences, and research is needed to pinpoint the exact social mechanism responsible for these effects. This also relates to status quo effects. As noted in the policy feedback literature and in the literature on the status quo legitimation of inequality, one can expect positive feedback effects of the status quo due to exposure (legitimization of the moral economy and the limited cognitive accessibility of alternatives), experience (mechanical status quo preference), and signaling (of elite preferences) (Kreitzer, Hamilton, and Tolbert 2014). Future research is needed to establish which mechanism is most important to understand individuals' preferences for progressive taxation and to understand how they react or do not react to changes in the redistributive power of the welfare state.

This issue also emphasizes the role of communicators of the institutional status quo and its adequacy, such as the media, which may create biased perceptions about inequality changes (Boomgaarden et al. 2011; Damstra and Boukes 2021) and elite (e.g. party) or institutional (perceived levels of corruption or institutional quality) cues, as voters have been found to follow examples of others in their attitudes regarding fair levels of taxation or financial assistance (Bauhr and Charron 2018, 2020; Kanthak and Spies 2018; Steenbergen, Edwards, and de Vries 2007; Stoeckel and Kuhn 2018). My results already suggest that political actors may have more power than is assumed to establish a favorable environment for tax introduction. However, more concrete evidence is needed to gain a better understanding of the power of when political actors can set new institutional baselines and change tax rules, even if they are initially unpopular. This also relates to studies that pointed out the power of changes in public policies on behaviors, preferences, attitudes, and values such as smoking, opposition to gay marriage and insurance attitudes (Gusmano, Schlesinger, and Thomas 2002; Kreitzer et al. 2014; Pacheco 2013; Tankard and Paluck 2017). This seems especially important because policies can also lead to attitudinal lock in effects not only because of the stabilizing power of the status quo, but also because it generates institutional frameworks that influence individuals' long-term material interest. An important tax-related example here is the joint taxation of married couples (household-based income taxation) which has been shown to reduce the labor supply of second-earners and thus predominantly of women (LaLumia 2008; OECD 2022c, 2022d). Once established women make long-term decisions related to their level of education, work, living arrangements, and family planning based on this framework and as such have no immediate material self-interest in changing this policy. Following Merton such reproducing inequalities, therefore, might not be abolished by "insisting that it is unreasonable and un-worthy of them to survive but by cutting off the sustenance now provided them by certain institutions of our society" (Merton 1968:490).

Moreover, this dissertation analyses individuals' stated preferences and fairness beliefs related to redistributive taxation. Future research might rely on donation experiments or study actual voting behavior directly to provide more evidence of how stated preferences can be linked to actual voting behavior (Almås et al. 2019; Epper, Fehr, and Senn 2020). These studies could also provide more evidence on the micro–macro link (transformational mechanism) that connects individual preferences or actions to macro-level outcomes, which has not been the focus of this dissertation. In the standard Meltzer–Richard model, preferences for taxation link directly to political outcomes by the majority rule. However, many studies have already criticized this assumption, pointing out the multidimensionality of policy spaces (Iversen and Goplerud 2018). One major debate in this context relates to the relationship between migration (Breznau et al. 2022), fractionalization (Alesina et al. 2003), and preferences for redistribution. This literature points out the role of social identities: if people have other-regarding preferences and differentiate between in- and out-groups, redistribution becomes multidimensional.

Strong within-group solidarity but weak between-group solidarity can overlap the boundaries of economic classes, leading low-income voters to vote for less redistribution in order to avoid benefitting the out-group. This issue is most important in the context of voting when different policy interests have to be condensed into one single vote. Further research is needed to link how stated preferences for tax redistribution combine with other political interests and influence individual voting decisions and other political actions (e.g. labor-union membership, participation in political protests).

Finally, this dissertation provides some evidence of how beliefs can link the desires for income maximization and to live in a just world (e.g., suggesting that informing the rich about the tax contributions of the poor may lead them to switch from a self-interest to a fairness frame), but we still lack a thorough understanding of when and why individuals sometimes refer to income maximization or fairness when forming their redistributive preferences. While most studies have no clear theoretic argument on when individuals should be more affected by the desire to live in a just world or the desire to maximize one's income, Rueda (2017) argued that "food comes first, then morals" and embedded political preference formation in broader literature that argues that the hierarchy of needs have crucial consequences for individuals' preferences (Inglehart 1990). Basically, it is argued that the rich are more likely to act altruistically because they can fulfill their basic needs despite giving something away. In contrast, Shayo (2009) argued that the poor have fewer opportunities to feel good about themselves in a materialistic sense. Thus, they should be more sensitive to arguments of social identity than to material interest in comparison to the rich. Similarly in its consequence, following the ideas of Veblen (1934), recent studies pointed out that the rich might be quite sensitive to material signals not because they are interested in the objective height of the income per se but because they are motivated by a desire for social status that focuses on relative comparisons with others who are rich (Lungu 2022; Thal 2020). These ideas indicate that both the desire for income maximization and the desire for fairness (of processes and outcomes) may depend on structural conditions that moderate the relationship depending on individuals' income positions, suggesting that the rich and poor might react differently to changes in material interest and fairness beliefs. Future studies might test these diverging theoretical expectations directly to establish when and why the poor or rich react more to cues about material interests or fairness norms.

# Literature


Aarøe, Lene, and Michael Bang Petersen. 2014. 'Crowding Out Culture: Scandinavians and Americans Agree on Social Welfare in the Face of Deservingness Cues'. *The Journal of Politics* 76(3):684–97. doi: 10.1017/S002238161400019X.

Adriaans, Jule, and Marie Fourré. 2022. 'Basic Social Justice Orientations—Measuring Order-Related Justice in the European Social Survey Round 9'. *Measurement Instruments for the Social Sciences* 4(1):11. doi: 10.1186/s42409-022-00040-3.

Agranov, Marina, and Thomas R. Palfrey. 2015. 'Equilibrium Tax Rates and Income Redistribution: A Laboratory Study'. *Journal of Public Economics* 130:45–58. doi: 10.1016/j.jpubeco.2015.08.008.

Ahrens, Leo. 2022a. 'The (a)Symmetric Effects of Income and Unemployment on Popular Demand for Redistribution'. *West European Politics* 45(7):1407–32. doi: 10.1080/01402382.2021.1963139.

Ahrens, Leo. 2022b. 'Unfair Inequality and the Demand for Redistribution: Why Not All Inequality Is Equal'. *Socio-Economic Review* 20(2):463–87. doi: 10.1093/ser/mwaa051.

Aichholzer, Julian. 2019. *Kurzskala Soziale Dominanzorientierung (KSDO-3)*. Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS).

Albacete, Nicolás, Pirmin Fessler, and Peter Lindner. 2022. 'The Wealth Distribution and Redistributive Preferences: Evidence from a Randomized Survey Experiment'. *ÖNB Working Paper Series* 239:56.

Aldrich, John H., Jacob M. Montgomery, and Wendy Wood. 2011. 'Turnout as a Habit'. *Political Behavior* 33(4):535–63. doi: 10.1007/s11109-010-9148-3.

Alesina, Alberto, and George-Marios Angeletos. 2005. 'Fairness and Redistribution'. *American Economic Review* 95(4):960–80. doi: 10.1257/0002828054825655.

Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. 'Fractionalization'. *Journal of Economic Growth* 8(2):155–94. doi: 10.1023/A:1024471506938.

Alesina, Alberto, Rafael Di Tella, and Robert MacCulloch. 2004. 'Inequality and Happiness: Are Europeans and Americans Different?' *Journal of Public Economics* 88(9):2009–42. doi: 10.1016/j.jpubeco.2003.07.006.

Alesina, Alberto, and Eliana La Ferrara. 2005. 'Preferences for Redistribution in the Land of Opportunities'. *Journal of Public Economics* 89:897–931.

Alesina, Alberto, and Paola Giuliano. 2011. 'Chapter 4 - Preferences for Redistribution'. Pp. 93–131 in *Handbook of Social Economics*. Vol. 1, edited by J. Benhabib, A. Bisin, and M. O. Jackson. North-Holland.

Alesina, Alberto, and Paola Giuliano. 2015. 'Culture and Institutions'. *Journal of Economic Literature* 53(4):898–944. doi: 10.1257/jel.53.4.898.

Alesina, Alberto, Edward L. Glaeser, and Bruce Sacerdote. 2005. 'Work and Leisure in the U.S. and Europe: Why So Different?' *NBER Macroeconomics Annual* 20:1–64. doi: 10.3386/w11278.

Alesina, Alberto, Armando Miano, and Stefanie Stantcheva. 2023. 'Immigration and Redistribution'. *The Review of Economic Studies* 90(1):1–39. doi: 10.3386/w24733.

Alesina, Alberto, Stefanie Stantcheva, and Edoardo Teso. 2018. 'Intergenerational Mobility and Preferences for Redistribution'. *American Economic Review* 108(2):521–54. doi: 10.1257/aer.20162015.

Alexander, Jeffrey C. 1987. *The Micro-Macro Link*. Berkeley: University of California Press.

Alfani, Guido. 2021. 'Economic Inequality in Preindustrial Times: Europe and Beyond'. *Journal of Economic Literature* 59(1):3–44. doi: 10.1257/jel.20191449.

Almås, Ingvild, Alexander W. Cappelen, Jo Thori Lind, Erik Ø. Sørensen, and Bertil Tungodden. 2011. 'Measuring Unfair (in)Equality'. *Journal of Public Economics* 95(7):488–99. doi: 10.1016/j.jpubeco.2010.11.002.

Almås, Ingvild, Alexander W. Cappelen, Erik Ø. Sørensen, and Bertil Tungodden. 2010. 'Fairness and the Development of Inequality Acceptance'. *Science* 328(5982):1176–78. doi: 10.1126/science.1187300.

Almås, Ingvild, Alexander W. Cappelen, and Bertil Tungodden. 2019. 'Cutthroat Capitalism versus Cuddly Socialism: Are Americans More Meritocratic and Efficiency-Seeking than Scandinavians?' *Journal of Political Economy* 128(5):1753–88. doi: 10.1086/705551.

Altay, Sacha, Manon Berriche, and Alberto Acerbi. 2023. 'Misinformation on Misinformation: Conceptual and Methodological Challenges'. *Social Media + Society* 9(1):20563051221150412. doi: 10.1177/20563051221150412.

Andreoni, James. 1990. 'Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving'. *The Economic Journal* 100(401):464–77. doi: 10.2307/2234133.

Andreoni, James, Brian Erard, and Jonathan Feinstein. 1998. 'Tax Compliance'. *Journal of Economic Literature* 36(2):818–60.

Arceneaux, Kevin, and Stephen P. Nicholson. 2023. 'Anchoring Political Preferences: The Psychological Foundations of Status Quo Bias and the Boundaries of Elite Manipulation'. *Political Behavior*. doi: 10.1007/s11109-022-09847-6.

Atkinson, Anthony B. 2015. *Inequality*. Cambridge, MA: Harvard University Press.

Atkinson, Anthony B., Thomas Piketty, and Emmanuel Saez. 2011. 'Top Incomes in the Long Run of History'. *Journal of Economic Literature* 49(1):3–71. doi: 10.1257/jel.49.1.3.

Auspurg, Katrin, Thomas Hinz, and Carsten Sauer. 2017. 'Why Should Women Get Less? Evidence on the Gender Pay Gap from Multifactorial Survey Experiments'. *American Sociological Review* 82(1):179–210. doi: 10.1177/0003122416683393.

Balafoutas, Loukas, Martin G. Kocher, Louis Putterman, and Matthias Sutter. 2013. 'Equality, Equity and Incentives: An Experiment'. *European Economic Review* 60:32–51. doi: 10.1016/j.euroecorev.2013.01.005.

Ballard-Rosa, Cameron, Kenneth Scheve, Ronald Rogowski, and Nicolaj Thor. 2021. 'Inequality, Information, and Income Tax Policy Preferences in Austria and Germany'. Unpublished manuscript.

Bansak, Kirk, Jens Hainmueller, and Dominik Hangartner. 2017. 'Europeans Support a Proportional Allocation of Asylum Seekers'. *Nature Human Behaviour* 1(7):1–6. doi: 10.1038/s41562-017-0133.

Barnes, Lucy. 2015. 'The Size and Shape of Government: Preferences over Redistributive Tax Policy'. *Socio-Economic Review* 13(1):55–78. doi: 10.1093/ser/mwu007.

Barnes, Lucy. 2020. 'Trade and Redistribution: Trade Politics and the Origins of Progressive Taxation'. *Political Science Research and Methods* 8(2):197–214. doi: 10.1017/psrm.2019.39.

Barnes, Lucy. 2022. 'Taxing the Rich: Public Preferences and Public Understanding'. *Journal of European Public Policy* 29(5):787–804. doi: 10.1080/13501763.2021.1992485.

Barnes, Lucy, and Timothy Hicks. 2018. 'Making Austerity Popular: The Media and Mass Attitudes toward Fiscal Policy'. *American Journal of Political Science* 62(2):340–54. doi: 10.1111/ajps.12346.

Bauhr, Monika, and Nicholas Charron. 2018. 'Why Support International Redistribution? Corruption and Public Support for Aid in the Eurozone'. *European Union Politics* 19(2):233–54. doi: 10.1177/1465116518757702.

Bauhr, Monika, and Nicholas Charron. 2020. ‘The EU as a Savior and a Saint? Corruption and Public Support for Redistribution’. *Journal of European Public Policy* 27(4):509–27. doi: 10.1080/13501763.2019.1578816.

Becker, Gary S. 1974. ‘A Theory of Social Interactions’. *Journal of Political Economy* 82(6):1063–93.

Bénabou, Roland, and Efe A. Ok. 2001. ‘Social Mobility and the Demand for Redistribution: The Poum Hypothesis’. *The Quarterly Journal of Economics* 116(2):447–87. doi: 10.1162/00335530151144078.

Bénabou, Roland, and Jean Tirole. 2006. ‘Belief in a Just World and Redistributive Politics’. *The Quarterly Journal of Economics* 121(2):699–746. doi: 10.1162/qjec.2006.121.2.699.

Beramendi, Pablo, and Philipp Rehm. 2016. ‘Who Gives, Who Gains? Progressivity and Preferences’. *Comparative Political Studies* 49(4):529–63. doi: 10.1177/0010414015617961.

Berens, Sarah, and Margarita Gelepithis. 2019. ‘Welfare State Structure, Inequality, and Public Attitudes Towards Progressive Taxation’. *Socio-Economic Review* 17(4):823–50. doi: 10.1093/ser/mwx063.

Berger, Joseph, and Murray Webster Jr. 2006. ‘Expectations, Status and Behavior’. Pp. 268–300 in *Contemporary social psychological theories*, edited by P. J. Burke. Stanford, CA: Stanford University Press.

Berger, Joseph, Morris Jr Zelditch, Bo Anderson, and Bernard P. Cohen. 1972. ‘Structural Aspects of Distributive Justice’. Pp. 119–46 in *Sociological Theories in Progress*. Vol. 2, edited by J. Berger, M. J. Zelditch, and B. Anderson. Boston: Houghton Mifflin.

Bjørnskov, Christian, Axel Dreher, Justina A. V. Fischer, Jan Schnellenbach, and Kai Gehring. 2013. ‘Inequality and Happiness: When Perceived Social Mobility and Economic Reality Do Not Match’. *Journal of Economic Behavior & Organization* 91:75–92. doi: 10.1016/j.jebo.2013.03.017.

Blanchet, Thomas, Lucas Chancel, and Amory Gethin. 2022. ‘Why Is Europe More Equal than the United States?’ *American Economic Journal: Applied Economics* 14(4):480–518. doi: 10.1257/app.20200703.

Blasco, Julien, Elvire Guillaud, and Michaël Zemmour. 2023. ‘The Inequality Impact of Consumption Taxes: An International Comparison’. *Journal of Public Economics* 222:104897. doi: 10.1016/j.jpubeco.2023.104897.

Blaufus, Kay, Jonathan Bob, Jochen Hundsdoerfer, Dirk Kiesewetter, and Joachim Weimann. 2013. ‘Decision Heuristics and Tax Perception – An Analysis of a Tax-Cut-Cum-Base-Broadening Policy’. *Journal of Economic Psychology* 35:1–16. doi: 10.1016/j.joep.2012.12.004.

Blaufus, Kay, Jonathan Bob, Jochen Hundsdoerfer, Christian Sielaff, Dirk Kiesewetter, and Joachim Weimann. 2013. ‘Perception of Income Tax Rates: Evidence from Germany’. *European Journal of Law and Economics* 40(3):457–78. doi: 10.1007/s10657-013-9389-9.

Blendon, Robert J., Stephen R. Pelletier, Marcus D. Rosenbaum, and Mollyann Brodie. 2003. ‘Tax Uncertainty’. *The Brookings Review* 21(3):28–31.

Bobzien, Licia. 2020. ‘Polarized Perceptions, Polarized Preferences? Understanding the Relationship between Inequality and Preferences for Redistribution’. *Journal of European Social Policy* 30(2):206–24. doi: 10.1177/0958928719879282.

Bohmann, Sandra, and Fabian Kalleitner. 2023. ‘Subjective Inequity Aversion: Unfair Inequality, Subjective Well-Being, and Preferences for Redistribution’.

Bolton, Gary E., Jordi Brandts, and Axel Ockenfels. 2005. ‘Fair Procedures: Evidence from Games Involving Lotteries’. *The Economic Journal* 115(506):1054–76. doi: 10.1111/j.1468-0297.2005.01032.x.

Boomgaarden, Hajo G., Joost van Spanje, Rens Vliegenthart, and Claes H. de Vreese. 2011. 'Covering the Crisis: Media Coverage of the Economic Crisis and Citizens' Economic Expectations'. *Acta Politica* 46(4):353–79. doi: 10.1057/ap.2011.18.

Bostrom, Nick, and Toby Ord. 2006. 'The Reversal Test: Eliminating Status Quo Bias in Applied Ethics'. *Ethics* 116(4):656–79. doi: 10.1086/505233.

Bottan, Nicolas L., and Ricardo Perez-Truglia. 2022. 'Choosing Your Pond: Location Choices and Relative Income'. *The Review of Economics and Statistics* 104(5):1010–27. doi: 10.1162/rest_a_00991.

Botton, Alain De. 2004. *Status Anxiety*. New York: Vintage.

Boudon, Raymond. 1979. 'Generating Models as a Research Strategy'. *Qualitative and Quantitative Social Research: Papers in Honor of Paul F. Lazarsfeld* 51–64.

Boudon, Raymond. 1998. 'Limitations of Rational Choice Theory'. *American Journal of Sociology* 104(3):817–28. doi: 10.1086/210087.

Boudon, Raymond. 2003. 'Beyond Rational Choice Theory'. *Annual Review of Sociology* 29(1):1–21. doi: 10.1146/annurev.soc.29.010202.100213.

Boudreau, Cheryl, and Scott A. MacKenzie. 2018. 'Wanting What Is Fair: How Party Cues and Information about Income Inequality Affect Public Support for Taxes'. *The Journal of Politics* 80(2):367–81. doi: 10.1086/694784.

Bourdieu, Pierre. 1985. 'The Social Space and the Genesis of Groups'. *Information (International Social Science Council)* 24(2):195–220. doi: 10.1177/053901885024002001.

Boyce, Christopher J., Gordon D. A. Brown, and Simon C. Moore. 2010. 'Money and Happiness: Rank of Income, Not Income, Affects Life Satisfaction'. *Psychological Science* 21(4):471–75. doi: 10.1177/0956797610362671.

Breznau, Nate, and Carola Hommerich. 2019. 'No Generalizable Effect of Income Inequality on Public Support for Governmental Redistribution among Rich Democracies 1987–2010'. *Social Science Research* 81:170–91. doi: 10.1016/j.ssresearch.2019.03.013.

Breznau, Nate, Eike Mark Rinke, Alexander Wuttke, Muna Adem, Jule Adriaans, Amalia Alvarez-Benjumea, Henrik Kenneth Andersen, Daniel Auer, Flavio Azevedo, Oke Bahnsen, Dave Balzer, Gerrit Bauer, Paul Bauer, Markus Baumann, Sharon Baute, Verena Benoit, Julian Bernauer, Carl Berning, Anna Berthold, Felix S. Bethke, Thomas Biegert, Katharina Blinzler, Johannes Blumenberg, Licia Bobzien, Andrea Bohman, Thijs Bol, Amie Bostic, Zuzanna Brzozowska, Katharina Burgdorf, Kaspar Burger, Kathrin Busch, Juan Carlos Castillo, Nathan Chan, Pablo Christmann, Roxanne Connelly, Christian S. Czymara, Elena Damian, Alejandro Ecker, Achim Edelmann, Maureen A. Eger, Simon Ellerbrock, Anna Forke, Andrea Gabriele Forster, Chris Gaasendam, Konstantin Gavras, Vernon Gayle, Theresa Gessler, Timo Gnambs, Amélie Godefroidt, Max Grömping, Martin Groß, Stefan Gruber, Tobias Gummer, Andreas Hadjar, Jan Paul Heisig, Sebastian Hellmeier, Stefanie Heyne, Magdalena Hirsch, Mikael Hjerm, Oshrat Hochman, Andreas Hövermann, Sophia Hunger, Christian Hunkler, Nora Huth, Zsofia Ignacz, Laura Jacobs, Jannes Jacobsen, Bastian Jaeger, Sebastian Jungkunz, Nils Jungmann, Mathias Kauff, Manuel Kleinert, Julia Klinger, Jan-Philipp Kolb, Marta Kołczyńska, John Seungmin Kuk, Katharina Kunißen, Dafina Kurti Sinatra, Alexander Greinert, Philipp M. Lersch, Lea-Maria Löbel, Philipp Lutscher, Matthias Mader, Joan Eliel Madia, Natalia Malancu, Luis Maldonado, Helge Marahrens, Nicole Martin, Paul Martinez, Jochen Mayerl, OSCAR Jose Mayorga, Patricia McManus, Kyle Wagner, Cecil Meeusen, Daniel Meierrieks, Jonathan Mellon, Friedolin Merhout, Samuel Merk, Daniel Meyer, Leticia Micheli, Jonathan J. B. Mijs, Cristóbal Moya, Marcel Neunhoeffer, Daniel Nüst, Olav Nygård, Fabian Ochsenfeld, Gunnar Otte, Anna Pechenkina, Christopher Prosser, Louis Raes, Kevin Ralston, Miguel Ramos, Arne Roets, Jonathan Rogers, Guido Ropers, Robin Samuel, Gergor Sand, Ariela Schachter, Merlin Schaeffer, David Schieferdecker, Elmar Schlueter, Katja Schmidt, Regine Schmidt, Alexander Schmidt-Catran, Claudia Schmiedeberg, Jürgen Schneider, Martijn Schoonvelde, Julia Schulte-Cloos, Sandy Schumann, Reinhard Schunck,

Juergen Schupp, Julian Seuring, Henning Silber, Willem W. A. Sleegers, Nico Sonntag, Alexander Staudt, Nadia Steiber, Nils Steiner, Sebastian Sternberg, Dieter Stiers, Dragana Stojmenovska, Nora Storz, Erich Striessnig, Anne-Kathrin Stroppe, Janna Teltemann, Andrey Tibajev, Brian B. Tung, Giacomo Vagni, Jasper Van Assche, Meta van der Linden, Jolanda van der Noll, Arno Van Hootegem, Stefan Vogtenhuber, Bogdan Voicu, Fieke Wagemans, Nadja Wehl, Hannah Werner, Brenton M. Wiernik, Fabian Winter, Christof Wolf, Yuki Yamada, Nan Zhang, Conrad Ziller, Stefan Zins, Tomasz Żółtak, and Hung Hoang Viet Nguyen. 2022. 'Observing Many Researchers Using the Same Data and Hypothesis Reveals a Hidden Universe of Uncertainty'. *Proceedings of the National Academy of Sciences* 119(44):1–8. doi: 10.31222/osf.io/cd5j9.

Brooks, Clem, and Jeff Manza. 2013. 'A Broken Public? Americans' Responses to the Great Recession'. *American Sociological Review* 78(5):727–48. doi: 10.1177/0003122413498255.

Brown, Gordon D. A., Jonathan Gardner, Andrew J. Oswald, and Jing Qian. 2008. 'Does Wage Rank Affect Employees' Well-Being?' *Industrial Relations* 47(3):355–89. doi: 10.1111/j.1468-232X.2008.00525.x.

Brown, Jonathon D. 2012. 'Understanding the Better Than Average Effect: Motives (Still) Matter'. *Personality and Social Psychology Bulletin* 38(2):209–19.

Bruckmüller, Susanne, Gerhard Reese, and Sarah E. Martiny. 2017. 'Is Higher Inequality Less Legitimate? Depends on How You Frame It!' *British Journal of Social Psychology* 56(4):766–81. doi: 10.1111/bjso.12202.

Bublitz, Elisabeth. 2022. 'Misperceptions of Income Distributions: Cross-Country Evidence from a Randomized Survey Experiment'. *Socio-Economic Review* 20(2):435–62. doi: 10.1093/ser/mwaa025.

Buggeln, Marc. 2022. *Das Versprechen der Gleichheit: Steuern und soziale Ungleichheit in Deutschland von 1871 bis heute*. Originalausgabe edition. Berlin: Suhrkamp Verlag.

Burgoon, Brian, Theresa Kuhn, Francesco Nicoli, and Frank Vandenbroucke. 2022. 'Unemployment Risk-Sharing in the EU: How Policy Design Influences Citizen Support for European Unemployment Policy'. *European Union Politics* 23(2):282–308. doi: 10.1177/14651165221075251.

Burrus, Jeremy, and Krista D. Mattern. 2010. 'Equity, Egoism, and Egocentrism: The Formation of Distributive Justice Judgments'. *Basic and Applied Social Psychology* 32(2):155–64. doi: 10.1080/01973531003738593.

Busemeyer, Marius R., Aurélien Abrassart, and Roula Nezi. 2021. 'Beyond Positive and Negative: New Perspectives on Feedback Effects in Public Opinion on the Welfare State'. *British Journal of Political Science* 51(1):137–62. doi: 10.1017/S0007123418000534.

Buunk, Abraham P., and Frederick X. Gibbons. 2007. 'Social Comparison: The End of a Theory and the Emergence of a Field'. *Organizational Behavior and Human Decision Processes* 102(1):3–21. doi: 10.1016/j.obhdp.2006.09.007.

Buunk, Bram P., Rebecca L. Collins, Shelley E. Taylor, Nico W. VanYperen, and Gayle A. Dakof. 1990. 'The Affective Consequences of Social Comparison: Either Direction Has Its Ups and Downs'. *Journal of Personality and Social Psychology* 59(6):1238–49. doi: 10.1037/0022-3514.59.6.1238.

Callan, Mitchell, Hyunji Kim, and William Matthews. 2015. 'Predicting Self-Rated Mental and Physical Health: The Contributions of Subjective Socioeconomic Status and Personal Relative Deprivation'. *Frontiers in Psychology* 6.

Cansunar, Asli. 2021. 'Who Is High-Income, Anyway?: Social Comparison, Subjective Group-Identification, and Preferences over Progressive Taxation'. *The Journal of Politics* 83(4):1292–1306. doi: 10.1086/711627.

Carbone, Luca, and Jonathan Mijs. 2022. 'Sounds like Meritocracy to My Ears: Exploring the Link between Inequality in Popular Music and Personal Culture'. *Information, Communication & Society* 25(5):707–25. doi: 10.1080/1369118X.2021.2020870.

Castañeda, Néstor. 2023. 'Fairness and Tax Morale in Developing Countries'. *Studies in Comparative International Development* Online First. doi: 10.1007/s12116-023-09394-z.

Cavaille, Charlotte. 2023. 'Demand for Redistribution in the Age of Inequality'. Ph.D., Ann Arbor, United States.

Cavaillé, Charlotte, and Kris-Stella Trump. 2015. 'The Two Facets of Social Policy Preferences'. *The Journal of Politics* 77(1):146–60. doi: 10.1086/678312.

Cervone, Daniel, and Philip Peake. 1986. 'Anchoring, Efficacy, and Action: The Influence of Judgmental Heuristics on Self-Efficacy Judgments and Behavior'. *Journal of Personality and Social Psychology* 50(3):492–501.

Chambers, John R., Lawton K. Swan, and Martin Heesacker. 2014. 'Better Off Than We Know: Distorted Perceptions of Incomes and Income Inequality in America'. *Psychological Science* 25(2):613–18. doi: 10.1177/0956797613504965.

Chancel, Lucas, Thomas Piketty, Emmanuel Saez, and Gabriel Zucman. 2021. *The World Inequality Report 2022*. World Inequality Lab.

Chapman, Gretchen B., and Eric J. Johnson. 1999. 'Anchoring, Activation, and the Construction of Values'. *Organizational Behavior and Human Decision Processes* 79(2):115–53. doi: 10.1006/obhd.1999.2841.

Charles, Maria, and David B. Grusky. 2004. *Occupational Ghettos: The Worldwide Segregation of Women and Men*. Stanford: Stanford University Press.

Chow, Rosalind M., and Jeff Galak. 2012. 'The Effect of Inequality Frames on Support for Redistributive Tax Policies'. *Psychological Science* 23(12):1467–69. doi: 10.1177/0956797612450035.

Chow, Rosalind M., Brian S. Lowery, and Eric D. Knowles. 2008. 'The Two Faces of Dominance: The Differential Effect of Ingroup Superiority and Outgroup Inferiority on Dominant-Group Identity and Group Esteem'. *Journal of Experimental Social Psychology* 44(4):1073–81. doi: 10.1016/j.jesp.2007.11.002.

Cialdini, Robert B., and Melanie R. Trost. 1998. 'Social Influence: Social Norms, Conformity and Compliance'. Pp. 151–92 in *The handbook of social psychology, Vols. 1-2, 4th ed*. New York, NY, US: McGraw-Hill.

Ciani, Emanuele, Louis Fréget, and Thomas Manfredi. 2021. *Learning about Inequality and Demand for Redistribution: A Meta-Analysis of in-Survey Informational Experiments*. Paris: OECD. doi: 10.1787/8876ec48-en.

Clark, Andrew E., and Conchita D'Ambrosio. 2015. 'Attitudes to Income Inequality: Experimental and Survey Evidence'. Pp. 1147–1208 in *Handbook of Income Distribution*. Vol. 2. Elsevier.

Clark, Andrew E., Paul Frijters, and Michael A. Shields. 2008. 'Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles'. *Journal of Economic Literature* 46(1):95–144. doi: 10.1257/jel.46.1.95.

Coleman, James S. 1986. 'Social Theory, Social Research, and a Theory of Action'. *American Journal of Sociology* 91(6):1309–35. doi: 10.1086/228423.

Coleman, James S. 1988. 'Social Capital in the Creation of Human Capital'. *American Journal of Sociology* 94:95–120. doi: 10.1086/228943.

Collins, Rebecca. 1996. 'For Better or Worse: The Impact of Upward Social Comparison on Self-Evaluations'. *Psychological Bulletin* 119(1):51–69.

Collins, Rebecca L. 2000. 'Among the Better Ones: Upward Assimilation in Social Comparison'. Pp. 159–71 in *Handbook of social comparison: Theory and research*, *The Plenum series in social/clinical psychology*. Dordrecht, Netherlands: Kluwer Academic Publishers.

Condon, Meghan, and Amber Wichowsky. 2020. 'Inequality in the Social Mind: Social Comparison and Support for Redistribution'. *The Journal of Politics* 82(1):149–61. doi: 10.1086/705686.

Cook, Karen Schweers, and Margaret Levi. 2008. *The Limits of Rationality*. Chicago: University of Chicago Press.

Corak, Miles. 2013. 'Income Inequality, Equality of Opportunity, and Intergenerational Mobility'. *The Journal of Economic Perspectives* 27(3):79–102.

Costa-Lopes, Rui, John F. Dovidio, Cícero Roberto Pereira, and John T. Jost. 2013. 'Social Psychological Perspectives on the Legitimation of Social Inequality: Past, Present and Future'. *European Journal of Social Psychology* 43(4):229–37. doi: 10.1002/ejsp.1966.

Côté, Stéphane, Julian House, and Robb Willer. 2015. 'High Economic Inequality Leads Higher-Income Individuals to Be Less Generous'. *Proceedings of the National Academy of Sciences* 112(52):15838–43. doi: 10.1073/pnas.1511536112.

Cruces, Guillermo, Ricardo Perez-Truglia, and Martin Tetaz. 2013. 'Biased Perceptions of Income Distribution and Preferences for Redistribution: Evidence from a Survey Experiment'. *Journal of Public Economics* 98:100–112. doi: 10.1016/j.jpubeco.2012.10.009.

Cullis, John, and Philip Jones. 1998. *Public Finance and Public Choice*. Oxford: Oxford University Press.

Cullis, John, Philip Jones, and Antonio Savoia. 2012. 'Social Norms and Tax Compliance: Framing the Decision to Pay Tax'. *The Journal of Socio-Economics* 41(2):159–68. doi: 10.1016/j.socec.2011.12.003.

Dahl, Robert A. 1971. *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.

Damstra, Alyt, and Mark Boukes. 2021. 'The Economy, the News, and the Public: A Longitudinal Study of the Impact of Economic News on Economic Evaluations and Expectations'. *Communication Research* 48(1):26–50. doi: 10.1177/0093650217750971.

Damstra, Alyt, Mark Boukes, and Rens Vliegenthart. 2018. 'The Economy. How Do the Media Cover It and What Are the Effects? A Literature Review'. *Sociology Compass* 12(5). doi: 10.1111/soc4.12579.

Davidai, Shai, and Thomas Gilovich. 2015. 'Building a More Mobile America—One Income Quintile at a Time'. *Perspectives on Psychological Science* 10(1):60–71. doi: 10.1177/1745691614562005.

Delhey, Jan, Christian Schneickert, Stephanie Hess, and Auke Aplowski. 2022. 'Who Values Status Seeking? A Cross-European Comparison of Social Gradients and Societal Conditions'. *European Societies* 24(1):29–60. doi: 10.1080/14616696.2021.2005112.

Deutsch, Francine M., Jenniger L. Lozy, and Susan Saxon. 1993. 'Taking Credit: Couples' Reports of Contributions to Child Care'. *Journal of Family Issues* 14(3):421–37. doi: 10.1177/019251393014003005.

Diekmann, Andreas. 2020. 'Entstehung Und Befolgung Neuer Sozialer Normen.' *Zeitschrift Für Soziologie* 49(4):236–48. doi: 10.1515/zfsoz-2020-0021.

Dillman, Don A., Jolene D. Smyth, and Leah Melani Christian. 2014. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken: John Wiley & Sons.

Dimick, Matthew, David Rueda, and Daniel Stegmueller. 2018. 'Models of Other-Regarding Preferences, Inequality, and Redistribution'. *Annual Review of Political Science* 21(1):441–60. doi: 10.1146/annurev-polisci-091515-030034.

Dodson, Kyle. 2017. ‘Economic Change and Class Conflict over Tax Attitudes: Evidence from Nine Advanced Capitalist Democracies’. *Social Forces* 95(4):1509–38. doi: 10.1093/sf/sox027.

Doerrenberg, Philipp, and Andreas Peichl. 2017. ‘Tax Morale and the Role of Social Norms and Reciprocity. Evidence from a Randomized Survey Experiment’. *SSRN Electronic Journal*. doi: 10.2139/ssrn.3065963.

Downs, Anthony. 1957. ‘An Economic Theory of Political Action in a Democracy’. *Journal of Political Economy* 65(2):135–50.

Duesenberry, James Stemble. 1962. *Income, Saving and the Theory of Consumer Behavior*. Harvard University Press.

Durante, Ruben, Louis Putterman, and Joël van der Weele. 2014. ‘Preferences for Redistribution and Perception of Fairness: An Experimental Study’. *Journal of the European Economic Association* 12(4):1059–86. doi: 10.1111/jeea.12082.

Easterlin, Richard A. 2001. ‘Income and Happiness: Towards a Unified Theory’. *The Economic Journal* 111(473):465–84. doi: 10.1111/1468-0297.00646.

Ebbinghaus, Bernhard, Lukas Lehner, and Elias Naumann. 2022. ‘Welfare State Support during the COVID-19 Pandemic: Change and Continuity in Public Attitudes towards Social Policies in Germany’. *European Policy Analysis* 8(3):297–311. doi: 10.1002/epa2.1152.

Edlund, Jonas. 2000. ‘Public Attitudes towards Taxation: Sweden 1981–1997’. *Scandinavian Political Studies* 23(1):37–65. doi: 10.1111/1467-9477.00030.

Eidelman, Scott, and Christian S. Crandall. 2009. ‘A Psychological Advantage for the Status Quo’. Pp. 85–106 in *Social and Psychological Bases of Ideology and System Justification*, edited by J. T. Jost, A. C. Kay, and H. Thorisdottir. Oxford: Oxford University Press.

Eliaz, Kfir, and Ariel Rubinstein. 2014. ‘On the Fairness of Random Procedures’. *Economics Letters* 123(2):168–70. doi: 10.1016/j.econlet.2014.01.042.

Elkjær, Mads Andreas, and Torben Iversen. 2023. ‘The Democratic State and Redistribution: Whose Interests Are Served?’ *American Political Science Review* 117(2):391–406. doi: 10.1017/S0003055422000867.

Elster, Jon. 1989. *Nuts and Bolts for the Social Sciences*. Cambridge: Cambridge University Press.

Elster, Jon. 1998. ‘Selfishness and Altruism’. Pp. 69–78 in *Economics, Ethics, and Public Policy*, edited by C. K. Wilber. Lanham: Rowman & Littlefield.

Engelhardt, Carina, and Andreas Wagener. 2018. ‘What Do Germans Think and Know about Income Inequality? A Survey Experiment’. *Socio-Economic Review* 16(4):743–67. doi: 10.1093/ser/mwx036.

Enke, Benjamin. 2020. ‘What You See Is All There Is*’. *The Quarterly Journal of Economics* 135(3):1363–98. doi: 10.1093/qje/qjaa012.

Enke, Benjamin, and Thomas Graeber. 2023. ‘Cognitive Uncertainty*’. *The Quarterly Journal of Economics* qjad025. doi: 10.1093/qje/qjad025.

Epley, Nicholas, and Thomas Gilovich. 2006. ‘The Anchoring-and-Adjustment Heuristic: Why the Adjustments Are Insufficient’. *Psychological Science* 17(4):311–18. doi: 10.1111/j.1467-9280.2006.01704.x.

Epley, Nicholas, and Thomas Gilovich. 2016. ‘The Mechanics of Motivated Reasoning’. *Journal of Economic Perspectives* 30(3):133–40. doi: 10.1257/jep.30.3.133.

Epley, Nicholas, Boaz Keysar, Leaf Van Boven, and Thomas Gilovich. 2004. ‘Perspective Taking as Egocentric Anchoring and Adjustment’. *Journal of Personality and Social Psychology* 87(3):327–39. doi: 10.1037/0022-3514.87.3.327.

Epper, Thomas, Ernst Fehr, and Julien Senn. 2020. *Other-Regarding Preferences and Redistributive Politics*. *SSRN Scholarly Paper*. ID 3526809. Rochester, NY: Social Science Research Network. doi: 10.2139/ssrn.3526809.

Eriksson, Kimmo, and Brent Simpson. 2012. 'What Do Americans Know about Inequality? It Depends on How You Ask Them'. *Judgment and Decision Making* 7(6):741–45.

Esarey, Justin, Timothy C. Salmon, and Charles Barrilleaux. 2012. 'What Motivates Political Preferences? Self-Interest, Ideology, and Fairness in a Laboratory Democracy'. *Economic Inquiry* 50(3):604–24. doi: 10.1111/j.1465-7295.2011.00394.x.

Esping-Andersen, Gøsta. 1990. *The Three Worlds of Welfare Capitalism*. 1. publ.. Cambridge: Polity.

Esser, Hartmut. 1998. 'Why Are Bridge Hypotheses Necessary?' Pp. 94–111 in *Rational Choice Theory and Large-Scale Data Analysis*, edited by H.-P. Blossfeld and G. Prein. Routledge.

Esser, Hartmut, and Clemens Kroneberg. 2015. 'An Integrative Theory of Action. The Model of Frame Selection'. Pp. 63–85 in *Order on the Edge of Chaos: Social Psychology and the Problem of Social Order*, edited by E. J. Lawler, S. R. Thye, and J. Yoon. Cambridge: Cambridge University Press.

Eurostat. 2017. 'Tax Revenue Statistics'. Retrieved 27 February 2018 (http://ec.europa.eu/eurostat/statistics-explained/index.php/Tax_revenue_statistics).

Evans, M. D. R., Jonathan Kelley, and Tamas Kolosi. 1992. 'Images of Class: Public Perceptions in Hungary and Australia'. *American Sociological Review* 57(4):461. doi: 10.2307/2096095.

Evans, M. D. R., Jonathan Kelley, and Clayton D. Peoples. 2010. 'Justifications of Inequality: The Normative Basis of Pay Differentials in 31 Nations*'. *Social Science Quarterly* 91(5):1405–31. doi: 10.1111/j.1540-6237.2010.00738.x.

Farber, Henry S., Daniel Herbst, Ilyana Kuziemko, and Suresh Naidu. 2021. 'Unions and Inequality over the Twentieth Century: New Evidence from Survey Data*'. *The Quarterly Journal of Economics* 136(3):1325–85. doi: 10.1093/qje/qjab012.

Feather, N. T. 2015. 'Analyzing Relative Deprivation in Relation to Deservingness, Entitlement and Resentment'. *Social Justice Research* 28(1):7–26. doi: 10.1007/s11211-015-0235-9.

Fehr, Dietmar, Johanna Mollerstrom, and Ricardo Perez-Truglia. 2022. 'Your Place in the World: Relative Income and Global Inequality'. *American Economic Journal: Economic Policy* 14(4):232–68. doi: 10.1257/pol.20200343.

Fehr, Ernst, and Urs Fischbacher. 2003. 'The Nature of Human Altruism'. *Nature* 425(6960):785–91. doi: 10.1038/nature02043.

Fehr, Ernst, and Urs Fischbacher. 2004. 'Social Norms and Human Cooperation'. *Trends in Cognitive Sciences* 8(4):185–90. doi: 10.1016/j.tics.2004.02.007.

Fehr, Ernst, Urs Fischbacher, and Simon Gächter. 2002. 'Strong Reciprocity, Human Cooperation, and the Enforcement of Social Norms'. *Human Nature* 13(1):1–25. doi: 10.1007/s12110-002-1012-7.

Fehr, Ernst, and Klaus M. Schmidt. 1999. 'A Theory of Fairness, Competition, and Cooperation'. *The Quarterly Journal of Economics* 114(3):817–68. doi: 10.1162/003355399556151.

Feld, Lars P., and Gebhard Kirchgässner. 2000. 'Direct Democracy, Political Culture, and the Outcome of Economic Policy: A Report on the Swiss Experience'. *European Journal of Political Economy* 16(2):287–306. doi: 10.1016/S0176-2680(00)00003-3.

Fernández, Juan J., and Antonio M. Jaime-Castillo. 2013. 'Positive or Negative Policy Feedbacks? Explaining Popular Attitudes Towards Pragmatic Pension Policy Reforms'. *European Sociological Review* 29(4):803–15. doi: 10.1093/esr/jcs059.

Fernández, Juan J., and Antonio M. Jaime-Castillo. 2018. 'The Institutional Foundation of Social Class Differences in Pro-Redistribution Attitudes: A Cross-National Analysis, 1985–2010'. *Social Forces* 96(3):1009–38. doi: 10.1093/sf/sox068.

Fernández-Albertos, José, and Alexander Kuo. 2018. 'Income Perception, Information, and Progressive Taxation: Evidence from a Survey Experiment'. *Political Science Research and Methods* 6(1):83–110. doi: 10.1017/psrm.2015.73.

Ferrer-i-Carbonell, Ada. 2005. 'Income and Well-Being: An Empirical Analysis of the Comparison Income Effect'. *Journal of Public Economics* 89(5):997–1019. doi: 10.1016/j.jpubeco.2004.06.003.

Fessler, Pirmin, Peter Lindner, and Martin Schürz. 2019. *Eurosystem Household Finance and Consumption Survey 2017 for Austria*. Vienna: Oesterreichische Nationalbank.

Festinger, Leon. 1954. 'A Theory of Social Comparison Processes'. *Human Relations* 7(2):117–40. doi: 10.1177/001872675400700202.

Fischer, Florian. 2017. *Statistik der Lohnsteuer 2016*. Wien: Statistik Austria.

Fishbein, Martin, and Icek Ajzen. 2010. *Predicting and Changing Behavior: The Reasoned Action Approach*. New York, NY Hove: Psychology Press.

Fiske, Susan T., and Shelley E. Taylor. 1984. *Social Cognition*. New York: Random House.

Fong, Christina. 2001. 'Social Preferences, Self-Interest, and the Demand for Redistribution'. *Journal of Public Economics* 82(2):225–46. doi: 10.1016/S0047-2727(00)00141-9.

Frank, Robert H. 2016. *Success and Luck: Good Fortune and the Myth of Meritocracy*. Princeton, NJ: Princeton University Press.

Franklin, Benjamin. 1836. *The Works of Benjamin Franklin: Containing Several Political and Historical Tracts Not Included in Any Former Edition and Many Letters Official and Private, Not Hitherto Published: With Notes and a Life of the Author*. Vol. X. edited by J. Sparks. Boston: Hilliard, Gray, and Company.

Furnham, Adrian, and Hua Chu Boo. 2011. 'A Literature Review of the Anchoring Effect'. *The Journal of Socio-Economics* 40(1):35–42. doi: 10.1016/j.socec.2010.10.008.

Ganghof, Steffen, ed. 2009. *The Politics of Income Taxation: A Comparative Analysis*. Colchester: ECPR Press.

Ganghof, Steffen, and Philipp Genschel. 2008. 'Taxation and Democracy in the EU'. *Journal of European Public Policy* 15(1):58–77. doi: 10.1080/13501760701702199.

Garcia-Muniesa, Jordi. 2019. 'Economic Crisis and Support for Progressive Taxation in Europe'. *European Societies* 21(2):256–79. doi: 10.1080/14616696.2018.1547836.

García-Sánchez, Efraín, Danny Osborne, Guillermo B. Willis, and Rosa Rodríguez-Bailón. 2020. 'Attitudes towards Redistribution and the Interplay between Perceptions and Beliefs about Inequality'. *British Journal of Social Psychology* 59(1):111–36. doi: 10.1111/bjso.12326.

García-Sánchez, Efraín, Jojanneke Van der Toorn, Rosa Rodríguez-Bailón, and Guillermo B. Willis. 2019. 'The Vicious Cycle of Economic Inequality: The Role of Ideology in Shaping the Relationship Between "What Is" and "What Ought to Be" in 41 Countries'. *Social Psychological and Personality Science* 10(8):991–1001. doi: 10.1177/1948550618811500.

Genschel, Philipp, and Peter Schwarz. 2011. 'Tax Competition: A Literature Review'. *Socio-Economic Review* 9(2):339–70. doi: 10.1093/ser/mwr004.

Georg, Stephan. 2022. 'Distance Calculator'. *Www.Distance.To*. Retrieved 3 November 2022 (https://www.distance.to/).

Gerber, J. P., Ladd Wheeler, and Jerry Suls. 2018. 'A Social Comparison Theory Meta-Analysis 60+ Years On.' *Psychological Bulletin* 144(2):177–97. doi: 10.1037/bul0000127.

Giger, Nathalie, and Davy-Kim Lascombes. 2019. 'Growing Income Inequality, Growing Legitimacy: A Longitudinal Approach to Perceptions of Inequality'.

Gimpelson, Vladimir, and Daniel Treisman. 2018. 'Misperceiving Inequality'. *Economics & Politics* 30(1):27–54. doi: 10.1111/ecpo.12103.

Goldin, Claudia Dale, and Lawrence F. Katz. 2009. *The Race between Education and Technology*. Harvard University Press.

Goldstein, Daniel G., and David Rothschild. 2014. 'Lay Understanding of Probability Distributions'. *Judgment and Decision Making* 9(1):1–14.

Gonzalez, R., and G. Wu. 1999. 'On the Shape of the Probability Weighting Function'. *Cognitive Psychology* 38(1):129–66. doi: 10.1006/cogp.1998.0710.

Graham, Matthew H. 2023. 'Measuring Misperceptions?' *American Political Science Review* 117(1):80–102. doi: 10.1017/S0003055422000387.

Granovetter, Mark. 1973. 'The Strength of Weak Ties'. *American Journal of Sociology* 78(6):1360–80.

Granovetter, Mark. 1985. 'Economic Action and Social Structure: The Problem of Embeddedness'. *American Journal of Sociology* 91(3):481–510.

Grice, Paul. 1989. *Studies in the Way of Words*. Cambridge : New York: Harvard University Press.

Guenther, Corey L., and Mark D. Alicke. 2010. 'Deconstructing the Better-than-Average Effect'. *Journal of Personality and Social Psychology* 99(5):755–70. doi: 10.1037/a0020959.

Gusmano, Michael K., Mark Schlesinger, and Tracey Thomas. 2002. 'Policy Feedback and Public Opinion: The Role of Employer Responsibility in Social Policy'. *Journal of Health Politics, Policy and Law* 27(5):731–72. doi: 10.1215/03616878-27-5-731.

Haack, Patrick, and Jost Sieweke. 2018. 'The Legitimacy of Inequality: Integrating the Perspectives of System Justification and Social Judgment'. *Journal of Management Studies* 55(3):486–516. doi: 10.1111/joms.12323.

Hall, Peter A., and Rosemary C. R. Taylor. 1996. 'Political Science and the Three New Institutionalisms'. *Political Studies* 44(5):936–57. doi: 10.1111/j.1467-9248.1996.tb00343.x.

Haller, Max, and Markus Hadler. 2006. 'How Social Relations and Structures Can Produce Happiness and Unhappiness: An International Comparative Analysis'. *Social Indicators Research* 75(2):169–216. doi: 10.1007/s11205-004-6297-y.

Halleröd, Björn, Daniel Larsson, David Gordon, and Veli-Matti Ritakallio. 2006. 'Relative Deprivation: A Comparative Analysis of Britain, Finland and Sweden'. *Journal of European Social Policy* 16(4):328–45.

Hansen, Kristina Jessen. 2022. 'Greed, Envy, and Admiration: The Distinct Nature of Public Opinion about Redistribution from the Rich'. *American Political Science Review* 1–18. doi: 10.1017/S0003055422000582.

Hardman, David. 2009. *Judgment and Decision Making: Psychological Perspectives*. Malden, MA: John Wiley & Sons.

Hargreaves Heap, Shaun P., Konstantinos Matakos, and Nina Weber. 2020. *Non-Selfish Behavior: Are Social Preferences or Social Norms Revealed in Distribution Decisions? SSRN Scholarly Paper*. ID 3657431. Rochester, NY: Social Science Research Network. doi: 10.2139/ssrn.3657431.

Harris, A. J. L., and M. Speekenbrink. 2016. 'Semantic Cross-Scale Numerical Anchoring'. *Judgment and Decision Making* 11(6):572–81.

Harth, Nicole Syringa, Thomas Kessler, and Colin Wayne Leach. 2008. 'Advantaged Group's Emotional Reactions to Intergroup Inequality: The Dynamics of Pride, Guilt, and Sympathy'. *Personality and Social Psychology Bulletin* 34(1):115–29. doi: 10.1177/0146167207309193.

Hauser, Oliver P., and Michael I. Norton. 2017. '(Mis)Perceptions of Inequality'. *Current Opinion in Psychology* 18:21–25. doi: 10.1016/j.copsyc.2017.07.024.

Hayek, F. A. 1945. 'The Use of Knowledge in Society'. *The American Economic Review* 35(4):519–30.

Hedström, Peter. 2005. *Dissecting the Social: On the Principles of Analytical Sociology*. Cambridge University Press.

Hedström, Peter, and Richard Swedberg. 1998. *Social Mechanisms: An Analytical Approach to Social Theory*. New. Cambridge: New York: Cambridge University Press.

Hedström, Peter, Richard Swedberg, and Gudmund Hernes. 1998. *Social Mechanisms: An Analytical Approach to Social Theory*. Cambridge: New York: Cambridge University Press.

Hedström, Peter, and Petri Ylikoski. 2010. 'Causal Mechanisms in the Social Sciences'. *Annual Review of Sociology* 36(1):49–67. doi: 10.1146/annurev.soc.012809.102632.

Heisig, Jan Paul, and Merlin Schaeffer. 2019. 'Why You Should Always Include a Random Slope for the Lower-Level Variable Involved in a Cross-Level Interaction'. *European Sociological Review* 35(2):258–79. doi: 10.1093/esr/jcy053.

Herz, Noa, Orrie Dan, Nitzan Censor, and Yair Bar-Haim. 2020. 'Opinion: Authors Overestimate Their Contribution to Scientific Work, Demonstrating a Strong Bias'. *Proceedings of the National Academy of Sciences* 117(12):6282–85. doi: 10.1073/pnas.2003500117.

Heuer, Jan-Ocko, Thomas Lux, Steffen Mau, and Katharina Zimmermann. 2020. 'Legitimizing Inequality: The Moral Repertoires of Meritocracy in Four Countries'. *Comparative Sociology* 19(4–5):542–84. doi: 10.1163/15691330-BJA10017.

Hing, Leanne S. Son, Anne E. Wilson, Peter Gourevitch, Jaslyn English, and Parco Sin. 2019. 'Failure to Respond to Rising Income Inequality: Processes That Legitimize Growing Disparities'. *Daedalus* 148(3):105–35. doi: 10.1162/daed_a_01752.

Ho, Arnold K., Jim Sidanius, Nour Kteily, Jennifer Sheehy-Skeffington, Felicia Pratto, Kristin E. Henkel, Rob Foels, and Andrew L. Stewart. 2015. 'The Nature of Social Dominance Orientation: Theorizing and Measuring Preferences for Intergroup Inequality Using the New SDO$_7$ Scale.' *Journal of Personality and Social Psychology* 109(6):1003–28. doi: 10.1037/pspi0000033.

Hodges, Sara D., and Tom Hollenstein. 2001. 'Direction of Comparison in Typicality Judgments'. *Social Cognition* 19(6):601–24. doi: 10.1521/soco.19.6.601.20887.

Hoffman, Elizabeth, Kevin McCabe, Keith Shachat, and Vernon Smith. 1994. 'Preferences, Property Rights, and Anonymity in Bargaining Games'. *Games and Economic Behavior* 7(3):346–80. doi: 10.1006/game.1994.1056.

Holyoak, Keith J., and Peter C. Gordon. 1983. 'Social Reference Points'. *Journal of Personality and Social Psychology* 44:881–87. doi: 10.1037/0022-3514.44.5.881.

Homans, George C. 1973. 'Fundamental Social Processes'. Pp. 549–94 in *Sociology: An Introduction 2nd ed.*, edited by N. J. Smelser. New York: John Wiley and Sons.

Homans, George Caspar. 1961. *Social Behavior: Its Elementary Forms*. New York, NY ua: Harcourt, Brace & World.

Hoorens, Vera, and Susanne Bruckmüller. 2015. 'Less Is More? Think Again! A Cognitive Fluency-Based More–Less Asymmetry in Comparative Communication.' *Journal of Personality and Social Psychology* 109(5):753–66. doi: 10.1037/pspa0000032.

Horwitz, Suzanne R., and John F. Dovidio. 2017. 'The Rich—Love Them or Hate Them? Divergent Implicit and Explicit Attitudes toward the Wealthy'. *Group Processes & Intergroup Relations* 20(1):3–31. doi: 10.1177/1368430215596075.

Hout, Michael. 2004. 'Getting the Most Out of the GSS Income Measures'. *GSS Methodological Report 101* 15.

Hout, Michael. 2008. ‘How Class Works: Objective and Subjective Aspects of Class since the 1970s’. Pp. 25–64 in *Social class: How does it work?*, edited by A. Lareau and D. Conley. New York: Russell Sage Foundation.

Hufe, Paul, Ravi Kanbur, and Andreas Peichl. 2022. ‘Measuring Unfair Inequality: Reconciling Equality of Opportunity and Freedom from Poverty’. *The Review of Economic Studies* Online first. doi: 10.1093/restud/rdab101.

Hülle, Sebastian, Stefan Liebig, and Meike Janina May. 2018. ‘Measuring Attitudes Toward Distributive Justice: The Basic Social Justice Orientations Scale’. *Social Indicators Research* 136(2):663–92. doi: 10.1007/s11205-017-1580-x.

Humer, Stefan, and Mathias Moser. 2016. ‘Integrierte Steuer-Und Abgabenstatistik Der Privaten Haushalte in Österreich’. *INEQ — Forschungsinstitut Economics of Inequality*.

Hurd, Michael D. 2009. ‘Subjective Probabilities in Household Surveys’. *Annual Review of Economics* 1(1):543–62. doi: 10.1146/annurev.economics.050708.142955.

Hvidberg, Kristoffer B., Claus T. Kreiner, and Stefanie Stantcheva. 2023. ‘Social Positions and Fairness Views on Inequality’. *The Review of Economic Studies* Online first. doi: 10.1093/restud/rdad019.

Hyman, Herbert Hiram. 1942. ‘The Psychology of Status’. *Archives of Psychology* 269:5–28.

Imai, Kosuke, Luke Keele, Dustin Tingley, and Teppei Yamamoto. 2011. ‘Unpacking the Black Box of Causality: Learning about Causal Mechanisms from Experimental and Observational Studies’. *American Political Science Review* 105(4):765–89. doi: 10.1017/S0003055411000414.

Imai, Kosuke, Dustin Tingley, and Teppei Yamamoto. 2013. ‘Experimental Designs for Identifying Causal Mechanisms’. *Journal of the Royal Statistical Society. Series A (Statistics in Society)* 176(1):5–32.

Inglehart, Ronald. 1990. *Culture Shift in Advanced Industrial Society*. Princeton, NJ: Princeton UnivPress.

Iversen, Torben, and Max Goplerud. 2018. ‘Redistribution Without a Median Voter: Models of Multidimensional Politics’. *Annual Review of Political Science* 21(1):295–317. doi: 10.1146/annurev-polisci-031016-011009.

Iversen, Torben, and David Soskice. 2001. ‘An Asset Theory of Social Policy Preferences’. *American Political Science Review* 95(4):875–93.

Iversen, Torben, and David Soskice. 2015. ‘Information, Inequality, and Mass Polarization: Ideology in Advanced Democracies’. *Comparative Political Studies* 48(13):1781–1813. doi: 10.1177/0010414015592643.

Jachimowicz, Jon M., Shai Davidai, Daniela Goya-Tocchetto, Barnabas Szaszi, Martin V. Day, Stephanie J. Tepper, L. Taylor Phillips, M. Usman Mirza, Nailya Ordabayeva, and Oliver P. Hauser. 2022. ‘Inequality in Researchers’ Minds: Four Guiding Questions for Studying Subjective Perceptions of Economic Inequality’. *Journal of Economic Surveys* Online first. doi: 10.1111/joes.12507.

Jäger, Simon, Christopher Roth, Nina Roussille, and Benjamin Schoefer. 2021. ‘Worker Beliefs About Outside Options’.

Janmaat, Jan Germen. 2013. ‘Subjective Inequality: A Review of International Comparative Studies on People’s Views about Inequality’. *European Journal of Sociology / Archives Européennes de Sociologie* 54(3):357–89. doi: 10.1017/S0003975613000209.

Jasso, Guillermina. 1980. ‘A New Theory of Distributive Justice’. *American Sociological Review* 45(1):3–32. doi: 10.2307/2095239.

Jasso, Guillermina, and Bernd Wegener. 1997a. ‘Methods for Empirical Justice Analysis: Part 1. Framework, Models, and Quantities’. *Social Justice Research* 10(4):393–430. doi: 10.1007/BF02683292.

Jasso, Guillermina, and Bernd Wegener. 1997b. 'Methods for Empirical Justice Analysis: Part 1. Framework, Models, and Quantities'. *Social Justice Research* 10(4):393–430. doi: 10.1007/BF02683292.

Jost, John T., and Mahzarin R. Banaji. 1994. 'The Role of Stereotyping in System-Justification and the Production of False Consciousness'. *British Journal of Social Psychology* 33(1):1–27. doi: 10.1111/j.2044-8309.1994.tb01008.x.

Jost, John T., Mahzarin R. Banaji, and Brian A. Nosek. 2004. 'A Decade of System Justification Theory: Accumulated Evidence of Conscious and Unconscious Bolstering of the Status Quo'. *Political Psychology* 25(6):881–919. doi: 10.1111/j.1467-9221.2004.00402.x.

Jost, John T., Aaron C. Kay, and Hulda Thorisdottir. 2009. *Social and Psychological Bases of Ideology and System Justification*. Oxford: Oxford University Press.

Kahneman, Daniel. 2003. 'A Perspective on Judgment and Choice: Mapping Bounded Rationality.' *American Psychologist* 58(9):697–720. doi: 10.1037/0003-066X.58.9.697.

Kahneman, Daniel. 2011. *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux.

Kahneman, Daniel, and Amos Tversky. 1979. 'Prospect Theory: An Analysis of Decision under Risk'. *Econometrica* 47(2):263–91. doi: 10.2307/1914185.

Kakwani, Nanak C. 1977. 'Measurement of Tax Progressivity: An International Comparison'. *The Economic Journal* 87(345):71–80. doi: 10.2307/2231833.

Kalleitner, Fabian, and Bernhard Kittel. 2018. 'Das Einkommensverständnis in Österreich. Wissen und Zustimmung zur progressiven Besteuerung'. Pp. 173–91 in *Aktuelle Probleme der Finanzsoziologie: die Fragestellungen von Rudolf Goldscheid heute*, *Beiträge der Wiener Gesellschaft für Soziologie ; Band 1*. Wien: LIT.

Kanthak, Leon, and Dennis C. Spies. 2018. 'Public Support for European Union Economic Policies'. *European Union Politics* 19(1):97–118. doi: 10.1177/1465116517740638.

Karadja, Mounir, Johanna Mollerstrom, and David Seim. 2016. 'Richer (and Holier) Than Thou? The Effect of Relative Income Improvements on Demand for Redistribution'. *The Review of Economics and Statistics* 99(2):201–12. doi: 10.1162/REST_a_00623.

Kawakami, Kerry, Curtis E. Phills, Anthony G. Greenwald, Daniel Simard, Jeannette Pontiero, Amy Brnjas, Beenish Khan, Jennifer Mills, and John F. Dovidio. 2012. 'In Perfect Harmony: Synchronizing the Self to Activated Social Categories'. *Journal of Personality and Social Psychology* 102(3):562–75. doi: 10.1037/a0025970.

Kelley, Jonathan, and M. D. R. Evans. 1995. 'Class and Class Conflict in Six Western Nations'. *American Sociological Review* 60(2):157–78. doi: 10.2307/2096382.

Kelly, Morgan. 2000. 'Inequality and Crime'. *Review of Economics and Statistics* 82(4):530–39. doi: 10.1162/003465300559028.

Kenworthy, Lane, and Leslie McCall. 2008. 'Inequality, Public Opinion and Redistribution'. *Socio-Economic Review* 6(1):35–68. doi: 10.1093/ser/mwm006.

Kenworthy, Lane, and Jonas Pontusson. 2005a. 'Rising Inequality and the Politics of Redistribution in Affluent Countries'. *Perspectives on Politics* 3(03):449–71. doi: 10.1017/S1537592705050292.

Kenworthy, Lane, and Jonas Pontusson. 2005b. 'Rising Inequality and the Politics of Redistribution in Affluent Countries'. *Perspectives on Politics* 3(3):449–71.

Kiatpongsan, Sorapop, and Michael I. Norton. 2014. 'How Much (More) Should CEOs Make? A Universal Desire for More Equal Pay'. *Perspectives on Psychological Science* 9(6):587–93. doi: 10.1177/1745691614549773.

Kirchler, Erich, Erik Hoelzl, and Ingrid Wahl. 2008. 'Enforced versus Voluntary Tax Compliance: The "Slippery Slope" Framework'. *Journal of Economic Psychology* 29(2):210–25. doi: 10.1016/j.joep.2007.05.004.

Kittel, Bernhard, Georg Kanitsar, and Stefan Traub. 2017. 'Knowledge, Power, and Self-Interest'. *Journal of Public Economics* 150:39–52. doi: 10.1016/j.jpubeco.2017.04.004.

Kittel, Bernhard, Fabian Paetzel, and Stefan Traub. 2015. 'Competition, Income Distribution, and the Middle Class: An Experimental Study'. *Journal of Applied Mathematics* 1–15. doi: 10.1155/2015/303912.

Knell, Markus, and Helmut Stix. 2020. 'Perceptions of Inequality'. *European Journal of Political Economy* 65:1–21.

Koos, Sebastian, and Patrick Sachweh. 2019. 'The Moral Economies of Market Societies: Popular Attitudes towards Market Competition, Redistribution and Reciprocity in Comparative Perspective'. *Socio-Economic Review* 17(4):793–821. doi: 10.1093/ser/mwx045.

Korpi, Walter, and Joakim Palme. 1998. 'The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries'. *American Sociological Review* 63(5):661–87. doi: 10.2307/2657333.

Kraus, Michael W., Jacinth J. X. Tan, and Melanie B. Tannenbaum. 2013. 'The Social Ladder: A Rank-Based Perspective on Social Class'. *Psychological Inquiry* 24(2):81–96. doi: 10.1080/1047840X.2013.778803.

Kreitzer, Rebecca J., Allison J. Hamilton, and Caroline J. Tolbert. 2014. 'Does Policy Adoption Change Opinions on Minority Rights? The Effects of Legalizing Same-Sex Marriage'. *Political Research Quarterly* 67(4):795–808. doi: 10.1177/1065912914540483.

Kroneberg, Clemens. 2011. *Die Erklärung sozialen Handelns*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Kruger, Justin, and Kenneth Savitsky. 2009. 'On the Genesis of Inflated (and Deflated) Judgments of Responsibility'. *Organizational Behavior and Human Decision Processes* 108(1):143–52. doi: 10.1016/j.obhdp.2008.06.002.

Ku, Hyejin, and Timothy C. Salmon. 2013. 'Procedural Fairness and the Tolerance for Income Inequality'. *European Economic Review* 64:111–28. doi: 10.1016/j.euroecorev.2013.09.001.

Kuhn, Andreas. 2019. 'The Subversive Nature of Inequality: Subjective Inequality Perceptions and Attitudes to Social Inequality'. *European Journal of Political Economy*. doi: 10.1016/j.ejpoleco.2019.04.004.

Kustov, Alexander, Dillon Laaker, and Cassidy Reller. 2021. 'The Stability of Immigration Attitudes: Evidence and Implications'. *The Journal of Politics* 83(4):1478–94. doi: 10.1086/715061.

Laimer, Peter, and Sandra Lebersorger. 2017. *Urlaubs- und Geschäftsreisen*. Statistik Austria.

LaLumia, Sara. 2008. 'The Effects of Joint Taxation of Married Couples on Labor Supply and Non-Wage Income'. *Journal of Public Economics* 92(7):1698–1719. doi: 10.1016/j.jpubeco.2008.01.009.

Lamont, Michèle, and Virág Molnár. 2002. 'The Study of Boundaries Across the Social Sciences'. *Annual Review of Sociology* 28:167–95.

Larcinese, Valentino. 2005. 'Electoral Competition and Redistribution with Rationally Informed Voters'. *Contributions in Economic Analysis & Policy* 4(1):1–26. doi: 10.2202/1538-0645.1366.

Larsen, Christian Albrekt. 2016. 'How Three Narratives of Modernity Justify Economic Inequality'. *Acta Sociologica* 59(2):93–111. doi: 10.1177/0001699315622801.

Lasswell, Harold D. 1958. *Politics: Who Gets What, When, How*. New York: Meridian Books.

LeBoeuf, Robyn A., and Eldar Shafir. 2009. 'Anchoring on the" Here" and" Now" in Time and Distance Judgments.' *Journal of Experimental Psychology: Learning, Memory, and Cognition* 35(1):81–93.

Lerner, Melvin. 1980. *The Belief in a Just World: A Fundamental Delusion*. 1980th edition. New York: Springer.

Levi, Margaret. 1991. 'Are There Limits to Rationality?' *European Journal of Sociology/Archives Européennes de Sociologie* 32(1):130–41.

Liebig, S., and S. Mau. 2005. 'When is a tax system just? Attitudes towards general principles of taxation and the justice of tax burdens'. *Zeitschrift Fur Soziologie* 34(6):468–91.

Liebig, Stefan, Bernhard Kittel, István György Tóth, Arye Rattner, and Guillermina Jasso. 2016. *Justice and Fairness in Europe: Coping with Growing Inequalities and Heterogeneities*. The European Social Survey Round 9 Question Module Design Teams (QDT) Stage 2 Application.

Liebig, Stefan, and Carsten Sauer. 2016. 'Sociology of Justice'. Pp. 37–59 in *Handbook of Social Justice Theory and Research*, edited by C. Sabbagh and M. Schmitt. New York, NY: Springer.

Limberg, Julian. 2019. '"Tax the Rich"? The Financial Crisis, Fiscal Fairness, and Progressive Income Taxation'. *European Political Science Review* 11(3):319–36. doi: 10.1017/S1755773919000183.

Limberg, Julian. 2020. 'What's Fair? Preferences for Tax Progressivity in the Wake of the Financial Crisis'. *Journal of Public Policy* 40(2):171–93. doi: 10.1017/S0143814X18000430.

Limberg, Julian. 2022. 'Banking Crises and the Modern Tax State'. *Socio-Economic Review* 20(1):29–54. doi: 10.1093/ser/mwz055.

Limberg, Julian, and Laura Seelkopf. 2022. 'The Historical Origins of Wealth Taxation'. *Journal of European Public Policy* 29(5):670–88. doi: 10.1080/13501763.2021.1992486.

Lindenberg, Siegwart. 1977. 'The Direction of Ordering and Its Relation to Social Phenomena / Die Richtung Des Ordnens Und Ihre Beziehung Zu Sozialen Phänomenen'. *Zeitschrift Für Soziologie* 6(2):203–21. doi: 10.1515/zfsoz-1977-0205.

Lindenberg, Siegwart. 1990. 'Homo Socio-Oeconomicus: The Emergence of a General Model of Man in the Social Sciences'. *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift Für Die Gesamte Staatswissenschaft* 146(4):727–48.

Lindenberg, Siegwart, and Linda Steg. 2007. 'Normative, Gain and Hedonic Goal Frames Guiding Environmental Behavior'. *Journal of Social Issues* 63(1):117–37.

Lorenz, Jan, Fabian Paetzel, and Markus Tepe. 2017. 'Just Don't Call It a Tax! Framing in an Experiment on Voting and Redistribution'. *Journal of Experimental Political Science* 4(3):183–94. doi: 10.1017/XPS.2016.7.

Lowery, Brian S., Rosalind M. Chow, and Jennifer Randall Crosby. 2009. 'Taking from Those That Have More and Giving to Those That Have Less: How Inequity Frames Affect Corrections for Inequity'. *Journal of Experimental Social Psychology* 45(2):375–78. doi: 10.1016/j.jesp.2008.09.010.

Lowery, Brian S., Eric D. Knowles, and Miguel M. Unzueta. 2007. 'Framing Inequity Safely: Whites' Motivated Perceptions of Racial Privilege'. *Personality and Social Psychology Bulletin* 33:1237–50. doi: 10.1177/0146167207303016.

Lü, Xiaobo, and Kenneth Scheve. 2016. 'Self-Centered Inequity Aversion and the Mass Politics of Taxation'. *Comparative Political Studies* 49(14):1965–97. doi: 10.1177/0010414016666834.

Lungu, Laura Silvia. 2022. 'Bling-Bling Politics: Exposure to Status-Goods Consumption Shapes the Social Policy Preferences of the Less Affuent'. *Socio-Economic Review* mwac030. doi: 10.1093/ser/mwac030.

Lupu, Noam, and Jonas Pontusson. 2011. 'The Structure of Inequality and the Politics of Redistribution'. *American Political Science Review* 105(2):316–36. doi: 10.1017/S0003055411000128.

Luttmer, Erzo F. P. 2005. 'Neighbors as Negatives: Relative Earnings and Well-Being'. *The Quarterly Journal of Economics* 120(3):963–1002. doi: 10.1093/qje/120.3.963.

Manski, Charles F. 2004. ‘Measuring Expectations’. *Econometrica* 72(5):1329–76. doi: 10.1111/j.1468-0262.2004.00537.x.

Margalit, Yotam. 2019. ‘Political Responses to Economic Shocks’. *Annual Review of Political Science* 22(1):277–95. doi: 10.1146/annurev-polisci-050517-110713.

Marshall, Gordon, Adam Swift, David Routh, and Carole Burgoyne. 1999. ‘What Is and What Ought to Be Popular Beliefs About Distributive Justice in Thirteen Countries’. *European Sociological Review* 15(4):349–67. doi: 10.1093/oxfordjournals.esr.a018270.

Marshall, Thomas H. 1950. *Citizenship and Social Class*. New York, NY: Cambridge.

Martin, Isaac W., Ajay K. Mehrotra, and Monica Prasad. 2009. ‘The Thunder of History. The Origins and Development of the New Fiscal Sociology’. in *The new fiscal sociology: Taxation in comparative and historical perspective*, edited by Isaac William Martin, A. K. Mehrotra, and M. Prasad. Cambridge University Press.

Martin, Isaac William, and Monica Prasad. 2014. ‘Taxes and Fiscal Sociology’. *Annual Review of Sociology* 40(1):331–45. doi: 10.1146/annurev-soc-071913-043229.

Martínez, Isabel Z. 2022. ‘Mobility Responses to the Establishment of a Residential Tax Haven: Evidence from Switzerland’. *Journal of Urban Economics* 129:Online first. doi: 10.1016/j.jue.2022.103441.

Marx, Karl. 1847. ‘Das Elend Der Philosophie’. in *MEW Band 4*.

Marx, Paul. 2014. ‘Labour Market Risks and Political Preferences: The Case of Temporary Employment’. *European Journal of Political Research* 53(1):136–59.

Mattan, Bradley D., Jennifer T. Kubota, and Jasmin Cloutier. 2017. ‘How Social Status Shapes Person Perception and Evaluation: A Social Neuroscience Perspective’. *Perspectives on Psychological Science* 12(3):468–507. doi: 10.1177/1745691616677828.

Matuschek, Hannes, Reinhold Kliegl, Shravan Vasishth, Harald Baayen, and Douglas Bates. 2017. ‘Balancing Type I Error and Power in Linear Mixed Models’. *Journal of Memory and Language* 94:305–15. doi: 10.1016/j.jml.2017.01.001.

Mau, Steffen, and Benjamin Veghte. 2007. *Social Justice, Legitimacy and the Welfare State*. Farnham: Ashgate Publishing, Ltd.

McCall, Leslie. 2013. *The Undeserving Rich: American Beliefs about Inequality, Opportunity, and Redistribution*. Cambridge: Cambridge University Press.

McCall, Leslie, Derek Burk, Marie Laperrière, and Jennifer A. Richeson. 2017. ‘Exposure to Rising Inequality Shapes Americans’ Opportunity Beliefs and Policy Support’. *Proceedings of the National Academy of Sciences* 114(36):9593–98. doi: 10.1073/pnas.1706253114.

McPherson, Miller, Lynn Smith-Lovin, and James M. Cook. 2001. ‘Birds of a Feather: Homophily in Social Networks’. *Annual Review of Sociology* 27(1):415–44. doi: 10.1146/annurev.soc.27.1.415.

Meltzer, Allan H., and Scott F. Richard. 1981. ‘A Rational Theory of the Size of Government’. *Journal of Political Economy* 89(5):914–27.

Merton, Robert K. 1995. ‘The Thomas Theorem and the Matthew Effect’. *Social Forces* 74(2):379–422. doi: 10.2307/2580486.

Merton, Robert King. 1968. *Social Theory and Social Structure*. Manhattan: Simon and Schuster.

Mijs, Jonathan J. B. 2021. ‘The Paradox of Inequality: Income Inequality and Belief in Meritocracy Go Hand in Hand’. *Socio-Economic Review* 19(1):7–35. doi: 10.1093/ser/mwy051.

Mijs, Jonathan J. B., and Mike Savage. 2020. ‘Meritocracy, Elitism and Inequality’. *The Political Quarterly* 91(2):397–404. doi: 10.1111/1467-923X.12828.

Milanović, Branko. 2016. *Global Inequality: A New Approach for the Age of Globalization*. Cambridge, Massachusetts: London, England.

Miller, Dale T., Brian Taylor, and Michelle L. Buck. 1991. 'Gender Gaps: Who Needs to Be Explained?' *Journal of Personality and Social Psychology* 61(1):5–12. doi: 10.1037/0022-3514.61.1.5.

Miller, David. 1999. *Principles of Social Justice*. Cambridge: Harvard University Press.

Moene, Karl Ove, and Michael Wallerstein. 2001. 'Inequality, Social Insurance, and Redistribution'. *American Political Science Review* 95(4):859–74. doi: 10.1017/S0003055400400067.

Mullainathan, Sendhil, and Ebonya Washington. 2009. 'Sticking with Your Vote: Cognitive Dissonance and Political Attitudes'. *American Economic Journal: Applied Economics* 1(1):86–111. doi: 10.1257/app.1.1.86.

Musgrave, R. A. 1992. 'Schumpeter's Crisis of the Tax State: An Essay in Fiscal Sociology'. *Journal of Evolutionary Economics* 2(2):89–113. doi: 10.1007/BF01193535.

Mussweiler, Thomas. 2001. 'The Durability of Anchoring Effects'. *European Journal of Social Psychology* 31(4):431–42. doi: 10.1002/ejsp.52.

Mussweiler, Thomas. 2003. 'Comparison Processes in Social Judgment: Mechanisms and Consequences.' *Psychological Review* 110(3):472–89. doi: 10.1037/0033-295X.110.3.472.

Mussweiler, Thomas, and Kai Epstude. 2009. 'Relatively Fast! Efficiency Advantages of Comparative Thinking'. *Journal of Experimental Psychology: General* 138(1):1–21. doi: 10.1037/a0014374.

Mussweiler, Thomas, and Fritz Strack. 1999. 'Hypothesis-Consistent Testing and Semantic Priming in the Anchoring Paradigm: A Selective Accessibility Model'. *Journal of Experimental Social Psychology* 35(2):136–64. doi: 10.1006/jesp.1998.1364.

Mutz, Diana C. 2018. 'Status Threat, Not Economic Hardship, Explains the 2016 Presidential Vote'. *Proceedings of the National Academy of Sciences* 115(19):E4330–39. doi: 10.1073/pnas.1718155115.

Mutz, Diana Carole. 2011. *Population-Based Survey Experiments*. Princeton: Princeton University Press.

Naumann, Elias, Christopher Buss, and Johannes Bähr. 2016. 'How Unemployment Experience Affects Support for the Welfare State: A Real Panel Approach'. *European Sociological Review* 32(1):81–92. doi: 10.1093/esr/jcv094.

Navarro-Martinez, Daniel, Linda Court Salisbury, Katherine N. Lemon, Neil Stewart, William J. Matthews, and Adam J. L. Harris. 2011. 'Minimum Required Payment and Supplemental Information Disclosure Effects on Consumer Debt Repayment Decisions'. *Journal of Marketing Research* 48(SPL):S60–77. doi: 10.1509/jmkr.48.SPL.S60.

Niehues, Judith. 2014. 'Subjective Perceptions of Inequality and Redistributive Preferences: An International Comparison'. *Cologne Institute for Economic Research. IW-TRENDS Discussion Paper* 2:1–23.

Nishi, Akihiro, and Nicholas A. Christakis. 2015. 'Human Behavior under Economic Inequality Shapes Inequality'. *Proceedings of the National Academy of Sciences* 112(52):15781–82. doi: 10.1073/pnas.1522090112.

Nishi, Akihiro, Hirokazu Shirado, David G. Rand, and Nicholas A. Christakis. 2015. 'Inequality and Visibility of Wealth in Experimental Social Networks'. *Nature* 526(7573):426–29. doi: 10.1038/nature15392.

Norton, Michael I., and Dan Ariely. 2011. 'Building a Better America—One Wealth Quintile at a Time'. *Perspectives on Psychological Science* 6(1):9–12. doi: 10.1177/1745691610393524.

Nunnari, Salvatore, and Massimiliano Pozzi. 2022. 'Meta-Analysis of Inequality Aversion Estimates'.

Nyhan, Brendan. 2020. 'Facts and Myths about Misperceptions'. *Journal of Economic Perspectives* 34(3):220–36. doi: 10.1257/jep.34.3.220.

Obinger, Herbert. 2021. 'Social Expenditure and Welfare State Financing'. Pp. 453–72 in *The Oxford Handbook of the Welfare State*, edited by D. Béland, K. J. Morgan, H. Obinger, and C. Pierson. Oxford: Oxford University Press.

O'Brien, Rourke L. 2017. 'Redistribution and the New Fiscal Sociology: Race and the Progressivity of State and Local Taxes'. *American Journal of Sociology* 122(4):1015–49. doi: 10.1086/690118.

OECD. 2019. *Taxing Wages 2019: 2017-2018.* Paris: Organisation for Economic Co-operation and Development.

OECD. 2020. *Reassessing the Regressivity of the VAT*. Vol. 49. Paris: Organisation for Economic Co-operation and Development.

OECD. 2021. *Does Inequality Matter?: How People Perceive Economic Disparities and Social Mobility*. Paris: Organisation for Economic Co-operation and Development.

OECD. 2022a. 'Income Distribution Database'. Retrieved 8 October 2022 (https://stats.oecd.org/Index.aspx?DataSetCode=IDD).

OECD. 2022b. 'Purchasing Power Parities for GDP and Related Indicators'. Retrieved 8 October 2022 (https://stats.oecd.org/index.aspx?DataSetCode=PPPGDP).

OECD. 2022c. *Tax Policy and Gender Equality: A Stocktake of Country Approaches*. Paris: Organisation for Economic Co-operation and Development.

OECD. 2022d. *Taxation of Part-Time Work in the OECD*. Vol. 57. *OECD Taxation Working Papers*. 57. doi: 10.1787/572b72d3-en.

O'Grady, Tom. 2019. 'How Do Economic Circumstances Determine Preferences? Evidence from Long-Run Panel Data'. *British Journal of Political Science* 49(4):1381–1406. doi: 10.1017/S0007123417000242.

van Oorschot, Wim. 2000. 'Who Should Get What, and Why? On Deservingness Criteria and the Conditionality of Solidarity among the Public'. *Policy & Politics* 28(1):33–48. doi: 10.1332/0305573002500811.

Opp, Karl-Dieter. 1983. *Die Entstehung sozialer Normen: ein Integrationsversuch soziologischer, sozialpsychologischer und ökonomischer Erklärungen*. Tübingen: Mohr Siebeck.

Opp, Karl-Dieter. 2013. 'Norms and Rationality. Is Moral Behavior a Form of Rational Action?' *Theory and Decision* 74(3):383–409. doi: 10.1007/s11238-012-9315-6.

Osberg, Lars, and Timothy Smeeding. 2006. '"Fair" Inequality? Attitudes toward Pay Differentials: The United States in Comparative Perspective'. *American Sociological Review* 71(3):450–73. doi: 10.1177/000312240607100305.

Otten, K. D. 2020. 'When Upward Social Mobility Leads to Frustration: Boudon's Game-Theoretic Model of Relative Deprivation and Experimental Evidence'. *Research in Social Stratification and Mobility* 65(Online first).

Owens, Ann. 2016. 'Inequality in Children's Contexts: Income Segregation of Households with and without Children'. *American Sociological Review* 81(3):549–74. doi: 10.1177/0003122416642430.

Pacheco, Julianna. 2013. 'Attitudinal Policy Feedback and Public Opinion: The Impact of Smoking Bans on Attitudes towards Smokers, Secondhand Smoke, and Antismoking Policies'. *Public Opinion Quarterly* 77(3):714–34. doi: 10.1093/poq/nft027.

Paetzel, Fabian, Jan Lorenz, and Markus Tepe. 2018. 'Transparency Diminishes Framing-Effects in Voting on Redistribution: Some Experimental Evidence'. *European Journal of Political Economy* 55:169–84. doi: 10.1016/j.ejpoleco.2017.12.002.

Page, Lionel, and Daniel G. Goldstein. 2016. 'Subjective Beliefs about the Income Distribution and Preferences for Redistribution'. *Social Choice and Welfare* 47(1):25–61. doi: 10.1007/s00355-015-0945-9.

Pahl, Sabine, and J. Richard Eiser. 2006. 'The Focus Effect and Self-Positivity in Ratings of Self-Other Similarity and Difference'. *British Journal of Social Psychology* 45:107–16. doi: 10.1348/014466605X49582.

Payne, John W., James R. Bettman, and Eric J. Johnson. 1993. *The Adaptive Decision Maker*. Cambridge: Cambridge University Press.

Pedersen, Rasmus T., and Diana C. Mutz. 2018. 'Attitudes Toward Economic Inequality: The Illusory Agreement'. *Political Science Research and Methods* 1–17. doi: 10.1017/psrm.2018.18.

Pickett, Kate E., and Richard G. Wilkinson. 2015. 'Income Inequality and Health: A Causal Review'. *Social Science & Medicine* 128:316–26. doi: 10.1016/j.socscimed.2014.12.031.

Piketty, Thomas. 1995. 'Social Mobility and Redistributive Politics'. *The Quarterly Journal of Economics* 110(3):551–84.

PUMA. 2019. 'PUMA Survey 6.1. Insights in Societal Changes in Austria'. doi: 10.11587/O4UDDL.

Rabe-Hesketh, Sophia, Anders Skrondal, and Sophia Rabe-Hesketh. 2022. *Multilevel and Longitudinal Modeling Using Stata*. Fourth edition. College Station, Texas: Stata Press.

Rabin, Matthew. 1993. 'Incorporating Fairness into Game Theory and Economics'. *The American Economic Review* 83(5):1281–1302.

Raub, Werner, and Thomas Voss. 2017. 'Micro-Macro Models in Sociology: Antecedents of Coleman's Diagram'. Pp. 11–36 in *Micro-Macro Models in Sociology: Antecedents of Coleman's Diagram*. De Gruyter Oldenbourg.

Reardon, Sean F., and Kendra Bischoff. 2011. 'Income Inequality and Income Segregation'. *American Journal of Sociology* 116(4):1092–1153. doi: 10.1086/657114.

Reese, Gerhard, Jutta Proch, and J. Christopher Cohrs. 2014. 'Individual Differences in Responses to Global Inequality'. *Analyses of Social Issues and Public Policy* 14(1):217–38. doi: 10.1111/asap.12032.

Reeskens, Tim, and Wim van Oorschot. 2013. 'Equity, Equality, or Need? A Study of Popular Preferences for Welfare Redistribution Principles across 24 European Countries'. *Journal of European Public Policy* 20(8):1174–95. doi: 10.1080/13501763.2012.752064.

Rehm, Philipp. 2009. 'Risks and Redistribution: An Individual-Level Analysis'. *Comparative Political Studies* 42(7):855–81. doi: 10.1177/0010414008330595.

Rehm, Philipp. 2016. *Risk Inequality and Welfare States: Social Policy Preferences, Development, and Dynamics*. New York NY: Cambridge University Press.

Reyes-García, Victoria, Arild Angelsen, Gerald E. Shively, and Dmitrij Minkin. 2019. 'Does Income Inequality Influence Subjective Wellbeing? Evidence from 21 Developing Countries'. *Journal of Happiness Studies* 20(4):1197–1215. doi: 10.1007/s10902-018-9992-0.

Riyanto, Yohanes E., and Jianlin Zhang. 2014. 'An Egalitarian System Breeds Generosity: The Impact of Redistribution Procedures on Pro-Social Behavior'. *Economic Inquiry* 52(3):1027–39. doi: 10.1111/ecin.12090.

Roberts, Kevin W. S. 1977. 'Voting over Income Tax Schedules'. *Journal of Public Economics* 8(3):329–40. doi: 10.1016/0047-2727(77)90005-6.

Romer, Thomas. 1975. 'Individual Welfare, Majority Voting, and the Properties of a Linear Income Tax'. *Journal of Public Economics* 4(2):163–85. doi: 10.1016/0047-2727(75)90016-X.

Roosma, Femke, Wim van Oorschot, and John Gelissen. 2016. 'A Just Distribution of Burdens? Attitudes Toward the Social Distribution of Taxes in 26 Welfare States'. *International Journal of Public Opinion Research* 28(3):376–400. doi: 10.1093/ijpor/edv020.

Ross, Michael, and Fiore Sicoly. 1979. 'Egocentric Biases in Availability and Attribution'. *Journal of Personality and Social Psychology* 37(3):322–36. doi: 10.1037/0022-3514.37.3.322.

Rothstein, Bo. 2001. 'The Universal Welfare State as a Social Dilemma'. *Rationality and Society* 13(2):213–33. doi: 10.1177/104346301013002004.

Rueda, David. 2017. 'Food Comes First, Then Morals: Redistribution Preferences, Parochial Altruism, and Immigration in Western Europe'. *The Journal of Politics* 80(1):225–39. doi: 10.1086/694201.

Rueda, David, and Daniel Stegmueller. 2016. 'The Externalities of Inequality: Fear of Crime and Preferences for Redistribution in Western Europe'. *American Journal of Political Science* 60(2):472–89. doi: 10.1111/ajps.12212.

Runciman, Walter Garrison. 1966. *Relative Deprivation and Social Justice: A Study of Attitudes to Social Inequality in Twentieth-Century England*. Oakland: University of California Press.

Sachweh, Patrick. 2012. 'The Moral Economy of Inequality: Popular Views on Income Differentiation, Poverty and Wealth'. *Socio-Economic Review* 10(3):419–45. doi: 10.1093/ser/mwr023.

Saez, Emmanuel, and Gabriel Zucman. 2019. *The Triumph of Injustice: How the Rich Dodge Taxes and How to Make Them Pay*. New York, NY: Norton & Company.

Samuelson, William, and Richard Zeckhauser. 1988. 'Status Quo Bias in Decision Making'. *Journal of Risk and Uncertainty* 1(1):7–59. doi: 10.1007/BF00055564.

Sandel, Michael J. 2020. *The Tyranny of Merit: What's Become of the Common Good?* London: Penguin UK.

Sands, Melissa L. 2017. 'Exposure to Inequality Affects Support for Redistribution'. *Proceedings of the National Academy of Sciences* 114(4):663–68. doi: 10.1073/pnas.1615010113.

Sauermann, Jan. 2023. 'Median Voter Dynamics in a Laboratory Experiment on Voting over Redistribution'. *Social Science Research* 111:102869. doi: 10.1016/j.ssresearch.2023.102869.

Sausgruber, Rupert, and Jean-Robert Tyran. 2005. 'Testing the Mill Hypothesis of Fiscal Illusion'. *Public Choice* 122(1–2):39–68. doi: 10.1007/s11127-005-3992-4.

Sausgruber, Rupert, and Jean-Robert Tyran. 2011. 'Are We Taxing Ourselves?: How Deliberation and Experience Shape Voting on Taxes'. *Journal of Public Economics* 95(1):164–76. doi: 10.1016/j.jpubeco.2010.10.002.

Sausgruber, Rupert, and Jean-Robert Tyran. 2014. 'Discriminatory Taxes Are Unpopular—Even When They Are Efficient and Distributionally Fair'. *Journal of Economic Behavior & Organization* 108:463–76. doi: 10.1016/j.jebo.2013.12.022.

Sayer, Andrew. 2007. 'Moral Economy as Critique'. *New Political Economy* 12(2):261–70. doi: 10.1080/13563460701303008.

Schechtl, Manuel, and Daria Tisch. 2023. 'Tax Principles, Policy Feedback and Self-Interest: Cross-National Experimental Evidence on Wealth Tax Preferences'. *Socio-Economic Review* mwac071. doi: 10.1093/ser/mwac071.

Scheidel, Walter. 2017. *The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century*. Princeton Oxford: Princeton University Press.

Scheve, Kenneth, and David Stasavage. 2010. 'The Conscription of Wealth: Mass Warfare and the Demand for Progressive Taxation'. *International Organization* 64(4):529–61. doi: 10.1017/S0020818310000226.

Scheve, Kenneth, and David Stasavage. 2016. *Taxing the Rich: A History of Fiscal Fairness in the United States and Europe*. Princeton ; Oxford: Princeton University Press.

Scheve, Kenneth, and David Stasavage. 2022. 'Equal Treatment and the Inelasticity of Tax Policy to Rising Inequality'. *Comparative Political Studies* 00104140221108415. doi: 10.1177/00104140221108415.

Scheve, Kenneth, and David Stasavage. 2023. ‘Equal Treatment and the Inelasticity of Tax Policy to Rising Inequality’. *Comparative Political Studies* 56(4):435–64. doi: 10.1177/00104140221108415.

Schneider, Simone M. 2016. ‘Income Inequality and Subjective Wellbeing: Trends, Challenges, and Research Directions’. *Journal of Happiness Studies* 17(4):1719–39. doi: 10.1007/s10902-015-9655-3.

Schneider, Simone M. 2019. ‘Why Income Inequality Is Dissatisfying—Perceptions of Social Status and the Inequality-Satisfaction Link in Europe’. *European Sociological Review* 35(3):409–30. doi: 10.1093/esr/jcz003.

Schneider, Simone M., and Juan C. Castillo. 2015. ‘Poverty Attributions and the Perceived Justice of Income Inequality: A Comparison of East and West Germany’. *Social Psychology Quarterly* 78(3):263–82. doi: 10.1177/0190272515589298.

Schulz, Jan, Daniel M. Mayerhoffer, and Anna Gebhard. 2022. ‘A Network-Based Explanation of Inequality Perceptions’. *Social Networks* 70:306–24. doi: 10.1016/j.socnet.2022.02.007.

Schumpeter, Joseph A. 1918. *Die Krise des Steuerstaats*. Graz [u.a.]: Leuschner & Lubensky.

Schwander, Hanna, and Silja Häusermann. 2013. ‘Who Is in and Who Is out? A Risk-Based Conceptualization of Insiders and Outsiders’. *Journal of European Social Policy* 23(3):248–69. doi: 10.1177/0958928713480064.

Schwaninger, Manuel. 2022. ‘Sharing with the Powerless Third: Other-Regarding Preferences in Dynamic Bargaining’. *Journal of Economic Behavior & Organization* 197:341–55.

Schwarz, Norbert, and Herbert Bless. 1992. ‘Constructing Reality and Its Alternatives: An Inclusion/Exclusion Model of Assimilation and Contrast Effects in Social Judgment’. Pp. 217–45 in *The Construction of Social Judgments*, edited by L. Martin and A. Tesser. Lawrence Erlbaum.

Searle, John R. 2001. *Rationality in Action*. Cambridge, MA, US: The MIT Press.

Seelkopf, Laura, Hanna Lierse, and Carina Schmitt. 2016. ‘Trade Liberalization and the Global Expansion of Modern Taxes’. *Review of International Political Economy* 23(2):208–31. doi: 10.1080/09692290.2015.1125937.

Shamon, Hawal, and Hermann Dülmer. 2014. ‘Raising the Question on “Who Should Get What?” Again: On the Importance of Ideal and Existential Standards’. *Social Justice Research* 27(3):340–68. doi: 10.1007/s11211-014-0217-3.

Shayo, Moses. 2009. ‘A Model of Social Identity with an Application to Political Economy: Nation, Class, and Redistribution’. *American Political Science Review* 103(2):147–74. doi: 10.1017/S0003055409090194.

Sides, John, and Jack Citrin. 2007. ‘European Opinion About Immigration: The Role of Identities, Interests and Information’. *British Journal of Political Science* 37(3):477–504. doi: 10.1017/S0007123407000257.

Skylark, William J., Joseph M. Carr, and Claire L. McComas. 2018. ‘Who Says “Larger” and Who Says “Smaller”? Individual Differences in the Language of Comparison’. *Judgment and Decision Making* 13(6):547–61.

Slemrod, Joel. 2006. ‘The Role of Misconceptions in Support for Regressive Tax Reform’. *National Tax Journal* 59(1):57–75.

Sørensen, Aage B. 1998. ‘10. Theoretical Mechanisms and the Empirical Study of Social Processes’. Pp. 238–66 in *Social mechanisms: An analytical approach to social theory*, edited by P. Hedström and R. Swedberg. Cambridge: Cambridge University Press.

Stantcheva, Stefanie. 2021. ‘Understanding Tax Policy: How Do People Reason?*’. *The Quarterly Journal of Economics* 136(4):2309–69. doi: 10.1093/qje/qjab033.

Starmans, Christina, Mark Sheskin, and Paul Bloom. 2017. 'Why People Prefer Unequal Societies'. *Nature Human Behaviour* 1(4):0082. doi: 10.1038/s41562-017-0082.

Statistik Austria. 2018. *Statistik der Lohnsteuer 2017*. Wien.

Steenbergen, Marco R., Erica E. Edwards, and Catherine E. de Vries. 2007. 'Who's Cueing Whom?: Mass-Elite Linkages and the Future of European Integration'. *European Union Politics* 8(1):13–35. doi: 10.1177/1465116507073284.

Steiner, Jakub, and Colin Stewart. 2016. 'Perceiving Prospects Properly'. *American Economic Review* 106(7):1601–31. doi: 10.1257/aer.20141141.

Stewart, Neil. 2009. 'The Cost of Anchoring on Credit-Card Minimum Repayments'. *Psychological Science* 20(1):39–41. doi: 10.1111/j.1467-9280.2008.02255.x.

Stoeckel, Florian, and Theresa Kuhn. 2018. 'Mobilizing Citizens for Costly Policies: The Conditional Effect of Party Cues on Support for International Bailouts in the European Union'. *Journal of Common Market Studies* 56(2):446–61. doi: 10.1111/jcms.12610.

Strack, Fritz, and Thomas Mussweiler. 1997. 'Explaining the Enigmatic Anchoring Effect: Mechanisms of Selective Accessibility.' *Journal of Personality and Social Psychology* 73(3):437–46. doi: 10.1037/0022-3514.73.3.437.

Stroup, Michael D. 2005. 'An Index for Measuring Tax Progressivity'. *Economics Letters* 86(2):205–13. doi: 10.1016/j.econlet.2004.06.017.

Suls, Jerry, René Martin, and Ladd Wheeler. 2002. 'Social Comparison: Why, With Whom, and With What Effect?' *Current Directions in Psychological Science* 11(5):159–63. doi: 10.1111/1467-8721.00191.

Summers, Kate, Fabien Accominotti, Tania Burchardt, Katharina Hecht, Elizabeth Mann, and Jonathan Mijs. 2022. 'Deliberating Inequality: A Blueprint for Studying the Social Formation of Beliefs about Economic Inequality'. *Social Justice Research* 35:379–400. doi: 10.1007/s11211-022-00389-0.

Svallfors, Stefan. 2013. 'Government Quality, Egalitarianism, and Attitudes to Taxes and Social Spending: A European Comparison'. *European Political Science Review* 5(3):363–80. doi: 10.1017/S175577391200015X.

Sznycer, Daniel, Maria Florencia Lopez Seal, Aaron Sell, Julian Lim, Roni Porat, Shaul Shalvi, Eran Halperin, Leda Cosmides, and John Tooby. 2017. 'Support for Redistribution Is Shaped by Compassion, Envy, and Self-Interest, but Not a Taste for Fairness'. *Proceedings of the National Academy of Sciences* 114(31):8420–25. doi: 10.1073/pnas.1703801114.

Tajfel, Henri. 1981. *Human Groups and Social Categories: Studies in Social Psychology*. Cambridge [Cambridgeshire] ; New York: Cambridge University Press.

Tajfel, Henri, and John Turner. 1979. 'An Integrative Theory of Intergroup Conflict'. Pp. 33–37 in *The social psychology of intergroup relations*, edited by W. G. Austin and S. Worchel. Monterey, CA: Brooks, Cole.

Tajfel, Henri, and A. L. Wilkes. 1963. 'Classification and Quantitative Judgement'. *British Journal of Psychology* 54(2):101–14. doi: 10.1111/j.2044-8295.1963.tb00865.x.

Tankard, Margaret E., and Elizabeth Levy Paluck. 2017. 'The Effect of a Supreme Court Decision Regarding Gay Marriage on Social Norms and Personal Attitudes'. *Psychological Science* 28(9):1334–44. doi: 10.1177/0956797617709594.

Taylor-Gooby, Peter, Jan-Ocko Heuer, Heejung Chung, Benjamin Leruth, Steffen Mau, and Katharina Zimmermann. 2020. 'Regimes, Social Risks and the Welfare Mix: Unpacking Attitudes to Pensions and Childcare in Germany and the UK Through Deliberative Forums'. *Journal of Social Policy* 49(1):61–79. doi: 10.1017/S004727941800079X.

Tepe, Markus, Pieter Vanhuysse, and Maximilian Lutz. 2021. 'Merit, Luck, and Taxes: Societal Reward Rules, Self-Interest, and Ideology in a Real-Effort Voting Experiment'. *Political Research Quarterly* 74(4):1052–66. doi: 10.1177/1065912920960232.

Thal, Adam. 2020. 'The Desire for Social Status and Economic Conservatism among Affluent Americans'. *American Political Science Review* 114(2):426–42. doi: 10.1017/S0003055419000893.

Tingley, Dustin, Teppei Yamamoto, Kentaro Hirose, Luke Keele, Kosuke Imai, Minh Trinh, and Weihuang Wong. 2019. 'Mediation: Causal Mediation Analysis'.

Tocqueville, Alexis de. 1896. *The Recollections of Alexis de Tocqueville*. London: Macmillan.

Tricomi, Elizabeth, Antonio Rangel, Colin F. Camerer, and John P. O'Doherty. 2010. 'Neural Evidence for Inequality-Averse Social Preferences'. *Nature* 463(7284):1089–91. doi: 10.1038/nature08785.

Trump, Kris-Stella. 2018. 'Income Inequality Influences Perceptions of Legitimate Income Differences'. *British Journal of Political Science* 48(4):929–52. doi: 10.1017/S0007123416000326.

Trump, Kris-Stella. 2020. 'When and Why Is Economic Inequality Seen as Fair'. *Current Opinion in Behavioral Sciences* 34:46–51. doi: 10.1016/j.cobeha.2019.12.001.

Trump, Kris-Stella. 2023. 'Income Inequality Is Unrelated to Perceived Inequality and Support for Redistribution'. *Social Science Quarterly* Online First. doi: 10.1111/ssqu.13269.

Turner, Brandon M., and Dan R. Schley. 2016. 'The Anchor Integration Model: A Descriptive Model of Anchoring Effects'. *Cognitive Psychology* 90:1–47. doi: 10.1016/j.cogpsych.2016.07.003.

Tversky, Amos. 1977. 'Features of Similarity'. *Psychological Review* 84:327–52. doi: 10.1037/0033-295X.84.4.327.

Tversky, Amos, and Itamar Gati. 1978. 'Studies of Similarity'. *Cognition and Categorization* 1(1978):79–98.

Tversky, Amos, and Daniel Kahneman. 1974. 'Judgment under Uncertainty: Heuristics and Biases'. *Science* 185(4157):1124–31. doi: 10.1126/science.185.4157.1124.

Tyran, Jean-Robert, and Rupert Sausgruber. 2006. 'A Little Fairness May Induce a Lot of Redistribution in Democracy'. *European Economic Review* 50(2):469–85. doi: 10.1016/j.euroecorev.2004.09.014.

Urban, Ivica. 2009. 'Kakwani Decomposition of Redistributive Effect: Origins, Critics and Upgrades'. *Society for the Study of Economic Inequality Working Paper* 148(5).

Veblen, Thorstein. 1934. *The Theory of the Leisure Class: An Economic Study of Institutions*. New York: Random House.

Verme, Paolo. 2011. 'Life Satisfaction and Income Inequality'. *Review of Income and Wealth* 57(1):111–27. doi: 10.1111/j.1475-4991.2010.00420.x.

Wagner, Richard E. 1976. 'Revenue Structure, Fiscal Illusion, and Budgetary Choice'. *Public Choice* 25(1):45–61. doi: 10.1007/BF01726330.

Wänke, Michaela, and Leonie Reutner. 2011. 'Direction-of-Comparison Effects: How and Why Comparing Apples with Oranges Is Different from Comparing Oranges with Apples'.

Watson, Tara. 2009. 'Inequality and the Measurement of Residential Segregation by Income in American Neighborhoods'. *Review of Income and Wealth* 55(3):820–44. doi: 10.1111/j.1475-4991.2009.00346.x.

Weber, Max. 2002. *Wirtschaft und Gesellschaft: Grundriss der verstehenden Soziologie: Grundriß der Verstehenden Soziologie*. 5., rev. A. Edition. Tübingen: Mohr Siebeck.

Wegener, Bernd. 1987. ‘The Illusion of Distributive Justice’. *European Sociological Review* 3(1):1–13. doi: 10.1093/oxfordjournals.esr.a036427.

Wegener, Bernd. 1990. ‘Equity, Relative Deprivation, and the Value Consensus Paradox’. *Social Justice Research* 4(1):65–86. doi: 10.1007/BF01048536.

Wegener, Bernd, and Susanne Steinmann. 1995. ‘Justice Psychophysics in the Real World: Comparing Income Justice and Income Satisfaction in East and West Germany’. Pp. 151–75 in *Social justice and political change: public opinion in capitalist and post-communist states*, edited by J. R. Kluegel, D. S. Mason, and B. Wegener. London: Routledge, Taylor & Francis Group.

Wegener, Duane T., Richard E. Petty, Kevin L. Blankenship, and Brian Detweiler-Bedell. 2010. ‘Elaboration and Numerical Anchoring: Implications of Attitude Theories for Consumer Judgment and Decision Making’. *Journal of Consumer Psychology* 20(1):5–16. doi: 10.1016/j.jcps.2009.12.003.

Weimann, Joachim, and Martin Fochmann. 2013. ‘The Effects of Tax Salience and Tax Experience on Individual Work Efforts in a Framed Field Experiment’. *FinanzArchiv* 69(4):511. doi: 10.1628/001522113X675692.

Weisstanner, David, and Klaus Armingeon. 2022. ‘Redistributive Preferences: Why Actual Income Is Ultimately More Important than Perceived Income’. *Journal of European Social Policy* 32(2):119–236. doi: 10.1177/09589287211037912.

Wenzel, Michael. 2005. ‘Misperceptions of Social Norms about Tax Compliance: From Theory to Intervention’. *Journal of Economic Psychology* 26(6):862–83. doi: 10.1016/j.joep.2005.02.002.

Wikström, Per-olof H. 2006. ‘Individuals, Settings, and Acts of Crime: Situational Mechanisms and the Explanation of Crime’. Pp. 61–107 in *The Explanation of Crime: Context, Mechanisms and Development*, *Pathways in Crime*, edited by P.-O. H. Wikström and R. J. Sampson. Cambridge: Cambridge University Press.

Wilensky, Harold L. 2002. *Rich Democracies: Political Economy, Public Policy, and Performance*. Oakland: University of California Press.

Wilkinson, Richard, and Kate Pickett. 2009. *The Spirit Level: Why Greater Equality Makes Societies Stronger*. New York City: Bloomsbury Publishing USA.

Wills, Thomas Ashby. 1981. ‘Downward Comparison Principles in Social Psychology’. *Psychological Bulletin* 90(2):245–71. doi: 10.1037/0033-2909.90.2.245.

Windsteiger, Lisa. 2022. ‘The Redistributive Consequences of Segregation’. *European Economic Review* 144:104073.

Wood, Joanne V. 1996. ‘What Is Social Comparison and How Should We Study It?’ *Personality and Social Psychology Bulletin* 22(5):520–37. doi: 10.1177/0146167296225009.

Wood, Wendy, and David T. Neal. 2007. ‘A New Look at Habits and the Habit-Goal Interface’. *Psychological Review* 114:843–63. doi: 10.1037/0033-295X.114.4.843.

World Bank. 2020. ‘World Development Indicators: Central Government Revenues’. Retrieved 5 September 2022 (http://wdi.worldbank.org/table/4.14).

Zilberstein, Shira, and Michèle Lamont. 2023. ‘Income Inequality and Residential Segregation in “Egalitarian” Sweden: Lessons from a Least Likely Case’. *Sociological Science* 10:374–402. doi: 10.15195/v10.a12.

Zimmermann, Florian. 2020. ‘The Dynamics of Motivated Beliefs’. *American Economic Review* 110(2):337–61. doi: 10.1257/aer.20180728.