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M.Sc. Thesis in Political Science

Expectations

How Education Shapes Expectations and Redistributive Attitudes

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Abstract

Education is an important indicator of future success. I argue that citizens use their educational degree to infer what future level of income position they will achieve, and internalize this into their current redistributive preferences. I survey Danish students in tertiary education (N = 1,020), where I elicit expectations and redistributive attitudes. I field a customized treatment, which informs the respondent of the average salary after 10 years for people with the same given degree as them and where that salary places them in relative terms in the income distribution. I find that respondents underestimate their future position in the income distribution, and when treated, they become less supportive of redistribution. To assess the generalizability of these findings, I leverage ISSP-data (N=7,542) and see that Denmark is an "ordinary" case in terms of how expectations are developed and correlate with preferences. Further, to test the external validity of my experimental findings, I use data from the Danish Longitudinal Study of Youth (N = 3,104), which tracks a cohort from 1968 to 2004 on their educational expectations and performance. Using a two-ways fixed model, I find that respondents become less concerned with inequality when improving relative to their educational expectations. In sum, I see find that education is an important determinant of expectations and redistributive attitudes. I discuss the macro-level implications of shifting expectations for electoral coalitions and welfare state development.

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1 Introduction

The post-industrial economy has often been dubbed the "knowledge economy", marking the shift from manual production to tertiary sectors (Iversen and Soskice, 2019). Firms are demanding high-skill workers, and states have responded by investing heavily in higher education. This has given rise to new sorts of inequality due to skill-biased technological change, where the market rewards certain skill sets with a growing premium, while others see tepid demand (Acemoglu, 2002; Autor *et al.*, 1998; Kurer, 2020). Further, the rising class of high-skill workers with portable skills reduces the motive to vote for insurance from the state as labor market risk profiles become increasingly segmented (Friedman and Iversen, 2024; Iversen and Soskice, 2019). This segmentation undercuts the historic cross-class support for the social insurance welfare state, as risk becomes socially stratified (Friedman and Iversen, 2024; Pontusson and Weisstanner, 2018). This development creates greater thensions between "winners" and "losers" than in the 20th century, which may cause those getting ahead to opt out of the welfare state and those who feel left behind to seek compensation by demanding more redistribution from the state. The existing literature has largely focused on the political consequences of experiencing or expecting a decline in social status, causing voters to turn to anti-establishment parties (Ansell *et al.*, 2021; Engler and Weisstanner, 2021; Gidron and Hall, 2017; Kurer and Van Staalduinen, 2022). Less attention has been given to those voters who should expect to get ahead, and to what extent the prospect of upward mobility changes their political attitudes and support for the welfare state (Häusermann *et al.*, 2023).

In this thesis, I argue that voters use their educational degree to infer what position in the income distribution they can expect to achieve. This prospective evaluation is moderated by the subjective confidence voters have of their future income position relative to others. From this combined assessment, voters then form their redistributive preferences. I further argue that relative to current material conditions, the explanatory power of expectations is highest when voters are young, and uncertainty exists on how their labor market trajectory will develop and what wealth they can accumulate.

Expectations of future income position have been studied extensively. Seminal work by by Benabou and Ok (2001) and Piketty (1995) were among the first to formalize how voters may reason about their future social position from patterns of intergenerational mobility, and form redistributive attitudes. In more recent work in comparative political economy, Rueda and Stegmueller (2019)

have reintroduced the notion of expectations in redistributive preferences, and demonstrated how voters differ by what income level their occupational and educational profile should proxy them to expect. Further, recent work on populism has shown how disappointed expectations lead to discontent with the political status quo and lead voters to vote for anti-establishment parties (Kurer and Van Staalduinen, 2022).

A shortcoming in the current literature on expectations and redistributive preferences is that expectations are mostly elicited through proxies. That is, a large part of the literature uses current material circumstances to deduce what voters should expect to achieve in society in the future. For instance, Rueda and Stegmueller (2019) use years of education and labor market profile to infer what income voters rationally should expect. However informative, this approach has the fundamental shortcoming of assuming that voters hold expectations equal to what certain objective observable conditions would predict. What is lost is how voters may vary in confidence and certainty of their future position. To do so convincingly, one must study expectations and redistributive preferences directly. Somewhat analogously, the study of the effect of income expectations on saving and spending behavior in economics is increasingly directing itself to the study of survey-based expectations, and developing methods to do so convincingly (D'Acunto and Weber, 2024).

In this study, I field a survey to assess what position voters expect to achieve in the future. My aim is both to describe how voters vary by expectations and to establish a causal effect of raising expectations on redistributive preferences. To do so, I first leverage a granular measure to elicit a probabilistic distribution of expectations, to gauge the variance of what position voters expect to achieve in the future, and how certain they are of attaining that position. This method has primarily been used to survey economic expectations and has to the best of my knowledge not been used to measure what income position voters expect to attain. The few previous studies that have studied subjective expectations have opted to use a single item that asks what position respondents expect to achieve (Cojocaru, 2014; Cox, 2024; Laméris *et al.*, 2020).

I select to survey Danish students in tertiary education. This choice is driven by two main considerations. First, the explanatory power of expectations relative to material circumstances is greatest when voters are young and alike in material circumstances. This is largely the case for Danish students, who receive free education and a monthly stipend to cover some of their living costs. Next, the Danish context provides me with wage information from graduates based on registry data, to provide personalized information which I leverage in the experimental setting.

Descriptively, I find that groups differ in substantial ways in terms of what position they view as most probable for them. For instance, men see it as more than two times more likely than women that they will end up at the top of the income distribution. Further, I see that in terms of redistributive attitudes, respondents who expect to be part of the top of the income distribution

hold significantly different attitudes relative to the rest of the sample, who hold similar attitudes. In other words, those who are highly confident that they will be part of the top of the income distribution are clearly opposed to redistribution, while those who hold more modest and dispersed expectations do not differ by rank.

Next, I feature an experimental component that randomly assigns some of the respondents information on the average income earned 10 years after completing their degree. Little experimental work exists on expectations and redistributive preferences (Bernasconi and Neunhoeffer, 2023), with the notable exemption of a novel paper by Cox (2024), who employs a similar design with Chile as a case. However, Cox (2024) only provides respondents with absolute information on average income, whereas I also provide information on relative income position. I find that respondents prefer less taxation on top income groups when receiving information which raises their expected future income position. Assessing the mechanism, I find that respondents are relatively well-informed on earnings, and propose that the effect is mainly driven by respondents underestimating where that wage places them in society in relative terms. This finding contributes to the general literature on material self-interest and redistributive preferences. First, many studies do not find that respondents react to information in line with their supposed material interests (For a review, see Culpepper *et al.*, 2024: 3). And when respondents react to information, it is usually when they are treated with negative information (Cox, 2024; Weber, 2023). My experimental findings show that respondents update their redistributive preferences when they receive information which raises their expectations. This highlights that rising inequality may not only contribute to changing preferences in those voters who experience decline but also for those voters who expect to move further upward in society.

The survey findings are limited to the Danish higher-education context, where students already have selected tracks where they will be relatively well off. In other words, I have no representation of the citizens who are at the bottom of the distribution. To qualify Denmark as a case, I use the newest ISSP Social Inequality module that includes a novel item on where citizens expect to be in 10 years in society (ISSP Research Group, 2022). I use this item to see the degree of "optimism" in the Danish context and find that Denmark is quite similar to other advanced capitalistic democracies. Therefore, it is probable that expectation-enhancing interventions would cause citizens to update their expectations and change attitudes in other social contexts. This is an open avenue for future comparative research (see also Häusermann *et al.*, 2023 for a research agenda on the topic). Further, I replicate my descriptive findings and show how citizens vary in their preference for redistribution by what relative position they expect to achieve.

Furthermore, while the internal validity in a survey experiment is high, there is always a legitimate question of the external validity of the mechanism. Therefore, I also employ data from the Danish Youth Longitudinal Study, which followed a cohort of Danes from 1968 to 2004. In 1968, the

cohort was asked what educational level they would achieve, where one can then follow how the cohort performed in the educational system and update their preferences. This setting offers an opportunity to see how voters update their preferences in a setting where expectations are plausibly raised. I find that citizens who improve relative to their educational expectations become less concerned with inequality. I interpret this result as an expression of respondents updating their expectations in light of their performance, and hence, their redistributive preferences. This complements my experimental finding in a more externally valid setting and strengthens the credibility of the mechanism further.

Building on these micro-level results, I discuss the macro-level implications of segmented expectations on the development of the universal welfare state. With declining educational mobility and the implementation of reforms that may segment opportunity even further, the broad coalition supporting universalism may make a turn towards demanding a greater differentiation of welfare services. Politically, this development is already salient, where Social Democratic Prime Minister Mette Frederiksen sees that the welfare state will not be able to meet the high material welfare demands of the citizens who are well off while providing welfare to those who are seen as deserving. The Danish universal welfare state stands at the crossroads, in which reforms of welfare provision may exacerbate the material segmentation of citizens, and undercut the cross-class coalition for universalism.

2 Theory

Expectations of future income position have long been seen to be an important determinant of redistributive preferences. I draw on the existing literature in political economy to argue when and how expectations affect preferences for redistribution. I argue that expectations matter most when voters are young, as voters gradually form their expectations of what position they will attain in society. I argue that education is one of the most important sources of information to shape expectations. I compare my argument to the literature on the development of political preferences over the life cycle and argue that a materially based model is consistent with the observed fixed nature of political preferences when considering expectations.

To be clear and consistent, my argument naturally simplifies reality. I address some alternative interpretations of the relation I state exists, and what consequences these interpretations may have for my argument. Finally, I summarize the argument.

2.1 Expectations and Redistributive Preferences

What decides voters' redistributive preferences? A sizeable literature in political economy starts from the simple relation between the voter's income and their desired level of redistribution. This literature often builds on the canonical arguments presented by Meltzer and Richard (1981), which formalized the relation between voters' income and preferred level of the size of government. The Meltzer and Richard (1981) model focuses on the relation between the median voter and the mean income and states that the median voter will vote to increase the size of government as long as they stand to benefit from more redistribution. More generally, the Meltzer and Richard (1981) model has been used as a theoretical heuristic by scholars, to state that rational voters form their attitudes to redistribution from their position in the income distribution (e.g. Cavaillé, 2023; Rueda and Stegmueller, 2019). The lower the voter is in the income distribution, the more supportive they become of a progressive tax scheme, to tax voters above them and transfer welfare to themselves.

Importantly, this relation is relative. If all voters for instance attain an equal absolute increase in their income and retain their position in the income distribution, their redistributional preferences will be unaffected. They will still have the same basic incentive to tax voters above them, as long as

they stand to benefit. A stylized version of this relation is presented below in figure 2.1, where voters linearly prefer a less progressive redistributive scheme as they are placed higher in the income distribution.

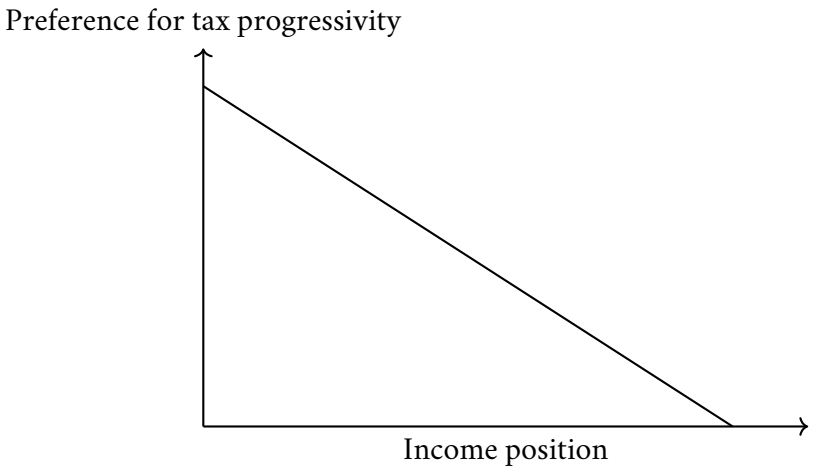


Figure 2.1. Simple relation between income position and preferred level of redistribution

This model assumes that voters 1) vote out of their current income position, and 2) know their position in the income distribution. The latter point is often used as a point of departure for a large empirical literature on redistributive preferences, where voters are seemingly poorly informed of their position in the income distribution (Cansunar, 2021; Engelhardt and Wagener, 2014; Hvidberg *et al.,* 2023; Kuziemko *et al.,* 2015). Here, the argument broadly is that the voters misinterpret their position in the income distribution, and therefore hold misinformed preferences for redistribution[1]. This empirical literature often leverages survey experiments, where they provide voters with information on the voter's true position in the income distribution. Voters often seem to underestimate the true extent of inequality in their country. The rich do not know how high they are in the income distribution, whereas the poor do not know how far down they are. When voters receive information and update their beliefs of where they are placed in the income distribution, they then update their preferences for redistribution in line with the basic intuition provided in figure 2.1.

Next, extensions of the model are then made to not solely think about *current* material conditions, but *future* material conditions. Canonical contributions are made by Piketty (1995) and Benabou and Ok (2001) who argue that citizens hold some beliefs about their future position in society, and internalize these expectations into their current preferences. Benabou and Ok (2001) states this as the "Prospect of Upward Mobility" hypothesis (POUM-hypothesis). Like the Meltzer and Richard (1981) model, this models the rational preferences held by voters, where the time horizon now has shifted from current material circumstances to prospective material circumstances. In other

[1] For a criticism of this argument, see Weisstanner and Armingeon (2022)

words, we are now considering what relative income position the voter *expects* to achieve. The key relation in the Benabou and Ok (2001) model is the *concativity* of how voters expect to move upwards in the income distribution. If voters expect a steep rise upward, their expected social position will have greater importance for their current redistributive preferences.

The effect of expectations is moderated by several factors in the Benabou and Ok (2001) model. First, the voters must hold a degree of farsightedness in their income trajectory to adopt and internalize their future social position into current redistributive preferences. If voters are completely myopic, then only current material circumstances matter. Next, voters must believe that there is a degree of "stickiness" or inertia in fiscal policy. If the policies of tomorrow are to matter for the preferences of today, then voters must believe that policies stick. In the case policy is fully fluid, the income-maximizing voter should constantly vote in line with their current material circumstances. Next, the degree of risk aversion the voter holds moderates the effect of expected income position on current redistributive preferences. If the voter votes for redistribution out of an insurance motive of current income, rather than out of a motive to increase income through transfers, then expectations of future position matter less.

The labor market risk motive has held considerable attention in comparative political economy. In an influential account of the importance and variance in risk, Iversen and Soskice (2001) argue that workers vary in their degree of *skill-specificity*. Workers can either have general skills, which are portable to other firms or industries, or specific skills, which are non-portable. Risk profiles can therefore explain why voters with similar incomes may differ in redistributive preferences. A voter with high skill-specificity might have a high income which dictates an anti-redistribution stance, but vote for a big state to insure their income.

This model presents a convincing nuance of how redistributive preferences are shaped along the income distribution, but it does not exclude the existence of an income motive. As Iversen and Soskice (2001) also show, income is negatively correlated with preferences for redistribution. This suggests that voters may vote out of a motive of redistribution and insurance at the same time (Jensen, 2019: 50). This dual motive is fully developed by Rehm (2011), who states that voters vote out of an insurance motive and a redistribution motive, and vote for different policies out of these motives. If a broad number of voters have a high risk of unemployment, they will support more generous unemployment benefits. The trend of the 21st century has been that risks have become increasingly socially stratified, which has led to a decrease in unemployment benefit generosity (Pontusson and Weisstanner, 2018). In effect, the risk-based motive pertains itself to the expectations voters hold of their labor market trajectory and these theories present a more precise refinement of what risk-aversion actually means for redistributive preferences in the Benabou and Ok (2001) model.

However, risk is greater than the labor market. As Jensen (2019) argues, one can also think of

"life-cycle risks" that stem from human biology. These risks exist in three categories: sickness, injury, and old age (page 67). Voters do not only support the welfare state to smooth their labor market risks but also to smooth these life-cycle risks. Jensen (2019) argues that voters value their physical integrity more than their current and future income (page 70). This could imply that the dominating motive for a preference for a big state would then be how voters vary in health profiles. However, Jensen (2019) shows remarkable similarity in risk perceptions and health insurance motives across groups, arguing that deeply held psychological predispositions lead voters to hold life-cycle risks equally high. In essence, the life-cycle risk motive is pivotal to understanding the *level* of support across groups for a large welfare state, but it matters less to explain *differences* in preferences between groups. On the margin, therefore, labor market profiles have great importance for the variance between groups and the social policies they support.

2.2 When do Expectations Matter?

To appreciate the importance of thinking in terms of expectations, it is important to present the explanatory power of them *relative* to observing current material circumstances. When I therefore argue that expectations matter, this is relative to explanations or models rooted in current material circumstances.

Broadly speaking, there is a relationship between the life-cycle of the voter's income profile and the explanatory power of expectations. When the voter is young, the explanatory power of expectations is high. Students, which I will later present as the case to test the explanatory power of expectations, have similar material circumstances. They are at the bottom of the income distribution, but they vary in what position of the income distribution they expect to attain. It is open to interpretation whether the student will embark on a high-earning trajectory, and what type of skills they will invest in. As students become workers and progress in their careers, they become gradually more certain of what position in the income distribution they will have. Ultimately, when they exit the labor market and receive pensions, they hold the highest certainty of what position they will be in the income distribution. This highlights the qualitative difference of expectations as voters progress over the life cycle, which is given by how the certainty of expectations matures over the life cycle. Therefore, expectations will be most predictive of redistributional preferences when voters are young, and least predictive when voters are old. The stylized trend of this relation is displayed in figure 2.2.

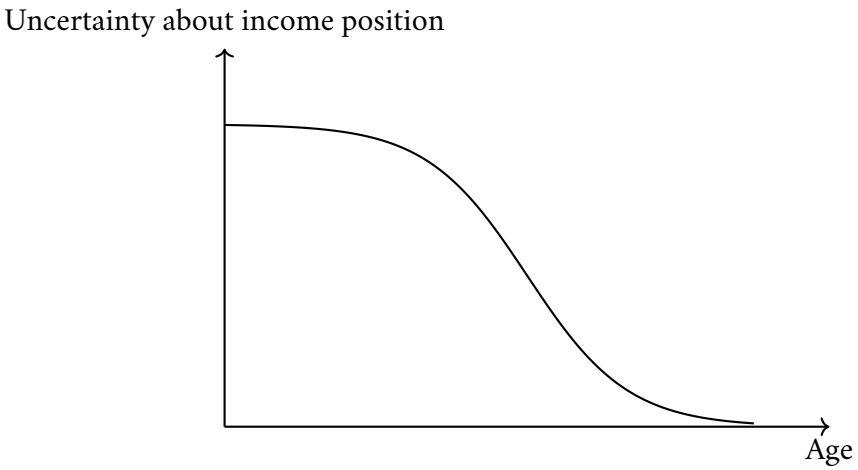


Figure 2.2. Relation between age and explanatory power of expectations

Importantly, this argument is not about expectations about absolute income, but income position. A voter's income life cycle has a period where the voter is a net receiver of welfare, then a net contributor as they participate in the labor market, and then again a net recipient when they exit the labor market. Here, expectations of old age are equally important. However, the intuition in thinking in terms of income position is that voters try to sample where they will be in the income distribution in the future, which offers them new opportunities in terms of being dependent on the welfare state when they enter old age. If the voter expects to be at the top of the income distribution, and then has the opportunity to select private alternatives to insure against old age, then this voter will in relative terms prefer less redistribution. This argument is backed by Busemeyer and Iversen (2020), who show that the well-off become less supportive of redistribution when private alternatives are introduced. Therefore, expectations about relative position are most decisive when the voter is young, as they are gaining knowledge on their personal welfare trade-offs and shaping their preferences.

This relation also clarifies some challenges to explanations that focus on material circumstances that are raised in the literature on the stability of political preferences. In a review and test of how voter preferences develop over the life course, Peterson *et al.* (2020) highlights that a sizeable literature has established the relative stability of political preferences over the life course. The classical view presented by Campbell *et al.* (1980) is that voters have a span of "impressionable years", where they are open to informational stimuli. These years broadly run from when the voter is 18 to 26. After the voter's impressionable years, voter preference seem to remain quite stable. This is partially verified by Geys *et al.* (2022), who in the Norwegian context find that voters update second-dimension policy preferences over the life course, but retain stable preferences for fiscal policy over the life course (Geys *et al.*, 2022: 8). Geys *et al.* (2022) neither find that changes in income lead to an update in preferences. In a simple Meltzer and Richard (1981) view, this finding is puzzling, and what be indicative of voters not reacting to changing material circumstances. In an

expectations-based model, where voters hold certain expectations of their future income position and shape their redistributive preferences accordingly, this stability would still be consistent with an explanation that voters' redistributive preferences are shaped by their perceived income position.

2.3 The Formation of Expectations

How are expectations of future income position then shaped? The canonical models of Piketty (1995) and Benabou and Ok (2001) focus mostly on patterns of intergenerational mobility, and argue that voters extrapolate the experience of their family's past mobility patterns to estimate what income position they will achieve. In simple terms, voters think of what position their parents hold – or how their parents have progressed relative to their own – and then expect to achieve the same position or pattern of upward mobility as their parents. A more general model is offered by Rueda and Stegmueller (2019) displayed in figure 2.3, who argue that expectations are a function of educational level and labor market experience. Here, voters use information on the income of peers with a similar level of education and labor market experience to deduce what they can expect to earn in the future, and hence, what position in the income distribution they can aim to attain.

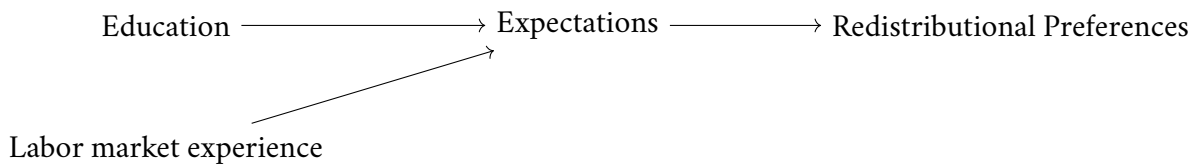


Figure 2.3. Illustration of Rueda and Stegmueller (2019) model of expectations

Taking these theories of expectation formation together, one can generally think of the voter as incorporating information on personal conditions and updating their beliefs of future income position by Bayes rule (Friedman and Iversen, 2024; Harsanyi, 1983). Voters hold certain priors on what position they will attain in the income distribution, and update these upon encountering new information about the group that they stand to be part of. Modeling redistributive preferences by Bayesian reasoning, Piketty (1995) argues that beliefs about mobility are sticky, and mostly determined by familial patterns of intergenerational mobility. I do not neglect the importance of intergenerational mobility in my argument, but I highlight that educational degrees likewise are an informational queue that voters use to update their priors on where they end in the income distribution, and subsequently affect their preferences for redistribution. In situations where

educational mobility is low, this nuance is of little importance, as educational achievement is simply a further expression of familial origin. But in situations where mobility is high, this moderation is crucial, as voters can move upward relative to their parents. In the high educational mobility context of the 1960s, Hvidkjær (2024) shows how school students held considerably higher educational expectations than their parents, arguing that voters can internalize the new opportunities offered to them. This demonstrates that voters do not simply extrapolate their personal experiences blindly from their origin, but update them using available information on future opportunities.

Naturally, expectations are not only formed on available information. This varies by an element of optimism or confidence. For instance, Alesina *et al.* (2018) argue that the reason that Americans prefer less redistribution than Europeans is that Americans overrate the prospect of upward mobility, while Europeans are conversely too pessimistic. Alesina *et al.* (2018) argue that this difference in expectations has spurred the growth of the European welfare states while tempering its expansion in the US. Further, the marked differences between the redistributive preferences of men and women could likewise be explained by differences in confidence (Buser *et al.*, 2020). Buser *et al.* (2020) find that overconfidence in future income leads men to prefer less redistribution than women. They also account for risk preferences, where women are markedly more risk-averse than men (Buser *et al.*, 2020). Comparing risk and overconfidence, Buser *et al.* (2020) find that overconfidence in future income prospects predominantly explains the gap between genders in redistributive preferences.

In sum, I argue that studying expectations is valuable relative to current material circumstances when the voter is young. If voters have an idea of their future income position, and internalize this into current preferences, this could provide a partial explanation for the stability of political preferences and the differences in redistributive preferences between groups with similar material circumstances.

2.4 Delimiting the Argument

Analysis requires simplicity, and I will now entertain what I think of as the two classes of theoretical omissions in my study. The first class of omissions are theories based on material demands, where voters want to maximize and insure their income through redistribution. The second class is alternative motives that voters may hold when forming attitudes to redistribution. To clearly state the scope of my argument, I clarify these omissions.

From the material perspective, I solely think of these dynamics in terms of an atomized individual. An extended model would consider household dynamics. Individuals may have low expectations

of their personal income development, but expect to have a partner with a relatively higher income. Therefore, they may prefer less redistribution. This would follow a traditional family in a Becker (1991) model where the household has a rational division of labor between a breadwinner and a housekeeper. An expectation-based perspective could incorporate this perspective, and it could be more valid in some temporal and spatial contexts. However, in the modern context where labor force participation is increasingly equalized, an individual based perspective is most informative (Esping-Andersen, 2016: 41).

On alternative motives, there is a set of alternative relations to interpret the relation between expectations and redistributional preferences. One could be based on social identity, where respondents form political preferences from what group they belong to (Tajfel, 1974). If they prefer less taxation for the rich upon learning that they may plausibly be part of that class, it may not be due to a consideration of maximizing income, but because they now see the rich as their in-group.

Next, voters may shape preferences from their expected social position out of envy. In an original argument on how status concerns affect political attitudes, herein redistributive demands, McClendon (2018) argues that voters demand redistribution to elevate their position in the local status hierarchy. Here, voters are not voting for redistribution to improve their material conditions but to deprive other voters of goods and to degrade their relative standing. This offers a different interpretation of how voters reason from their expected social position, and focuses on the local distribution of goods rather than the national, as I will do throughout this thesis.

Finally, the fairness perspective is not incorporated directly into this argument. Fairness arguments concern themselves with the distributive norms that justify inequality (Cavaillé, 2023). These can be norms of proportionality, ability to pay, or equal treatment. There is not a clear demarcation between material self-interest and fairness preferences. There is a great deal of rationalization of what is fair depending on what position one has in the income distribution (Cavaillé, 2023). In the context of my study, voters who expect to be at the top of society may find that the principle of equal treatment is most fair in taxation, whereas voters at the bottom may find the conversely unfair. This example converges with what a self-interested model would predict, but Cavaillé and Trump (2015) goes on to argue that the merit of the fairness-based argument lies in that it distinguishes between *taking from* and *giving to*. Here, Cavaillé and Trump (2015) argues that two modes of reasoning enter, with different implications. I will return to how one can think about these dynamics in the discussion.

2.5 The Argument

My argument is that voters vary in their redistributive preferences by what position they expect to attain in the income distribution. This dynamic is more important than current material circumstances when voters are young and uncertain of their future position in the income distribution. One source of information for voters is what income they can expect from their educational degree. Using this information, students shape expectations of their future income position, which they then internalize into their current redistributive preferences. This mechanism implies that voters will update their preferences generally when receiving information which runs counter to their prior beliefs of where they will end in the income distribution.

This relation is moderated by several factors. For it to have an effect, it holds that voters form prospective preferences and presupposes a level of inertia in fiscal policy. Next, voters may have varying levels of confidence in what income position they will achieve in the future. This may be due to national characteristics (Alesina *et al.*, 2018), gender (Buser *et al.*, 2020) or experiences of intergenerational mobility (Weber, 2023). In sum, the study of subjective expectations is pivotal to assess what position voters expect to attain in the future, and how certain they are of it.

3 Testing the Explanatory Power of Expectations Empirically

Despite the considerable attention given to how expectations affect redistributive preferences, there has been little experimental testing of the theory (Bernasconi and Neunhoeffer, 2023). In this section, I conceptualize the relation I study in detail, highlight the empirical challenges in studying it, and propose a causal test of my argument. Finally, I state my argument as testable hypotheses.

3.1 The Case: Danish Students in Tertiary Education

To test the argument, I choose to focus on students in tertiary education in Denmark. This is driven by both theoretical and pragmatic considerations. Theoretically, it simplifies the causal chain proposed by Rueda and Stegmueller (2019) and which I build on theoretically. By only studying students, I keep labor market experience largely constant, and the variation in expectations is induced by education and confidence. This gives me a simpler theoretical relation to test as seen in figure 3.1.

Figure 3.1. Main theoretical relation in my argument

By selecting this case, I also keep current material circumstances largely constant by only looking at Danish students in tertiary education. Importantly in the Danish setting, students both enjoy free access to education and receive a monthly stipend to cover some of their living expenses. Relative to an American setting, where students have to take on large amounts of debt and the ability to do so is highly dependent on familial wealth, the Danish setting holds current material factors constant to a greater degree. With this said, there are significant differences between young Danes in the housing market, which do set different levels of initial wealth (Tranøy *et al.*, 2020).

The Danish case also has the advantage of providing me with registry-based data on income and inequality. I will expand on the full use of this when I propose my personalized informational survey experiment. It is worthwhile to highlight that while I choose to focus on Denmark as a case, this approach and design could generally be applied to investigate the explanatory power of expectations.

3.2 Conceptualization

In this section, I will conceptualize the central variables in the relation I study, which are education, expectations, and redistributive preferences. First, on education, I think of educational degrees, rather than educational level. This differs from Rueda and Stegmueller (2019), whose theoretical model I build on. In their model, they simply take the *level* of education, i.e. the highest attained educational degree of the respondent as an expression of education. I develop a more fine-grained approach, where I distinguish between different profiles of income by *degree*. This builds on the same theoretical logic as Rueda and Stegmueller (2019), who posit that citizens look for peers with comparable characteristics to predict what their income profile will be. In their operationalization, students with university degrees use broad information on the income of other university students to determine what they can expect to earn. In my model, I posit that university students use mean income from peers with the same degree to infer what they will earn in the future. In plain terms, an economics student and an anthropology student both are university students, but they do not solely use average earnings for Danish university students to shape expectations of where they will end in the income distribution. Rather, they will use information that is *specific* to their degree, to shape their income expectations.

Next, expectations have been studied before to explain redistributive preferences. However, a large portion of papers use proxies to determine expectations and assume that these express expectations. In the case of Rueda and Stegmueller (2019), they use labor market experience and educational level as proxies of what the given voter should expect to earn. In the case of Benabou and Ok (2001) and Piketty (1995), they also use patterns of intergenerational mobility as a proxy of what voters should expect, and then use the proxy to see how voters differ by "expectations". Finally, a recent influential paper by Kurer and Van Staalduinen (2022) use a sophisticated machine-learning method that combines education and labor market profiles, as well as patterns of intergenerational mobility, to proxy expectations and see their effect on support for mainstream parties. While this method is sophisticated and the paper has a strong design leveraging panel data, it is still unknown whether voters *actually* are expecting the income position that these proxy methods predict they should.

A core contribution of this thesis is that subjective expectations matter. Subjective expectations are those that voters state directly and not the ones that can be deduced from the voter's socio-demographic characteristics. The rationale for this relates well to the work surveyed above in section 2.1, where voters might have biased perceptions of where they are in the income distribution. The issue is analogous in expectations, as voters might systematically differ in the extent to which they expect certain outcomes.

Some work has already used stated expectations to measure expectations of future income position. Laméris *et al.* (2020) and Cojocaru (2014) survey items on what income position voters expect to attain in the future. While this work shows promising results in how voters differ by expectations, it does so observationally and cannot overcome issues of unobserved confounders or reverse causality, which I describe in depth in the proceeding section. Cox (2024) fields an experimental treatment using information on income, which is similar to the design I present later. However, my operationalization of expectations is different from Cox (2024) in two important ways. First, I focus on relative expectations and information, whereas Cox (2024) focuses on absolute salary expectations and provides absolute information. Second, Cox (2024) uses a point estimate, where respondents give one value of what they expect to earn (this applies to Laméris *et al.* (2020) and Cojocaru (2014) as well, who ask for a point estimate of where respondents expect to be in the future). I adopt a probabilistic approach, where I allow respondents to express the uncertainty that is associated with their stated expectation of future income position. This approach is favored in economics in the study of income expectations and spending behavior (Delavande and Rohwedder, 2008). This probabilistic approach is more valid relative to the simple point estimation, and it gives me an important empirical nuance of uncertainty (Alesina and Angeletos, 2005).

Finally, on redistributive preferences. When thinking of redistribution in the welfare state, one can broadly think of preferences to what extent the state should take from and give to different citizens. One can also think of attitudes that are tangent to redistributive preferences but represent broader attitudes to inequality. These count belief in meritocracy and beliefs about whether it is more important to secure economic growth or equity. These can be thought of as "rationalizing" beliefs, which justify certain redistributive preferences.

In sum, I conceptualize education as the given educational degree, and that voters use income information specific to their educational degree to form expectations. In conceptualizing expectations, I think of what income position voters subjectively expect to attain, and I adopt a probabilistic approach where voters can express uncertainty. My basic argument is that voters vary in their expectations, and thereby vary in their support for redistribution. In what follows, I present the challenges for causal inference in stating that expectations *causes* voters to have certain redistributive preferences.

3.3 Challenges for Causal Inference

In observing the simple relation in how education shapes expectations and subsequent redistributive preferences, one can quickly come of many confounding relationships that prevent one from making any causal claims. I will present the most pressing ones, and propose a solution to overcome these empirical challenges.

Self-selection. First, one could think of a selection effect into a given educational degree, which would explain differences in redistributive preferences, rather than these being caused by varying expectations of income position. If a respondent before entering tertiary education for instance held strongly pro-market views, this respondent would select a degree that seemingly supported these views. One choice could be selecting into business school or economics, where one also would happen to achieve a high income.[1] Then differences in redistributive preferences would not be caused by changed income expectations per se, but by deeper-held beliefs that the voter uses to select a degree. Another self-selection concern would be that a voter selects a given education exactly to achieve a high income. This effect is theoretically less concerning than a respondent selecting an education based on non-material ideological preferences, but it does blur the causal chain. Furthermore, the desire to achieve a high income and deeper ideological values are hard to delineate. Therefore, the issue of self-selection is in many conceivable ways an obstacle for any hard claims that the relation runs as I propose in 3.1.

Value transmission. Another issue could be that students are transferred values through their education, which does not affect their expectations but shapes their redistributive preferences. It could be the case that some degrees confer greater trust in a larger government. A stylized example would be the student of public policy, who through their studies sees greater reason for state intervention in market inequalities. Another case could be doctors, who might be conferred a view that more funds are needed to alleviate health inequalities. Additionally, one could also think of socializing effects in education, where students meet peers who intend to enter the public sector. Reconsidering the student of public policy, students might not update their beliefs on the role of government, but they may meet peers who will pursue a career in the public sector, and therefore gain greater sympathy for state intervention. In sum, all effects of education which do not affect material expectations, but do affect redistributive preferences, are a challenge for the causal chain I propose.

Confounding variables. Further to these two main confounding relationships, there may be a myriad of unobserved variables that affect the variables in isolation. This is somewhat of a residual category, as many omitted variables may confound the causal chain. A non-exhaustive illustration

[1] Acemoglu *et al.*, 2022 go to great length to overcome this challenge to estimate the effect of attending business school in Denmark using an instrumental variable strategy.

is provided in figure 3.2, to summarize the most salient ways this relation can be contaminated.

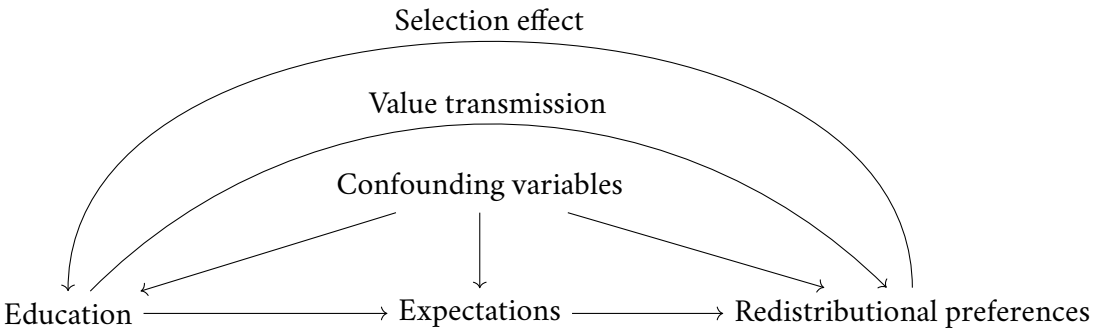


Figure 3.2. Challenges for Causal Inference

To overcome these issues, some sort of exogenous variation is needed to ensure the temporal sequence of the relation runs the proposed way. Further, I need to ensure that these confounding variables are held constant, to credibly claim an effect of expectations on redistributional preferences.

Solution for Inference: Informational Treatment

The solution I select is a personalized informational survey experiment. I use income information on graduates from the given degree and provide it to respondents. The respondents may then use this information to update their beliefs on their future income position. If they update expectations, they will then update their redistributive preference in line with their new expected position. The logic of it is displayed in figure 3.3. To relate this to the general literature on redistribution, this relation builds on an assumption that citizens are imperfectly informed of their position in the income distribution. Upon receiving information, voters then update their priors in the direction of the information. In this case, voters should update their expectations of where they will end in the income distribution, and hence update their redistributive preferences.

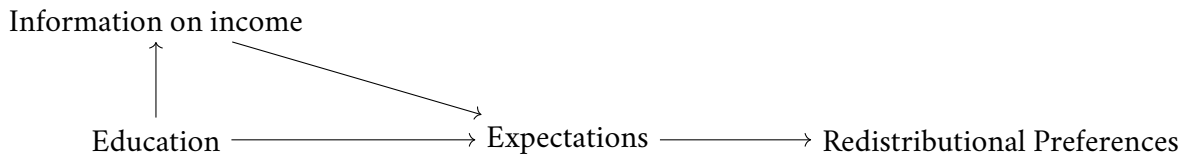


Figure 3.3. Informational treatment

Assuming that voters voters react out of material self-interest, there are two extreme cases in this setting. One is that voters are fully informed, and I therefore observe no effect of providing voters with information on income. In this case, voters should already have internalized their future income position into their current redistributive preferences. This case does not falsify the argument per se, as in this case, voters have simply already fully internalized information into their expectations, and hence into their redistributive preferences. However, this empirical situation would not allow me to provide *support* for this explanation, given that the lack of exogenous variation on the outcome would not allow me to eliminate concerns about omitted variables. The other scenario is that voters are completely uninformed about their prospects of upward mobility. If they react in line with my argument, they will update their expectations and, consequently, their redistributional preferences. Here, the empirical test is most visible, and I gain credible support for my argument.

The empirical reality is probably somewhere in between. As reviewed in section 2.1, a general finding in studies that provide respondents with their objective position in the income distribution is that there is a tendency for respondents to place themselves closer to the center of the income distribution (Hvidberg *et al.,* 2023). In my empirical setting, respondents will mostly receive information which *raises* their expectations. This is due to two factors. First, I inform respondents of the average income after ten years on the labor market, a point in any life cycle where workers earn a relatively high salary. Next, I study students in tertiary education who are on track to earn above-average salaries. If I also survey young people with no education higher than primary education, their expected income position would be comparably lower.

Naturally, there is an outcome where respondents are uninformed but do not update their redistributive preferences. This outcome would indicate that respondents do not update their preferences based on their material expectations. This outcome is theoretically plausible. In a large-scale survey experiment by Hoy and Mager (2021) in 10 countries, for instance, providing information about inequality did not lead to an update in beliefs about inequality. Instead, respondents at the bottom of the income distribution became *less* concerned about inequality when informed of their objective position. Hoy and Mager (2021) interpret this result as an expression of poorer respondents using their standard of living as a benchmark of what is "good enough". Therefore, these respondents do not call for equalizing measures upon learning that they are at the bottom of the income distribution (Hoy and Mager, 2021: 302). This interpretation is one of many alternative explanations to a pure material model that could be at play, and not cause information to have the theorized effect on redistributional preferences.

In Culpepper *et al.* (2024) review of the literature of information provision experiments, they argue that these experiments have shown to have little effect on redistributive preferences. They refer to two factors: 1) the effect information is conditioned by fairness perceptions, which dominate

material motives, and 2) motivated reasoning affecting the interpretation of information, where only respondents that had positive prior attitudes to redistribution would react (Alesina and Angeletos, 2005; Bartels, 2005). Therefore, Culpepper *et al.* (2024) opt for a framed presentation of information, where the economy is described as "rigged", arguing that this fairness framing is necessary for respondents to react to the information. They find an effect of framed information, but this effect comes at the cost of internal validity. Due to the emotionally laden nature of the treatment, it becomes harder to interpret what the effect is driven by. I prefer the clean information setting, which can be interpreted as a conservative estimate, as these prior studies argue that effects are negligible.

3.4 Testable Hypotheses

In this section, I state the theoretical predictions of my argument and briefly comment on how they will be tested as hypotheses.

My first hypothesis is that there is an inverse relationship between how high citizens expect to be in the income distribution and how much redistribution they demand. I implicitly assume that the relation is linear. That is, groups successively become less pro-redistribution as they hold higher expectations. The hypothesis is descriptive. I test it by displaying the mean differences in redistributive preferences by what income group citizens expect to be part of. In sum, my first hypothesis is:

Hypothesis 1 (H1) *The higher citizens expect to be in the income distribution, the less they prefer redistribution.*

The above hypothesis makes no causal claims. Therefore, it does not concern itself with how expectations *affects* attitudes, but how citizens on average *differ* by their expectations. To estimate the *causal* effect, I assess the effect of informing respondents of the average expected social position of their given education in the future. Upon successful randomization, differences between the treated and placebo groups will provide sufficient evidence to reject the implicit null hypothesis and adopt this alternative hypothesis. My theoretical expectation is that respondents will prefer less redistribution when informed that they will achieve a higher social position than expected. Consequently, respondents with expectations equal to the information they receive should not update their redistributive preferences. In sum, my second hypothesis

Hypothesis 2 (H2) *When citizens realize that they will achieve a higher position in the income distribution than they expected, they will prefer less redistribution.*

While I am testing these hypotheses on this specific case, they are kept broad to contribute broadly to how we generally understand expectations and redistributive preferences.

4 Survey Design and Data

In the following, I will present the survey design and data. The survey was self-collected and distributed via social media, where respondents voluntarily opted to take it. The main trade-off in designing the survey was to gain sufficient information to test my hypotheses while keeping it as brief as possible to minimize attrition. Further, the design of my personalized treatment required an effort to make it persuasive and intuitive for respondents so they quickly could receive information that convincingly would lead them to update their expectations.

The survey was limited to Danes in tertiary education. However, the sample is not representative of this sub-population. University students are broadly over-represented. Further, 38% of the respondents who decided to participate in the survey were political students. I briefly discuss the scoping conditions of this sample and to what extent it limits the generalizability of eventual findings.

4.1 Design

The overall structure of the survey is shown in figure 4.1. First, the survey was introduced as a research project for a master's thesis, where their responses would be anonymous. To minimize demand bias induced by describing the survey as an investigation of expectations and attitudes to inequality, respondents were solely informed that it was a survey on students' education and attitudes (Berinsky *et al.*, 2012; Mummolo and Peterson, 2019). This brief provided sufficient context on the scope of the survey without revealing what outcomes I specifically was investigating.

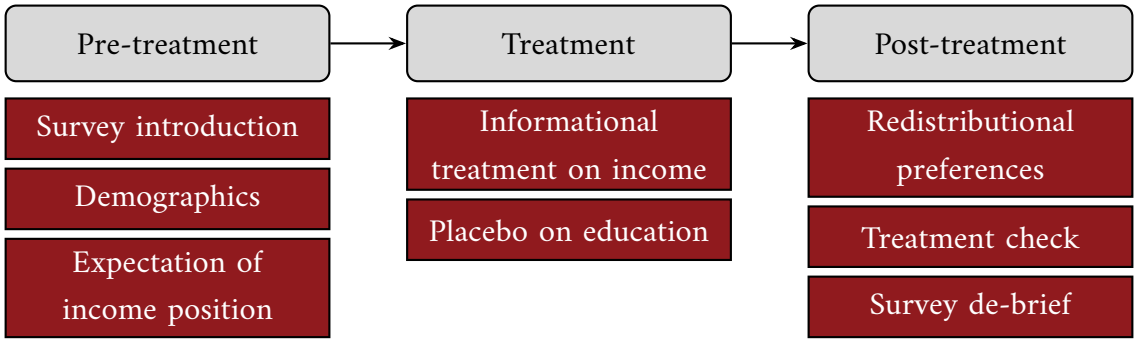


Figure 4.1. Survey Flow

The pre-treatment phase of the survey elicited demographics, education, political views, and expectations of future income position. To ensure a high retention rate of respondents, the pre-treatment questions were kept as brief as possible. Respondents were then asked to give a pre-treatment expectation of where they would end in society. Then, respondents were randomly assigned to receive either the treatment condition or the placebo condition. After the treatment, the outcomes were presented to the respondents. Finally, respondents were de-briefed on the source of the information that they had been presented to and were told that this information was truthful and not manipulative (the full survey and a short note on ethics and GDPR is included in the appendix).

Pre-treatment phase

The objective in the pre-treatment phase was to elicit sufficient information, without risking attrition before eliciting the outcomes. In other words, the goal was to keep the survey reasonably short. The full flow of the pre-treatment module is seen below. The items on demographics and political views were fairly straightforward to answer. In what follows, I will elaborate on how I elicited the exact educational degree, as well as expectations, which were non-trivial to survey.

Table 4.1. Pre-treatment Items

Topic	Item	Measure
Demographics	Gender	Man / Woman / Else / Do not wish to answer
	Age group	<22, 23-26, 27-30, 31-34, >34
	Region	5 Danish regions
Education	Education type	5 education types
	Institution	All possible institutions by education type
	Education title	All possible titles at the institution
Political views	Left-right scale	5 point left-right scale
	Vote choice in 2022 election	List of all possible choices
Expectations	Expectation of income position after 10 years on the labor market	"Balls in Bins"

Education. The data on education is based on the 624 different education degrees found on the Ministry for Higher Education's website[1], which has information on future income. To quickly allow the respondent to express their exact education, respondents are given a drill-down item where they in order select 1) education type (University, Vocational Bachelor's, Vocational Degree, Police, or a residual category), 2) institution (all available institutions in that category), 3) education

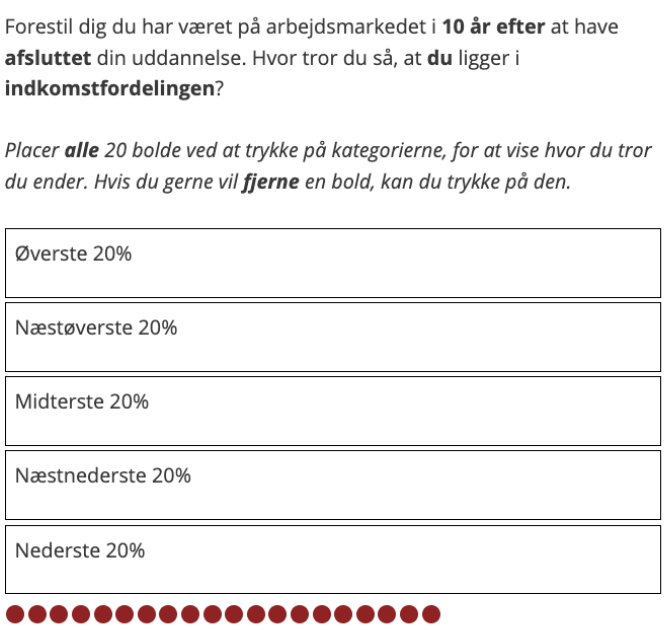
[1]The information can be found on https://uddannelseszoom.dk/

title (the exact degree they are pursuing). When I later provide information on earnings, the exact information provided by the respondent at this phase.

There are some notes on the measurement of educational degrees. First, I only included degrees with income information after 10 years in the labor market, which excluded newly started educational degrees. Second, in some cases, educational degrees are more broadly defined by the Ministry of Higher Education than at the given institution. This is particularly the case at the Copenhagen Business School and the Technical University of Denmark. Anecdotally, I have collected that respondents can find a good enough match relative to their true description, but this does raise some concerns about the credibility of the treatment which is later provided when they do not receive exact information on their degree. However, this concern is not pronounced in the main institutions that the respondents in the sample predominantly stem from (see Appendix A.7).

Expectations. On expectations, I ask respondents which income group they believe they will be part of after ten years in the labor market. To do so, I give respondents 20 balls, which they have to place in five income group categories. Respondents are given a brief introduction, which explains that each ball is an expression of a 5% probability and all balls should be distributed to express their expectations. The basic setup is displayed in figure 4.2. In the context of my survey, expectations are operationalized as which income quintile respondents expect to be part of in the income distribution.

Figure 4.2. Elicitation of Expectations (Balls-in-Bins)



Translation: Imagine you have been in the labor market for 10 years after completing your education. Where do you think you will be in the income distribution? Place all 20 balls by clicking on the categories to show where you think you will end up. If you want to remove a ball, you can click on it.

This setup is preferred to a simple 5-scale item, as it provides a probabilistic measure of expectations (this "balls-in-bins" setup is inspired by Caplin *et al.*, 2023; Delavande and Rohwedder, 2008). This is particularly important when measuring expectations, as there is no "exact" estimate of where respondents will end. This measure provides me with the *average* expectation of where respondents expect to end in society and the *variance* in expectations. On average, the balls-in-bins approach induces respondents to give a more well-considered and balanced answer to a complicated question. Further, the variance in expectations measures an implicit expression of the *uncertainty* that the respondent associates with their future income position. Survey items of this kind are commonly used in pension economics to understand what income consumers expect to attain and investigate their spending behavior (Caplin *et al.*, 2023). This item is also more fine-grained than present methods of eliciting expectations in the political economy literature on expectations and political preferences, which use point estimates to measure expectations (Cojocaru, 2014; Cox, 2024; Laméris *et al.*, 2020).

However, while this measure is superior in its validity for the research question, it is a cognitively burdensome item for the respondent. It is hard to think of terms of probability, and the task of placing twenty balls is demanding. While most respondents successfully distributed all 20 balls, a safeguard was included if respondents failed to do so. In this case, respondents are re-directed to a question where they are asked to provide a point estimate. While sub-optimal due to the exact reasons I describe why the balls-in-bins method is preferable, this acts as a safeguard in the case that respondents broadly were unable to complete the task.

Non-included variables. I will now address some of the items that I chose *not* to include, which often appear in studies with similar research questions to mine. All of these items are of interest for the research question but were excluded out of concern of keeping the survey short. The most notable ones are 1) income, 2) wealth, 3) occupation, 4) parental background. On the first two economic items, the rationale was that since I am only sampling students, there is not much variation in income. In the specific Danish context, students receive a monthly stipend (Statens Uddannelsesstøtte), which gives all students a base rate of income, which would not be the case in other educational contexts, where income may vary to a greater extent amongst students. However, students may differ significantly in wealth. Some may already own their apartment, and others may be renters, contributing to substantial initial differences in wealth. In the Nordic context, apartment ownership is a significant driver of wealth inequality between the young, where children who are better off can obtain favorable mortgages due to parental wealth (Tranøy *et al.*, 2020). Generally, the question of how wealth affects political preferences has been of significant interest in recent years and may plausibly explain variations in redistributive preferences (Ansell, 2014; Ansell, 2019; Jensen and Wiedemann, 2023). In the context of my study, I survey expectations of *income* position and provide a survey treatment based on *income* information. Although interesting, collecting information on wealth would not have advanced my research question much further,

relative to the cost on respondents.

Next, I do not include information on occupation, although this is part of the theoretical model proposed by Rueda and Stegmueller (2019), which I presented in section 2. While the full-time occupation of students is given – they are students – they have the possibility of working during their education. This option is frequently used in Denmark, where students get relatively relevant jobs, which increase their probability of getting a good position when graduating (Hækkerup, 2023). These may plausibly shape what occupation they believe to hold in the future, and hence what income position they can expect to attain. However, to meaningfully elicit student jobs, much information is needed: 1) whether they have a job, 2) what type of job (relevant/or non-relevant), 3) current income level and prospective level, 4) what sector the job is. Again, in a scenario without attrition, these variables are of theoretical interest, but out of concern for keeping the survey short, they are not included.

Finally, I do not include parental background. This deviates somewhat from previous studies of this kind, which have a heavy focus on how parental background shapes expectations. In terms of the logic of my study, parental background sets base rate expectations, which are possibly updated when entering tertiary education. I note these omissions, as they offer inspiration for future research, which may choose to include and further theorize on how these variables would moderate expectations.

Informational Treatment

I create a personalized information vignette in the treatment phase based on the respondent's exact educational degree and institution. In the treatment, respondents are given **two** pieces of information, 1) the average salary obtained by holders of the same degree ten years after graduating, 2) where this salary is placed in by income quintiles. That is, I give *absolute* and *relative* information to respondents on their earnings. The treatment condition is shown below, with Political Science from Aarhus as an example:

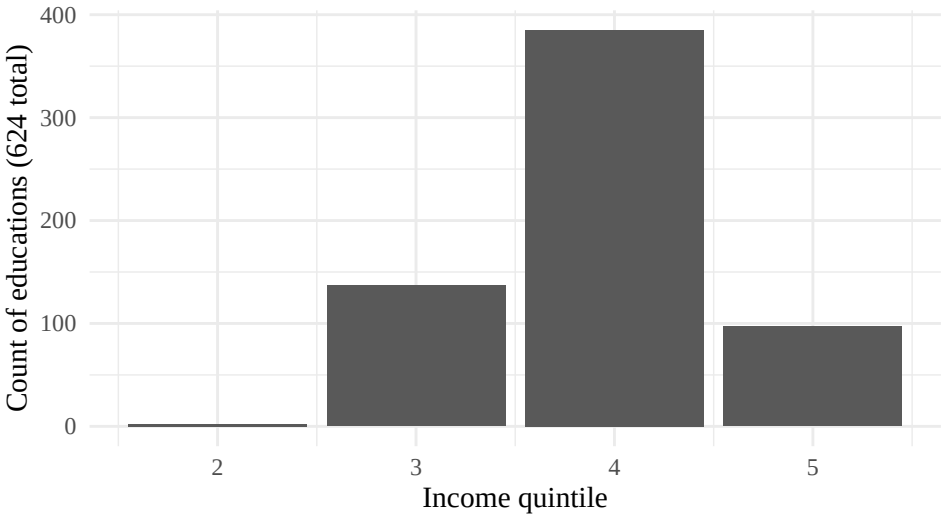
Figure 4.3. Treatment example

Translation: "You have indicated that you study Political Science at Aarhus University. The income for the average graduate **after 10 years** on the labor market is **52.700 DKK** a month (pre-taxes, pensions inclusive). With that wage, you would be part of the 20% with the highest income in Denmark. That means that 80% of the population would have a lower income than you.

The treatment first restates the educational choice of the given student. Then, the absolute information on income is displayed, which is pre-tax and includes pensions. This figure is chosen for two reasons. The first is substantive, in that for salaries to be comparable between the private and public sectors, one must include pensions, as contribution rates are higher in the public sector. The second is practical, as the data I use from the Ministry for Higher Education displays income information by degree by this definition. This choice from the ministry reflects that this is the best way to compare incomes between different educational tracks.

The relative information then conveys the placement of this salary in the current income distribution. I use data on income deciles from Statistics Denmark and the Economic Council of the Labor Movement from 2021 to compare to the wage data in the treatment condition (Caspersen, 2023). As seen in figure 4.4, most students can expect a relatively high income after 10 years. As described in section 3.3, this is given by the point in the life-cycle I observe and that this is the subset of workers with tertiary education. I will later show that the majority of my respondents study degrees which can expect to achieve an income in the fifth quintile, i.e. the top of the income distribution.

Figure 4.4. Distribution of expected income position after 10 years for all tertiary degrees in Denmark



Note: Data on income after 10 years are from the Danish Ministry for Higher Education in 2021, based on data from Statistics Denmark. Data on income distribution (quintiles) is also from 2021, by Economic Council of the Labor Movement, which is also based on data from Statistics Denmark.

I use pictograms to visualize the respondent's placement in the income distribution. Similar surveys often use a ladder visualization to describe inequality (e.g. Alesina *et al.*, 2018; Hvidberg *et al.*, 2023; ISSP Research Group, 2022), but I wanted to keep the text short and clear, and viewable on phones. The pictograms acted as a visual aid to help the respondent quickly grasp the intuition of five income groups and their relative position in the income distribution.

The style of my survey treatment was originally inspired by Weber (2023), who gave respondents objective information on mobility patterns. As in the treatment discussed above, Weber (2023) personalized information to respondents based on pre-treatment information[2]. In a recent study published in the course of the thesis writing, Cox (2024) fields an informational treatment that is similar to the one described above, where Cox (2024) provides absolute income information to respondents. However, Cox (2024) does not include a relative treatment on where this places them in society relative to other groups. Cox (2024) notes that a treatment that provides information on future income based on one's educational degree has not been fielded before. Therefore, to my knowledge, no experiments have previously fielded an informational treatment that provides information on one's relative future position based on one's educational degree.

One viable critique of the design of this treatment is that it bundles relative and absolute income information together. In a setting with more resources, it could be preferable to have four con-

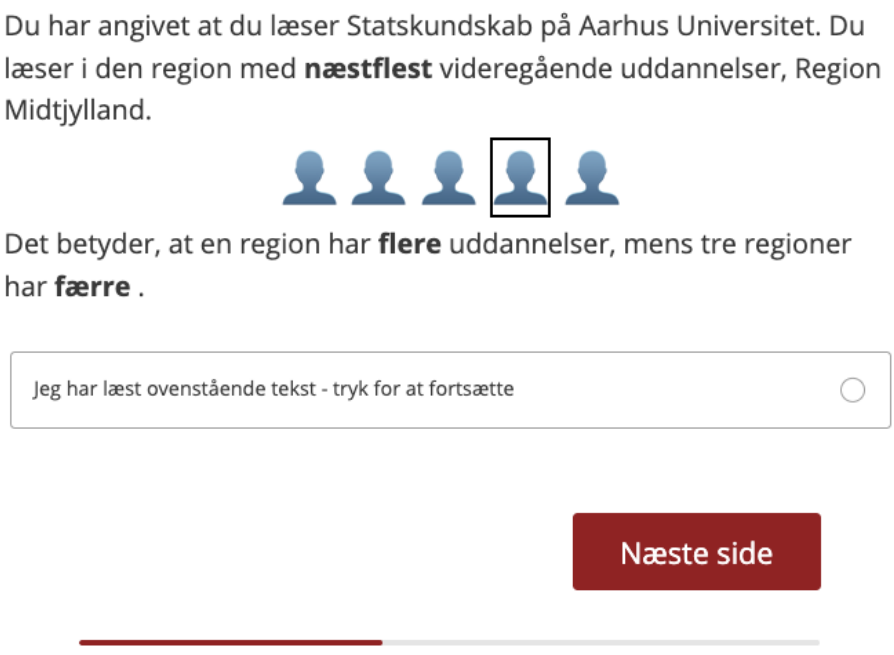
[2]Specifically, Weber (2023) used ISCO-codes to give an exact estimate of intergenerational social mobility, and compared it to their subjective experience.

ditions: 1) absolute income information, 2) relative income information, 3) relative and absolute income information, and 4) placebo. However, this design would require a greater amount of survey respondents to achieve the necessary statistical power. Furthermore, the condition with relative information would be difficult to decipher without absolute information. In sum, the chosen treatment design is the optimal choice given my research question and my given resource constraints.

Placebo

To ensure that respondents are treated by the information given in the treatment, and not by the fact of being given customized information on their study, I include a placebo. The criteria for my placebo were constrained by the following factors: 1) the text had to be as similar as possible to the treatment condition, 2) the pictograms had to remain, 3) it had to be information that could be customized to each educational track, 4) it had to seem relevant to the stated goal of the survey. I chose to give information based on which region the student was in, and how many educational degrees were offered in their region relative to others. The basic setup can be seen in 4.5, with Political Science in Aarhus as the example condition:

Figure 4.5. Placebo example



Example of placebo based on the selection of Political Science in Aarhus

The control condition also has pictograms and displays absolute and relative information. There are some minor differences from the treatment condition, namely the lack of numbers describing

the percent-wise distribution. With this said, the placebo appeared fitting in this survey setting, as respondents had only been informed that the survey was on education and attitudes, and they had been asked what region they lived in. In the context of the Danish debate of center vs. periphery, it could seem plausible that a survey experiment would be regional inequalities. Importantly, any attitudinal changes that this should trigger should be unrelated to respondents' general redistributive preferences and should solely affect attitudes on regional inequality, which are unrelated to the outcomes I survey.

Outcomes

Below, I display the outcomes I include to measure redistributive preferences. Respondents are given a brief text which prepares them for the outcomes, which states that they are to give their best possible and if there are questions that they do not wish to answer, or do not have an opinion on, they can proceed to the next section (as in Hvidberg *et al.*, 2023). My outcomes are broadly set and distributed in four topical categories. The first category fields items that are commonly used in this field to capture redistributive preferences in this field, and commonly used in the ISSP and the ESS. Here, respondents indicate their preferences on a Likert scale, where they can indicate whether they agree with the statement or not. I use these outcomes to develop an index, to capture whether respondents broadly are for or against redistribution (see index construction in Appendix A.3).

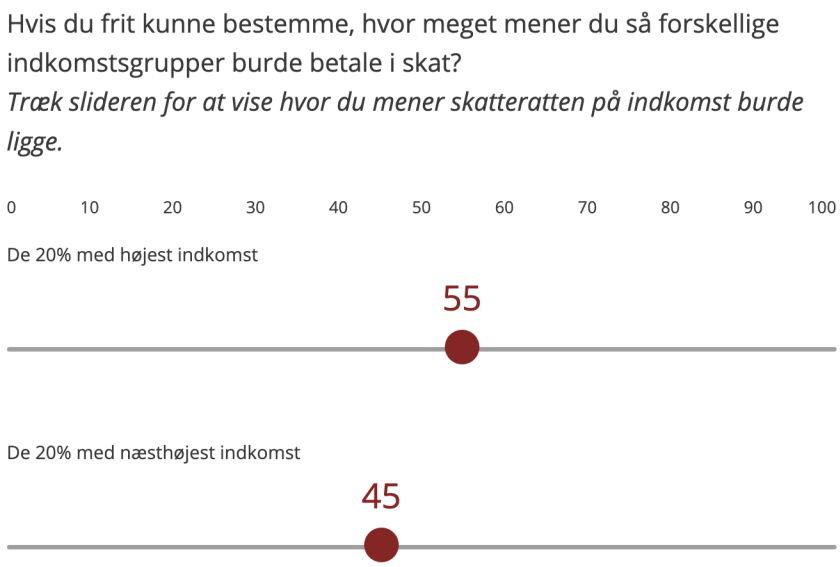
The second topic is on whether respondents see inequality as the product of luck or effort. When the survey first was fielded, there was furthermore a battery asking respondents what factors were most important in deciding whether one attained a high income or not. This was removed, as there was little variation in responses, relative to the single general item shown here, which was kept. The third topic is likewise a single item, where I ask respondents where economic equity or efficiency is most important for them. These two topics measure broader attitudes to inequality, and capture attitudes which may justify changes in redistributive preferences.

Table 4.2. Attitudes to Inequality (Outcomes)

Topic	Item	Measure
General attitudes to redistribution	Economic inequality is a large problem	Likert 1-5 scale
	The Government should raise taxes and transfers to reduce income differences between the rich and the poor	Likert 1-5 scale
	The top tax [topskat] is too high	Likert 1-5 scale
	It should be possible to buy more private welfare	Likert 1-5 scale
	Cash assistance [kontanthjælp] should be higher	Likert 1-5 scale
Luck vs. effort	Is luck or personal effort most important in deciding whether one ends poor or rich?	1-5 scale
Efficiency vs. equity	In political decisisons, one must often balance between the consideration to growth and equity. Which one is most important to you?	1-10 scale 1: Economic equity 10: Economic growth
Tax slider	If you were free to chose, how much should different income groups should pay in income tax?	0-100% Continuous slider

Finally, I had an item where respondents freely could set a tax rate on five income quintiles. Here, respondents had a slider, which they could drag from 0 to 100. Respondents were given the same descriptions of income groups as they previously had seen when indicating their expectations. For the treatment condition, the description of what income group they would be part of also matches the groups that they now must decide the tax rate on. This gives me a very direct outcome to see how the treated and untreated groups differ in their preferences for taxing different income groups.

Figure 4.6. Slider item on tax rates



Note: This is the top snippet of the slider item. Respondents were asked to asked to set the tax rates on all five income groups.
Translation: "If you freely could decide, how much should different income groups be taxed? *Pull the slider to show where you think the tax rate on income should be*". The 20% with the highest incomes [and so forth for each income quintile]

Previous studies on taxation preferences also ask respondents directly about their preferred tax rates. In the case of a study such as Mathisen (2021), respondents were asked to directly insert a rate at which certain income groups should be taxed. I opted for a slider, which made it easy for respondents to compare and express their tax preferences relative to each group (Stantcheva, 2023). The slider item has also been used in previous research on redistributive preferences (Kuziemko *et al.*, 2015). Two objections to typical objections to the slider item are: 1) more noise is created by extreme observations, and 2) it is a burdenful item. On 1), I check the distribution and observe whether extreme observations are pronounced in Appendix A.5.1. On 2), this is why the item was put in the end, to minimize attrition due to the task.

Treatment check

A brief module is included at the end of the survey the evaluate the treatment. For the treated group, I ask them to recall the information on average income after 10 years in the labor market. After indicating what they remembered, a new item then appears, which asks them whether they believe that they will earn more, less, or the same as the recalled value. It may be the case that respondents internalize the information, but do not believe that they will earn as much as the

information states. In this case, the treatment does not affect the respondents expectations, and thereby should not affect their redistributional preferences. Finally, I ask them whether they expect to work in the private or public sector.

For the placebo group, they are asked whether they know what the average graduate from their institution earns after 10 years in the labor market. In effect, they are being asked whether the treatment is known to them. I then also ask this group to assess whether they will earn more, less, or the same, and what sector they count on working in.

Distribution

I survey Danish students who are pursuing a tertiary degree. The survey was distributed via social media (Linkedin, Twitter, Instagram, and Facebook). Participants were incentivized to participate in the survey to obtain one of three guides I had made to obtain respondents: 1) a guide to apply for grants for studying abroad, 2) a guide for writing research design sections, and 3) a guide for applying to US PhDs. Respondents would only receive a guide if they fulfilled the survey, which incentivized completion. This reward scheme was an original solution to increase the average return to completion relative to the standard reward given for opt-in surveys by students (e.g. movie theater ticket lotteries). These particular rewards do have the adverse effect of attracting certain types of students. This effect decreases the representativeness of my sample, but this is a necessary trade-off to ensure that I have a sufficient amount of respondents to make any inferences. The data was collected from April 9th to April 21st.[3]

4.2 Data, Randomization & Attrition

Due to the conditions under which the data was collected, the sample is not fully representative of the Danish population in tertiary education. Apart from gender, the representation of different groups is skewed relative to the population. There is an overrepresentation of respondents from Copenhagen, university students, and in particular, Political Science students, which represent 38% of the sample. This limits the generalizability of the descriptive results, albeit a skewed sample is less of a concern for the generalizability of the experimental component of the survey (Coppock, 2019; Mullinix *et al.*, 2015).

[3]The survey was rolled out with a soft launch, so eventual deficiencies could be addressed. I comment on these adjustments in Appendix A.2.

Table 4.3. Descriptive Statistics

Category	Variable	N	Percent
Gender	Men	643	47.95
	Women	673	50.19
	Other	25	1.86
Region	Region Hovedstaden	1075	80.22
	Region Midtjylland	78	5.82
	Region Nordjylland	49	3.66
	Region Sjælland	68	5.07
	Region Syddanmark	70	5.22
Political Placement	Center	93	9.57
	Left wing	598	61.52
	Right wing	281	28.91
Education Type	Other	134	11.38
	University	1044	88.62
Political Science	Other	725	61.54
	Political Science	453	38.46

Note: Distribution of educational institutions is found in Appendix A.7

I used the Qualtrics randomization feature to assign respondents to the treatment or control condition. To see whether randomization is successful, I conduct a balance test on the pre-treatment characteristics, to see whether there are differences between the share of respondents who have certain characteristics who receive either the treatment or placebo condition. I find that differences are mostly insignificant, except for geography, where there is a slight statistically significant ($p = 0.044$) over-representation of respondents from the capital region in the control condition. I note this slight imbalance and include it as a control when I compare differences between treatment and placebo conditions.

Table 4.4. Balance Table by Treatment Condition

	Control	Treated	p-value
Observations	488	491	
Men	0.50 (0.50)	0.49 (0.50)	0.633
Left-wing	0.60 (0.49)	0.62 (0.49)	0.506
University student	0.90 (0.30)	0.90 (0.30)	0.939
Capitol Region	0.84 (0.37)	0.79 (0.41)	0.044

Note: P-values are found with a test of proportion.

Further, I test whether there is a differential rate of attrition between the treatment and the control condition. I find that attrition is slightly higher for the treatment condition, but the difference is small and statistically insignificant. Taken together with the above results, I conclude that randomization has been successful on observational characteristics and that there is no differential attrition based on the condition. Taken together, potential changes in attitudes can credibly be inferred to be caused by the informational content in the treatment condition.

Table 4.5. Attrition Rate

Phase	Complete Respondents	Treatment Condition	Placebo Condition	P-value
Demographics	1254 (100%)			
Expectations	1020 (81%)			
Treatment	979 (78%)	488 (100%)	491 (100%)	
Outcomes	929 (74%)	463 (94%)	466 (94%)	1
Treatment check	805 (64%)	395 (80%)	410 (83%)	0.3349

Note: P-values are found with a test of proportion.

5 Results from Survey Experiment

In the following, I uncover how voters differ in attitudes by what income position they expect to achieve and what the causal effect of raising expectations is through providing information. I do so in two steps.

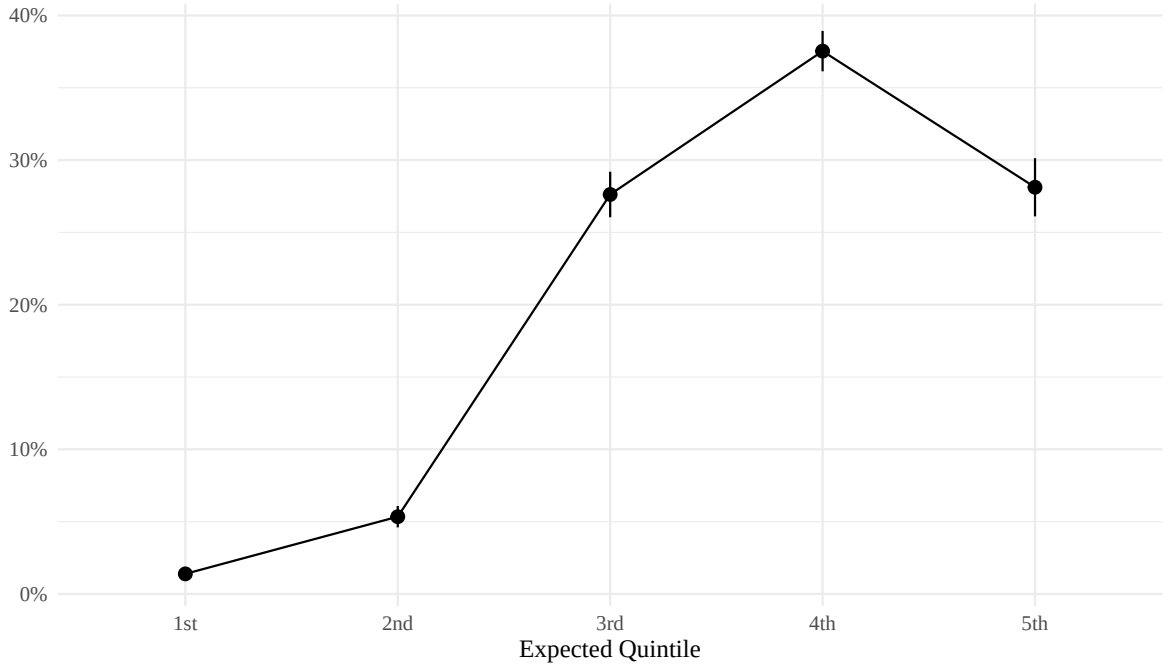
First, I present descriptive results on expectations and attitudes. On the distribution of expectations, I find pronounced differences in gender and ideology, where women hold markedly lower expectations than men and right-wing respondents hold higher expectations than left-wing respondents. Next, I present descriptive differences in attitudes by expected income position. Here, I solely focus on the respondents in the control condition, to uncover descriptive patterns of how respondents differ by expectations. One clear trend I uncover here is that respondents who expect to be part of the top of the income distribution are *consistently* different in attitudes to the rest, who are consistently similar.

In the second step, I present the causal effect of raising expectations. As hypothesized in H2, this effect is conditional on respondents underestimating their future position. I first show that two-thirds of the sample underestimate their future position relative to the mean graduate of their given degree. I then show the effect of providing information to this group, where I find a significant treatment effect on taxation preferences. Substantially, treated respondents prefer the tax rate on top-income groups to be 2.5% lower relative to the control condition. Finally, I uncover the mechanisms behind the information provision treatment and briefly discuss the limitations of the experiment.

5.1 Descriptive Results on Expectations

What position do respondents expect to attain in 10 years? Drawing on the results from my balls-in-bins item, I can present the probability distribution of where the sample expects to be in the income distribution in 10 years, as displayed in figure 5.1. On average, the respondents in the sample see an equal probability of ending in the middle quintile and the top quintile, while viewing the fourth quintile as the most probable outcome. Respondents generally view ending at the bottom of the income distribution as highly improbable.

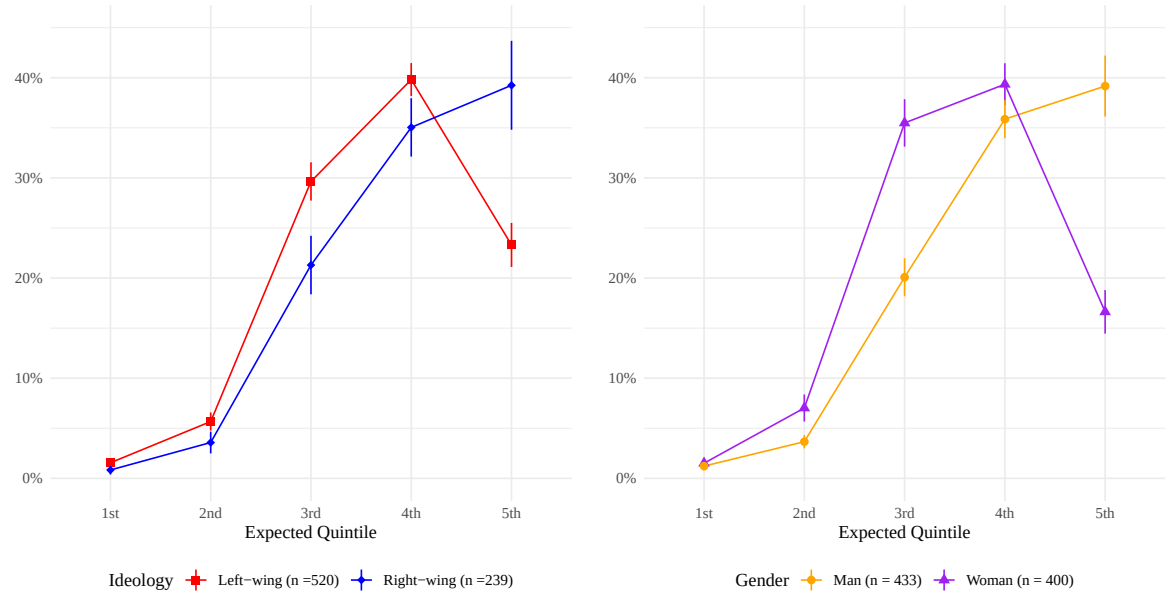
Figure 5.1. Mean Distribution of Expected Income Position



Note: The distribution of balls in bins in response to the question: "*Imagine 10 years after graduating from your degree. Where will you be in the income distribution distribution*"?. Respondents were tasked with distributing 20 balls in five bins, representing income quintiles. Only respondents who successfully distributed all 20 balls are included above. The amount of balls was multiplied by 5, to represent the probability distribution in percent, as seen on the Y-axis. Confidence intervals are set at the 95% level. Observations = 851.

Next, I display income expectations by gender and ideology. Here, we see a significant difference between men and women. While women on average view it as equally probable to end in the middle and fourth income quintile, the men in the sample see ending at the top of the income distribution as the most probable outcome. One explanation could be due to selection, where men select educational degrees with higher expected earnings. However, this is not the case. When keeping expected earnings by education constant, by only displaying respondents who have selected an education degree with high earnings or only looking at political science students, the pattern replicates (see Appendix A.4). In these subgroups, men are similarly twice more likely to believe they will end at the top of the income distribution than women. This pattern corroborates previous findings on differences in confidence between men and women and may be a contributing factor in driving the difference in redistributive preferences between the genders (Buser *et al.*, 2020).

Figure 5.2. Mean Distribution of Expected Income Position by Ideology and Gender



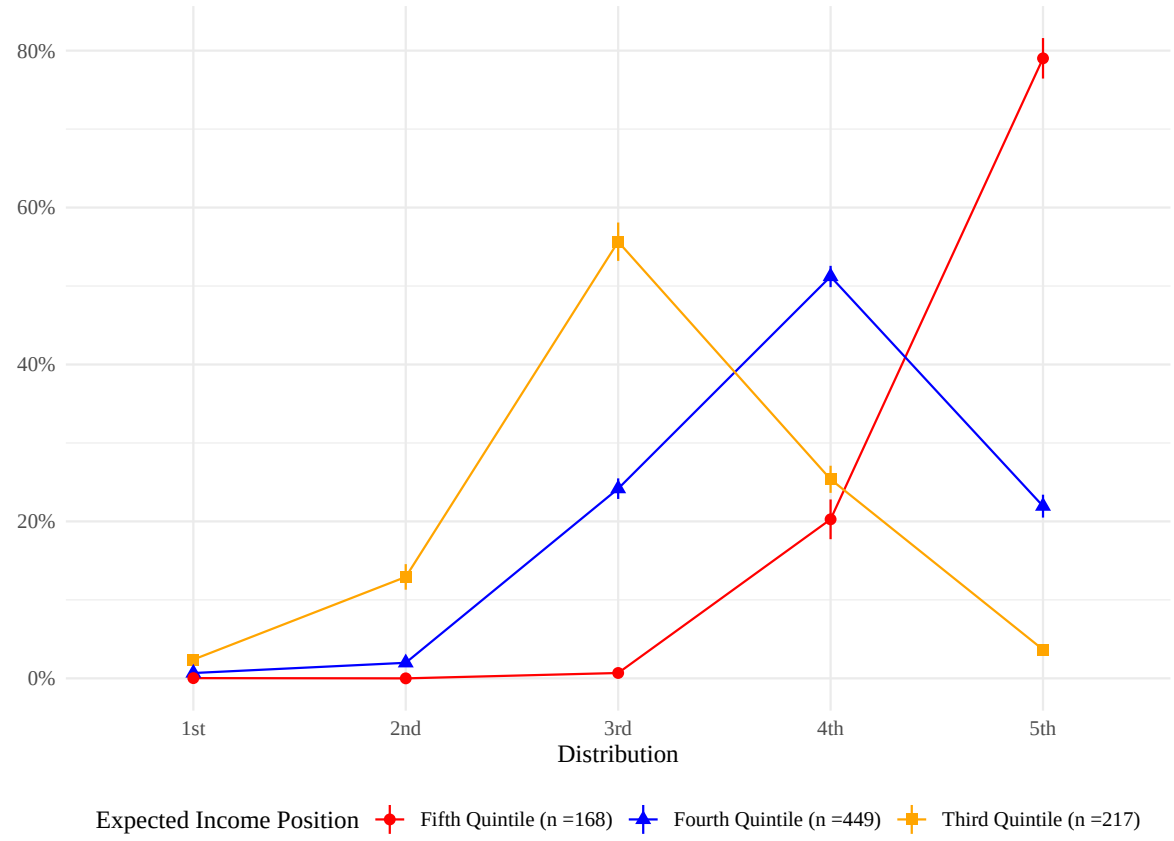
Note: Grouped distribution of the estimates shown in 5.1. Confidence intervals are set at the 95% level.

On ideology, differences are less outspoken than by gender (although there naturally is an overlap between the categories). Right-wing respondents distinguish themselves as seeing it significantly more probable to end at the top of the income distribution. Left-wing respondents also view it as significantly more probable that they will end in the middle of the distribution.

Elicitation of Expected Income Position

My main analytical approach for seeing differences by expectations is to label each respondent with income quintile that they see the highest probability of being part of in ten years. I have few respondents who place themselves at the bottom of the distribution (2%), so the three main groups I will discuss are respondents who expect to be part of the middle of the income distribution (3rd quintile), right below the top (4th quintile) and at the top of the distribution (5th quintile). This specification loses the uncertainty respondents associate with being part of a group. Unevenly distributed uncertainty may independently affect attitudes. To gauge whether this is an issue, I visualize the probability distribution for each group in figure 5.3.

Figure 5.3. Mean Distribution of Expected Income Position by Expected Income Position



Note: Respondents are grouped by the income position they on average expect to be part of. Confidence intervals are set at the 95% level.

The probability distribution for the 3rd and 4th quintiles follows a seemingly normal distribution, which is slightly left-skewed for the group who expect to be part of the middle. The group that expects to be part of the top of the income distribution exerts a remarkably high degree of certainty with this outcome. This skewness is partly due to the construction of the question, where a more continuous measure would assess the probability of every single percentile in the income distribution. However, the main difference in uncertainty is that the part of the sample who do not expect to be part of the top see it to be somewhat equally likely that they will end a position above or below their mean position, whereas the group that expects to be at the top hold a high degree of certainty.

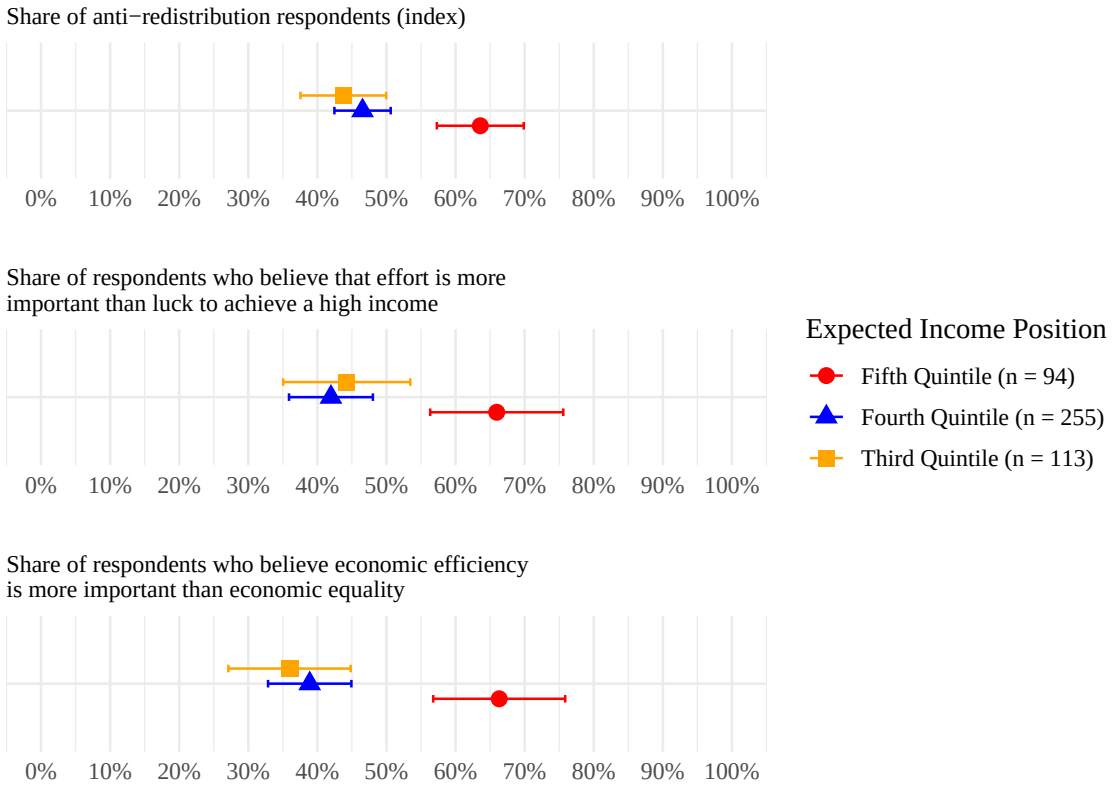
Differences in Attitudes by Expected Group

My hypothesis 1 stated that the higher voters expect to be in society, the less they would prefer redistribution. To address this descriptive hypothesis, I show how respondents vary in attitudes to

inequality by their expected income position. For these descriptive analyses, I only display the answers of the respondents in the control condition. This allows me to show how respondents vary in attitudes by expectations, before going on to see how respondents potentially are affected by information on their future social position. I use the respondents' mean expected position to approximate where they expect which group they are part of.

The main pattern that arises in comparing attitudes is the repeated similarity between respondents that expect to be in the 3rd and 4th quintile and the dissimilarity to the group that expects to be in the top quintile. In figure 5.4, we see the differences in attitudes to inequality by expected social group. In all three dimensions, we see that there are no significant differences between the middle and above-middle groups, whereas the group that expects to be at the top is consistently different.

Figure 5.4. Attitudes to Inequality by Expected Quintile



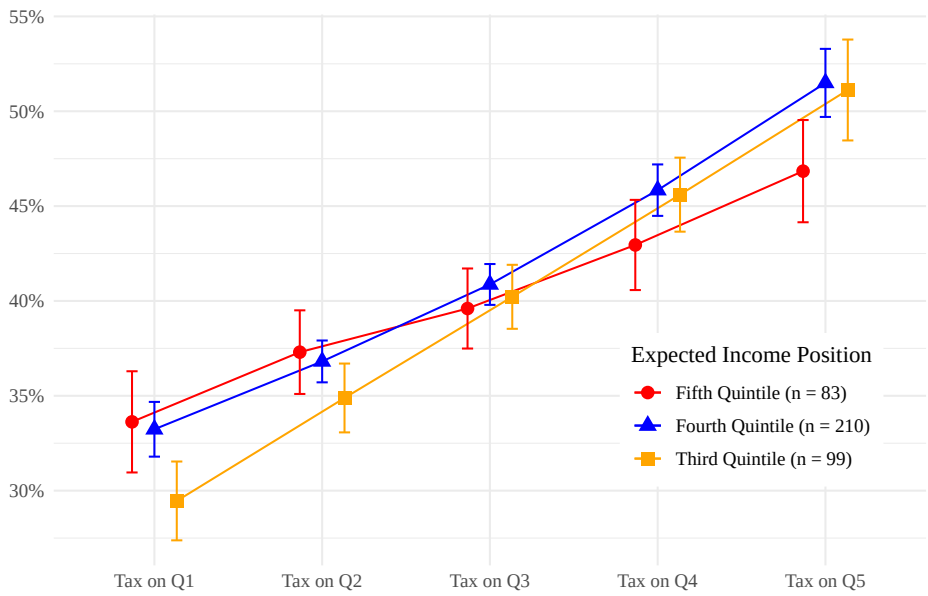
Note: To make the items comparable, they have all been scaled to binary variables. In the top plot, which is an index of all the Likert items on redistribution, "Agree" and "Completely agree" have been scaled to 1. The Cronbach's Alpha for the index is 0,76, above the desired 0,7 level (see Appendix A.3). In the middle plot, responses that state that effort is much more important or a little more important have been scaled to 1. In the bottom plot, which harmonizes a scale from 1 to 10, values above 5 have been scaled to 1. The residual categories for respondents who have answered are set to 0. A decomposed version of the redistribution index is included in Appendix A.4. Only respondents from the control condition are displayed. Confidence intervals are set at the 95% level.

This finding highlights a non-linear tendency in how citizens differ by mean group. This is otherwise commonly an assumption held in a Meltzer and Richard (1981) style model, where citizens successively moderate their attitude to redistribution by their exact position in the income distribution. The baseline theoretical expectation would be that groups would successively differ in attitudes to redistribution. In the case of the expected position in the income distribution, it seems to be the case that there is a remarkable jump from the fourth to the top quintile.

Bringing certainty into the picture, one explanation of why the top group differs from the rest is the certainty this group holds of their expected position. As seen in 5.3, this group is highly certain of ending at the top of society, whereas the expectations held by respondents in the fourth quintile are more spread. In essence, the respondents in the fourth and third quintiles have a considerable overlap in what they view as their future position and material interests, whereas the top group has clear and distinct expectations, and thereby expectations, from these two groups.

On tax preferences, I find the mean differences in preferences to be less pronounced. At the 95% confidence levels, groups are mostly indistinguishable from each other. However, if we consider the *progressivity* of preferences, then the groups differ significantly. That is, when one takes the rate of the top tax rate and the bottom tax rate, there is a significant difference between the third quintile and the rest (appendix). This difference is interesting in light of the otherwise symmetrical pattern of the preferences between the third and the fourth group. One interpretation is that when statements on inequality are vague and open for interpretation, the group between the middle and the top can express pro-redistribution motives. However, when redistribution becomes concrete and directly concerns top groups, linear differences by income expectations become visible.

Figure 5.5. Tax Preferences by Expected Income Position



Note: Y-axis represents the average tax rate respondents prefer for each given income group, which are displayed on the X-axis. Only respondents from the control condition are displayed. Confidence intervals set at the 95% level.

5.2 Experimental Results

In this section, I will test hypothesis 2, which states that when respondents realize they will achieve a higher position than they believed, they will prefer less redistribution. This hypothesis implies a conditionality of the treatment condition. If respondents already expect the position they receive information on, the information should have little effect on their preferences. Therefore, I condition on whether respondents expect to have a different income position than what they learn through the informational treatment. While it is not random which respondents believe what, as reviewed in section 2, receiving the informational treatment is (Cox, 2024). The logic of my analysis is to compare respondents with expectations that differ from the treatment condition and see the difference between the treated and untreated respondents. In formal terms, the results I derive from the survey experiment are Conditional Average Treatment Effects (Grimmer *et al.*, 2017).

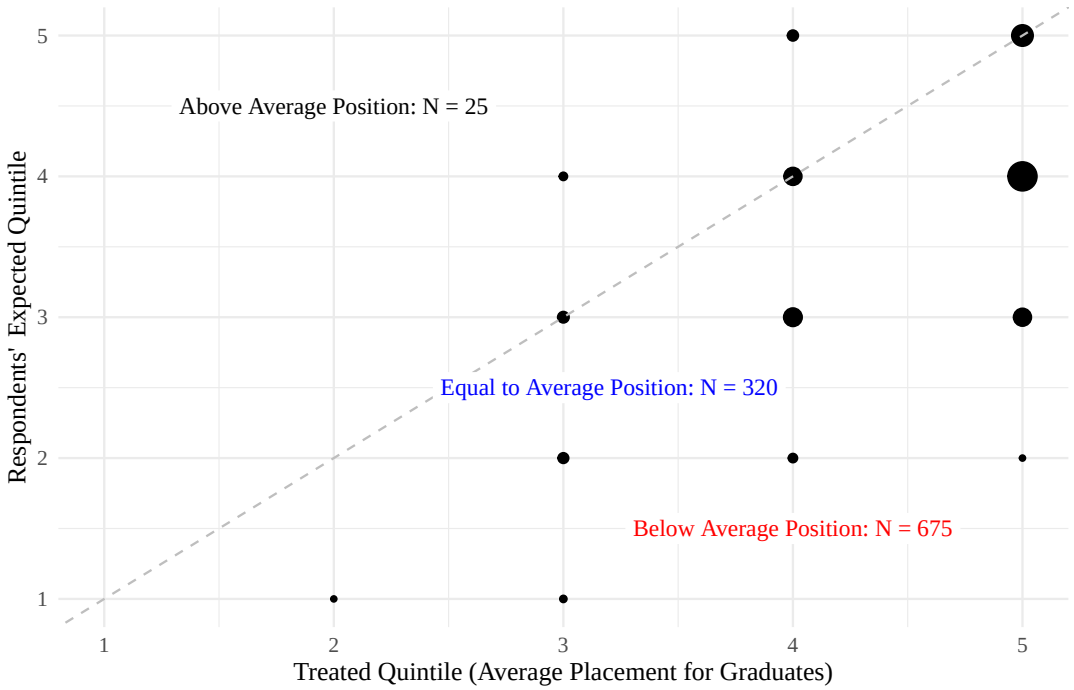
The first step is, therefore, to compare respondents' expectations to what information they will receive. Here, I find that two-thirds of respondents underestimate their future potential position. Very few respondents overrate their future position. Therefore, I only focus on the effect of getting

one's expected income position raised. This result means that I solely test the hypothesis in terms of becoming less supportive of redistribution. I find a significant effect of the informational treatment on taxation preferences but no effect on general attitudes on inequality. Finally, I discuss the mechanism and validity of the treatment.

Distance between mean expectation and treatment

How do respondents differ between their mean expected social position and the income position they potentially are treated with? Recall, that the treated social position is the average earnings for their given education and what income quintile this expected wage corresponds to in the income distribution. In figure 5.10, we see that the majority of respondents underrate their future income position relative to the average comparable graduate. In terms of the treatment effect, the majority of respondents are receiving information that the mean graduate who is comparable to them will achieve a higher social position than what they expected prior to the treatment. In other words, the mean respondent holds more modest expectations than what they reasonably could expect to have.

Figure 5.6. Distance between expected income position and treated income position



Note: Dot size represents the amount of respondents. The visualization contains the full sample, where half of the sample receives information which should raise their expectations of future income position, while the other half does not receive the information.

This pattern affirms the results of studies of perceived position in the income distribution, where there is a tendency for respondents to subjectively believe that they are closer to the middle of society than they objectively are (Hvidberg *et al.*, 2023). Given that the sample broadly represents respondents who should hold high expectations, most respondents underrate their future position relative to the information they are given. Building on Hvidberg *et al.* (2023) study of perceived social positions in Denmark, two factors could explain the tendency to gravitate to the center. One is that respondents underrate their own future income, and another is that they overrate the income of others. In the case of Hvidberg *et al.* (2023), they find that respondents are quite able to recall their income when comparing their survey response to registry data. In my case, I do not have access to registry data, and my research setting is conceptually different, as there is no "true" validation of expectations. However, as I will show in figure 5.11, respondents are relatively good at guessing what wage the average graduate earns from their institution. This result is indicative that respondents who stand to earn high earnings are well aware of what absolute income they can expect to achieve but underrate where this puts them in the income distribution.

Respondents who hold expectations equal to the average position are also substantially different relative to those who underestimate it. Of the 320 who hold expectations equal to the average position, around 60% of them are men, and 38% of them are politically right-wing. Of those 675 respondents who underestimate their future position, only 43% of them are men and 22% of them are right-wing. Therefore, when conditioning on whether respondents experience a discordance with their expectations, we observe a qualitatively different group than those who hold expectations equal to the treated information.

Effect of Income Information

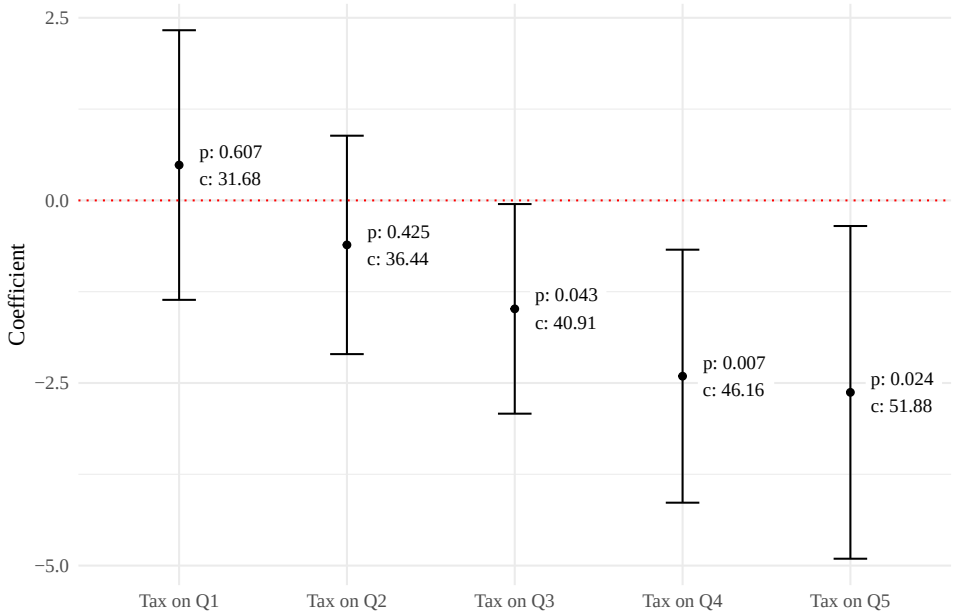
What is the effect of receiving information on one's future income position? As described in section 4.1, the treatment is personalized income information based on the respondent's education. To estimate the effect of receiving information, I condition on whether respondents underrate their future position relative to the analysis. As seen in figure 5.6, the majority of respondents are underestimating their potential position.

To estimate the effect of receiving information that raises expectations on tax preferences on the subset of respondents who underestimate their future income position, I regress the treatment condition to compare the difference in preferred tax levels.[1] As shown in figure 5.7 I find a statistically significant effect of receiving information on taxation preferences. Substantially, the

[1] Given that randomization mostly was successful, I do not control for demographic variables in my main models. In Appendix A.5, I run a model that controls for the one variable where randomization was uneven (geography), which does not affect the estimates. The appendix also shows the effect of the treatment on the full sample, and other subsets to assess the robustness of the main estimates.

difference can be interpreted as respondents wanting to have 2.5% less taxes on the fourth and fifth quintile groups. There is also a significant effect on preferences for taxation on the third quintile, where the treated group prefers less taxes on this quintile as well. However, this result is barely significant at the conventional level (p = 0.043), whereas the results for taxation preferences especially the fourth quintile are highly significant. Importantly, preferences for taxation on the lower quintiles are unchanged, consistent with an explanation that raised expectations of what group one will be part of in the future causes one to prefer less taxes on that group.

Figure 5.7. Effect of Binary Treatment on Tax Preferences

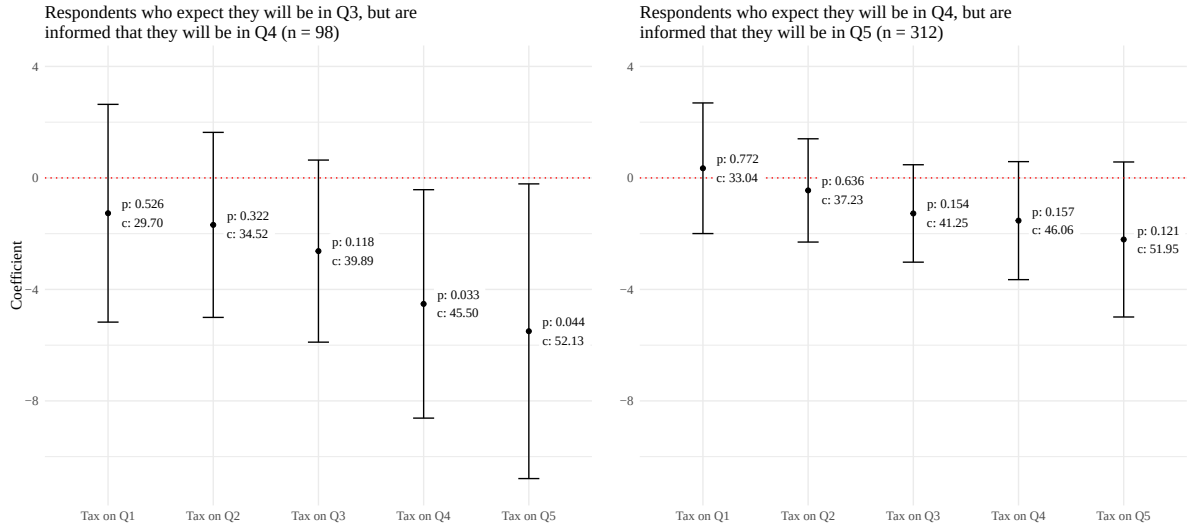


Note: Conditional Average Treatment Effects, solely including respondents who underestimate their future income position. The independent variable is the treatment condition, and the dependent variable is preferred tax rate for the given group, which is scaled from 0 to 100. *p* represents the p-value, *a* represents the constant and can be interpreted as the mean preferred tax rate on the given group by the control condition. Appendix A.5 shows that estimates are similar with robust standard errors and the removal of extreme observations. Confidence intervals are set at the 95% level.

While I treat these effects as conditional average treatment effects, there are two sources of heterogeneity in the treatment that are important to address. One is the *strength* of the treatment, meaning whether one has narrowly or widely underestimated one's position. The second is the *level* of the treatment, given that the quintile one is treated with varies by one's education. However, these sources of heterogeneity are limited given the relative homogeneity of the sample, which is reflected in figure 5.6. To assess whether these results are sensitive to specifications where the treatment effect is kept constant, I show the effect on a subset of respondents who receive the treatment at the same level and with the same strength. These are displayed in figure 5.8.

Here, I observe some differences in terms of the strength and significance of the treatment. Respondents who expect to be part of the middle of the income distribution (the third quintile), but then learn that they may be part of the fourth quintile want 4% less taxation on the top groups relative to the control condition. On respondents who expect to be in the fourth quintile, but then learn that they will be part of the top of the income distribution, information likewise leads respondents to prefer less taxation, but results are rendered insignificant. One explanation could be that the difference in levels is driving this effect. That is, the group that expects to be in the middle of the income distribution suddenly learns that they will achieve above-average earnings. This information is qualitatively different than learning that one will progress from the fourth to fifth bracket in the income distribution. Therefore, the difference in treatment levels makes the information more consequential for the respondent. Another explanation could be that there are varying levels of knowledge of political issues and income distributions between the two groups. As discussed in section 3.3, the better respondents are informed, the less likely they are to react to the information. The group that can expect to be part of the top of income distribution stands particularly out, as these respondents predominantly are political science and economics students. These two groups arguably have stronger prior beliefs on politics and where they will end in the income distribution relative to others. Due to the limited sample size, I cannot draw strong conclusions on whether this is the case by dividing the sample further into small groups, where more observable characteristics are kept constant. In Appendix A.5, I further test whether extreme observations due to the granular measure affect the main results. I do not find that excluding extreme observations affects the results significantly. On the contrary, it renders the estimates more significant.

Figure 5.8. Effect of Binary Treatment on Tax Preferences



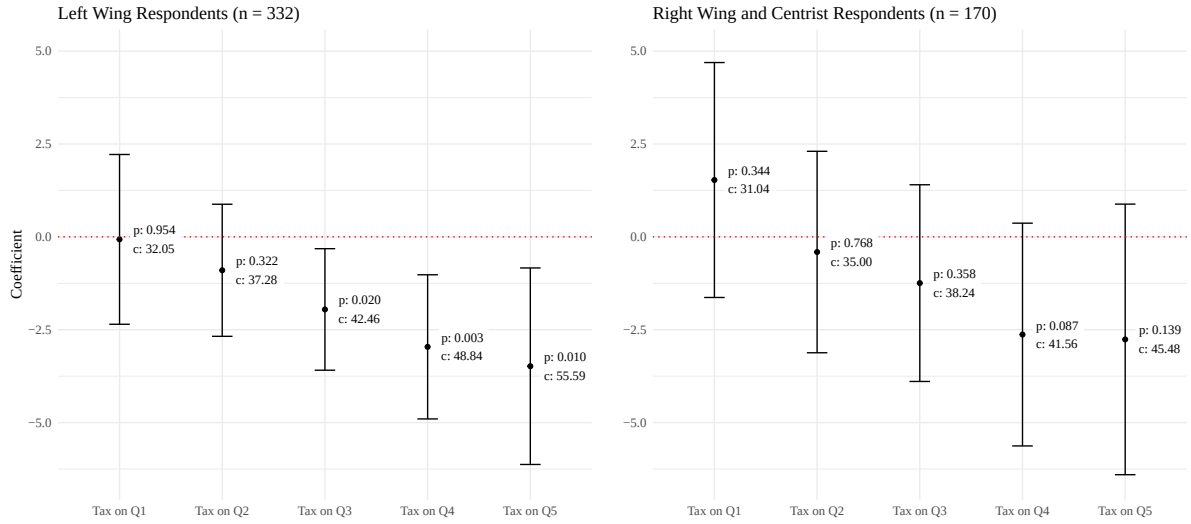
Note: Conditional Average Treatment Effects, solely including respondents who underestimate their future income position. The independent variable is the treatment condition, and the dependent variable is preferred tax rate for the given group, which is scaled from 0 to 100. *p* represents the p-value, *c* represents the constant and can be interpreted as the mean preferred tax rate on the given group by the control condition. Confidence intervals are set at the 95% level.

Further, the treatment effect could be affected by ideological predispositions. Previous studies have found that material expectations only affect preferences when they align with the ideology of respondents. Laméris *et al.* (2020) find that only right-wing respondents vary in their support for redistribution by expectations, whereas left-wing respondents are constantly pro-redistribution, regardless of what position they expect to achieve. Alesina *et al.* (2018) likewise find that providing negative information on mobility affects the redistributive preferences of left-wing respondents, whereas right-wing update their views on mobility but not their redistributive preferences. This builds on the notion of motivated reasoning, where respondents resist information that goes against strongly held priors (Bartels, 2005; Slothuus and Bisgaard, 2021). In the setting of my experiment, where I am conditioning on whether respondents underrate their position and therefore become less supportive of taxation when receiving information that raises their expectations, the question is whether the left-wing respondents also change their taxation preferences upon receiving information.

To test this proposition, I divide the sample by their stated ideological beliefs to compare how they react to the treatment. I collect right-wing and centrist respondents together, as there are fewer of them represented in the sample and fewer yet who underestimate their future position. This choice does not have great consequences for my argument, as I am mainly interested in seeing whether left-wing respondents resist the treatment. As shown in figure 5.9, it is not the case that left-wing respondents refrain from updating their taxation preferences when receiving information on their

future income position. These results remain significant. However, the estimates for the right-wing and centrist respondents are insignificant, while the coefficients remain largely the same. This insignificance is partly driven by the relatively small sample size and not necessarily suggestive of the right-wing or centrist respondents not reacting to the treatment.

Figure 5.9. Treatment Effect on Tax Preferences by Ideology

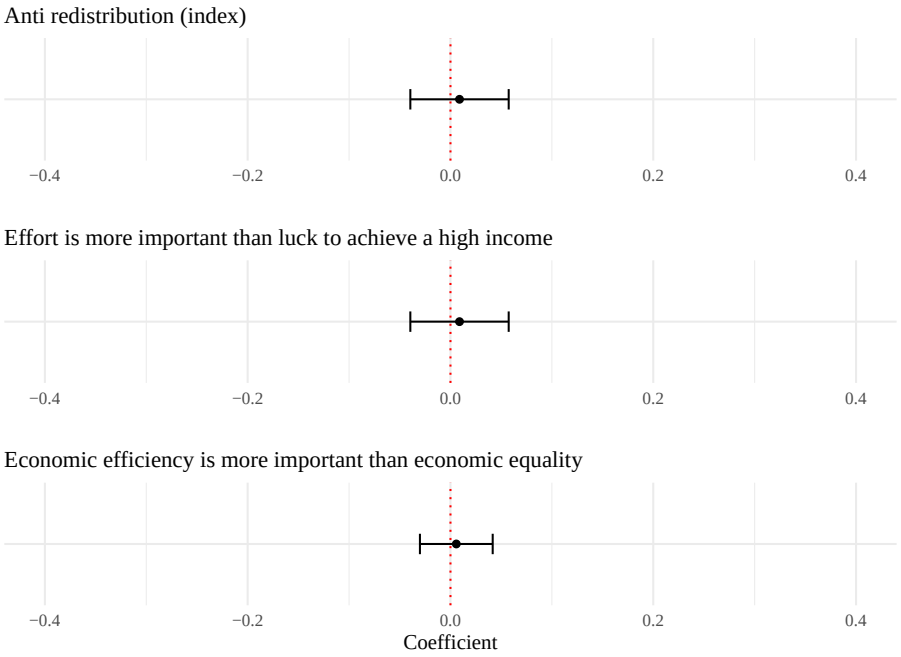


Note: Conditional Average Treatment Effects, solely including respondents who underestimate their future income position and by ideology. The independent variable is the treatment condition, and the dependent variable is preferred tax rate for the given group, which is scaled from 0 to 100. *p* represents the p-value, *c* represents the constant and can be interpreted as the mean preferred tax rate on the given group by the control condition. Confidence intervals are set at the 95% level.

Figure 5.9 also displays that the two groups vary considerably in their levels of preferred taxation. The constant, which displays the mean preferred level of taxation in the control condition, shows that the preferred tax rate of left-wing respondents for top income earners is at 55%, while it is only at 45% for centrist and right-wing respondents. Despite that the two groups have great differences in their level of preferred tax rates, they move in parallel upon receiving information about their future position. This runs counter to findings and arguments that suggest that respondents only update their political preferences to information that is congruent with their general ideological inclinations (Alesina *et al.*, 2018; Culpepper *et al.*, 2024; Laméris *et al.*, 2020).

On conventional attitudinal items, however, I see no effect of the treatment. One explanation may be that these attitudes are more stable and less malleable than the tax items I field above, where respondents may have less fixed attitudes to the exact percentages taxes should be set at but deeper held convictions on political items on redistribution, meritocracy and economic equality in an abstract sense. These items are also less pointed towards a specific group than the taxation preferences, where there is a clear link between the treatment and the outcome.

Figure 5.10. Effect of Binary Treatment on attitudes to Inequality



Note: Conditional Average Treatment Effects, solely including respondents who underestimate their future income position. *p* represents the p-value, *c* represents the constant and can be interpreted as the mean preferred tax rate on the given group by the control condition. Confidence intervals are set at the 95% level.

In sum, I do find support for H2: Respondents do update their preferences for taxation when receiving information which raises their expectations. In formal terms, I reject the implicit null hypothesis of no differences and find support for my alternative hypothesis. However, I do not find support for this hypothesis in my general items on redistribution, which may represent more stable beliefs than the results of taxation.

Mechanisms and Treatment Discussion

The main question in evaluating the treatment is whether respondents in the control condition were familiar with the information provided in the treatment condition. Given that the information I provide is freely accessible and possibly also a source of information that respondents use to select their education, the treatment may be limited if respondents are well informed and therefore pre-treated.

To evaluate this effect, respondents in the control condition were asked what the average future salary for graduates with the same degree as themselves is. In other words, they were asked what the treatment information was. Likewise, the treated group had to recall what income their given

educational degree could expect after ten years, to check whether respondents had retained the information provided to them.

Figure 5.11. Treatment evaluation

Note: Dot size represents the amount of respondents. Respondents were asked in what the average salary after 10 years was for graduates holding the same degree as the respondents. For the treatment condition, this constitutes a treatment check. For the control condition, I evaluate the extent to which respondents are pre-treated by income information. The gray dotted lines represent a +/- 5000 DKK interval. Within this range, I interpret responses within this range as correct, as respondents guessed from a scale of 10.000 DKK to 100.000 DKK.

As seen on the left side of figure 5.11, respondents in the control condition are equally spread between overestimating, underestimating, and estimating correctly what the average future salary is for graduates with the same educational degree as themselves. It does not seem that respondents systematically underestimate future wages but that respondents on average have a good impression of what the future salary of their degree is. Given that respondents react to the treatment information in terms of tax preferences, it, therefore, seems probable that the effect of the relative information is the one driving the attitudinal change seen in figure 5.7. In other words, respondents have a good idea of the absolute income they can expect to earn but seem to underestimate their future relative position in society. However, I cannot conclusively make this inference, as I do not survey where respondents believe the average graduate from their degree will be in the income distribution after ten years, and I do not survey what position in society respondents expect to attain post-treatment.[2] As discussed in section 4.1, a more exhaustive experimental setup could

[2] In Appendix A.6, I show whether respondents in the treatment and control condition below that will earn more or less than the average wave. However, while this item gives me an impression of how respondents believe they will fare in terms of income, I cannot directly observe where they believe they are placed in relative terms.

draw stronger conclusions on whether the effect is driven by relative or absolute information. However, given that respondents seem to react on the items that concern specific quintiles, which they have received information on that they may be part of, and do not update their general redistributive preferences, it seems most likely that respondents are updating beliefs due to new information on their potential relative position in society.

Looking to the right side of figure 5.11, we see that the treated respondents are relatively good at recalling the income information. The majority of respondents recall correctly what the average graduate from their institution can expect to earn, and the distribution is more compressed relative to the placebo group. However, almost a fourth of the respondents do not correctly recall the information.[3] This may express that my estimates of the treatment effect are conservative, given that some respondents did not fully internalize the information. It may also suggest that the treatment was too cognitively demanding for respondents.

5.3 Summarizing and Discussing the Results

My results were organized into two parts. First, I showed how respondents differed in their attitudes to redistribution by what position they expected to attain in the income distribution. Second, I showed that raising expectations through information had the effect of lowering preferred tax rates.

First, on expectations, I find that expectation profiles vary considerably from group to group. On gender, men are much more likely to believe that they will become part of the income distribution, whereas women see this outcome as relatively implausible. On political ideology, I see that right-wing respondents likewise are more likely to believe that they will be part of the top of the income distribution. There is naturally an overlap between these two groups, particularly in the recent setting, where ideological differences between women and men are increasing (Shorrocks, 2018). These findings illuminate one mechanism that explains why this gap exists. The high expectations held by men might be a contributing factor to explain why they prefer right-wing parties and are more averse to redistribution than women (Buser *et al.*, 2020).

Further, on expectational profiles, I see that the group placed at the top is most certain of achieving this position. This is partly due to the construction of the income groups I made respondents place themselves in, where a more continuous measure might make differences less pronounced. This shows that there is little substantive difference in delineating between certainty and position. Those who expect to be at the top are similarly very certain to attain this position. In plain terms,

[3] I am not able to discriminate respondents effectively on attentiveness, due to the sample size.

the correlation between position and certainty is high and positive.

In the descriptive results, I showed that voters differ meaningfully in what position they expect to hold and what attitudes they have toward inequality. One interesting pattern is the seemingly non-linearity of this trend, where the group that expects to be at the top differs significantly in attitudes to redistribution, while the other two groups are remarkably similar.

In assessing the effect of receiving information that may raise the expectations of voters, I see that there is a significant effect of receiving information on potential future position and income on taxation preferences. Respondents become less punitive of the groups at the top which they may become part of, and no less punitive of the groups at the bottom, which they see little probability of becoming part of. Assessing the mechanism, I see that the control condition seems to be relatively well informed of their future wages, meaning that they both over- and underestimate wages obtained by graduates holding the same degree. The most probable reason why respondents change taxation attitudes is that they are unaware of what position this income puts them in in society. This corroborates the mechanism purported in research which states that voters are uninformed of their position in society, and upon receiving information about their social position, they update preferences (Hvidberg *et al.*, 2023). However, it is important to note that general attitudes to inequality are left unaffected by the treatment.

This result runs counter to research suggesting that material conditions matter little and that pure information provision has little effect (Culpepper *et al.*, 2024). When respondents receive concrete information on what group they will become part of, they update their preferences for this group. Perhaps what previous studies have failed to do is provide specific information on personal conditions, and measure outcomes that directly relate to this outcome. Often, the treatment in these surveys is providing broad information on inequality in the country and the outcomes are general attitudes to redistribution, where several steps are required from the respondent to update their preferences. Here, with the personalized design, the chain of reasoning is more direct and clean.

Furthermore, studies employing the same design as I have only found that respondents update their preferences when given negative information (Cox, 2024; Weber, 2023). Cox (2024) only finds an effect of income information when it disappoints the respondent, and Weber (2023) only finds an effect of providing information on mobility when it is lower than the respondent thought. My results show that respondents also update their preferences when presented with information that raises their aspirations. Particularly in relation to Cox (2024), one reason that I find an effect of raising expectations may be that I provide relative information on where future income places respondents in the income distribution. In the case of Cox (2024), who solely provides absolute income information, respondents might not be able to deduce where this ranks them in the income distribution. Through the information I provide in the experiment, respondents are directly aware

of what position they might attain in the income distribution, and the outcomes measure their attitudes to the specific tax rates that may affect them. Finally, I do not find evidence of motivated reasoning by left-wing respondents who are ideologically predisposed to support redistribution. Instead, I see this effect run in parallel, confirming recent work calling the motivating reasoning argument into question (Coppock, 2022).

The generalizability of the experimental results is partially limited due to the unrepresentative sample. It is unclear whether the estimates presented in this sample represent conservative or sensitive estimates. On the one hand, if respondents are more sophisticated than the relative population, and react less to the treatment because the information is known to them, these estimates can be interpreted as conservative. On the other hand, given that most respondents in the sample are given information that they will be part of the top of the income distribution and the treatment therefore is very strong, the results can also be seen as sensitive.

Having stated these limitations, these results and this research design serve as a methodological and empirical contribution to the study of subjective income expectations and redistributive preference. Empirically, it corroborates Cox (2024) results from the Chilean context, demonstrating that the mechanism is at play in two very different institutional and cultural contexts. Further, it shows that respondents do not only update their preferences when presented with bad news but also when their expectations are enhanced. Methodologically, I present a new survey measure to attain a fine-grained measure of expectations, which gives a more valid picture of how respondents reason about their future position. Furthermore, I contribute to the nascent survey experimental work which fields personalized treatments, demonstrating a new way to visualize relative position in the income distribution. Given few studies find an effect, the setup I present may be a viable instrument for future research.

6 Two Additional Tests

I have established the empirical association and effect between expectations and redistributive preferences. We have seen how those who expect to be part of the top of the income distribution prefer less redistribution. Further, when respondents realize that they may be part of the income distribution, they update their preferences and prefer less redistribution. The experimental design overcamee the empirical challenges of delineating the effect of expectations that I presented in chapter 3 with high internal validity and confirms similar results found in the Chilean context (Cox, 2024). These results provide support for my descriptive Hypothesis 1 and my causal Hypothesis 2.

However, there are important limitations in the support for both hypotheses. On hypothesis 1 which states that citizens vary by what position they expect to attain in society, the findings in my survey are limited as my opt-in sample is not representative in two ways. First, it is not representative of the narrow population of Danish students in tertiary education, given the self-collected nature of the survey. Second, given the choice of empirical design, it is not representative of the Danish population as a whole, as I restricted the case to Danish students in tertiary education. Even if the sample was representative, an important question would be how these results would generalize beyond students, who previously have been found to hold redistributive preferences that are distinct from the general population (Epper *et al.*, 2023). Therefore, the representative sample found in the ISSP data allows me to establish the credibility of H1 more credibly. Further, the aim of the thesis is to establish a general argument on how expectations affect redistributive preferences. Therefore, I include other cases, to compare differences in expectations and attitudes across countries. Using this data, I provide more support for H1, as the pattern replicates, and compared to other cases, I find remarkable symmetry in the distribution of expectations across countries. This finding challenges previous arguments forwarded by Alesina *et al.* (2018), who argue that differences in the redistributive regimes in the anglophone setting and the continental setting are driven by differences in the optimism of upward mobility, where Americans, in particular, are excessively optimistic, and Europeans are too pessimistic. I use these findings to discuss this intuition and provide thoughts on how my experimental findings could generalize, as I do not develop an identification strategy to test my causal hypothesis.

On H2, the internal validity of my finding is high, but there is always a legitimate discussion to be

had on an experimental finding in terms of external validity. To address this concern, I draw on data from the Danish Longitudinal Study of Youth, which followed a cohort born around 1954 from 1968 to 2004. This data has previously been used to study educational inequities, and I use it here to illuminate how exceeding educational expectations leads to an update in the cohort's attitudes to inequality when members of the cohort exceed their educational expectations.[1] I interpret this effect as being caused by an update in which respondents believe they will end in society. While less internally valid than my experimental finding, this result will demonstrate how we also can see this updating effect documented in the experimental setting in the real world.

The logic of my approach here is that of methodological and empirical triangulation. Empirically, I draw on representative data, to see whether the results generalize beyond my self-collected sample. Methodologically, the panel data allows me to elicit the within-individual effect of improving relative to expectations, providing another credible example of how the mechanism of raising expectations affects preferences.

6.1 How Voters Differ by Expectations

In this section, I discuss Denmark as a case and the generalizability of the findings.

First, let us review what findings could generalize, and why they should be so. If we first take the experimental finding, I provide an exogenous treatment that could raise expectations of future social position, conditional on respondents holding low expectations. Across countries, there might be a variance in how high respondents already set their expectations. If respondents have excessively high expectations, the treatment would not have an effect, as respondents have already internalized their future prospects into their current redistributive preferences. Reversely, if respondents are excessively pessimistic, the treatment mechanism could potentially have a stronger effect. There might therefore be a variance in the "optimism" or "confidence" that different cohorts and nationalities hold, in the same way by which I have demonstrated differences in expectations by gender. This is the comparative argument forwarded by Alesina *et al.* (2018), who argue that Americans overrate the prospect of upward mobility, while Europeans are conversely pessimistic.

Next, one can also consider the descriptive findings I provide on how attitudes to inequality vary by the group one expects to be part of. Here, I found that the group that expected to be part of the top of the income distribution held significantly different attitudes than those who expected to be part of the third or fourth quintile, who held similar attitudes. Here, there may be variation

[1] This test builds on Hvidkjær (2024), with changes to the empirical approach, estimates, and theoretical reasoning.

across countries in what groups voters will expect to be part of and how these groups differ in attitudes.

To illustrate how these factors may vary across countries and generations, I leverage data from the newest ISSP Social Inequality module (ISSP Research Group, 2022). This module has a new item on expectations, which asks respondents what social position they expect to attain in society in 10 years. I compare this expected position to the respondent's stated current position in society across generational cohorts and a select number of countries. I do this to illustrate the life-cycle pattern of mobility expectations, as well to discuss differences between cohorts and countries. Finally, I show how different groups vary in their attitudes to taxing the rich and support for redistribution by what group they expect to be part of.

Differences in Expectations between Cohorts and Countries

I select five countries: Denmark, France, Great Britain, Germany, and the United States. I do so as these are similar cases to what Alesina *et al.* (2018) study, where they argue that Americans are over-optimistic relative to Europeans in terms of the chance of advancing in society. I split age groups into four evenly sized-groups to make meaningful comparisons. Then, I take the mean position of each cohort in terms of where they expect to be in ten years, and where they currently view themselves in society. Both items were measured in the ISSP module with a ladder visualization, that asks respondents to place themselves on a ladder from 1 to 10. Specifically, respondents were asked broadly where they place themselves in society, and with no specific reference to the income distribution.[2] This gives me a measure of the average *position* respondents subjectively state to have and expect to have, and a measure of the difference, in terms of how much cohorts across countries expect to advance in the coming years.

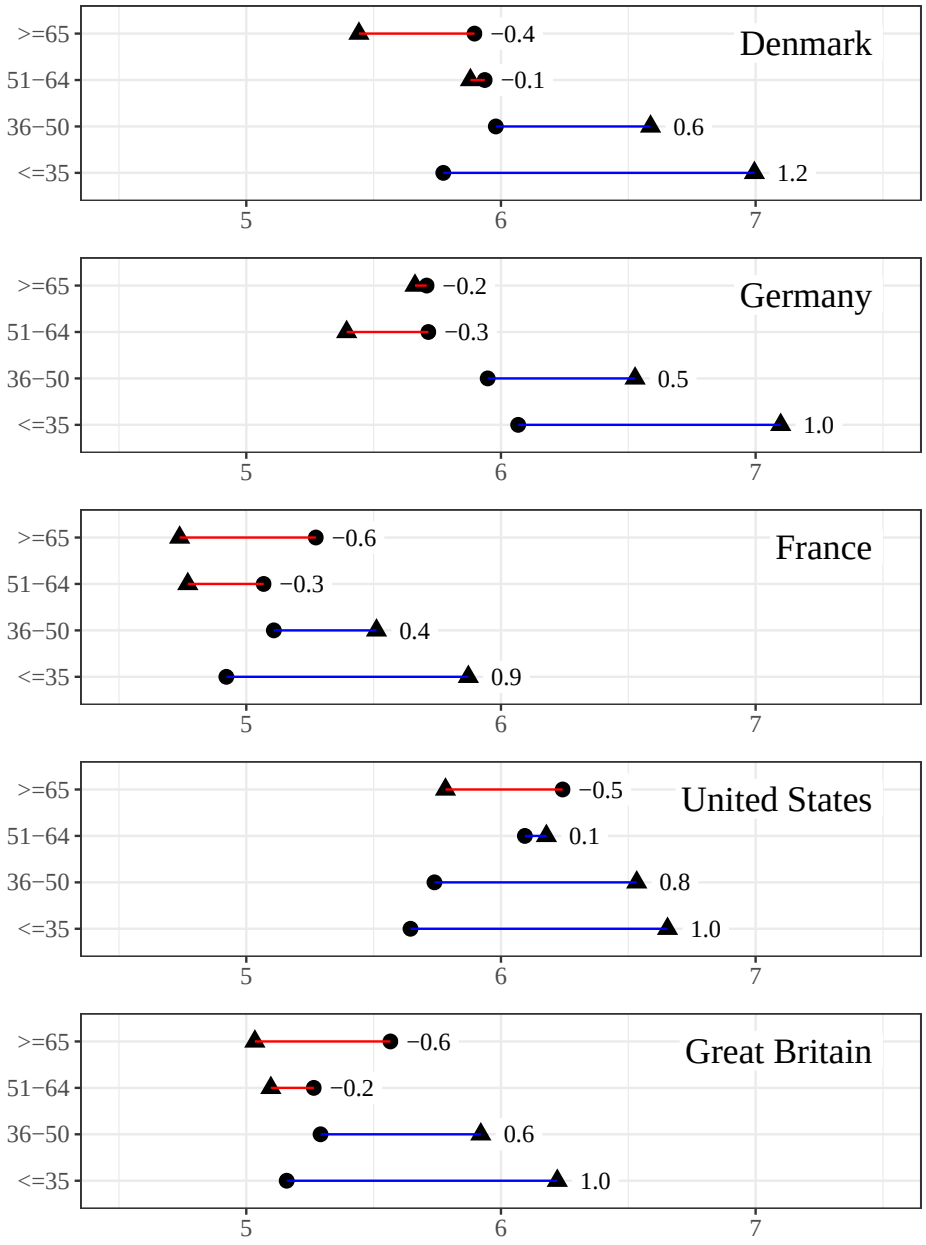
In figure 6.1, we see the differences between countries and cohorts in terms of how they believe they will fare in relative terms. We see that the pattern of life-cycle mobility is relatively symmetric across countries. The young expect to advance a full rank upward, the 36 to 50-year-olds expect to progress somewhat, and above 50, respondents expect a slight decline. Figure 6.1 also shows that the young across countries hold high expectations, as they expect to attain the highest relative position in society.

Comparing countries, we do not observe the pattern that Alesina *et al.* (2018) argue is the difference between pro-redistribution regimes and anti-redistribution regimes. That is, we do not see a pattern where the Europeans are excessively pessimist and the Americans are too optimistic. This

[2] Direct reference to the income distribution would have been preferable for my argument. A reasonable argument can be made that respondents think in economic terms in the survey, as it only covers attitudes on socio-economic inequality.

highlights that personal expectations and general attitudes to progress from poor to rich in a given country are two qualitatively different phenomena. Voters can have varying interpretations of what it generally takes to advance in society, but hold different beliefs concerning their personal advancement. The only remarkable outlier in terms of perceived position is the French, who rank themselves a full level lower than the Danes and the Americans. This lends some support to the argument forwarded by Alesina *et al.* (2018). However, the French still expect on average to advance in society.

Figure 6.1. Distribution of Expectations by Country and Cohort



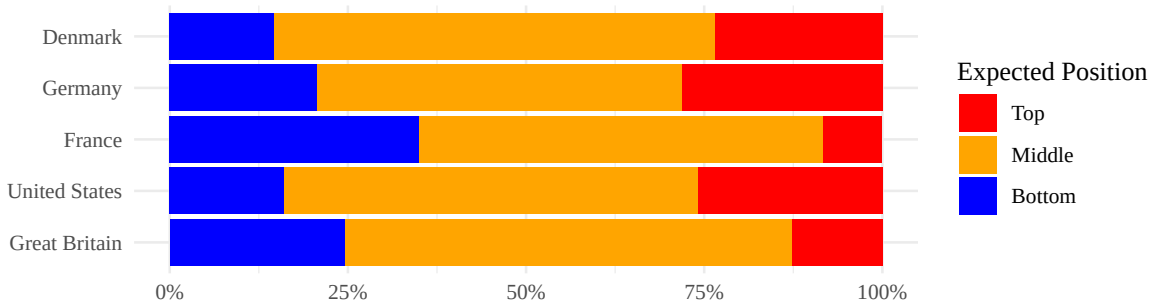
Note: ▲ represents the average position the cohort expects to achieve in 10 years, and ● where the cohort on average rate themselves to currently be positioned in society. Both are scaled from 1 to 10. Observations: Denmark (1025), Germany (1310), France (1598), United States (1749), Great Britain (1721).

Difference in Attitudes to Tax the Rich by Expected Position

Next, I replicate the analysis from section 5.1, where I showed how voters differed by expected future position. Here, I found that respondents who expected to be part of the income distribution were consistently different than the rest of the respondents, who were consistently similar.

First, I divide the respondents into three groups that they expect to be a part of "Top", "Middle", and "Bottom". The measure runs from 1 to 10, and I scale "Top" as position 10, 9, 8, "Middle" as position 7, 6, 5, and "Bottom" are respondents who choose position 4 or lower. The distribution by country is displayed in figure 6.2, where we see that the majority of respondents expect to be part of the "Middle". Objectively, these values should follow a uniform distribution, given that this scale is relative. However, most respondents are centered around the middle, reaffirming the notion that people tend to perceive themselves as part of the middle strata (Hvidberg *et al.*, 2023). Again, we see that France is an outlier, where the smallest share of respondents expect to be part of the top, and the largest share expects to be part of the bottom. Denmark is again relatively similar to the American case, why a general notion of Europeans being excessively pessimistic of their possibility to move upward relative to Americans is not warranted by the data.

Figure 6.2. Distribution of Expected Position by Country

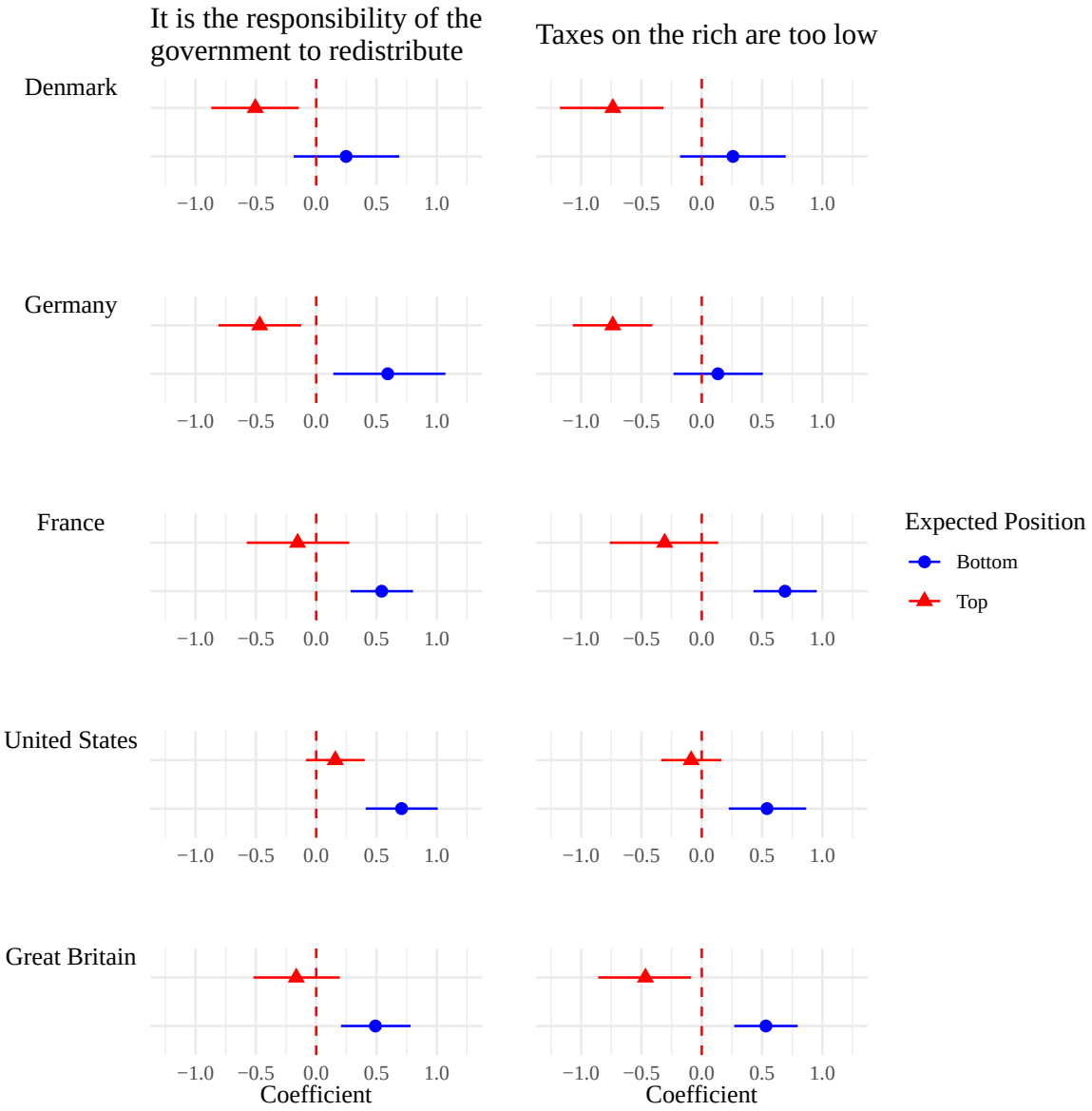


Respondents were asked to place themselves on a scale from 1 to 10 to indicate what position in society they would have in 10 years. "Top" represents values from 10 to 8, "Middle" represents values from 7 to 5, and "Bottom" represents values below 5. Observations: Denmark (1025), Germany (1310), France (1598), United States (1749), Great Britain (1721).

Using these categories, I test whether there are differences in their attitudes to redistribution. To measure redistributive preferences, I use agreement with the statement "It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes" and whether respondents describe taxes for those with high incomes as "much too low" and "too low". Following Alesina and Giuliano (2011) and Weber (2023), I treat these as binary outcomes, as the principal interest is to see whether respondents favor redistribution, and not how intensely they do so. Agreement in the pro-redistribution direction is coded to

1, and disagreement or indifference is coded to 0. Given the binary outcome, I run logistical regression with a binomial model, where the independent variable is what position one expects to attain, scaled as a nominal variable. I set the "middle" group as the reference category, and compare differences to those who expect to be in the top and bottom. I control for income, gender, education (years), and employment, to hold current material conditions constant. The results are displayed in figure 6.3.

Figure 6.3. Difference in attitudes to redistribution by country and expected group



Estimated coefficients are from logisitic regressions. Outcomes are scaled from 0 to 1, 1 indicating agreement. The group expecting to be part of the "middle" are set as the reference category. Gender, income, education (years), employment status are controlled for (full table in Appendix B). Confidence intervals are set at the 95% level.

In general, we see that groups differ in their attitudes to redistribution in a linear fashion, as stated

in H1. Relating the results to my descriptive findings in section 5.1, the seemingly non-linear pattern of how respondents differ in their redistributive preferences by expectations replicates in the Danish ISSP sample. That is, the group that expects to be at the top is consistently different, while the group that expects to be at the bottom does not differ from the middle. In the French and American cases, the bottom group consistently stands out.

In sum, leveraging the new expectation item in the newest ISSP social inequality module shows that voters differ in their redistributive attitudes by which group they expect to be part of. These findings provide further support for H1 and corroborate my findings in section 5.1 on a representative sample of the Danish population, as well as the four other selected cases. Further, I do not find that Europeans generally are more pessimistic than Americans, as found in Alesina *et al.* (2018). This finding confirms later work by Cheng and Wen (2019), which has shown that Americans do not seem to hold excessively optimistic expectations of their prospect of upward mobility. I cannot use this data to provide further support for H2, as I do not employ I neither have an element of temporal variance or exogenous variation to test whether voters update their preferences when they realize they will attain a higher position than they expected. These descriptive results do however show that the pattern of expectation formation is similar across countries, and future experimental work could try to further establish the causal effect of raising expectations, as I have shown through my experimental findings in section 5.2 and which Cox (2024) has established in the Chilean setting.

6.2 Updating Expectations

To show a more externally valid setting, I use data from the Danish Longitudinal Study of Youth (DLSY) to track the effect of faring better in the educational system than one expected.[3] Specifically, I use stated expectations for educational expectations set in 1968, when respondents were in the 7th grade, and see how their attitudes to inequality change as they progress through the educational system. The panel data set is rich in its description of students and their socio-economic background but less rich in waves that use the same items on political attitudes. The only rounds with recurring items are in 1973 and 1976, which I exploit for a panel analysis to estimate the within-individual effect of performing better relative to personal expectations.

I find that members of the cohort who fare better relative to their expectations in the educational system become less concerned with inequality. I interpret this as an updating of expectations of where the respondents will end in society, as they gain more human capital than expected. Contrary to the survey experiment, I do not have an exogenous source that raises expectations, as I do with

[3]An anonymized version of the data is freely available by request via the Danish National Archives.

my informational treatment. However, this setting does offer a convincing illustration of how attitudes are updated in one's formative years when voters improve relative to their expectations. Further, the sample is representative of the Danish population at this time, contrary to my survey sample.

In what follows, I will briefly describe the data and the empirical approach. Then, I present my results and offer a discussion of how to interpret them.

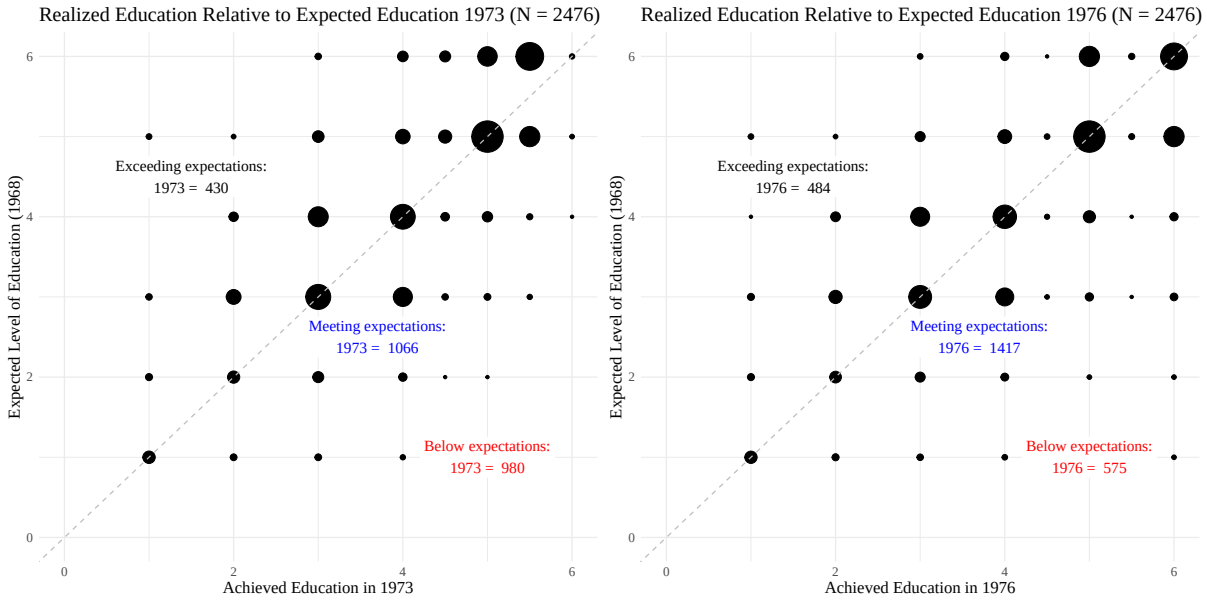
Data and Empirical Approach

Data. The data was gathered in an effort to assess educational inequities in Denmark (Jæger *et al.*, 2003). Based on an assessment of different socio-economic conditions across the country, the project selected 45 schools to participate in the survey, which were representative of the general population (Jæger, 2015). The survey started when respondents were in 7th grade, around 14 years old. At that time, 7th grade was the highest level of compulsory education. The sample represents roughly 4% of the 7th grade population in 1968.

Independent Variable: Improvement to Expectations. My independent variable is improvement to expectations, which captures how respondents fare relative to expectations in their educational level. In this analysis, expectations are treated differently than in my survey experiment. In the survey experiment, expectations and the manipulation of them are the independent variable. Here, outcomes in education are benchmarked relative to expectations set before respondents embark on secondary education. My interpretation of potential attitudinal change caused by the independent variable is that respondents who experience improvement update their beliefs about what future position they can achieve. However, the lack of exogenous variation warrants more caution in claiming a causal effect, and potential effects are treated as illustrative of the mechanism I hypothesize in hypothesis 2 and demonstrate in the survey experiment. Furthermore, the internal validity is lower, as I cannot directly observe changes in expectations, but infer that they are raised when respondents improve relative to their initial expectations.

To visualize the variation in the independent variable, I plot the development of the expected educational level to achieved educational level in figure 6.4. The difference between the two periods illustrates the variation I leverage in the panel analysis. As seen in the plot, the movement mainly goes from respondents having an educational level lower than they expected and meeting that level. As the movement is mechanically limited to improvement, I write in terms of performing better relative to expectations. The analysis relies on comparing the members of the cohort who experience no improvement, relative to the members of the cohort who experience improvement.

Figure 6.4. Realized Education to Expected Educational Level



Note: The plots visualize the educational expectations of respondents (Y-axis) to their actual performance. Educational levels have been standardized to a 1 to 6 scale, where 1 represents the seventh grade as highest level of education, and 6 represents upper secondary education (Gymnasium). Appendix C describes the classification of educational categories.

The difference in how respondents fare relative to their expectations from 1973 to 1976 is the variation I leverage. As seen in the plot, the movement mainly goes from respondents having an educational level lower than they expected and meeting that level. This also highlights that there are three different experiences of improvement present for respondents: 1) surpassing educational expectations, 2) meeting educational expectations, 3) minimizing the distance in one's disappointed expectations. These can be thought of as three distinct improvements, which should be treated separately. Although the sample is relatively large, I am constrained in my ability to distinguish between these three possible effects, as the majority of respondents do not experience improvement. This limits me to make clear claims of the effect of surpassing expectations, why I use the general term of improving relative to expectations.

Outcomes. The items to measure redistributive preferences are displayed in table 6.1. These items were selected as they appeared in the two waves with identical formulations, and they were the best possible items to measure attitudes to inequality. The item on wage differences and whether people in Denmark are equal has high conceptual validity, whereas the item on worker influence is more mixed. Specifically, the item asks whether the ordinary worker has enough influence on the job, which is not decisively an item on redistributive preferences. However, it is plausibly an attitude that varies well with general attitudes to worker influence and attitudes to inequality, why I include it as an outcome.

Table 6.1. Main items to measure attitudes to inequality

1973 and 1976	Scaling
Wage differences are too large	1-3. Disagree strongly to agree strongly
Workers do not have enough influence	1-4. Disagree strongly to agree strongly
All people in Denmark are equal	1-4. Disagree strongly to agree strongly

Individual-level Controls. I construct a vector of time-invariant individual-level factors that may plausibly affect expectations, personal outcomes, and attitudes. These include gender, social background, and initial academic ability. General academic ability is measured by a standardized test, which was issued to the respondents in the 1968 survey. The anonymized data does not provide data on the geographical location of the school. This is an important control in this setting, as educational opportunity was highly segmented between the rural and urban settings (Jæger *et al.*, 2003). Further, the center-periphery cleavage was especially pronounced in the era, with social democratic voters concentrated in cities, and liberal voters concentrated in rural settings. However, I do have information on what type of school respondents attended, where respondents either could attend "general track", "mixed track" or "academic track" schools. I add these to the control vector.

Analytical approach. I use a fixed effects model to elicit the effect of educational improvement on attitudes to inequality in the two waves that field identical items on attitudes to inequality (1973 and 1976). With two periods, this is similar to a first-difference estimation. I run the model using individual-level fixed effects, and then again with time-fixed effects (full notation in Appendix D). The two-way fixed model has been adopted as the norm to work with panel estimates, but Kropko and Kubinec (2020) argue that this specification lowers the interpretability and usefulness of the model. In my setting, the most appropriate choice is to focus on the individual-fixed effects with my controls, to include time-invariant characteristics from the control vector. However, as the two-way fixed-effects model is the conventional approach, I include a time-fixed to assess the robustness of the result.

Results. The panel estimates (6.2) indicate that when respondents fare better relative to their expectations, they become less concerned with inequality. Respondents experiencing improvement are less likely to believe that wage differences are too large and that workers have too little influence. Conversely, they are more likely to believe that all people are equal in Denmark. The unit-fixed effects estimates correspond to a 3.8 % (model 1), 2.1 % (model 3), and 3.9 % (model 5) change for every unit of education one performs better relative to one's expectations. The two first estimates are robust to the use of two-way fixed effects (models 2 & 4), while the last model is rendered insignificant when adding time fixed effects (model 6).

Table 6.2. Panel Estimates (ItE = Improvement to Expectations)

	Dependent variable:					
	Wage differences		Workers influence		All are equal	
	(1)	(2)	(3)	(4)	(5)	(6)
ItE	-0.114^{***}	-0.075^{***}	-0.084^{**}	-0.112^{**}	0.154^{***}	0.010
	(0.024)	(0.026)	(0.041)	(0.044)	(0.040)	(0.041)
Unit Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time Fixed Effects	No	Yes	No	Yes	No	Yes
Observations	4,823	4,823	4,806	4,806	4,834	4,834
R^2	0.009	0.004	0.002	0.003	0.006	0.00002

Note: *p<0.1; **p<0.05; ***p<0.01

I interpret this effect as being the product of respondents updating their expected future position, but this interpretation is presented with caution. First, the independent variable is less internally valid than the comparison of expectations and information in my survey experiment. Next, I am unable to exclude confounding variables to the same extent as I do in my experimental setting. Yet, the logic is somewhat similar to my experimental study. Here, respondents do not vary substantially in terms of their current material assets, as they are only 22 years old and early in the life cycle. The point where they vary is on what they can expect to earn, where the group that has exceeded expectations is plausibly raising their expectations relative to their offset. Further, although there is no exogenous variation, an argument based on confounders has to argue that certain unobservable traits both affect how expectations are set, attitudes develop, and how one performs in education. While such a variable may exist, the rich set of controls incorporated in the unit fixed effects does give some credibility to the estimate.

In sum, the results strengthen my claim in hypothesis 2, where I argue that citizens update their redistributive preferences when they realize that they may achieve a higher position in society than they expected. In this setting, I find that citizens update their preferences in line with this theoretical expectation. This supplements the evidence I provided through my experimental setting, where I here provide a more externally valid design than in the experiment.

7 Macro-Level Implications

Throughout my analysis, I have focused on micro-level drivers and expressions of expectations and redistributive preferences. In my discussion, I turn to the macro-level, where I consider how shifting certainty and positional expectations may affect welfare state development. Specifically, I focus on debates on the universal welfare state. Here, increasing certainty of economic trajectories may divide support for universality. I argue that the universal welfare state can either move in the direction of "re-segmentation", where welfare goods are increasingly consumed unevenly by social strata, or by "sustained universality", where welfare is consumed and accessed evenly.

The falling rate of educational mobility in universal welfare states may indicate that expectations will steadily calibrate. Much attention has been given to the "Great Gatsby Curve", highlighting the cross-country differences in mobility and inequality. Here, universal welfare states are often highlighted as those in which opportunity is high and inequality is low. However, less attention has been given to the slowdown over time in mobility in universal welfare states, which is especially pronounced in education (Landersøe and Karlson, 2024). This trend may lead to a new segmentation of different social strata and create greater differentiation between these groups. This differentiation could lead to an increase in certainty of what position in the income distribution groups will occupy and to a decline in support for universalism.

Finally, I discuss which equilibrium the Danish welfare state is moving toward. Politically, the perception of changing expectations for welfare services has prompted debate on the principle of universalism. Social Democratic Prime Minister Mette Frederiksen has highlighted growing wealth and subsequent rising expectations for welfare as a factor that warrants larger reform of the welfare state (Kildegaard and Ladefoged, 2023). To keep up with expectations and prevent citizens who are getting ahead from turning to private alternatives, greater differentiation in the provision of services is perceived as necessary to keep up with expectations for welfare services. I discuss to what extent this may be interpreted as a re-segmentation of welfare, or whether reform is necessary to sustain the principle of universality.

7.1 The Evolution of Uncertainty and the Universal Welfare State

In Esping-Andersen (1998) canonical typology of welfare states, the universal welfare state has the purpose of de-commodifying citizens from their labor market participation and providing unrestricted access to basic welfare services. The political coalition securing support for the development of the universal model was the broad middle class, who supported universal policies that they could be content with (Esping-Andersen, 1998: 69). The equal access to opportunity enabled by the universal model meant that status cleavages were less pronounced than in continental and anglophone countries (Esping-Andersen, 1998: 59). The continued promise of upward mobility and shared opportunity has been pivotal in securing broad support for the universal welfare state and welfare state development in general (Iversen and Soskice, 2019: 221). This broad support represents an equilibrium of stable support for the universal welfare state, where citizens widely consume and support broad welfare policies.

It is not given that this equilibrium is stable. Two variables may affect this: a reduction in uncertainty or an increase in economic segmentation (Friedman and Iversen, 2024). If uncertainty decreases, and voters become more certain of their future income position, they may identify a group which they more clearly can share risks and social consumption with, and opt out of the welfare state (Friedman and Iversen, 2024). Further, if economic segmentation increases, then voters have larger differences in their demands for welfare services and less of an incentive to pool their consumption with others. One can imagine two stylized paths for the continued development of the universal welfare state. One is that of re-segmentation, where the universal welfare becomes increasingly bifurcated and the segmentation of welfare services becomes more pronounced by socio-economic strata. This transition decreases social mobility, and voters calibrate their expectations according to their new fixed position. Another path is towards sustained universality, where the welfare state continues to offer the same basic services to all citizens, and expectations of future position remain fluid.

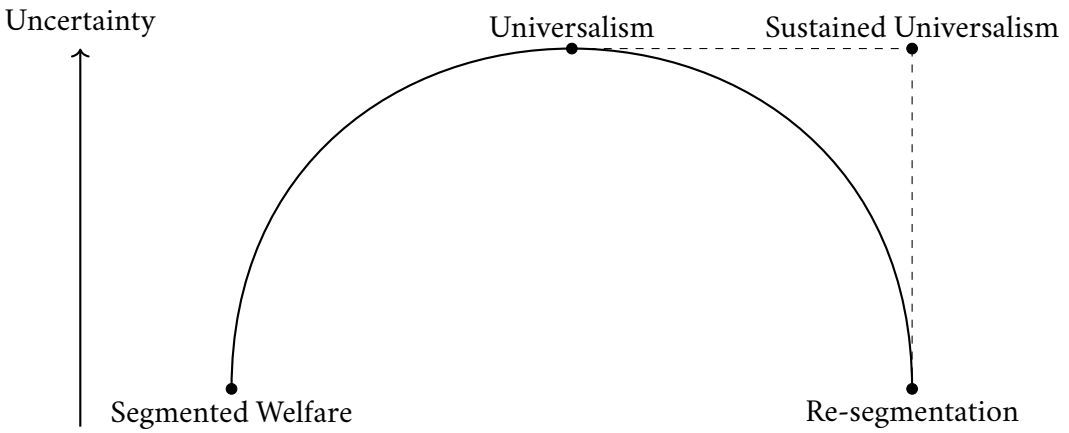


Figure 7.1. Positional Uncertainty and Trajectories for Universialism

A change in economic uncertainty or segmentation is not determined by exogenous forces. Rather, there is a significant moderator in policy and the normative beliefs underlying it, which may affect which equilibrium the universal welfare state will move against. In the next section, I will discuss the potential evolution of material conditions that may skew what direction citizen preferences are moving in.

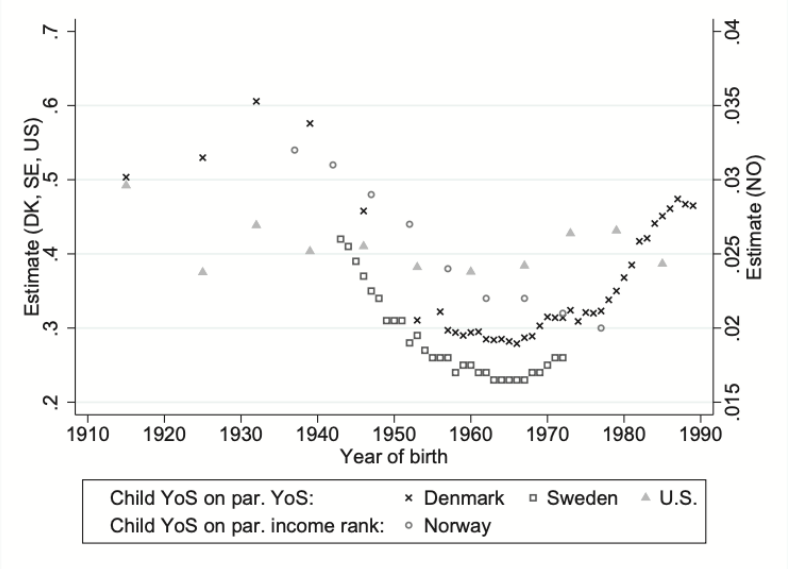
7.2 The Decline of Educational Mobility and the Calibration of Expectations

The universal welfare state sustains in a condition of fluid class lines and equal opportunity. One of the core enablers of equal opportunity has been free access to education, which allows citizens to improve their social standing.

However, this fluidity has been called into question in new research on educational mobility patterns by Landersøe and Karlson (2024). They document that in the years of expansion of the welfare state, educational mobility was remarkably high. The mobility returns to investments in education were high for the cohorts born in the 1950s and 1960s when universal welfare states standardized educational opportunities and provided great absolute mobility relative to parents. However, in more recent years, mobility has been declining and the correlation between parental and child education levels has increased. The decline in mobility documented by Landersøe and Karlson (2024) is seen in figure 7.2. Here, initial reforms in the postwar period which standardized educational opportunity across the country facilitated a high degree of intergenerational mobility in education. Nybom and Stuhler (2023) similarly show in the Swedish case that initial schooling

reforms increased mobility for the generation it affected but then decreased mobility for the subsequent generation.

Figure 7.2. Educational Mobility in Denmark, Sweden, Norway and the US



Note: The figure has been inserted with permission from the authors of "The making and unmaking of opportunity: educational mobility in 20th-century Denmark" (Landersøe and Karlson, 2024). Higher values indicate high correlation between parental and children outcomes, expressing low mobility. Data on Sweden is based on Nybom and Stuhler (2023), and data on Norway is based on Pekkarinen *et al.* (2017).

What explains this pattern? One explanation could be that the universal welfare state over the period has exerted less effort to equalize opportunity. This, however, has been far from the case. The Nordic welfare states have invested heavily in trying to lift social groups into higher education (Landersøe and Karlson, 2024: 26). Another explanation could be that education has plateaued. That is, educational levels are so high, that it is difficult to lift them further, why the trend has plateaued. While true that educational levels are higher, it is far from the case that they have fully matured (Landersøe and Karlson, 2024: 28). There is still a substantial part of the population that has little to no formal training, and citizens with higher educational degrees are still a minority.

One explanation has been that the highly educated classes are "opportunity hoarders" who increasingly isolate themselves in communities where they get the most out of welfare services (Friedman and Iversen, 2024; Hansen and Toft, 2021). This is reflected in the increasing differences in housing prices, where voters are willing to pay a premium to access good schools and ensure a good future for their children (Eshaghnia *et al.*, 2023). This "opportunity hoarding" increases the certainty of what income position citizens will achieve in the future, and may potentially undercut their support for the universal welfare state. In a sense, the cohorts who have been lifted through free access to education in the early years of the welfare state and achieved a higher position in society are now defending this new status against those who have not been lifted (Friedman

and Iversen, 2024). This trend creates new cleavages within the middle class, between those who have experienced advancement and increased prosperity, and the class of voters who now feel left behind (Ansell *et al.*, 2021).

Some efforts by the state to equalize educational opportunity have met severe backlash. Considering the Danish case, the state reformed access to secondary education institutions (High school or *Gymnasium*). Historically, access to secondary institutions has been decided by the proximity of the applicant to the given institution (Lyall, 2021). This rule has created secondary institutions that are highly economically, socially, and ethnically sorted, as residential segregation has grown in recent years (Undervisningsministeriet, 2021). When the state attempted to equalize opportunity by making a system where applicants would be distributed by socio-economic quotas, it met pronounced public backlash and ultimately rolled the reform back (Ritzau, 2023). These events illustrate the challenges in reversing the tide of declining educational mobility, even though the normative ideal for equal opportunity is held highly.

New educational reforms in Denmark may intensify socio-economic segmentation. A new tertiary education reform will reduce university enrollment, steering more students towards vocational and professional education (Fischer, 2024). This increased competition for university spots may amplify socio-economic differences in tertiary education. Additionally, primary and secondary education reforms will emphasize non-academic skills and introduce early vocational tracks, marking a shift from policies since the 1970s that aimed to avoid early academic sorting (Schjørring, 2023). Early educational sorting makes family background a stronger determinant of educational track choice, increasing socio-economic educational segmentation (Ammermüller, 2005; Gamoran, 2009; according to Iversen and Soskice, 2019: 230). These changes could reduce positional uncertainty, pushing the Danish welfare state into a bifurcated equilibrium where educational and economic outcomes are more stratified, and welfare becomes re-segmented. In Friedman and Iversen (2024) terms, this is the equilibrium of "status defense", where economic segmentation is high and uncertainty low.

7.3 Universality at the Crossroads

The Danish welfare state has traditionally been seen as a universal model, providing equal access to basic services (Esping-Andersen, 1998). However, this model may soon undergo significant changes in how services are provided and accessed. In a 2023 interview about the future of the welfare state, Social Democratic Prime Minister Mette Frederiksen identified five key issues affecting the sustainability of Denmark's universal welfare state (Kildegaard and Ladefoged, 2023). One major concern is the growing private wealth of citizens. Although it may seem counterintuitive,

Frederiksen argues that as citizens' wealth increases, their expectations for welfare services will rise, leading to dissatisfaction with uniform services.[1] Frederiksen warns that this shift may lead citizens to increasingly choose private welfare services, thereby undermining general support for the welfare state. Martin Lidegaard, leader of the center-left party Radikale Venstre, argues in his book "*Generationskontrakten*" that the universal model is unsustainable, especially due to the rising cost of elderly welfare services (Løvkvist, 2023). Lidegaard suggests reforming elderly care to resemble pensions, where individuals use their savings to purchase services.

In effect, politicians are anticipating the changing material preferences of their voters. As citizens become more certain of their income and wealth, they can afford private alternatives if public services do not meet their expectations (Busemeyer and Iversen, 2020). This concern is supported by a 2023 survey showing that half of Danes expect worse welfare services in 10 years, 64% anticipate needing private health insurance, and 77% foresee buying private elderly care (Baes-Jørgensen, 2023). The goal is to focus resources on those most in need, but this shift exposes the vulnerability of those relying on state-provided welfare, as their interests diverge from wealthier citizens (Landersø, 2023).

However, moving towards differentiated welfare might also secure support sustained universality. The implicit aim of reform is not to eliminate the universal welfare state but to reform it to ensure access for all citizens and maintain broad voter support. This does not run against the idea of universality and decommodification per se; Esping-Andersen (1998) argues that decommodification is the process of ensuring that citizens have unrestricted access to basic welfare services, and not that welfare services should be. Cross-class consumption of welfare services ensured that the quality of these services was high by material demand, whereas the quality of welfare services to those who are left behind will increasingly be decided by notions of fairness to determine what acceptable welfare is.

[1] "Excerpt from Kildegaard and Ladefoged, 2023: *Det er velfærdssamfundet, som vi kender det, der er på spil – forstået på den måde, at hvis vi ikke får taget nogle store greb, vil det hele blive ringere og ringere og ringere, og så frygter jeg, at mange vil vælge det private til og det fælles fra.*" – Mette Frederiksen

[English "*It is the welfare society as we know it that is at stake - understood in the sense that if we don't take some major measures, it will all get worse and worse and worse, and then I fear that many will turn to the private options and turn away from collective solutions*"]

8 Conclusion

The goal of this thesis was to understand and test the relation between expectations and redistributive preferences. I have examined this relation through two basic hypotheses. The first hypothesis was that voters differ in their redistributive preferences and perceptions of inequality by what position they expect to attain in the income distribution in the future. Taking the case of Danish students in tertiary education, I find that respondents differ in attitudes by what income position they expect to attain in the future. Specifically, the respondents who expect to be at the top of the income distribution are consistently different from the rest. This group also stands out by the certainty they attach to their future position. Using data from ISSP, I find that this pattern replicates, where preferences differ by what position voters expect to attain in the future.

My second hypothesis was that when voters realize they will achieve a higher position than they expected, they will prefer less redistribution. This hypothesis implied a causal effect of raising expectations on redistributive preferences. Using information on average income for university degree as an exogenous shock to raise expectations, I showed that respondents who receive information prefer lower taxes on high-income groups. This finding serves as a substantial empirical contribution to the nascent study of expectations and attitudes to inequality, where little experimental work has been done to this point (Bernasconi and Neunhoeffer, 2023). It adds empirical nuance to prior work by Cox (2024), who finds that information on income only leads to an update in preferences when respondents are presented with information that disappoints their expectations. In the case of my findings, I show that raising expectations also leads respondents to update their preferences. I strengthen the credibility of this finding with my panel study, in which I show that respondents become less concerned with inequality when performing better relative to expectations. I interpret this as being an effect of citizens realizing they will attain a higher position in society. A promising avenue for future research is to adopt similar approaches to longitudinal studies, and further assess the effect of how attitudes change when expectations are updated. However, such longitudinal studies are sparse. Therefore, despite the limitations in terms of internal validity in my panel study, the results also contribute to the study of subjective expectations and attitudes.

The findings also contribute more broadly to the study of material self-interest and political attitudes. I show that respondents do update their preferences in line with their material self-

interest and that left-wing respondents who are ideologically pro-redistribution also update their preferences when given information which raises their expectations. These findings highlight an underrated effect in the study of expectations, which primarily has concerned itself with how attitudes change in light of disappointed expectations or the fear of downward mobility (Engler and Weisstanner, 2021; Kurer and Van Staalduinen, 2022). It is equally important to study the attitudinal change of those who are getting ahead, to understand whether support for the welfare state will change if certain citizens become more certain of achieving a position in the income distribution. Considering the Danish case, I highlight that the slowdown of educational mobility may lead to a calibration of expectations, where opportunity is increasingly segmented. A viable question for future research is to understand whether this development will undercut the traditional cross-class support for the welfare state. Politically, the Danish case already shows signs of shifting tides in the configuration of the welfare state, as the principle of universalism may be transformed as welfare again becomes dependent on one's labor market outcomes. However, this development is by no means deterministic. The slowdown in educational mobility and increased economic segmentation may be the subject of normative debate, where new perceptions of what is fair may still lead citizens to support the principle of universalism. A key question to understand the continued development of the Danish case specifically, and advanced capitalistic democracies generally, will be how changing material interest will interact with general perceptions of what is considered a fair distribution of resources.

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