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Authors
Raymundo M. Campos Vazquez,
Alice Krozer,
Aurora A. Ramírez-Álvarez
Rodolfo de la Torre
Roberto Velez-Grajales
Coordination
Anda David (AFD)

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Perceptions of Inequality and Social Mobility in Mexico

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Perceptions of Inequality and Social Mobility

Raymundo M. Campos-Vazquez
Alice Krozer
Aurora A. Ramírez-Álvarez
El Colegio de México

Rodolfo de la Torre
Roberto Vélez-Grajales
Centro de Estudios Espinosa Yglesias (CEEY)

Abstract

Despite evidence of high inequality and low social mobility throughout the world, there has been only limited demand for change. Using new survey and experimental data, we investigate how perceptions about inequality and social mobility affect preferences for redistribution in Mexico. In addition to the perceived level of inequality typically measured in previous studies, we explore perceptions about who is rich and poor and their share of the population. The shape of perceived inequality that we find provides new insights as to why people tolerate large differences between the rich and the poor. We find that Mexicans generally perceive poverty and inequality not too far from measured levels, but they overestimate the income of the rich and their proportion of the population. Their perceptions of social mobility correctly estimate persistence rates at the top and bottom of the distribution, but they overestimate upward and downward mobility. Providing people with more information about observed income inequality and social mobility is one way to encourage a demand for redistribution. However, randomly providing selected participants with this information has almost zero effect on their desired levels of equality, social mobility, and tax rates. We measure the degree of tax progressiveness people want and calculate whether it is consistent with the level of equality they seek. We find that Mexicans want a progressive tax system in which the poor pay an average tax rate of 14% and the wealthy pay 41%, and that preference for a more progressive tax structure is negatively related to wealth. Our analysis shows, however, that the post-tax but pre-transfer income distribution respondents want is not consistent with these tax rates.

Keywords
Inequality; Social mobility; Perceptions; Mexico

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Résumé

Malgré les preuves d'une forte inégalité et d'une faible mobilité sociale dans le monde, la demande de changement n'a été que limitée. À l'aide d'une nouvelle enquête et de données expérimentales, nous étudions comment les perceptions sur les inégalités et la mobilité sociale affectent les préférences de redistribution au Mexique. En plus du niveau d'inégalité perçu généralement mesuré dans les études précédentes, nous explorons les perceptions concernant les riches et les pauvres et leur part de la population. La forme de l'inégalité perçue que nous trouvons fournit de nouvelles idées sur les raisons pour lesquelles les gens tolèrent de grandes différences entre les riches et les pauvres. Nous constatons que les Mexicains perçoivent généralement la pauvreté et les inégalités pas trop loin des niveaux mesurés, mais ils surestiment le revenu des riches et leur proportion de la population. Leurs perceptions de la mobilité sociale estiment correctement les taux de persistance en haut et en bas de la distribution, mais elles surestiment la mobilité ascendante et descendante.

Fournir aux personnes plus d'informations sur les inégalités de revenus et la mobilité sociale observées est un moyen d'encourager une demande de redistribution. Cependant, la fourniture aléatoire de ces informations aux participants sélectionnés n'a pratiquement aucun effet sur les niveaux d'égalité, de mobilité sociale et de taux d'imposition souhaités. Nous mesurons le degré de progressivité fiscale que les gens souhaitent et calculons si cela correspond au niveau d'égalité qu'ils recherchent. Nous constatons que les Mexicains veulent un système fiscal progressif dans lequel les pauvres paient un taux d'imposition moyen de 14% et les riches paient 41%, et que la préférence pour une structure fiscale plus progressive est négativement liée à la richesse. Notre analyse montre cependant que la répartition du revenu après impôt mais avant transfert veut que les répondants ne correspondent pas à ces taux d'imposition.

Introduction

The growing concern with inequality and social mobility has inspired a large number of studies measuring and analyzing their consequences.[1] However, little is known about how people perceive these phenomena. Perceptions are often different from reality,[2] but understanding them helps to explain people's attitudes toward that reality. Moreover, the subjective experience of inequality and social mobility can affect political behavior and policy preferences, which in turn affect objective inequality and social mobility outcomes.

People make sense of the world based on their experience, mediated by beliefs about fairness, expectations about social mobility, and other societal norms (Gimpelson and Treisman 2018). For instance, studies show that when people believe in meritocracy, they worry significantly less about inequality (Mijs 2019), and those perceiving greater inequality are more supportive of income redistribution policy (Kuhn 2019). As research has amply shown that context shapes perceptions, [3] redistributive

[1] See D'Hombres, Weber, and Elia (2012) and Wilkinson and Pickett (2019) for literature reviews of income inequality and its effects on social outcomes. There is an extensive literature on inequality and social mobility. For example, Piketty and Saez (2003) analyze long-term inequality trends in the U.S. Andrews and Leigh (2009) investigate the relationship between inequality and intergenerational mobility and find that children who grew up in the 1970s in countries that were more unequal were less likely to have experienced social mobility by the late 1990s. Kopczuk, Saez, and Song (2010) analyze the evolution of inequality and mobility in the U.S. and find that mobility at the top of the earnings distribution is stable. Chetty et al. (2018) find evidence suggesting that intergenerational mobility is strongly related to racial characteristics and the type of neighborhood where a person grows up. Chetty et al. (2017) estimate rates of "absolute income mobility," and their findings imply that reviving the "American Dream" of high rates of absolute mobility would require economic growth that is spread more broadly across the income distribution.

[2] Research has repeatedly shown that people have a poor understanding of inequality (Karadja, Mollerstrom, and Seim 2017; Norton and Ariely 2011; Chambers, Swan, and Heesacker 2014), regardless of the methodology with which their perceptions are studied (Dawtry, Sutton, and Sibley 2015). They underestimate the extent of inequality in most countries, with the notable exceptions of France and Germany, where they overestimate it, and Norway, where their perceptions are accurate (Hauser and Norton 2017). Similarly, social mobility is often overestimated, due to overly optimistic beliefs in meritocracy (Kuhn 2019; Mijs, 2019). However, Chambers, Swan, and Heesacker (2015) find that respondents underestimate social mobility, believing that it has declined over the past four decades, contrary to recent evidence suggesting that it has remained relatively stable (Chetty et al. 2014).

[3] In general, perceptions can be based on individual factors, such as prospects for future income mobility, past experience of misfortune, and beliefs about equality of opportunity (Alesina and Giuliano 2015; Alesina and La Ferrara 2002), as well as situational factors, like employment status or neighborhood characteristics (Luttmer 2001; Margalit 2013), or the prevailing level of inequality (Kuhn 2019). Buttrick and Oishi (2017) find that people in communities with higher levels of inequality are more likely to think that their system is unfair, which could encourage demands for redistribution. Individuals thus make their inferences about inequality, poverty, affluence, and social mobility based on cues in their environment (Kuhn 2019). This process of "social sampling" (Dawtry, Sutton, and Sibley 2015) means that people have to be understood in

preferences likely also vary at different locations throughout the distribution. Understanding perceptions of inequality and social mobility in a given context can thus help to explain why people tolerate differences between rich and poor, as well as the degree of redistribution they would support (Bredemeier et al. 2014; Gimpelson and Monusova 2014; Meltzer and Richard 1981; Ravallion and Lokshin 2000; Wegener 1987).

There is a lack of consensus in the literature both about the degree to which perceptions of inequality and social mobility inform people's policy preferences, and also whether correcting people's perceptions with accurate data would alter those preferences. Disagreement also exists as to whether original perceptions and the effects of new information are necessarily homogenous throughout a population, given the breadth of micro-level determinants and the importance of context. Prior studies have not measured how to achieve desired levels of equality, or whether individuals can accurately compute the tax rates needed to achieve the levels of equality they seek. It is thus important to examine perceptions of social mobility and the effects and mechanisms of their relationship to actual inequality and mobility.

Our study addresses all three of these gaps in the literature by designing and conducting a survey to understand these issues. It is the first Mexican survey about perceived and desired distributions, and support for redistributive policies to get from one to the other, that is representative at the urban level. Based on responses to the survey, we first calculate perceptions about inequality and social mobility, focusing on differences in perceptions between the rich and poor. Second, we test the effect on redistribution preferences of accurate information on inequality and on social mobility, using an experimental design that provides such information to randomly selected respondents. Finally, we investigate whether desired levels of inequality and social mobility are consistent with redistribution preferences and their relationship with wealth. We measure redistribution preferences more directly than prior studies by examining preferred tax rates and willingness to contribute, as opposed to support for government transfers. This approach not only provides us with additional information about participants' perceived social position, but also more directly gauges their aversion to inequality, as support for taxes implies a willingness to pay a price to reduce inequality.

Another novelty of our study is in the methodological innovations that enable us to gauge people's perceptions not only of the level of inequality, but also of its defining features. Existing studies mostly ask participants to choose between options provided; they have not mapped the shape of inequality as people understand it. We ask participants to define rich and poor to understand what inequality means for them. This allows us to calculate the range of income dispersion participants perceive, the distribution of overall income they think best describes their country, and the

"the social worlds within which they are embedded" (Khan, 2015: 83).

distribution they believe would be ideal. Studies have established that perceived and ideal distributions tend to differ significantly (Norton and Ariely 2011; Eriksson and Simpson 2012; Kiatpongsan and Norton 2014). However, to the best of our knowledge, our study is the first to explore how participants propose to bridge the gap between perception and ideal, and whether their ideal distribution is consistent with their policy preferences, measured in terms of the tax rates they support for the poor, middle-income, and rich. This approach also allows us to explore how these perceptions vary by wealth level.

To this end, our study builds upon a large body of previous contributions. The classic median voter hypothesis of Meltzer and Richard (1981) assumed that rising inequality would translate into increased demand for redistribution. Jiménez-Jiménez, Molis, and Solano-García (2018) confirm in a laboratory experiment that in a high-inequality scenario, support for redistribution is greater. However, Ashok, Kuziemko, and Washington (2015) find that despite increasing inequality, such support has been decreasing in the U.S. among specific racial and age groups. Roth and Wohlfart (2018) show that people in the U.S. and Germany who have experienced more inequality during their lives are less in favor of redistribution (controlling for income, demographics, experience of unemployment, and current macro-economic conditions), and are less likely to consider the prevailing distribution of income to be unfair. They explain this attitude as a normalization or habituation effect that leads people to perceive the problem as smaller than it is (as do Engelhardt and Wagener 2014). Our study complements these previous findings by showing that different wealth levels also affect redistribution preferences. It also shows that perceptions of inequality, desired distribution, and redistribution preferences are heterogeneous throughout the wealth distribution.

Other studies have shown that redistribution preferences relate mostly to perceptions rather than the reality of inequality and social mobility (Alesina, Stantcheva, and Teso 2018; Bartels 2008; Bublitz 2017; Gimpelson and Treisman, 2018; Kuziemko et al. 2015; Niehues, 2014). Kuhn (2019) finds that in general, those individuals perceiving higher inequality are more supportive of income redistribution policy. Mijs (2019) shows that it is perceptions about social mobility, rather than concern about inequality, that shape support for redistributive policies.[4] One of the few studies analyzing the effects both of inequality and of social mobility on support for redistribution finds that perceptions of both phenomena are better predictors of support for social policy than measured levels of inequality and social mobility (Engelhardt and Wagener 2014). Besides testing these

[4] In the U.S., for example, misestimating inequality leads individuals to see less need for redistribution (Dawtry et al., 2015). Pedersen and Mutz (2019) find that preferred levels of inequality are heavily influenced by perceptual distortions of the anchoring effect and ratio bias. In general, political behavior, like most behavior, depends more on "how a person feels socially than on one's position according to objective characteristics such as education, occupation or income" (Lindemann, 2004; see also Dawtry et al., 2015).

claims, our experimental design allows us to explore whether participants' proposed redistribution would suffice to reach their desired distribution of wealth.

At the same time, respondents' concern about inequality also seems to be elastic to information (Kuziemko et al. 2015; Karadja, Mollerstrom, and Seim 2017).[5] Kuziemko et al. (2015) find that discovering that they are not as advantaged as they imagined increases people's concern about income inequality and support for policies that ameliorate it (see also Cruces, Perez-Truglia, and Tetaz 2013; Karadja, Mollerstrom, and Seim 2017). McCall et al. (2017) suggest that perceptions of rising economic inequality create skepticism about the existence of economic opportunity that translates into support for policies promoting equality. However, Alesina, Stantcheva, and Teso (2018) find that pessimistic information about mobility does not change support for redistribution among right-wing respondents in the U.S., despite changing their views on social mobility. Likewise, Hoy and Mager (2018) show that although attitudes toward inequality are elastic to information in eleven high- and middle-income countries, preferences for redistribution change in fewer countries. Our study confirms these results for the case of Mexico, where providing information does not change desired levels of equality or preferred tax rates.

We conduct a unique survey of 2,493 households in seven Mexican cities. Our results show that individuals have a relatively accurate perception of poverty rates, while they substantially overestimate the prevalence of the affluent. The average perception of the percentage of poor people is 59% of the population, which is higher than the 48.8% official poverty measure, based on a monthly income of less than MXN $2,548 (close to USD $280 in PPP) (Coneval 2019a). The average perception of the number of rich people is 35%, based on a perception that the minimum income to be considered rich is MXN $38,248 per month (USD $4,250 in PPP). In actuality, however, the percentage of the population that is above that threshold is much lower: around 0.6% according to household surveys. We also find that perceptions vary by wealth. Poorer individuals estimate higher proportions at the extremes of wealth and poverty than richer individuals. Additionally, in contrast with previous studies (Gimpelson and Treisman 2018; Hauser and Norton 2017; Norton and Ariely 2011), we find that people perceive inequality roughly correctly, with an average perceived Gini of 0.56 versus an actual Gini of 0.5 (Coneval 2019b). With regards to social mobility, they accurately estimate persistence rates at the bottom and top of the distribution but overestimate upward and downward mobility.

To test the effect of informational treatments on redistributive preferences, we conduct an experiment where we provide accurate information about inequality levels to one-third of the participants, about social mobility rates

[5] For instance, experimentally decreasing trust in governmental institutions seems to cause reduced support for redistribution (Kuziemko et al. 2015). Awareness of high inequality levels might also be increasing "organically," due to a shift in public discourse and available information (Karadja, Mollerstrom, and Seim 2017).

to another third, and leave one-third as a control group without additional information, before asking them all about their desired distributions. Informing participants of the actual levels of inequality and social mobility has almost zero effect on the levels of inequality, social mobility, and tax rates they describe as desirable (though it is not statistically significant). However, informing participants about actual levels of inequality has a negative effect on the difference between the perceived and desired Gini coefficient: it reduces the gap. After providing this information, we also ask participants about the perceived and desired level for their own tax rate, as well as their desired tax rate for the poor, middle-income, and rich. This is a key innovation with respect to the existing literature that allows us to evaluate the type of social contract and redistribution supported by individuals at different wealth levels.[6] Our results show that people favor a progressive tax system in which the poor have a positive tax rate, with higher rates for individuals with higher income. Additionally, we find a negative relationship between wealth and the preference for a more progressive tax structure, independent of whether participants are provided with actual data about inequality. Moreover, we find that rich and poor alike overestimate their taxes paid and wish to pay less.

Our results also show that the distribution desired by the respondents is not consistent with the taxes they propose for different income strata. Mexicans' aversion to inequality is low, as judged by a measure of their willingness to pay to achieve a significant decrease in inequality. In particular, they do not grasp the size of the tax base, so they propose high tax rates for the rich, but not enough to make the desired distribution possible. A future study should thus investigate whether revealing information about the size of the tax base and the potential impact of alternative tax regimes would increase support for more aggressive redistributive policies.

The context of our study is important. Mexico is among the countries with the highest income inequality and lowest social mobility in the world. One of the defining features of the distribution in Mexico is the increasing distance between high-income individuals and the rest of the population: using current household income, the ratio of decile 10 to decile 1 is 18.3 (INEGI 2019). With a Gini coefficient of around 0.5 (Coneval 2019b), only 3% of those born in the lowest quintile will move up to the top, and only 2% from the top quintile will end up at the bottom, with little change over time in recent

[6] One exception is Fernández-Albertos and Kuo (2018), who conduct a survey in Spain. They find that in the control group, perceived and actual income are negatively correlated with the degree of progressivity, as measured by the ratio of the highest to lowest tax rates. Their results also show that providing information on respondents' relative place in the income distribution affects the preferences for progressivity only for those who learn that they are in the poorest quintile or who believe themselves to be poor and learn that they are poorer. In contrast, we find a negative relationship between wealth and the preference for a more progressive tax structure independent of the information treatment (both for information about overall inequality levels or mobility levels). We also measure the desired tax rate and find that its level is independent of respondents' wealth.

years (CEEY 2019). This social rigidity leads to "opportunity hoarding": those starting from a disadvantaged position will have fewer opportunities to succeed, whereas those born into privilege continue to amass further advantages throughout their lifetime, which they are then able to pass on to their children. Such fact is explained in part by the high level of inequality of opportunity, which in the case of Mexico represents at least half of the total observed inequality (Vélez-Grajales et al. 2018). While researchers have established, and agree upon, the existence of high inequality and low social mobility in Mexico, knowledge of these phenomena does not necessarily permeate the awareness of the general public. If this were the case, perceptions might not be in line with reality. Our study complements current studies that focus mostly on high-income countries. [7] Mexico, like many other developing countries, features a context of high poverty, high inequality, and low state capacity—particularly low tax revenue.

This paper is organized as follows. The next section explains the methodological challenges of studying perceptions of inequality and social mobility, and describes our survey design and information intervention. Section 3 presents the descriptive statistics of the survey. In Section 4, we describe the perceptions and desired levels of inequality, social mobility, and re-distribution, and present the effects of the experiment. Section 5 explores whether desired levels of inequality and social mobility are consistent with desired redistribution levels. Section 6 discusses policy implications, and Section 7 offers some concluding remarks.

[7] One exception is Cruces, Perez-Truglia, and Tetaz (2013), who conducted a survey in Argentina. Their sample is significantly smaller than ours (N = 1,100), and the main focus is on misperception of participants' position in the social hierarchy (as opposed to overall inequality levels in the country). The redistributive policies they use in their intervention are a set of measures to help the poor (which are difficult to oppose, as they do not require an immediate sacrifice from the respondent). Although recent qualitative studies have started to explore the perceptions of elites (Krozer 2018) and the poor (Bayón 2017), so far no quantitative study has explored these issues in Mexico.

1. Methodology

2.1. Methodological Challenges

Researchers have used a wide variety of methodologies to study perceptions of inequality and social mobility and their relation to desired distributions or redistribution preferences.[8] The now-classic question in the exploration of people's perceptions of inequality asks respondents to estimate quintile (or decile) shares of the wealth or income distribution of a country (Cruces, Perez-Truglia, and Tetaz 2013; Karadja, Mollerstrom, and Seim 2017; Norton and Ariely 2011). This can be a challenge, particularly for developing countries, as respondents might not have the mathematical preparation to answer this question. Graphical representations of distributions can assist people without statistical expertise in understanding the concepts involved. However, prompting biases can be significant. Moreover, Gimpelson and Treisman (2018) warn that the "ideal types" presented in their use of the ISSP (2009) "society type" figure, which usually range from perfectly equal to extremely unequal, do not necessarily correspond to actual income structures.

Following a different strategy, Alesina, Stantcheva, and Teso (2018) ask participants to estimate the share of total income held by different income groups (top 1% and 10%, bottom 50%) for both labor and capital income as well as for wealth. In our context, this question faces similar concerns regarding participants' mathematical abilities. Our survey thus uses a hybrid: we include a bar graph showing different distributions participants can choose from, and we also ask them to provide thresholds for poor and rich people's incomes. This allows us to understand respondents' visions of both the extent and the shape of the distributions they perceive and would like to see. The figures used in the survey are shown in the supplementary materials.

Alesina, Stantcheva, and Teso (2018) investigate perceptions of social mobility by asking participants to estimate the number of children from poor backgrounds that will end up in the richest or second richest quintile, both in general and also based on their talent or diligence. While this method allows the authors to study beliefs about meritocracy in more detail, their questions are unsuitable for our context, as they require familiarity with economists' practice of dividing income into quintiles and thinking about social mobility in terms of probabilities. Instead, we show respondents a figure representing population quintiles, and elicit their perceptions about mobility by asking them how many of the

[8] Dawtry, Sutton, and Sibley (2015) and Gimpelson and Treisman (2018) review theoretical arguments, and Kahneman (2011), and more specifically Payne (2017), lay out many of the (social) psychological patterns in specific, typical responses. Empirical methods for understanding people's attitudes about social mobility most commonly include experiments (especially in psychology, but increasingly also in economics research) testing people's responses to variations in social mobility under laboratory conditions (e.g., Day and Fiske 2016; Payne 2017). Evidence has also been collected in "real-life" experiments (Brunner, Ross, and Washington 2011), and with ethnographic methods (Khan 2015), interviews (Reis 2005), and many different types of surveys (Alesina, Stantcheva, and Teso 2018; Norton and Ariely 2011), with or without intervention. Clark and D'Ambrosio (2015) review the survey and experimental findings in the literature on attitudes to income inequality.

richest or poorest will end up in the same quintile or at the opposite extreme. This has the disadvantage that participants do not need to describe population quintiles that add up to 100 percent. Indeed, we find that participants do not think in terms of relative mobility (i.e., in terms of quintiles) but in terms of absolute mobility (they would like, for example, a large proportion of poor individuals to become rich).

Another challenge concerns the choice of indicator to gauge redistribution preferences. Any redistribution policy used as a representative policy necessarily oversimplifies a process that is the result of a complex set of policies from a variety of areas. To avoid selecting one particular policy, previous studies have used ideological inclinations as proxies for redistribution preferences. For instance, in their original study, Alesina and Angeletos (2005) use "leftist political orientation" as a proxy for favouring redistribution. In a similar vein, Gimpelson and Treisman (2018), as well as most studies relying on ISSP data, make use of the survey's question about "the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes." An alternative strategy is pursued by Fernández-Albertos and Kuo (2018), who ask respondents what percentage of household income should be paid in taxes at different thresholds of household monthly income (1200, 2100, 3200, and 10,000 euros/month). The numbers obtained allow for the calculation of progressivity preference ratios. Such measures include all taxpaying citizens (including, presumably, the respondent) more directly, thus allowing for inferences about inequality tolerance. As these results are also less ambiguous in their description of redistribution preferences, our study makes use of a similar technique. We choose to focus on taxation rather than social spending to gauge the "sacrifice" respondents are willing to make to decrease inequality (i.e., how important a problem they consider it to be) and to test whether people associate taxation with inequality relief (as opposed to the more indirect connection with poverty alleviation achieved through social spending).

2.2. Data Collection

In April and May 2019, we surveyed 2,493 households, 643 located in the Mexico City metropolitan area and between 280 and 330 in each of the following other metropolitan regions: Ciudad Juárez (Chihuahua) and Monterrey (Nuevo Leon) in the north; Acapulco (Guerrero) and Villahermosa (Tabasco) in the south; and León (Guanajuato) and San Luis Potosí (San Luis Potosí) in central Mexico. Our survey of perceptions of inequality and social mobility is representative at the urban level (metropolitan areas larger than 100,000 inhabitants) and was conducted face-to-face by appropriately trained interviewers at the informants' homes with a randomly selected household member aged 25-54. Long surveys and complicated questions deteriorate response rates and the quality of answers (Bastani and Waldenström 2019; Lenzner, Kaczmirek, and Lenzner 2010). We thus had the interviewers read the questions aloud and record the answers on a tablet device. Where appropriate, they showed participants figures on cards. Completing the entire survey, including the informational intervention, took 20-25 minutes.

2.3. Survey Design

The survey has several sections, including established questions from prior studies and some new ones specific to the context (the questionnaire is available in the Supplementary Materials). The first section consists of a short sociodemographic block. Due to the recent upsurge in violent crime in Mexico, people are increasingly reluctant to answer direct questions in surveys about their economic condition. Our questionnaire thus requests information about the conditions of the respondent's household as a measure of their economic situation. This section is followed by the main section on perceptions of inequality and social mobility, which also includes the informational intervention (one-third of the respondents are given information describing real inequality levels, another third are given information describing levels of social mobility, and the final third are not given any additional data). Immediately after the intervention participants are asked about their policy preferences and the distribution and mobility levels they would like to see. The third section of the survey features questions about participants' households when they were children, in order to approximate their social mobility.

The main section includes 19 questions. The first three ask participants to locate their current, past, and future households—at present, when they were 14 years old, and in 20 years—on a decile continuum. The next four questions ask respondents to identify the income thresholds they consider to define the rich and the poor, and the number of individuals out of 10 from each of these groups. The following question asks about the perceived overall tax burden: "Of every 10 pesos of your household income, what do you think is the total you pay in taxes (including consumption taxes or VAT, income taxes, state taxes like property taxes, gasoline taxes, and other taxes)?" This question is important to calculate both the internal consistency, described by Brunner, Ross, and Washington (2011) as "cognitive consistency," in respondents' proposals for redistribution, and also how realistic they are.

Participants are then shown six different hypothetical income distributions, from extremely unequal to completely equal, in the form of bar graphs (see Supplementary Materials), and they are asked to choose the distribution they believe most closely represents the current Mexican income distribution. According to official data, the distribution resembles the two middle options (3 and 4). As official accounts significantly underestimate inequality, the real Mexican distribution would be closer to Option 2. We include the completely equal and extremely unequal options to allow participants to choose their ideal distribution from a range. This question is followed by a set of questions, similar to those in the ISSP (2009), about why people are rich or poor, and another set, adapted from Hofstede (2011), about the role of government.

The final section includes six questions about social mobility. Unlike most surveys, which look only at upward mobility, we ask about both perceived upward and downward mobility for individuals in low-, medium-, and high-income households. This allows us to better

understand how people interpret the abstract concept of social mobility and test the claim of Hauser and Norton (2017) that people fail to connect the two dynamics. The questions are the following: "Now think about 10 children with the lowest (highest, middle) income today. How many of them do you think will be in the poorest (richest) households? Please indicate a number from 0-10, with 0 being 'none' and 10 being 'all.'"[9]

The informational treatment (see below) follows the section on social mobility. After participants are given the information, we ask about desired levels of inequality, social mobility, and redistribution. First, we ask them to select the income distribution they would like to see from the same six-option figure used before in asking about their perception of the distribution. Then we ask them again about social mobility, this time about the mobility they would like to see. Finally, we assess their views on tax progressivity and their aversion to inequality. We ask about the tax rate they would like to pay, as well as their desired tax rate for individuals they believe are poor, middle-income, and rich. We calculate the inequality aversion parameter (Amiel, Creedy, and Hurn 1999) using a question about what percentage of a reference income (MXN $10,000 or USD $1,111 in PPP) they would be willing to sacrifice to obtain income equality. Assessing support for tax progressivity as a measure of redistributional preferences is a key innovation in the present study. Previous research has mostly used general Likert-scale questions about the degree to which government should be responsible for lessening the distance between rich and poor, but such questions do not refer to specific policy instruments, like tax rates.

2.4. Informational Intervention

Researchers in social psychology estimate redistribution preferences by conducting laboratory experiments that ask participants to divide incomes according to fairness or other considerations, or by using tax games designed by economists.[10] A different set of studies has relied on information interventions. Cruces, Perez-Truglia, and Tetaz (2013), exploring how people place themselves in the income distribution, inform participants that "the latest studies conducted by the university indicate that there are X million households with an income lower than yours, while you stated that there were Y." In a study in the Netherlands testing the effects of inequality on trust, Gallego (2016) presents participants

[9] In addition to this more traditional way of asking about social mobility, we also include questions about social mobility in the past ("Now think about 10 adults with the lowest (highest, middle) incomes today. How many of them do you think grew up in the poorest (richest) households? Please indicate a number from 0-10, with 0 being 'none' and 10 being 'all'."). To avoid repetitiveness, we report here only the results of the prospective social mobility questions, but the results are similar for both measures.

[10] For instance, Krawczyk (2010) finds that faced with different probabilities of winning a prize, participants' average redistributive transfers were about 20% lower where winning was determined by performance on a task rather than by luck. Likewise, Jiménez-Jiménez, Molis, and Solano-García (2018) determine participants' pre-tax income according to their performance on a task, and then let them vote on the tax rates to be imposed. Their results are in agreement with those of Alesina and Angeletos (2005). However, Charité, Fisman, and Kuziemko (2015), also using experimental games, find that voters demand less redistribution than standard models predict.

with a real quintile distribution (the control group) or a manipulated low-inequality or high-inequality condition.

In our study, we randomly divide the sample into three groups. One is shown a political cartoon (included in the Supplementary Materials) and the interviewer reads aloud the following sentence about inequality: "Academic studies and media reports have shown that the level of inequality in Mexico is high. These are the numbers: Out of every $100 pesos the economy generates, approximately $60 pesos go to the richest people in the country (those that are in the top 10% of income). By contrast, the poorest people in the country (those in the bottom 10% of income) receive only $2 pesos." The second group is shown a different political cartoon and the interviewer reads the following sentence about social mobility: "Academic studies and media reports have shown that the level of social mobility in Mexico is bad. These are the numbers: If you are born poor, it is very difficult to move up to the middle or upper class. For every 10 people born into poverty, seven will remain poor and not even one will become rich. That is, if you are born poor, you will die poor, and if you are born rich, you will very likely die rich." The control group is given no information. Unlike other studies, after the intervention, we ask respondents to describe their ideal distribution and redistribution. Norton and Ariely (2011) ask about ideal distributions but without an intervention; Cruces, Perez-Truglia, and Tetaz (2013), Brunner, Ross, and Washington (2011), and Fernández-Albertos and Kuo (2018) test redistributive preferences but not ideal distributions.

2. Descriptive Statistics

The descriptive statistics of the survey are in the first column of Table 1. The proportion of women is 53%, and the group averages 39 years of age, with close to 11 years of education. Most of the sample is gainfully employed. We aggregate different characteristics in the survey into indexes. To measure socioeconomic status, we construct an index obtained from a principal component analysis that includes variables for participants' perception of the quality of public services (paved roads, sidewalks, sewer system, garbage collection, and street lighting) on their street (a Likert scale from 0 to 6, with 0 meaning none). Another index is constructed to measure beliefs about why individuals are rich or poor; it includes six questions about participants' perceptions of equality of opportunity and whether they perceive inequality as a problem (ISSP 2009). A larger number means a greater belief in poverty driven by personal rather than environmental factors (we add the responses and standardize the sum). A third index is based on perceptions about individualism versus collectivism (Hofstede 2011). The questions ask whether government or society (on a scale from 1 to 5) is responsible for problems like poverty, inequality, corruption, and bad education (we add the responses and standardize the sum). Approximately 10% of participants have at least one parent who speaks an indigenous language, and close to 70% have one parent with no more than a junior high school education. Seven cities are sampled, divided by region: Mexico City, Ciudad Juárez and Monterrey (north), León and San Luis Potosí (center), and Acapulco and Villahermosa (south).

Table 1. Descriptive Statistics and Balance across Treatment and Control Groups

Variable	All	Control	Treatment: Inequality	Treatment: Social mobility	*p*-value
Number of Observations	2,493	856	845	792	
Female	0.53 [0.01]	0.51 [0.02]	0.54 [0.02]	0.53 [0.02]	[0.679]
Age	38.88[0.18]	38.65 [0.30]	38.93 [0.31]	39.06 [0.33]	[0.650]
Years of Schooling	10.93[0.08]	10.72 [0.13]	10.85 [0.13]	11.25 [0.13]	[0.027]
% University	0.22 [0.01]	0.21 [0.01]	0.21 [0.01]	0.25 [0.02]	[0.112]
% Married / Cohabiting	0.66 [0.01]	0.65 [0.02]	0.68 [0.02]	0.65 [0.02]	[0.335]
% Employed	0.70 [0.01]	0.70 [0.02]	0.70 [0.02]	0.71 [0.02]	[0.912]
% Health Insurance	0.58 [0.01]	0.55 [0.02]	0.60 [0.02]	0.60 [0.02]	[0.163]
HH socioeconomic index	-0.00 [0.02]	-0.04 [0.03]	0.03 [0.03]	0.01 [0.04]	[0.348]
Beliefs poverty	-0.00 [0.02]	-0.00 [0.03]	-0.01 [0.03]	0.01 [0.04]	[0.927]
Beliefs collectivism	-0.00 [0.02]	-0.02 [0.03]	-0.04 [0.03]	0.06 [0.03]	[0.106]
% Indigenous language	0.10 [0.01]	0.10 [0.01]	0.12 [0.01]	0.08 [0.01]	[0.026]
% Parents low education	0.71 [0.01]	0.72 [0.02]	0.72 [0.02]	0.68 [0.02]	[0.167]
Mexico City	0.33 [0.01]	0.33 [0.02]	0.34 [0.02]	0.31 [0.02]	[0.653]
North	0.27 [0.01]	0.27 [0.02]	0.26 [0.02]	0.27 [0.02]	[0.838]
South	0.17 [0.01]	0.17 [0.01]	0.15 [0.01]	0.18 [0.01]	[0.409]
Center	0.24 [0.01]	0.24 [0.01]	0.25 [0.01]	0.24 [0.02]	[0.795]

Notes: Authors' calculations. N = 2,493. Standard errors in brackets. Last column shows the p-value of the null hypothesis of equal means across control and treatment groups.

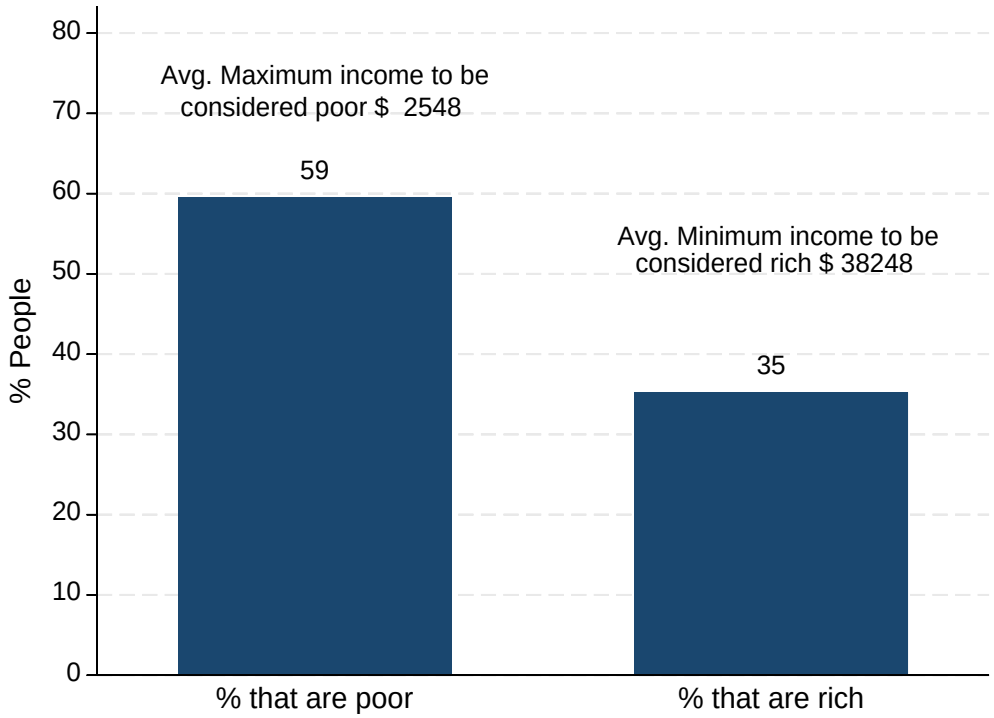
3. Results

3.1. Perceptions of Current Levels of Inequality and Social Mobility

In order to measure inequality levels, we include questions in the survey about the income level participants perceive to mean a person is rich or poor. We ask participants to identify the minimum income needed to be rich, and the maximum a person can have and be poor. Then, a follow-up question asks them how many people in ten they think are rich and poor. The results are shown in Figure 1. Respondents identified an average maximum income to be poor of MXN $2,548 per person per month (approximately USD $280 in PPP). The official urban poverty lines (*líneas de bienestar*) for the urban sector are MXN $3,080 (USD $340 in PPP) per person per month, and MXN $1,562 (USD $170 in PPP) for extreme poverty (Coneval 2019a). Perceptions about the income of the poor are thus fairly accurate.

The average proportion of the population they perceived to be poor was 59%. Official poverty estimates show that 48.8% of the population had incomes below the poverty threshold, less than the perception.

Figure 1. Perceptions



Notes: Authors' calculations. N = 2,493. "% that are poor (rich)" refers to the question about how many individuals in 10 the respondent considers poor (rich), following a question that asked about the maximum (minimum) income the respondent considered to mean a person was poor (rich).

The average minimum income participants identified as meaning a person is rich was MXN $38,248 per person per month (USD $4,250 in PPP). This amount is 15 times the perceived poverty line and close to 25 times the actual extreme poverty line. The divergence in perceptions of the income of the rich is greater than that of the poor. Participants perceived 35% of the population to be rich, a vast overestimation. Official income figures for the top 35% are closer to average income (MXN $4,784 or USD $532 in PPP). The official percentage of the population with income above the threshold participants perceived to define the rich is much lower: approximately 0.6% (based on either the Income-Expenditure Survey or the Labor Force Survey).[11]

[11] It could be that there is a problem in official surveys with under-reporting of income or under-sampling of rich individuals. Household income reported by surveys is lower than that reported in national accounts (Campos-Vazquez, Chavez, and Esquivel 2018). However, it does not seem plausible that compensating for this gap would substantially increase the percentage of rich individuals. For the Income-Expenditure survey, the calculation is based on per capita income at the household level. For the Labor Force Survey, the calculation includes only workers with positive income. With total income calculated at the household level, 5% have income that participants believe makes them rich. However, the question refers to individual income. Using administrative data for formal sector workers only, we find that only 4.8% of workers have at least MXN $38,000

Perceptions vary by socioeconomic status. For instance, wealthier people perceive society to be fairer and demand less redistribution (Dawtry, Sutton, and Sibley 2015). Both status and perceived status affect redistribution preferences (Fernández-Albertos and Kuo 2018; Karadja, Mollerstrom, and Seim 2017).[12] However, Bastian and Waldenström (2019) find an almost uniform effect across socio-economic groups in their study of support for a wealth tax. We test whether these differences exist and whether they influence the shape of perceived inequality. To do so, we build a wealth rank at the neighborhood level based on the household socioeconomic index, years of schooling, whether the respondent has health insurance (either private or as part of social security), parental indigenous language, a dummy variable for parents with a low educational level (no more than junior high school), and average years of schooling.[13] The results are shown in Figure 2, with a regression line and the *p*-value of the slope coefficient.

Participants' identification of the maximum income they consider poor is positively related to their wealth rank; that is, poorer people identify a lower maximum income than richer ones. However, the variation in the estimate of approximately MXN $500 (USD $56 in PPP) from the bottom to the top wealth rank is not large. There seems to be a consensus among richer and poorer individuals as to the maximum income a person can have and still be considered poor. If poorer individuals estimate a lower poverty line and the perceived income distribution is the same for all individuals, we should expect a positive relationship between the percentage of individuals perceived to be poor and wealth rank. However, as panel C shows, the relationship is negative and statistically significant at the 1% level (*p*-value in brackets). The poorest individuals estimate that 63% of the population are poor, while the richest estimate their share to be close to 55%. This suggests that the perceived income distribution varies by wealth rank.

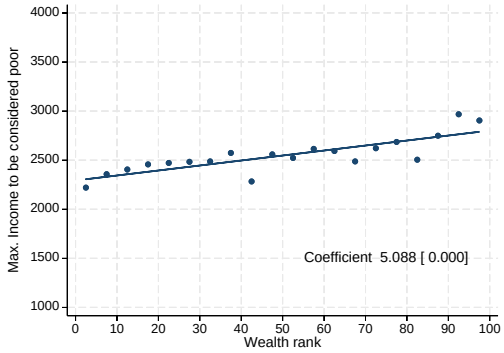
monthly income. However of the total of 55 million workers (including the self-employed and business owners), only around 20 million are formally employed. Hence, only around 3% of all workers have that level of income.

[12] Fisman et al. (2017) find that respondents are more supportive of wealth taxes if wealth is perceived to have been inherited rather than generated through lifecycle savings.

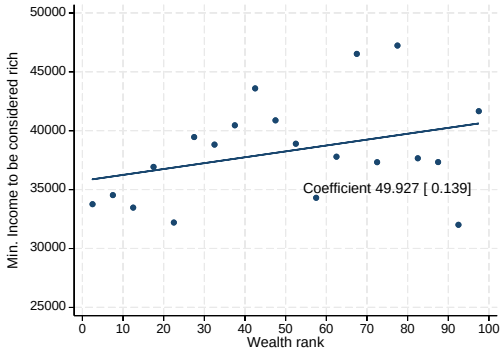
[13] This index functions as a proxy for respondents' actual income or wealth.

Figure 2. Participants' perception of income defining the poor and rich, as a function of participants' wealth

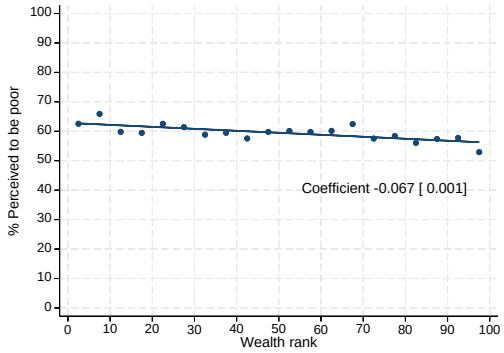
A. Maximum income to be considered poor



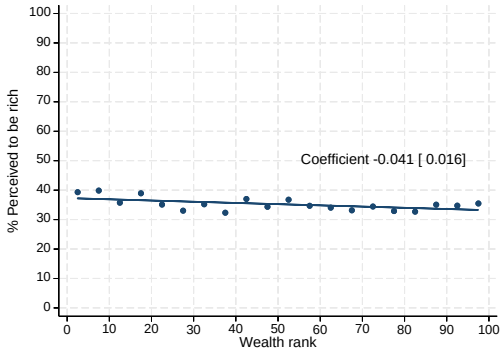
B. Minimum income to be considered rich



C. Perceived % of poor people in the population



D. Perceived % of rich people in the population

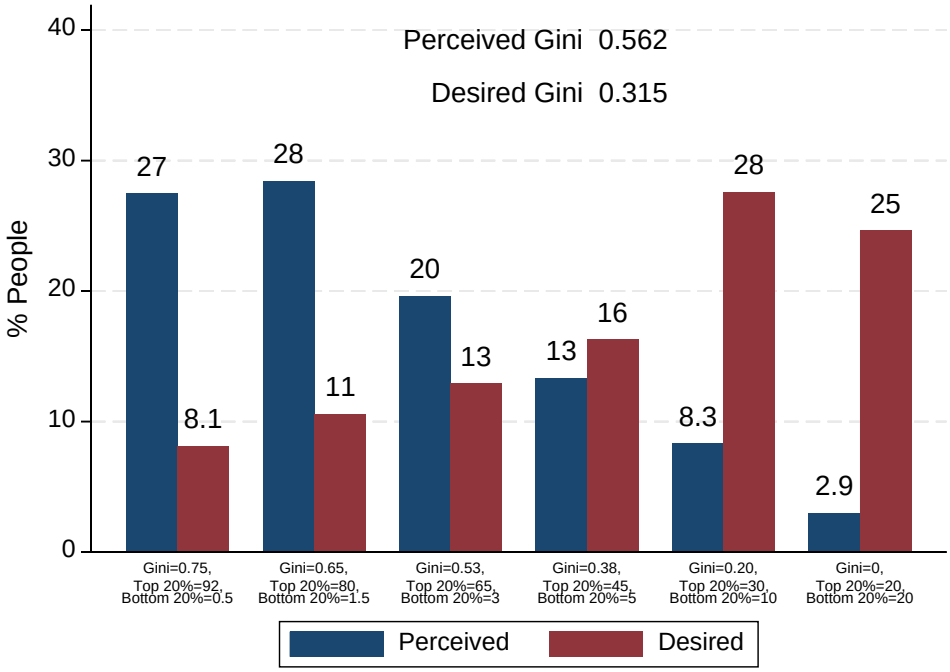


Notes: Authors' calculations. N = 2,493. Panels A and B refer to questions about the income levels defining poor and rich. Panels C and D refer to questions about how many individuals in 10 the respondent considers poor and rich. A regression line is estimated; p-values are shown in brackets.

In contrast, there is wide variation in participants' perception of the minimum income necessary for a person to be considered rich. Figure 2 panel B shows a positive relationship between participants' identification of the minimum income they consider rich and their wealth rank, but it is not statistically significant. The average minimum income identified by individuals in the first quintile is below MXN $35,000, while those in the 65th-80th percentile believe it to be around MXN $47,000. As in the perception of poverty, if participants' perceived income distributions are the same, independent of their wealth, we would expect a flat or negative plot of the perception of the percentage of rich individuals as a function of participants' wealth. Panel D shows a negative relationship (p = 0.016). The poorest 20% of individuals in the sample estimate that close to 40% of the population is rich, while the richest 20% estimate the figure as close to 35%.

In general, individuals' perceptions approximate official poverty measures but substantially overestimate the proportion of rich individuals in the population, and individuals at different places in the wealth distribution have different perceptions of that distribution. Poorer individuals estimate higher proportions both of the poor and the rich than richer individuals. We would thus expect that perception of inequality is approximately correct and that this perception is negatively related to wealth rank. This expectation differs from the finding of Gimpelson and Treisman (2018) that people in 40 countries performed only slightly better than chance levels in identifying the actual distribution in their countries. If wealth rank does influence the perception of inequality, that would be consistent with the observation of Cruces, Perez-Truglia, and Tetaz (2013) that individuals' relative incomes within their localities have a strong correlation with their perceptions of the distribution, as locality might be a proxy for wealth.

Figure 3. Perceived inequality



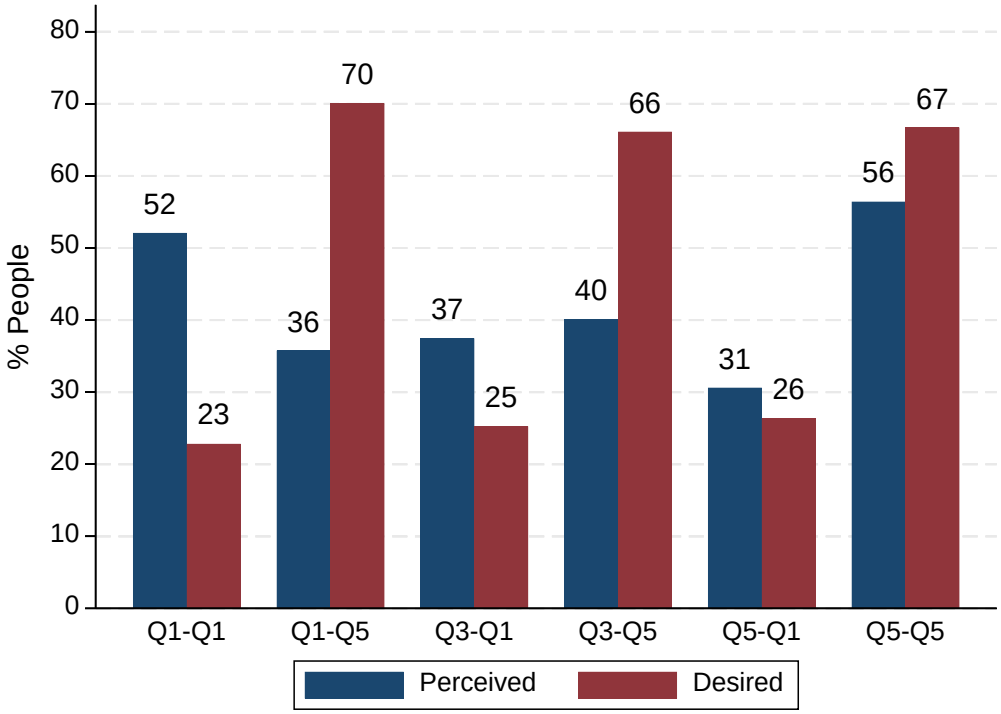
Notes: Authors' calculations. N = 2,493. Perceived Gini is calculated using six options of income distribution. The question explains that the images represent how income in the economy is distributed among five groups of equal size. Respondents are asked to choose one of six images that include hypothetical income distributions. In the most unequal the top quintile has 92% of the income, and moving down the other quintiles have 4.5%, 2%, 1% and 0.5%, with an implicit Gini coefficient of 0.75. In the most equal scenario each quintile receives 20% of the income, and the implicit Gini coefficient is 0. The desired Gini coefficient is calculated after the intervention: the respondent is shown the same six images, but the question asks which image Mexican society should look like.

To measure inequality, we include a question that asks respondents to identify which of six bar graphs representing hypothetical income distributions and Gini coefficients in Mexico best reflects the reality.[14] Each has five bars representing 20% of the population, sorted from highest to lowest income. The figures also include the percentages represented by each bar. Figure 3 summarizes the responses to this question. The mean perceived distribution corresponds to a Gini coefficient of 0.56; the median is 0.65, with the top 20% obtaining 80% of the income and the bottom 20% receiving 1.5%. Three-fourths of respondents identify distributions with a Gini coefficient of at least 0.53; only 11% perceive a degree of equality corresponding to a Gini coefficient of 0.20 or 0.

According to Coneval (2019b), the Gini coefficient calculated from household surveys was approximately 0.5 in the years 2010–2016. Because the rich and their income are not well represented in household surveys, Campos-Vazquez, Chavez, and Esquivel (2018) and Del Castillo (2017) adjust survey data using disposable income from national accounts. Their results indicate an estimated Gini coefficient of 0.70, with the top 20% receiving approximately 75% of the total income. On this basis, it seems that respondents' perceptions of inequality are approximately correct. This result differs from those of previous studies, which find discrepancies between perceived and real inequality in most countries (see, for example, Gimpelson and Treisman 2018; Hauser and Norton 2017; Norton and Ariely 2011).

[14] The question is posed as follows: "For example, as you can observe in the image, of each $100 pesos that are generated, $92 pesos are taken by the richest persons (the group with the highest income); the next group takes $4.50, and so on, until the poorest group takes $0.50." Each bar graph is explained in the same way, and respondents are then asked: "In your view, which of the images represents Mexican society?"

Figure 4. Perceived social mobility



Notes: Authors' calculations. N = 2,493. For the following questions, each respondent was told to imagine that the Mexican population is divided into five groups of equal size. The first group includes the poorest people and the fifth the richest. Each respondent is asked: "Out of 10 poor (middle-income, rich) children, how many do you think will eventually live in a rich household?" and "Out of 10 rich (middle-income, poor) children, how many will eventually live in a poor household?" In the question about the desired distribution "how many will" is changed to "how many should."

The survey also included questions about perceptions of social mobility. Participants are asked their opinion as to how many children out of 10 in poor, middle-income, and rich households will live in poor or rich households as adults. The six possible results are shown in Figure 4. The perceived persistence rates are high. Respondents believe that 52% of children born at the bottom and 56% of those born at the top will remain in their respective quintiles through adulthood. This result is similar to those of previous studies (Delajara, Campos-Vazquez, and Velez-Grajales 2019; Velez-Grajales, Campos-Vazquez, and Huerta-Wong 2013), which find an approximate persistence rate of 50%, with higher persistence at the top than at the bottom.

Respondents substantially overestimate upward and downward mobility. They estimate upward mobility from the bottom (Q1) to the middle (Q3) and the top quintile (Q5) at 36% and 40%, respectively, and downward mobility from the top and the middle to the bottom quintile at 37% and 31%, respectively. Studies estimate upward mobility from the bottom to the top at 2.6% (Delajara, Campos-Vazquez, and Velez-Grajales 2019) and downward mobility from the top to the bottom at 2% (CEEY 2019). While respondents are approximately

correct about persistence at the bottom and the top, they overestimate both upward and downward mobility in Mexico.

3.2. Desired Levels of Equality and Social Mobility

To test the effects of the information treatment, we inquire about preferred distribution and mobility after the intervention. We ask the same questions used for perceived inequality and social mobility, except that the questions now ask "what should be" instead of "what will be." These questions allow us to calculate the levels of equality and social mobility that respondents would like to see. Figures 3 and 4 show the results. The average level of inequality respondents would like to see corresponds to a Gini coefficient of 0.31. This is similar to inequality in Canada, France, and Germany (OECD 2019), higher than in Nordic countries like Finland, Norway (both 0.26), and Sweden (0.28), but lower than in the United Kingdom (0.35) or the United States (0.39). It is important to note that a quarter of the respondents would like to see zero inequality, while the median and mode prefer a level corresponding to a Gini coefficient of 0.20. This result coincides with those of other studies, which have found that people have an aversion to inequality (Fehr and Schmidt 1999) and in general prefer distributions more equal than those where they live (Sands and De Kadt 2019). However, Mexicans today seem to prefer not "Swedish levels" of inequality, a preference that Norton and Ariely (2011) found in the U.S., but an inequality that is somewhat greater. The preference probably depends on how many choices they are given for desired levels of inequality.

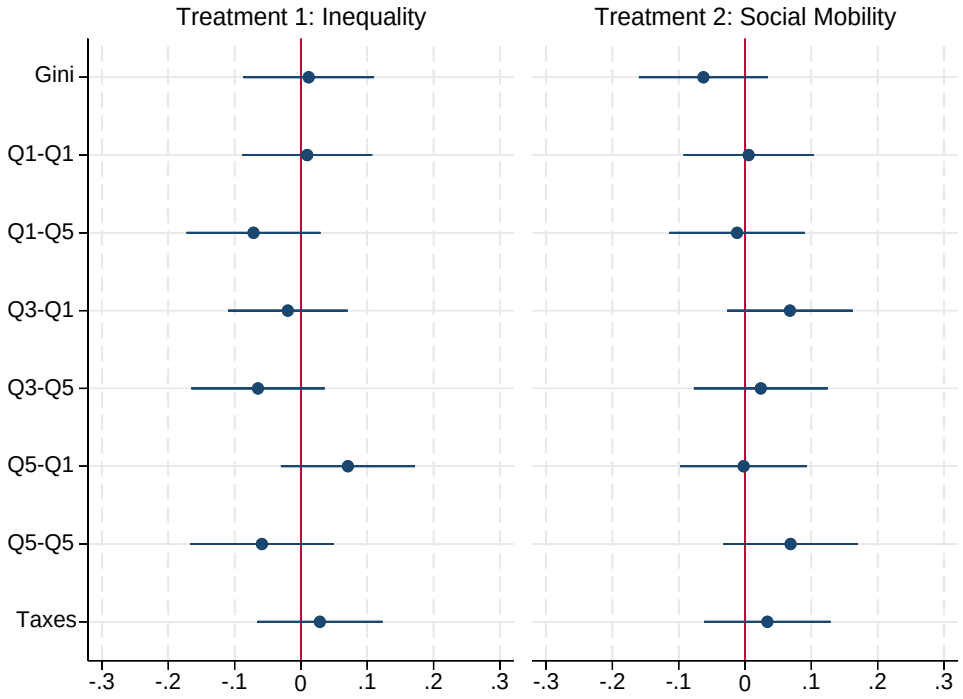
Participants' responses concerning social mobility (Figure 4) show that the rate of persistence they would like to see at the bottom is slightly higher (23%) than what random assignment would predict (20%). However, it seems that they have difficulty in understanding mobility in relative terms: desired upward mobility and persistence at the top both show rates approximately equal to 70%. Even though the five strata were explained to them, they say that most people should be at the top and stay there. Other studies have found similar logical inconsistencies, where perceived upward mobility exceeds downward mobility (Hauser and Norton 2017). This apparent paradox could be explained by people thinking in terms of absolute rather than relative mobility when they are asked how many people should be in the top quintile as adults. Ideally, everyone should experience absolute upward mobility in terms of being better off over time. Ravallion (2004) has called attention to a similar contradiction in perceptions of global inequality, noting that although economists have focused more on relative inequality, it is absolute inequality that people see in their daily lives and that motivates their concerns about distributive justice. Thus, perceptions that inequality is rising may well be based on absolute disparities in living standards. Recent evidence in fact shows that relative global income inequality has decreased substantially in the last four decades, but absolute inequality has shown a marked increase (Niño-Zarazúa, Roope, and Tarp 2017).

3.3. Results of the Intervention

Two interventions were conducted just after eliciting participants' perceived social mobility. One consisted of showing one-third of the sample a card indicating the current level of inequality as follows: "Out of every $100 pesos the economy generates, approximately $60 pesos go to the richest people in the country (those that are in the top 10% of income). By contrast, the poorest people in the country (those in the bottom 10% of income) receive only $2 pesos." Another third were shown a card noting that "If you are born poor, it is very difficult to move up to the middle or upper class. For every ten people born into poverty, seven will remain poor and not even one will become rich." The remaining third did not receive any information. After the intervention, we elicited desired levels of equality, social mobility, and taxes that should be paid by those who are poor, middle-income, or rich. Participant characteristics were balanced across the different treatments (Table 1). However, the variables for years of schooling and the percentage whose parents speak an indigenous language are not balanced, but are among the range that are significant due to random chance. For this reason, we include a full set of control variables in the results shown in Table 1.

Figure 5 shows the results of the intervention, with each row representing a separate regression. To ease comparison, all dependent variables are standardized. The dependent variables are in rows, the key explanatory variables are the different treatments (inequality or social mobility, interpreted with respect to the control group), and all regressions include the same control variables: fixed effects by city, dummy variables for sex, marital status, employment status, and health insurance coverage, and standardized variables of age, wealth, index of beliefs about poverty, index of belief in individualism versus collectivism, and the perceived level of the dependent variable (results are robust to the exclusion of control variables). Robust confidence intervals at the 95% level are shown.

Figure 5. Results of the intervention



Notes: Authors' calculations. N = 2,493. Treatment 1 provides information on inequality; Treatment 2 provides information on social mobility. Estimates are interpreted with respect to the control group. Dependent variables refer to the desired level after the intervention. Each row shows the effect of each treatment on the dependent variable (y-axis) and is a different regression. Dependent variables are standardized to facilitate comparison. In addition to treatment variables, the following control variables are included: fixed effects by city, dummy variables for sex, marital status, employment status, health insurance coverage, and standardized variables for age, wealth, index of beliefs about poverty, and index of belief in individualism versus collectivism. In addition, each regression includes the perceived level of the dependent variable. For example, for the Gini coefficient the dependent variable refers to the desired inequality level and includes a control variable for the perceived inequality level. All regressions include sampling weights. Robust 95% confidence intervals are shown.

In general, and in contrast with previous studies (Gimpelson and Treisman 2018; Gallego 2016; Fernández-Albertos and Kuo 2018), the different treatments show no effect on desired levels of inequality with respect to the control group. The estimates are relatively small, all within 0.1 standard deviations from the mean (analysis of results by subgroups of beliefs about poverty, collectivism, or by those who over- or underestimate inequality levels produces broadly similar results). These results are intuitive because respondents are well informed about the levels of poverty and inequality in their country:[15] providing information about those levels has no effect on the levels they would like to see. Information about inequality and social mobility also has no effect on the tax rate they would like to see. These results are important because it might be assumed that to create support for redistribution it is necessary to inform people about existing levels of inequality and social mobility. Indeed, some studies have found that redistribution preferences change after information treatments, at least among certain subgroups of the population (Karadja,

[15] Mexico had a presidential election in July 2018, and the topics of poverty and inequality were extensively covered during the campaign and the debates. It is likely that these events helped inform people in Mexico about the issues.

Mollerstrom, and Seim 2017; Cruces, Perez-Truglia, and Tetaz 2013; Fernández-Albertos and Kuo 2018). Our study suggests that this is not the case in Mexico, consistent with the finding of Kuziemko et al. (2015) that the effects on redistribution preferences of providing information about inequality are small. This result is also in line with the multi-country study by Hoy and Mager (2018), who find that information about the overall level of inequality and the degree of mobility does not have significant effects on perceptions of inequality or on preferences for redistribution in Mexico.[16]

One of the reasons for such divergent results might lie in the way redistribution preferences are defined (as discussed above). However, two additional reasons emerge from these findings, considered in light of previous studies.[17] First, it could be that participants do not connect the image of their ideal distribution with redistribution on an ontological level, although they believe in the possibility of upward social mobility improving their own position. Kuziemko et al. (2015) show that while participants adjust their perceptions of inequality, they do not necessarily demand more redistribution. We explore this option in the next section.

Another reason could be the variation of perceptions within the distribution. Buttrick and Oishi (2017) note that there is little exploration of variation, either cross-cultural or individual, in the existing literature.[18] As we disaggregate our results by wealth rank, we find important differences in the perceived and desired shape of inequality and levels of social mobility. Figure 6 shows the result when the dependent variable is the difference between perceived and desired levels of inequality, social mobility, and taxes. Each row presents the results for three coefficients: each of the two treatments with respect to the control group, plus the coefficient for participants' standardized wealth. Control variables are similar to those in Figure 5. Most of the results are not statistically significant. However, the effect of the inequality treatment on the difference between the perceived and desired Gini coefficient is negative: providing participants with information about inequality reduces the gap between the perceived and desired level of inequality. In other words, informing participants about actual levels of inequality *increases* the level of desired inequality. This is a result not seen in other studies; we believe it may be a consequence of individuals in

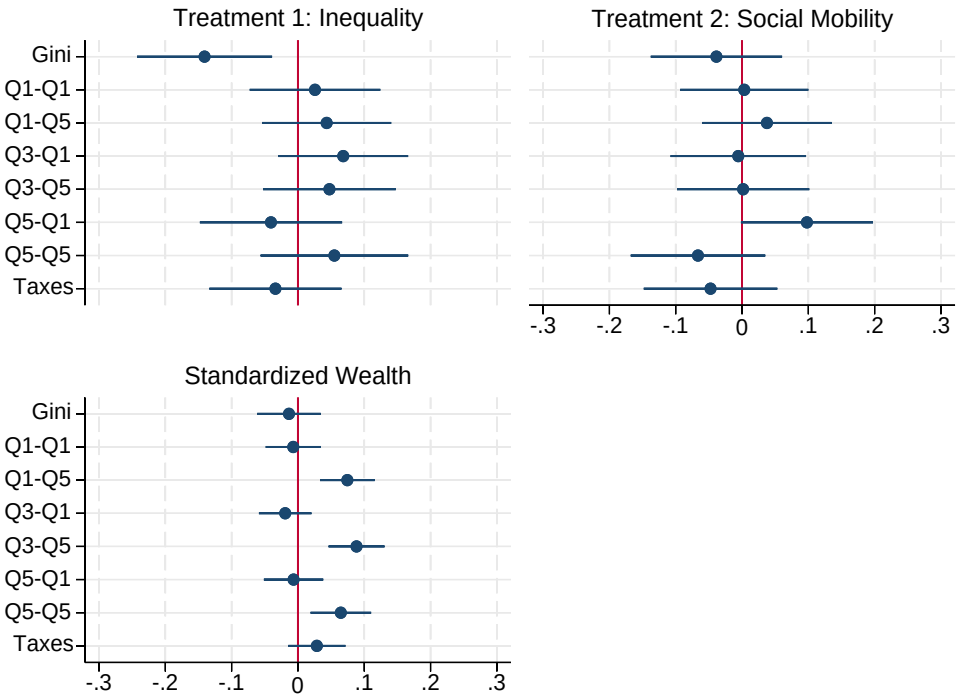
[16] However, Hoy and Mager (2018) ask more general questions about redistributional preferences: to what extent respondents agree with the statement "It is the responsibility of the government to reduce the gap between the rich and the poor" and "How urgent or not urgent does the difference in incomes between rich and poor in (COUNTRY X) need to be resolved by the (COUNTRY X) government?" In contrast, we ask about the desired tax rates and then calculate whether they are consistent with the desired levels of equality.

[17] An alternative explanation that we cannot test with our data is that even though information might change concerns about inequality, distrust in government inhibits respondents from translating those concerns into support for redistribution by the government (Kuziemko et al. 2015). Support for this hypothesis could be found in the fact that Mexico ranks 138th out of 175 countries, according to the 2018 Corruption Perceptions Index reported by Transparency International.

[18] The vast majority of the work on the effects and antecedents of income inequality cover "Western," mostly rich countries, at least in part because of data availability (rich countries tend to make administrative records available to researchers that are useful for comparison with perceptional data, and provide more complete records via their statistical agencies). These countries might have particular relationships of inequality that do not necessarily hold in other contexts.

our sample slightly overestimating current inequality levels. Respondents still want lower levels of inequality than those they are currently experiencing. However, it testifies to the power of information treatments (experimental or circumstantial) that respondents adjust their preferred inequality levels downward when the problem appears less acute than they thought. This result is consistent with the findings of Kuziemko et al. (2015) that respondents' concern for inequality are elastic to information (although the effect is in the opposite direction).

Figure 6. Changes in inequality and social mobility with respect to treatment and wealth



Notes: Authors' calculations. N = 2,493. Treatment 1 provides information on inequality; Treatment 2 provides information on social mobility. Dependent variables refer to the difference between perceived and desired level. Each row represents a different regression. Dependent variables are standardized to facilitate comparison. In addition to treatment variables, the following control variables are included: fixed effects by city, dummy variables for sex, marital status, employment status, health insurance coverage, and standardized variables for age, wealth, index of beliefs about poverty, and index of belief in individualism versus collectivism. All regressions include sampling weights. Robust 95% confidence intervals are shown.

The other important results refer to the relationship between upward mobility and wealth (third panel). Greater wealth positively affects the gap between perceived and desired social mobility. As the gap is negative (desired levels of upward mobility are higher than perceived levels), this means that increased wealth closes the gap. In other words, the gap between desired and perceived is greater for poor participants than for the rich: the poor want a greater increase in mobility over their perceived level than the rich over theirs. In sum, treatment effects are small, and desired inequality levels are (negatively) adjusted to new information, but the same does not hold for desired social mobility levels. However, compared to the mobility each group perceives to exist, the poor want more mobility than the rich. Our results show for the first time that social mobility perceptions and preferences

differ by wealth rank, as does the shape of perceived inequality. As we will see next, these novel insights can explain the impact on redistribution preferences by socioeconomic group.

3.4. Desired Distribution

Our results suggest that people in Mexico would like much lower levels of inequality and higher social mobility rates than those they believe to exist. Informing them about the current levels of inequality and social mobility does not affect the levels they seek. However, the poor want more mobility with respect to the level they perceive than the rich do. How do they think this is possible?

We ask participants about their perceived and desired levels of redistribution to close the gap between their perceived and desired levels of inequality. Niehues (2014) and others have established a connection between perceived inequality levels and redistribution preferences. However, as far as we are aware, no study has examined whether people's redistribution demands are consistent with their inequality preferences. By comparing perceived and desired taxation in our study to actual rates we are able to check whether participants' desires are realistic.

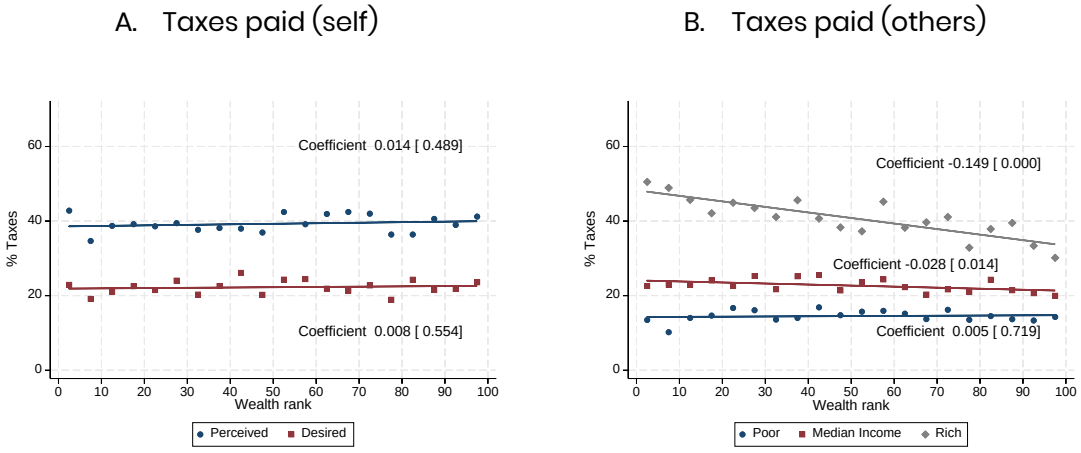
Our survey respondents believe on average that they pay 39% of their income in taxes. Official calculations of the Treasury Secretary estimate revenue from value-added, income, and excise taxes, plus social security contributions, at approximately 22.1% of gross household income: respondents thus overestimate their tax burden by approximately 76%. Campos-Vazquez, Chavez, and Esquivel (2018) offer an additional comparison in pointing out that approximately 60% of GDP is disposable income. Tax revenue, including social security contributions, is approximately 15% of GDP.[19] The amount of tax paid is thus close to 25% of disposable income, also far from participants' perception of 39%.

After the intervention, we ask participants about the total tax rate with respect to income that they would like to see, not only for themselves, but also for people who are poor, middle income, and rich. This is a key innovation that goes beyond previous studies: it provides evidence about the type of social contract individuals of different levels of wealth desire and expect. Figure 7 shows the perceived and desired tax rates for different socioeconomic groups with respect to the wealth rank of the respondent. Panel A shows the tax rate respondents would prefer for themselves. The desired tax rate of 22% is a little more than half of the perceived rate of 39%. Neither varies by wealth: rich and poor alike overestimate their taxes paid and wish to pay less. Since tax incidence is 8.9% of gross personal income for the poorest decile and gradually rises to 30.2% for the richest decile (SHCP 2017), the estimates of the poor are further from reality. Panel B shows results for the

[19] All estimates of tax revenue are obtained from the Treasury Secretary (SHCP 2019). They include import, payroll, and new car taxes.

tax rate that respondents believe should be paid by the poor, the middle-income, and the rich. On average, respondents believe that the poor should pay 14.5% of their income in taxes and the middle-income should pay 22.7%. The tax rate respondents wish for themselves is approximately the same as the rate they support for the middle-income, which indicates that they think of themselves as close to the middle. Moreover, this level is remarkably close to actual taxes paid. The tax rate respondents desire for the poor does not vary with wealth, but is higher than what the poor actually pay. The tax rate respondents wish to see for the middle-income has a negative relation to wealth, but the magnitude is small: on average, the poorest 10% of respondents want them to pay a rate of 23% and the richest 10% wants them to pay close to 20%.

Figure 7. Desired redistribution



Notes: Authors' calculations. N = 2,493. Coefficient is obtained from a regression of the y-axis variable against a wealth rank variable. P-values in brackets. Panel A refers to the rate respondents want for their own taxes and panel B to the rates they want for the poor, middle-income, and rich.

Panel B also shows the relationship between the desired tax rate for the rich with respect to wealth. Here there is a clear negative relationship. On average, respondents believe that rich people should pay 40.8% of their income in taxes. The poorest 10% want the rich to pay a tax rate close to 50%, while the richest 10% wants the rich to pay close to 32%, which is close to the actual tax incidence (SHCP 2017).

A few studies have started describing within-population differences, reaching mixed results. According to Alesina, Stantcheva, and Teso (2018), exposing people to facts about income mobility does not appear to influence their support for estate taxation (they do find that providing participants with pessimistic information about mobility increases support for redistribution, but only among left-wing respondents, who are more pessimistic about mobility than their right-wing counterparts, and whose preferences for redistribution are correlated with that attitude). Our results seem consistent with this finding.

Other studies have found that information treatments increase the acceptance of specific taxes on the rich, including estate, inheritance, and other wealth taxes, and also report that this acceptance increases when people realize they will not be affected by the tax, and when wealth is perceived as unearned (Sands and De Kadt 2019; Bastani and Waldenström 2019; Alesina, Stantcheva, and Teso 2018; Fisman et al. 2017; Kuziemko et al. 2015). However, Cruces, Perez-Truglia, and Tetaz (2013) show that only those participants who are informed that their economic rank is lower than they thought increase their demands for redistribution, while there is no statistically significant effect for those who underestimated their rank. Fernández-Albertos and Kuo (2018) also find that informing people of their true economic placement affects support for progressivity only for those who learn they are poor and those who previously believed they were poor. They detect little effect of new information on those with incomes greater than the median or on those who learn that they are richer than they believed.

However, Karadja, Mollerstrom, and Seim (2017) find that individuals who are richer than they initially thought demand less redistribution. Likewise, Bastian and Waldenström (2019) find a negative treatment effect for high-wealth respondents (although only for inheritance tax). We do not observe such treatment effects in our sample. Unlike those studies examining particular redistributive tools (like inheritance tax or food stamps for the poor), we ask about progressivity preferences for the entire tax structure. We find a negative relationship between preferences for a more progressive tax structure and wealth rank, independent of information treatment. Doherty, Gerber, and Green (2006) find that increasing affluence relates to (marginally) lower support for redistribution among lottery winners. However, their effects are smaller, and unlike our study, theirs finds no significant impact of affluence on views about inequality.

In sum, Figure 7 shows two key results. First, people overestimate the tax rate they pay and desire to pay a lower tax rate than what they think they pay. Second, people desire a progressive tax system in which the poor have a positive tax rate, with higher rates for higher-income individuals. It also shows that the poor want a more progressive redistribution than the rich. These findings confirm the results of Guillaud (2013), who identifies income as the primary driver of individual preferences for redistribution. Likewise, Dawtry, Sutton, and Sibley (2015) document differing political attitudes of poorer and wealthier people, including opposition to redistribution policies among the more affluent (although gauged through attitudes toward government intervention). We add to this literature by showing that wealth generates differential preferences about the overall progressivity of the tax structure. There is agreement on what the tax rate should be for poor and middle-income people. However, the poor want the rich to have a higher tax rate than the rich want for themselves.

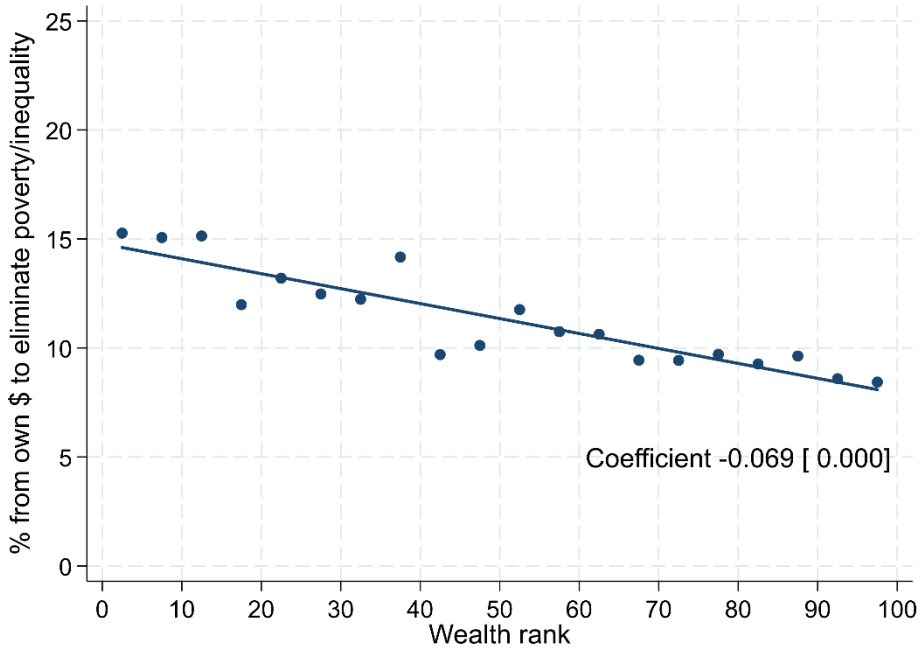
Respondents to our survey thus want more social mobility, less inequality, and lower taxes. It seems that they believe a lower level of inequality is possible based on a misconception that there are many more rich people than there actually are. The next section analyzes

whether this desired change in tax rates is consistent with achieving the desired lower level of inequality. It sheds some light on how people believe their desire for more social mobility, less inequality, *and* lower taxes are compatible.

4. Are Desired Levels of Inequality and Social Mobility Consistent with the Desired Distribution?

In the abstract, people believe equality is desirable if it comes at no cost. However, if they have to pay for it, people in Mexico do not seem to be highly averse to inequality. Asked what percentage of a reference income (MXN $10,000 or USD $1,111 in PPP) they would be willing to sacrifice to obtain income equality, the average response from participants was 11.45%, with poorer respondents willing to sacrifice more (see Figure 8). If we interpret willingness to give as an Atkinson index (the excess income to achieve equality of individual welfare), the implicit inequality aversion coefficient is 0.134, much lower than those for studies in Canada (0.433 to 0.935), Finland (approximately 0.5), Australia, and Israel (both 0.25) (see Amiel, Creedy, and Hurn 1999, Lambert, Millimet, and Slottje 2003, Pirttilä and Uusitaloa 2010, and Schaufele et al. 2010).

Figure 8. Willingness to give to achieve income equality



Notes: Authors' calculations. N = 2,493. Coefficient is obtained from a regression of the y-axis variable against a wealth rank variable. P-value in brackets. The question asked is: "If you earned $10,000 a month, how much of that income would you be willing to give up so that everyone would have the same income as you, so that there would be no poverty or inequality?"

Respondents still want less inequality than observed, and they propose a change in taxation, but the levels of inequality they seek are not consistent with the levels of redistribution they propose. Table 2 shows calculations of inequality using the desired redistributional parameters. The first four columns use information from the Treasury Secretary (SHCP 2017) to calculate gross and net income and the implicit tax incidence by decile group.[20] For example, the share of gross income in decile 1 is 1.6% of total income, but after taxes it is 1.9%; in decile 10 it is 41.9% of total income, but after taxes it is 37.4%. Hence, according to the Treasury data, the Gini index after taxes is 0.498.

The rest of the columns calculate counterfactual scenarios with the tax rates respondents suggest for those they consider wealthy (40.8%), middle income (22.7%), and poor (14.5%). In Scenario 1, rich and poor are interpreted according to the size attributed to each group (35% and 59% of the population, respectively): the first six deciles are taxed as poor, half of decile seven is taxed as middle income, and the rest of the deciles are taxed as rich (see Table 2, column 5, Scenario 1). In this case, the Gini index for net income is reduced to 0.468, a 6% reduction but far from the desired level of inequality (0.315).

Scenario 2 considers rich and poor defined by income (more than USD $4,250 in PPP and less than USD $280 in PPP, respectively). Then, 45% of the population is taxed according to the proposed tax rate for the poor, while 0.6% is taxed as rich. We calculate that in the tenth decile the rich obtain close to 80% of the income, so the average tax rate in the tenth decile is 37%. In this scenario, the Gini coefficient for net income remains practically unchanged at 0.496 (see Table 2, column 8), far from the desired distribution. The distribution the respondents would like to see is thus not consistent with the taxes they propose for the different income strata.

[20] Calculations based on household surveys, not tax records. It is plausible that the proposed scenarios provide higher tax revenue and more redistribution if high income individuals are not well represented in the household survey.

Table 2. Actual and Proposed Income Distribution and Tax Incidence

Population decile	Gross income %	Tax incidence Actual %	Net income Actual %	Tax incidence Scenario 1 %	Net income Scenario 1 %	Tax incidence Scenario 2 %	Net income Scenario 2 %
I	1.6	8.9	1.9	14.5	2.1	14.5	1.9
II	2.8	8.4	3.3	14.5	3.6	14.5	3.3
II	3.6	9.5	4.2	14.5	4.6	14.5	4.2
IV	4.3	11	4.9	14.5	5.5	14.5	5.1
V	5.4	11.8	6.1	14.5	6.9	18.6	6.1
VI	6.8	12.8	7.6	14.5	8.7	22.7	7.2
VII	8.2	13.8	9.0	31.75	8.4	22.7	8.7
VIII	10.5	17.9	11.0	40.8	9.4	22.7	11.2
IX	14.7	22.6	14.5	40.8	13.1	22.7	15.7
X	41.9	30.2	37.4	40.8	37.3	36.99	36.4
Total*	99.8	21.7	99.8	33.5	99.8	27.4	99.7
Gini	0.55		0.498		0.467		0.496

*Notes: Authors' calculations with data from (SHCP 2017). Tax incidence = Tax revenue from value-added, income, and excise taxes / gross personal income. Tax Scenario 1 is based on rich and poor groups defined by size of the groups perceived by respondents. Tax Scenario 2 is based on rich and poor groups defined by income thresholds perceived by respondents. The rich (the 0.6% in the tenth decile) are assumed to receive 79% of the gross income, as in Campos-Vazquez, Chavez, and Esquivel (2018). *Total does not add to 100% due to rounding.*

The previous calculations do not take into account government monetary transfers, which may alter the income distribution after taxes and transfers. Tax revenue increases in both scenarios, assuming no behavioral responses. For example, tax revenues increase 54% in Scenario 1 with respect to the actual scenario, and 26% in Scenario 2. These increases represent around 6.6% and 3.2% of GDP for Scenarios 1 and 2, respectively. They are inconsistent with the desire to decrease taxes (respondents think they pay 39% of their income, but desire to pay only 22%). If applied, however, these scenarios may substantially decrease monetary inequality with targeted monetary transfers. However, it is not clear that individuals desire this type of transfer or high-quality public goods (which are more difficult to include in the calculation of monetary inequality). Future research should thus include preferences as to how the additional revenue generated by hypothetical changes should be spent.

5. Policy Implications

People's perceptions of inequality are approximately correct but highly varied. One way to gain support for redistributive policies could be through improving the perception of inequality by the 45% of respondents who underestimate its actual level. This improvement could be accomplished by informing the public about its true economic position, rather

than just giving it a general view of income distribution. Cruces, Perez-Truglia, and Tetaz (2013) show that people's own ranking within a known income distribution predicts their perception of their own inequality, and that those who are informed that their income position is lower than they thought show more support for redistribution. If people are not aware that their position is lower than they estimate, they are less likely to support redistribution.

Most Mexicans are not indifferent to economic inequality: they support redistribution, but their aversion to inequality is still low. This means that they have largely failed to connect inequality and public policy, and so this link must be emphasized in public debate. Mexico has a relatively low tax burden, and many public investment and social programs are unsustainable without tax reform. People's low aversion to inequality, expressed in terms of desired tax incidence, is thus problematic. However, a better understanding of the tax base and the distributive impact of alternative tax regimes could encourage support for more aggressive redistributive policies.

To facilitate the formulation of public policy, it is necessary to have informed decisions about the effect on inequality of the tax system. This could be accomplished through better education about the connection between tax regimes and the income distributions they can produce. In particular, people do not grasp the structure of the tax base, so they propose higher tax rates for the rich, but this is not enough to make possible the desired income distribution. It is important for government to inform society not only about the number of high income individuals, but also about their average income. Such data would allow for more informed discussion about feasible tax reform.

6. Conclusions

In this paper, we explore how perceptions of inequality and social mobility affect preferences for redistribution. We develop an original survey that collects detailed information on people's perceptions and desired levels of inequality and social mobility, as well as their perceptions of taxes paid and desired levels of taxes for the poor, the middle-income, and the rich, as well as for themselves.

Our respondents have accurate perceptions of inequality and persistence rates at the bottom and the top of the distribution. However, there is considerable variation in their perception of income distribution based on the wealth rank of individuals. Poor people imagine a polarized distribution with large clusters of the poor at the bottom and another cluster of the rich at the top. Rich people perceive a more graduated distribution, including a larger middle-income group. For poor people, there is also a larger gap between perceived and desired social mobility than there is for the rich: the poor want a greater increase in mobility than the rich.

We also show that even though people want a progressive tax system in which the poor have a positive tax rate, with higher rates for higher-income individuals, the distribution they seek is not consistent with the taxes they propose for different income strata. In particular, people do not grasp the structure of the tax base, so they propose higher taxes for the rich, but not enough to make possible the desired income distribution. Future studies should continue to investigate whether information about the size of the tax base and the distributive impact of alternative tax regimes encourages people to support more aggressive redistributive policies.

The goal of a more just and equal society is, therefore, a challenge. On the one hand, people want a society with lower levels of inequality and higher social mobility. On the other hand, they want lower taxes and believe that taxing the rich is enough to support the desired redistribution (either because they overestimate the number of rich individuals in a society or because they underestimate the tax rate on the rich needed for such a redistribution). These beliefs substantially limit state capacity to increase redistribution levels. Future studies should analyze in more detail this contradiction, especially in countries with a high degree of inequality, in order to identify tax policies that are consistent with lower levels of inequality.

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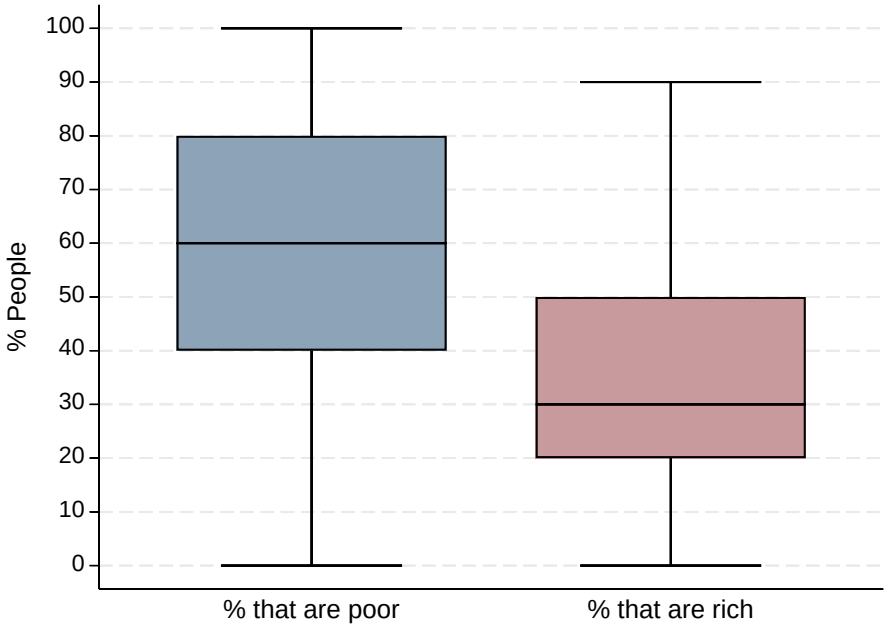
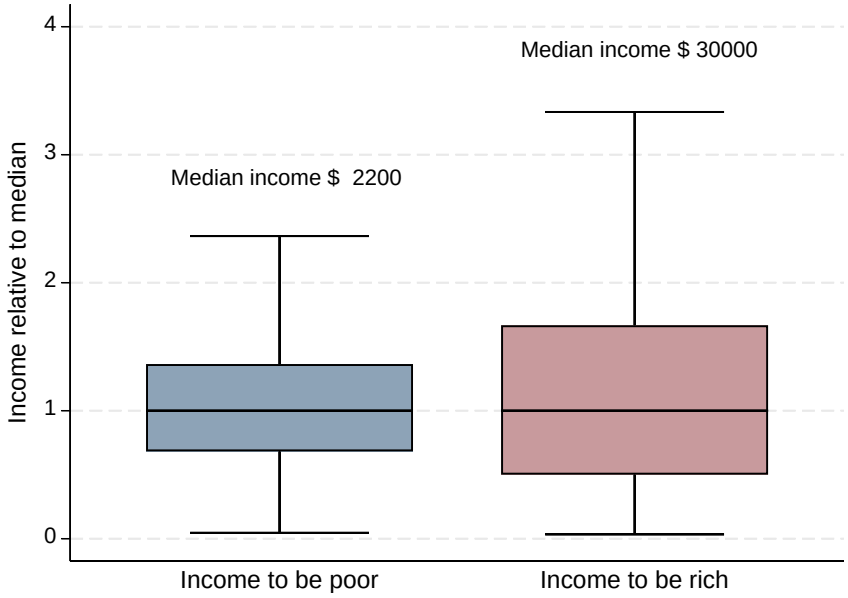
Appendices

Figure A1. Perceptions



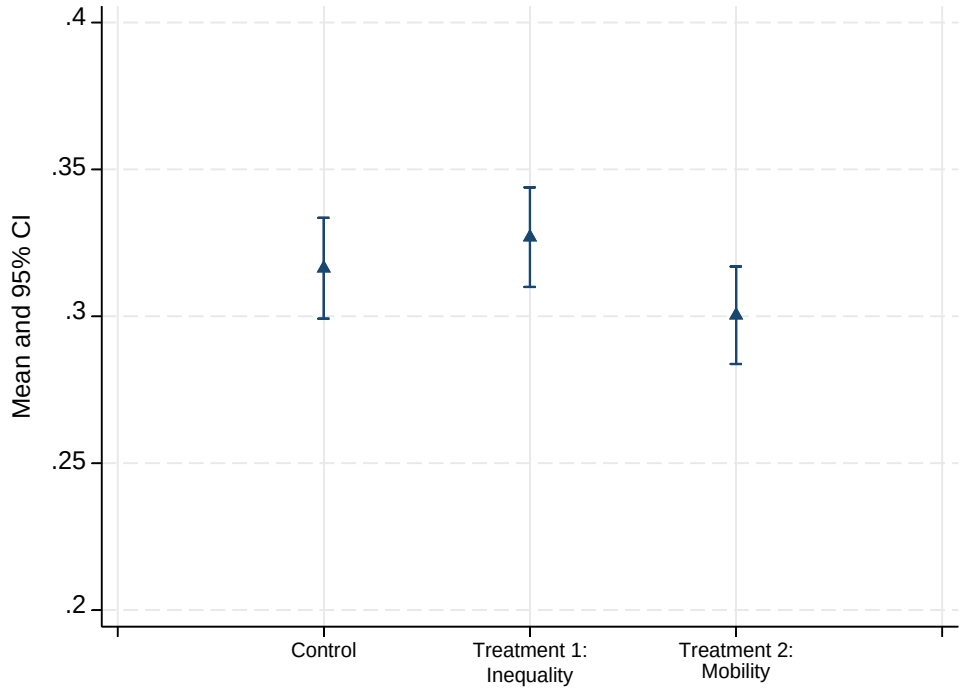
Notes: Authors' calculations. N = 2,493. "% poor (rich)" refers to respondents' answer to the question of how many people in 10 they consider to be poor (rich). The previous question asks them to identify the income that defines the poor (rich).

Figure A2. Perceptions in terms of median income



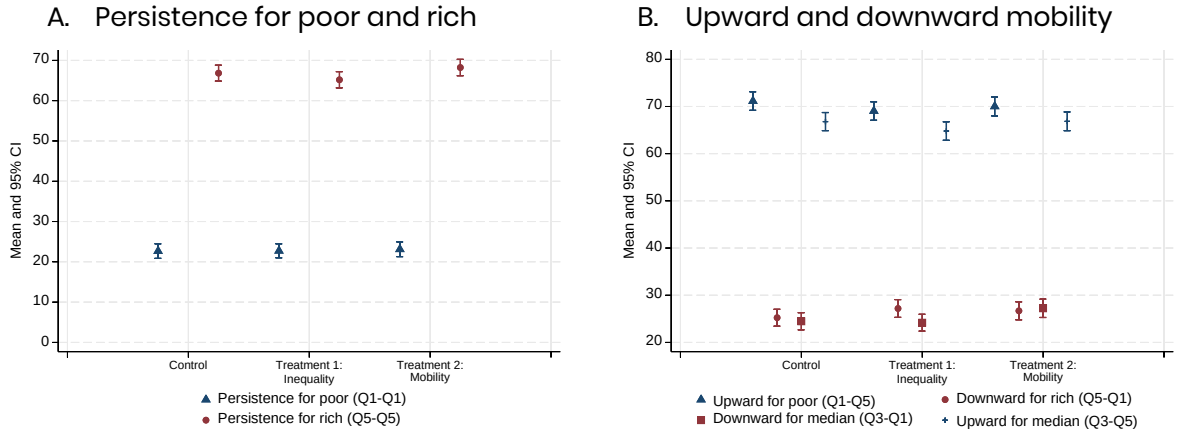
Notes: Authors' calculations. N = 2,493. "% that are poor (rich)" refers to respondents' answer to the question of how many people in 10 they consider to be poor (rich). The previous question asks them to identify the income that defines the poor (rich).

Figure A3. Desired inequality levels



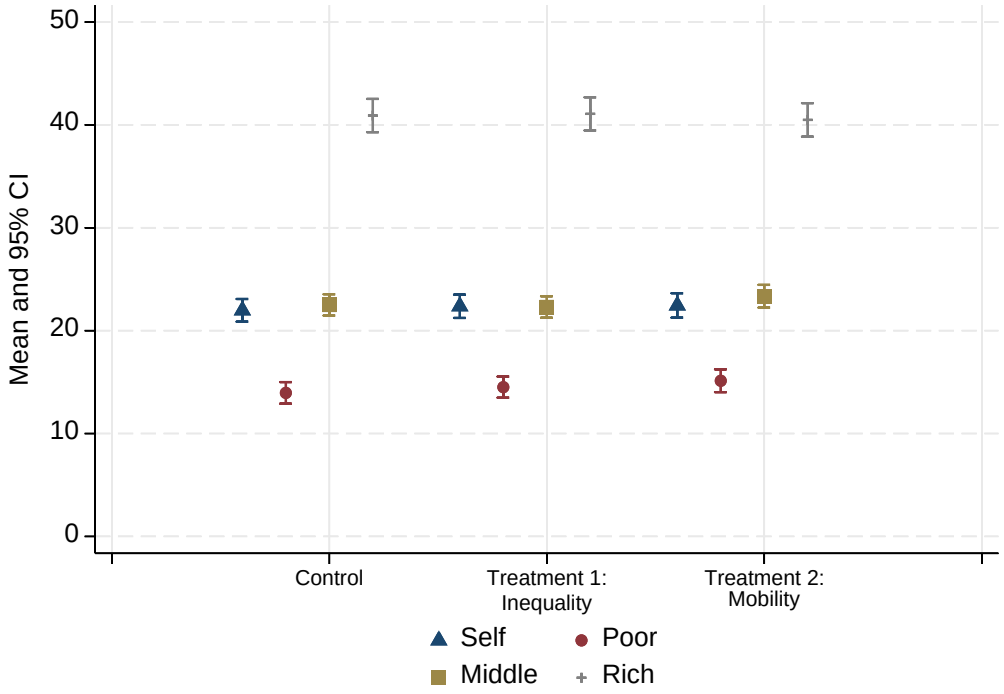
Notes: Authors' calculations. N = 2,493. Treatment 1 provides information on inequality; Treatment 2 provides information on social mobility.

Figure A4. Desired social mobility levels.



Notes: Authors' calculations. N = 2,493. Treatment 1 provides information on inequality; Treatment 2 provides information on social mobility.

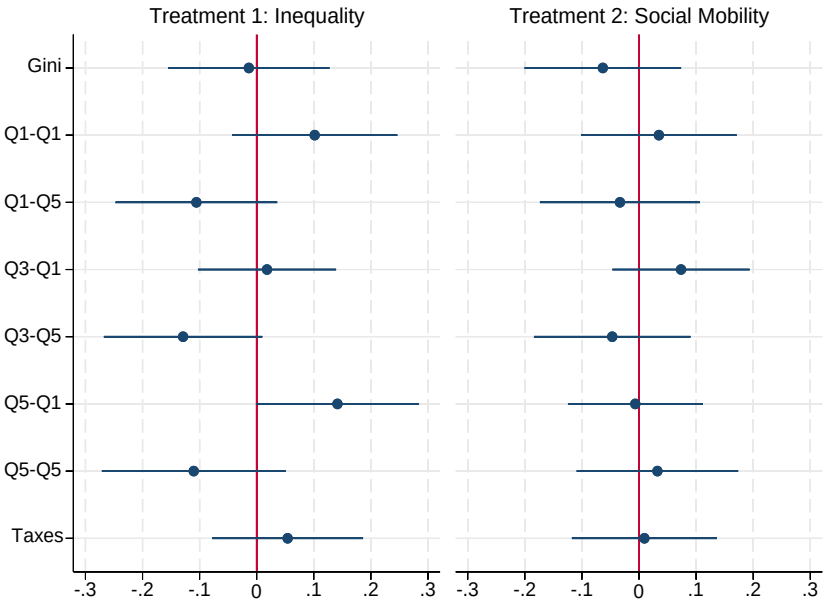
Figure A5. Desired redistribution.



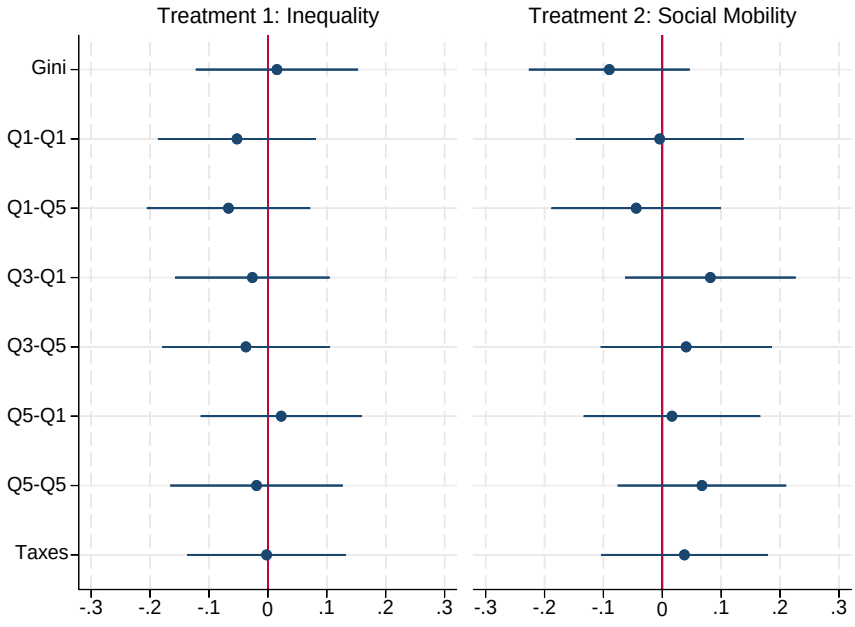
Notes: Authors' calculations. N = 2,493. Treatment 1 provides information on inequality; Treatment 2 provides information on social mobility.

Figure A6. Heterogeneity in results

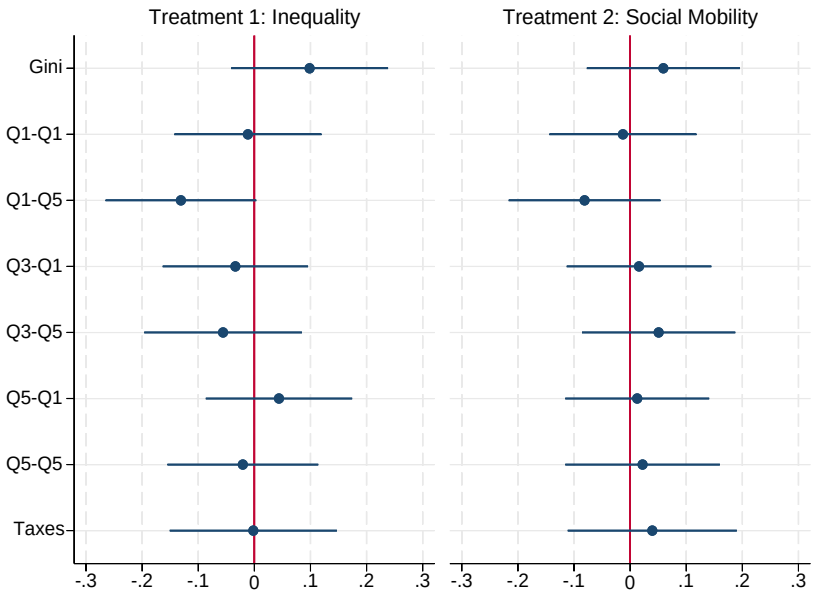
A. Above median in individualism-collectivism index



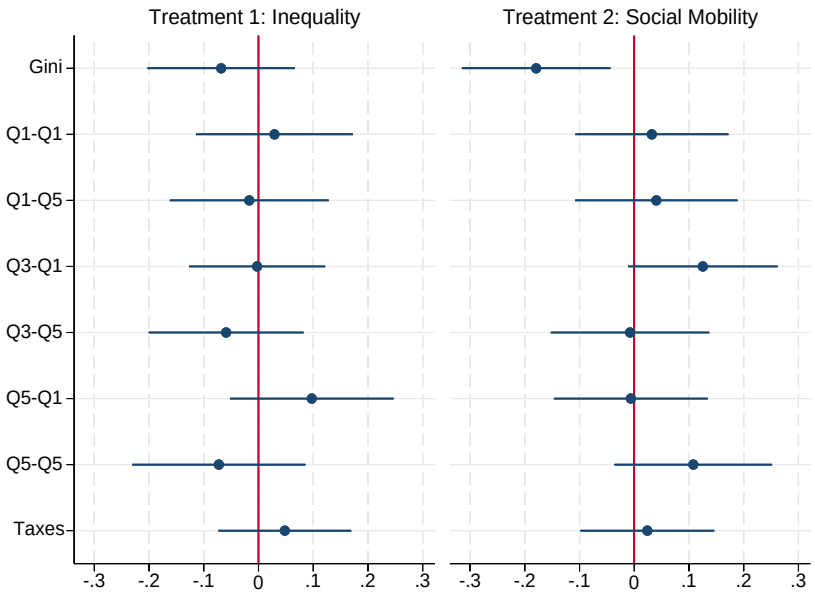
B. Below median in individualism-collectivism index



C. Above median in index of beliefs about poverty

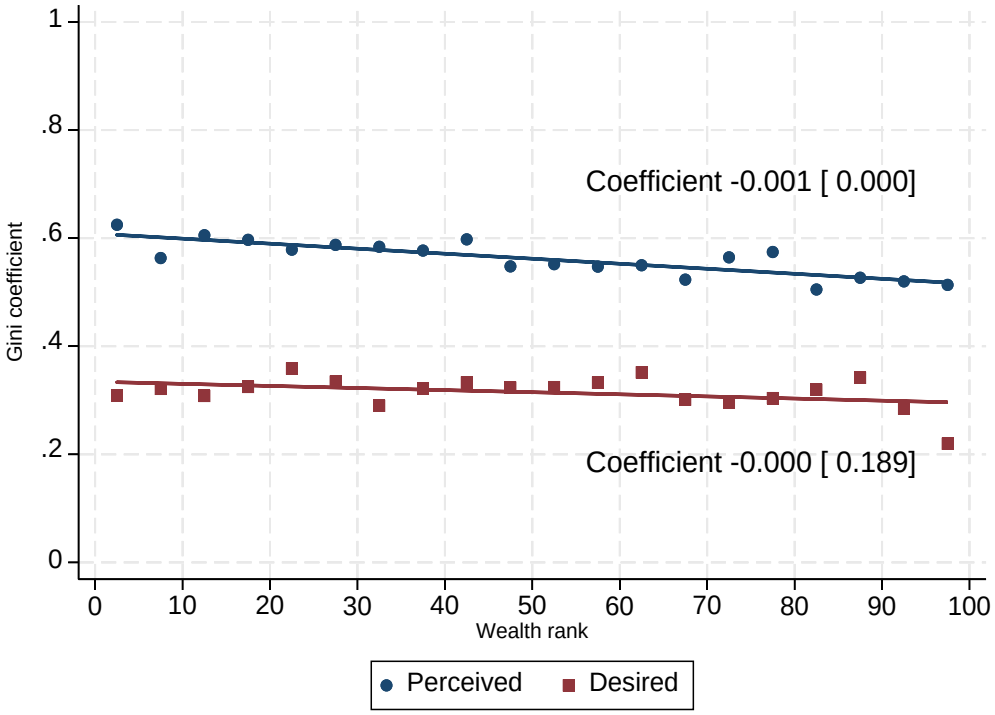


D. Below median in index of beliefs about poverty



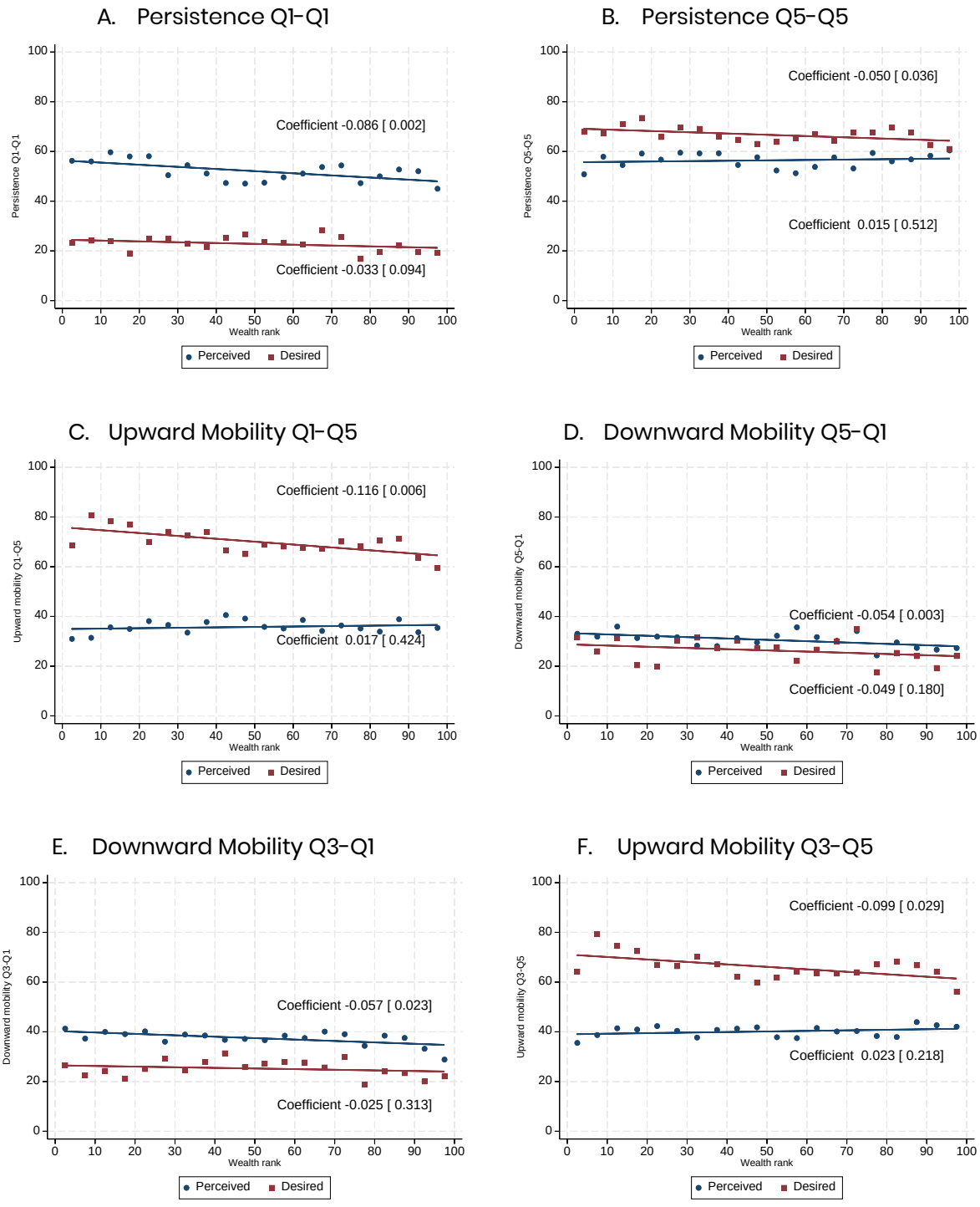
Notes: Authors' calculations. N = 2,493. Treatment 1 provides information on inequality; Treatment 2 provides information on social mobility. Each dependent variable refers to the desired level after the intervention. Each row shows the effect of each treatment on the (standardized) dependent variable (y-axis). In addition to treatment variables, the following control variables are included: fixed effects by city, dummy variables for sex, marital status, employment status, health insurance coverage, and standardized variables for age, wealth, index of beliefs about poverty, and index of belief in individualism versus collectivism. In addition, each regression includes the perceived level of the dependent variable. For example, for the Gini coefficient the dependent variable refers to the desired inequality level and includes a control variable for the perceived inequality level. All regressions include sampling weights. Robust 95% confidence intervals are shown.

Figure A7. Differential effect of information by socioeconomic status: Inequality



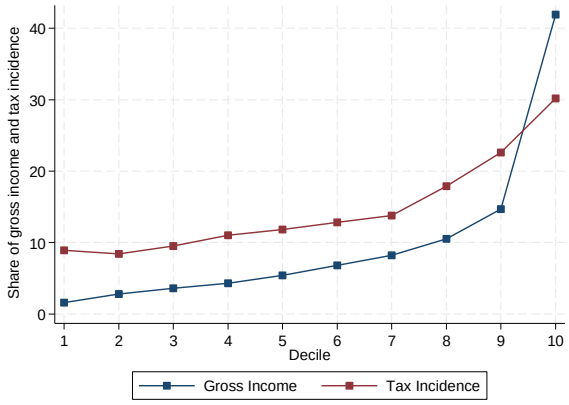
Notes: Authors' calculations. N = 2,493. Coefficient is obtained from a regression of the y-axis variable against a wealth rank variable. P-values in brackets. The question about the desired level of inequality is asked after the intervention; it is similar to the question about the perceived level of inequality, but with the words "should be" instead of "is."

Figure A8. Differential effect of information by socioeconomic status: Social mobility



Notes: Authors' calculations. N = 2,493. Coefficient is obtained from a regression of the y-axis variable against a wealth rank variable. P-values in brackets.

Figure A9. Gross income and tax incidence



Source: SHCP (2017)

Figure A10. Intervention images

INTERVENTION: INEQUALITY

Academic studies and media reports have shown that the level of inequality in Mexico is high. These are the numbers: out of every $100 pesos the economy generates, approximately $60 pesos go to the richest people in the country (those that are in the top 10% of income). By contrast, the poorest people in the country (those in the bottom 10% of income) receive only $2 pesos.

Campos, R., y A. Rodas (2018). "Desigualdad en el ingreso: posibilidades de acción pública" Economía UNAM, 16(46): 251-261.

Reforma, 28-July-2015,
https://www.reforma.com/aplicaciones/editoriales/carton.aspx

INTERVENTION: SOCIAL MOBILITY

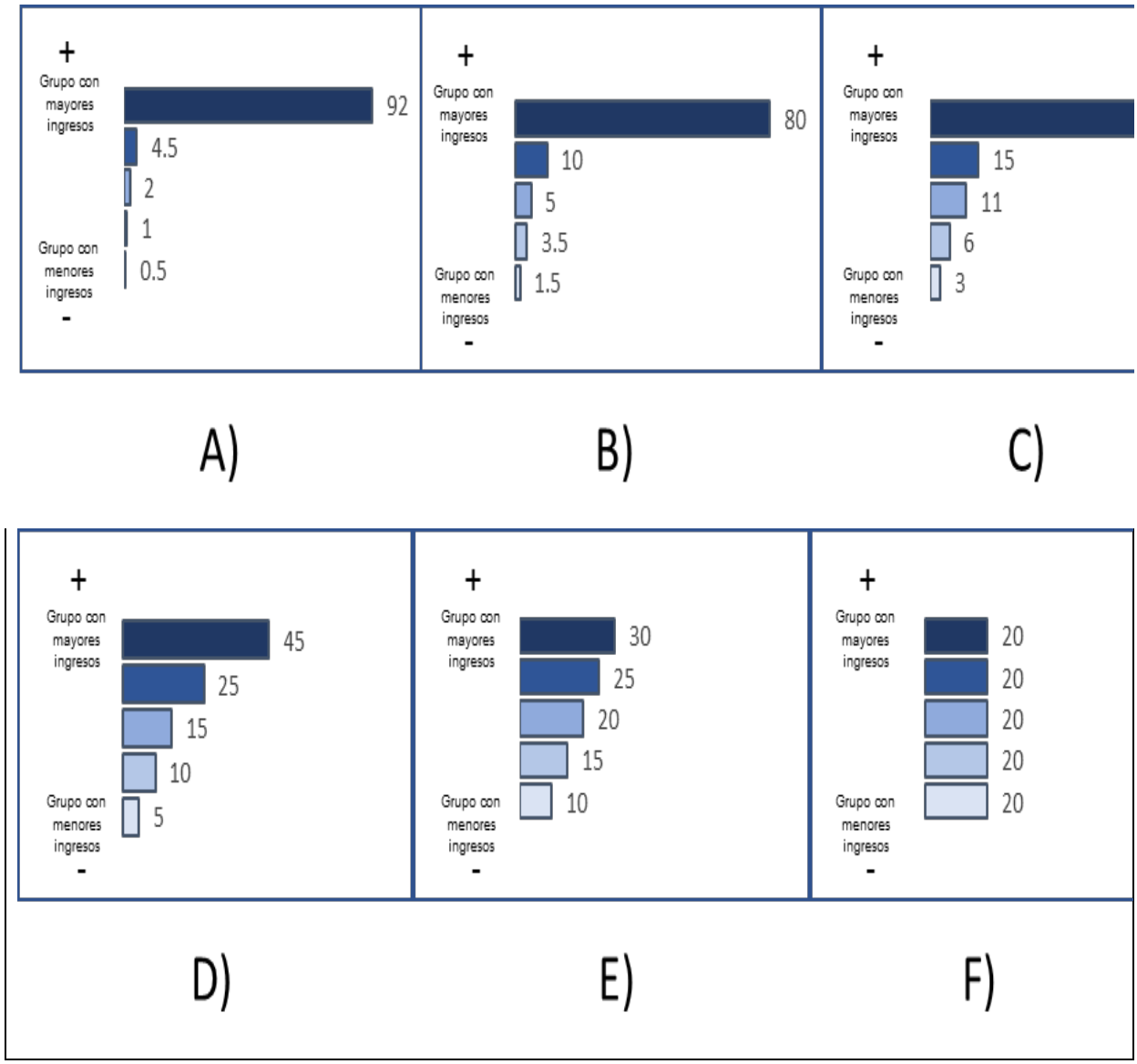
Academic studies and media reports have shown that the level of social mobility in Mexico is bad. These are the numbers: If you are born poor, it is very difficult to move up to the middle or upper class. For every 10 people born into poverty, seven will remain poor and not even one will become rich. That is, if you are born poor, you will die poor, and if you are born rich, you will very likely die rich.

Ver Campos, R. (2018). "Naces pobre, mueres pobre", El Universal, 30 de junio de 2018.

Centro de Estudios Espinosa Yglesias (2018). "El México del 2018. Movilidad social para el bienestar". Disponible en https://ceey.org.mx

Hernández, La Jornada, 10 de Mayo de 2018, https://www.jornada.com.mx/2018/05/10/cartones/4.

Figure A11. Inequality bar graph included in the questionnaire



Notes: The question is posed as follows: "For example, as you can observe in the image, of each $100 pesos that are generated, $92 pesos are taken by the richest persons (the group with the highest income); the next group takes $4.50, and so on, until the poorest group takes $0.50." Each bar graph is explained in the same way, and respondents are then asked: "In your view, which of the images represents Mexican society?"

Agence française
de développement
5, rue Roland Barthes
75012 Paris I France
www.afd.fr

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