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Compensatory Theory Drives Perceptions of Fairness in Taxation: Cross-Country Experimental Evidence

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ABSTRACT:

This paper uses a conjoint survey experiment fielded in the U.S., Australia, Chile and Argentina to develop and test the compensatory theory of tax fairness. Drawing on social psychology, I argue that evidence of preferential treatment by the state violates well established distributive and procedural fairness principles, and show experimentally that it leads to the use of taxation as a means of restoring equality not only in crisis times, irrespective of wealth, and across a variety of settings. The paper makes three important contributions. It provides the first direct, causal and descriptive evidence of the importance of compensatory arguments for tax preferences. It presents unconfounded estimates of the effect of more established fairness considerations as benchmarks against which to compare the importance of compensatory arguments. And it provides cross-country evidence of the relevance of compensatory arguments across different cultures, tax regimes and levels of inequality, suggesting it represents a basic, shared expectation regarding the role of the state.

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Over the last 40 years the share of income earned by the top 1% in the U.S. has grown from about 10 to 20%, while in the same period the share of the bottom 50% has shrunk from about 20 to 12%. Taxes on the other hand have become not more but less progressive: in 2018, for the first time in a century, the richest 400 Americans actually paid lower average tax rates than the working class (Saez and Zucman 2019). Similar, though less dramatic trends have been observed across the world (OECD 2011; Scheve and Stasavage forthcoming).

Why has inequality not given rise to increased redistribution via more progressive taxation, as predicted by a broad class of theoretical models? And why has the Covid-19 pandemic proven more successful in mobilizing demands for taxing the rich?[1] This paper uses data from conjoint experiments in four countries to develop our understanding of fairness preferences regarding taxation, and offer insight into these important and timely questions.

Let us start with the first one: why has inequality not led to more redistribution? Institutional approaches tell us democracy has been subverted, as policies have failed to respond to mass preferences. This strand of research has studied issues of voter misinformation or manipulation (Bartels 2005; 2008; Page and Jacobs 2009) in a political system captured by the interests of the rich (Gilens 2012; Gilens and Page 2014). All issues that are only exacerbated by growing inequality.

Yet survey evidence indicates citizens have to a large extent not reacted to rising inequality with increased demands for redistribution (Ballard-Rosa, Martin and Scheve 2017; Kuziemko et al. 2015). Moreover, even well-designed interventions increasing peo-

[1]See for example The Washington Post, "Should the rich pay for the pandemic? Argentina thinks so, other countries are taking a look", February 19th 2021, https://www.washingtonpost.com/world/the_americas/coronarvirus-argentina-wealth-tax/2021/02/19/96fd1ec4-711b-11eb-93be-c10813e358a2_story.html (accessed March 14th 2021), and BBC, "Tax the wealthy to pay for the coronavirus", December 9th 2020, https://www.bbc.com/news/business-55236851 (accessed March 14th 2021) or The Guardian "The pandemic is helping the rich get even richer. It's time to tax their obscene wealth", August 11th 2020, https://www.theguardian.com/commentisfree/2020/aug/11/the-pandemic-is-helping-the-rich-get-even-richer-its-time-to-tax-their-obscene-wealth (accessed March 14th 2021).

ple's awareness of inequality and its negative consequences do not seem to lead to greater support for redistribution in general or progressive taxation in particular (Ballard-Rosa et al. 2021; Kuziemko et al. 2015).

This is where behavioral perspectives come in, underscoring the importance of other-regarding drivers of redistributive preferences, with an emphasis on fairness considerations (Dimick, Rueda and Stegmueller 2018). With regards to tax preferences, they tell us publics in general consider progressive taxes to be fair, for at least two main reasons. The first is often described as ability to pay: in a world of decreasing marginal utility of income, the rich must pay more to make the same level of sacrifice (Ballard-Rosa, Martin and Scheve 2017; Roosma, Van Oorschot and Gelissen 2016). The second is a matter of deservingness: if wealth is the result of luck, rather than effort, then the rich do not deserve to keep all of it (Alesina and Angeletos 2005; Durante, Putterman and Weele 2014). When it comes to responding to rising inequality though, research suggests that demands for greater progressivity have been tempered by a different fairness expectation: that of equal treatment by the state (Scheve and Stasavage forthcoming). However, the relative importance and interactions between these different mechanisms are unknown. This paper contributes to the literature on fairness preferences in taxation by developing and testing the compensatory theory of tax fairness in relation to the fairness theories mentioned above.

Recent work has highlighted the important role played by compensatory demands in achieving the most important increases in tax progressivity in the 20th century (Scheve and Stasavage 2016). These works argue that when the state is perceived as benefitting the rich in the context of massive assymetric shocks, progressive taxes have been successfully demanded as a way of restoring equal treatment by the state (Limberg 2019; Scheve and Stasavage 2016). However, no direct, causal evidence that this fairness criterion is indeed applied by individuals when judging tax fairness has thus far been provided. I build upon this literature to develop and test the compensatory theory of tax fairness. Drawing on social psychology, I argue that evidence of preferential treatment by the state violates well established distributive and procedural fairness principles, and show experimentally that it leads to the use of taxation as a means of restoring equality not only in

times of crisis, irrespective of wealth, and across a variety of settings.

The value of the compensatory fairness argument can only be ascertained in relation to other, better studied fairness preferences. Yet determining the importance of different fairness preferences regarding taxation is a task riddled with confounding. Observationally, it is hard to disentangle between competing theories because trends in aggregate data can be consistent with many of them. People may want the rich to pay higher tax rates because they have more money (ability to pay), or because they think they have made less effort (deservingness), or because they think they have been unfairly benefitted by the state (compensation), among other potential reasons. Even experimental approaches that focus on individual fairness theories are confounded by the assumptions respondents make about potentially correlated (i.e., income and effort) or underspecified (i.e., random luck vs. family background) attributes.

To deal with these issues I develop a conjoint experiment that randomly varies the level of income, source of income and share of income paid in sales taxes in paired profiles and asks respondents to pick which profile should pay a higher tax rate. Conjoint experiments are particularly suited to the task of identifying the relative importance of different fairness considerations as they have been shown to not just measure preferences but uncover the determinants of multidimensional decision making (Hainmueller, Hopkins and Yamamoto 2014). The experiment thus allows me to identify which fairness considerations people apply when deciding how to distribute the tax burden: ability to pay, deservingness or compensation. As such, this strategy allows me not only to test compensatory theory but also compare its relative importance against unconfounded measures of alternative fairness considerations, and examine their interactions. I conduct comparable -and locally validated- versions of this survey in the U.S., Australia, Chile and Argentina, four countries with broadly different institutions, cultures, tax regimes and levels of inequality.

Results show that compensatory theory is grounded in our justice judgments, exerts a large influence on tax preferences and is widely used by mass publics across a variety of settings, suggesting it represents a basic, shared expectation regarding the role of the state. Moreover, its effects are robust to different forms of state benefit, indicating that

they can be used to promote tax progressivity even in the absence of a crisis.

Going back to our initial questions: why has inequality not led to an increase in tax progressivity? Findings presented here and elsewhere suggest that it is not just the fact that inequality has increased that matters, but crucially, how that inequality was generated and in particular, the role played by the state. Why has the pandemic led to an increase in demands for progressivity? By bringing to the fore the unequal -and unfair- distribution of burdens, and the critical role played by the state in it, it has set the stage for growing compensatory demands.

The paper is organized as follows. Section I develops the compensatory theory of tax fairness against the backdrop of well-established fairness arguments. Section II will describe the conjoint survey experiment. Section III discusses case selection and data sources. Section IV presents the results of the conjoint surveys in the U.S., Australia, Chile and Argentina. Section V concludes.

1 A Compensatory Theory of Tax Fairness

The idea that higher taxes on the rich might be justified as a way of compensating for other benefits unequally granted by the state is not new. The compensatory theory of progressive taxation was first documented by Edward Seligman in 1893, who used the term to describe an existing argument in favor of tax progressivity. Seligman notes that its proponents argue "that where differences in wealth may fairly be presumed to be in a measure due to the state's own acts of omission and commission, allowance should be made therefor [sic] in the tax system" (Seligman 1893, p. 223). Although he discards this defence of progressive taxation as impracticable[2], he does acknowledge that a different version of this argument may be more compelling. What he calls the special compensatory theory essentially claims that a progressive tax can be justified as a way of compensating for the regressive incidence of a different tax: "When indirect taxes exist they often, it is

[2] "The defect of the theory consists in the fact (...) that it furnishes no practical standard and enables us to lay down no general principles by which the influence of the state in creating inequalities of misfortune may be measured. (...) the test embodied in the present doctrine is impracticable." (Seligman 1893, p. 223).

said, hit the poor harder than the rich. The income tax, with its progressive scale, is to act as an engine of reparation. In order to attain equal treatment, the regressive indirect taxes must be counterbalanced by the progressive direct taxes" (Seligman 1893, p.224). Indeed, the historical record shows that this type of compensatory argument in favor of progressive direct taxation has been used repeatedly since as early as the 14th century (Scheve and Stasavage 2016).

The above excerpts highlight two key elements of compensatory theory. First, the goal is to achieve -or rather, restore- equal treatment by the state, a more fundamental principle. Second, the state can benefit the rich in two distinct ways: by commission or omission. We will think of these as positive and negative benefits, respectively: in the first case a particular group is privileged by some government intervention while others are not, while in the second the state may ask some to sacrifice while a particular group does not bear the same burden.

In more recent work, Scheve and Stasavage review the fairness arguments that have historically been used to justify tax progressivity and highlight the potency of compensatory arguments (2016). They show that in the context of mass mobilization wars during the 20th century, compensatory arguments were linked to the adoption of the highest levels of tax progressivity in modern history. In both cases, the claim was that while the poor were giving their lives for their country, the rich were not sacrificing to the same extent, and some were even benefitting from the war industry (Scheve and Stasavage 2010; 2012). As a result, World War I led to an increase in top marginal income tax rates in participating countries from under 10% to over 50%, and World War II pushed them even further, to above 90% in some countries (Scheve and Stasavage 2016).

Limberg builds upon this work to argue that not just mass mobilization wars but other kinds of massive assymetric shocks have also led to increases in tax progressivity through compensatory demands (2019). He claims this was the case with the 2008 financial crisis, during which low-income households bore the brunt of the recession while the rich benefitted from both positive and negative state privileges.[3]

[3]The increase in top marginal income tax rates in this case was however estimated to be much smaller than that documented by Scheve and Stasavage in war contexts: 4% on average in the medium run.

All of this indicates compensatory demands are correlated with increases in tax progressivity at the macro level, but says nothing about the mechanism linking the two. Indeed, the effectiveness of compensatory arguments could be driven by institutions or other features of the political arena. In fact, hikes in top marginal income tax rates during crises could potentially even result from ability to pay concerns, as inequality increases, or deservingness ones, if the rich are seen as profiteering from the crisis.[4] My contribution is to propose, and test, the psychological micro-foundations linking compensatory arguments with increased demands for tax progressivity. In so doing I provide the key missing mechanism in the above-mentioned studies and advance our understanding of fairness preferences regarding taxation.

To explain why compensatory arguments can be compelling at an individual level I draw on justice judgment theory, a psychological framework used to study perceived fairness in social relationships (Leventhal 1980). While traditionally restricted to the branch of organizational justice research, its application to citizen-state relations is not unprecedented (Tyler 1984). This theory proposes a multidimensional conception of justice, arguing that fairness perceptions are based on several justice rules, with different relative weights according to their contextual importance, rather than a single one. It outlines two broad categories of justice rules: distributive and procedural ones. Distributive justice rules dictate that fairness exists when rewards, punishments or resources are distributed on the basis of either contributions, needs or equality. Procedural rules on the other hand dictate that allocative procedures are fair when they satisfy certain criteria, including consistency, bias-suppression, accuracy, correctability, representativeness and ethicality. The relevance of any given criterion or rule depends on the specific circumstances, but when it comes to the political arena the procedural rule of consistency, or treating everyone equally, has unsurprisingly been found to be of particular importance (Tyler 1984). Fully equal citizenship is after all a fundamental ideal of liberal democracy (Rawls 2005).

Whenever the state arbitrarily benefits particular groups to the detriment of others

[4]Regarding Limberg's work, other research also questions the role played by compensatory demands, suggesting changes in preferences for progressivity in the wake of the Great Recession may be driven by self-interest as they are highly responsive to variations in personal circumstances (Garcia-Muniesa 2019).

both categories of fairness rules are simultaneously violated. The consistency rule of procedural fairness, which indicates 'it is necessary to apply similar procedures to potential recipients of reward, and to give special advantage to none" (Leventhal 1980, p. 40) is evidently broken. But in addition, any unjustified benefit will break the equality and the contributions -or effort- rule of distributive fairness. Benefitting the rich will add to this the blatant violation of the needs rule.

This approach to compensatory theory -which sees compensatory demands as a reaction to the violation of deeply rooted fairness norms- indicates it may be more general than has heretofore been considered. Firstly, it suggests that while it has gained notoriety for its role in promoting progressive taxation, there is nothing inherently progressive about it. What is essential is that an undeserved benefit is given to a particular group, violating expectations that the state should treat everyone equally and rewards should be fairly distributed. Inasmuch as states can benefit other clearly identifiable social groups in an obvious and significant manner, compensatory arguments could be used to justify placing a higher burden on any group.[5] This is not to say wealth is irrelevant, only that it is not necessary. When it comes to taxation and progressivity, wealth can be important in two ways. On the one hand, it can enhance the perception of unfairness by adding the violation of the needs rule of distributive fairness. On the other, it plays an important practical (or political) role: it is likely easier to identify unfair advantages granted to the rich than to other groups. Moreover, if the rich have been benefitted by the state in a way that has augmented their wealth, paying more of it in taxes seems like a logical and expedient way to correct for it. Finally, when benefits are targeted at the rich, compensatory arguments can add to ability to pay arguments to crucially enlarge the base of support for progressive taxation.

Secondly, while compensatory arguments have ostensibly been most successful in the context of mass mobilization wars (or massive asymmetric shocks more generally), this is also not necessary. The importance of these types of crises most likely lies in providing the conditions under which unequal burden sharing will be most salient. As in the case

[5]Moreover, there is no reason why that burden should take the particular form of a monetary tax rather than say corvée labor or military service.

of wealth, crises, while not necessary for compensatory demands to arise, do importantly facilitate political mobilization. They thus provide a potential solution to the problem of impracticableness highlighted by Seligman.[6]

Justice judgment theory thus provides three key empirical implications regarding the functioning of compensatory theory in the sphere of taxation: compensatory demands must arise i) independent of the existence of a crisis situation and ii) independent of recipients' wealth, but iii) will be increasing in recipient wealth. All three of them will be tested in the experiment presented below.[7]

1.1 Other Drivers of Fairness Preferences in Taxation

The relevance of compensatory theory as a driver of tax fairness preferences depends not only on whether people care about compensating for unfair advantages, but also on how much they care about it. Existing research on tax fairness has so far studied fairness ideals one at a time, providing no insight on the relative importance of and potential interactions between different conceptions of fairness.[8] Yet justice judgment theory tells us fairness perceptions can be based on several justice rules, not just one, and a person's final fairness judgment will be a weighted combination of the different applicable rules. This paper therefore studies compensatory arguments along with other established drivers of tax fairness in an attempt to obtain a more comprehensive understanding of their relative importance. In particular, I will consider the influence of ability to pay and deservingness,

[6]To that point, Scheve and Stasavage also point out that "if arguments about compensation are to carry much weight politically, the initial unfairness corrected must be obvious and its magnitude must be large" (Scheve and Stasavage 2016, p.22).

[7]Another potential implication that is difficult to manipulate experimentally and not tested here is that compensatory demands will be stronger in the context of a crisis (or massive asymmetric shock, in Limberg's terms).

[8]One noteworthy exception is the work by Lefgren, Sims and Stoddard (2016), which varies both reward (high vs low) and effort (high vs low). However, their work examines peoples' preferences for rewarding effort (by focusing on the interaction between the level of effort and reward), rather than disentangling the effect of each. Moreover, taxes are fully redistributive in their setting and participants are parties to this redistribution, raising additional concerns regarding their relative performance within the group.

the two most studied drivers of tax fairness.

Since the development of the workhorse model of optimal tax theory in the 1970s (Mirrlees 1971), most normative and positive models of taxation have adopted ability to pay principles as a way of either maximizing aggregate social welfare or achieving equal sacrifice (Ok 1995; Young 1988). As a fairness principle, ability to pay essentially argues that when it comes to paying taxes everyone should make the same level of sacrifice, which given the basic fact of the decreasing marginal utility of income means the rich should pay a higher tax rate. In the justice judgment framework, ability to pay is an example of the distributive fairness equality rule, which indicates not just rewards but also sacrifices should be allocated equally. Empirical research has convincingly showed that on average the American public's tax preferences are progressive, a finding that has been interpreted as evidence of the prevalence of ability to pay principles (Ballard-Rosa, Martin and Scheve 2017; Roosma, Van Oorschot and Gelissen 2016).[9]

More recently, researchers have started to conceptualize fairness also as deservingness and inequality aversion.[10] Deservingness refers to the notion that depending on how income (or wealth) is produced, some people are more deserving of their income than others and should therefore be entitled to retain a higher share of it through lower taxes. Deservingness principles are thus an example of the contributions criterion of distributive fairness, also known as the merit principle (or meritocratic fairness views (Almås, Cappelen and Tungodden 2020)).

[9]However, unless respondents' beliefs regarding the source of wealth are controlled for, progressive preferences could potentially be confounded by other fairness beliefs.

[10]While not considered here, inequality aversion refers to the fact that for some individuals a more equitable allocation of outcomes in society increases their utility, making them willing to give up some material payoff to move in this direction (Alesina, Cozzi and Mantovan 2012; Fehr and Schmidt 1999; 2006). Inequality aversion may thus have similar implications as ability to pay (progressive taxes) but its motivation is different: not equalizing sacrifice but directly equalizing outcomes. Ultimately however, these views are often found to be grounded on ideas of deservingness, in the sense that people who think income results from luck are more inequity averse than those who think it results from effort (Esarey, Salmon and Barrilleaux 2012). Recent experimental evidence suggests people do not care about general levels of inequality but rather about the fairness of their own outcomes relative to others (Lü and Scheve 2016).

In the economics and political science literature, deservingness has been operationalized in two distinct ways. On the one hand, formal and observational studies have focused on the role of abstract beliefs about how income is produced to show that people who believe that income is the result of effort prefer lower taxes than those who believe it is the result of luck. These beliefs have most notably been used to explain differences regarding the preferred level of taxation in the U.S. and Europe (Alesina and Glaeser 2004; Alesina and Angeletos 2005; Piketty 1995). On the other hand, experimental studies have manipulated the source of income to show that subjects prefer higher taxes when income results from luck than when it results from effort (Chow and Galak 2012; Durante, Putterman and Weele 2014; Fong and Luttmer 2011; Lefgren, Sims and Stoddard 2016). Durante, Putterman and Weele (2014) expand upon this distinction to include income resulting from initial conditions or opportunity, and find that it results in intermediate levels of taxation. In line with this approach, compensatory theory will be considered as a special instance of the broader deservingness debate to the extent that it is based on the assumption that a special privilege granted by the state was not deserved.

While these fairness arguments explain why individuals may want the rich to pay higher tax rates in general, they do not directly address the question of how these preferences might change with growing inequality. In a recent contribution, Scheve and Stasavage (forthcoming) explain the inelasticity of tax policies to growing inequality by using equal treatment preferences. They show that across a large set of countries rising inequality has not been associated with increased taxation on the rich and argue this is because on average voters do not want more progressive taxation as it violates some voters' beliefs about equal treatment in democracy. These voters believe that just as everyone in a democracy should have the same vote, they should also pay the same tax rate. Many of them thus favor proportional rather than progressive taxation, making average tax preferences less progressive than they would otherwise be, and less sensitive to changes in inequality.

Compensatory arguments can be thought of as the flip side of equal treatment: people prefer the state treated everyone equally, but when equal treatment is violated compensatory demands arise in an attempt to restore equality. But is it the case that com-

pensatory demands are driven by respondents who adhere to equal treatment? Justice judgment theory provides another empirical implication here: compensatory demands should not be limited to people adhering to equal treatment as exclusive state benefits trigger not only procedural concerns about equal treatment violations, but also distributive ones about deservingness violations. This is exactly what the analysis below shows.

2 Experimental Design

As mentioned above, the goal of the experiment presented here is to test whether compensatory fairness arguments matter for people's tax policy preferences and to do so in a way that informs us of their relative importance with respect to more established fairness considerations. Moreover, I also want to be able to compare the two different versions of compensatory arguments: those related to positive and negative state benefits. In addition, I want to minimize self serving bias to ensure people are not using fairness concerns to justify preferences that simply benefit them.

To achieve these goals I take advantage of conjoint experiments' known capacity to measure preferences and uncover the determinants of multidimensional decision-making (see for example Ballard-Rosa, Martin and Scheve (2017); Bansak, Hainmueller and Hangartner (2016); Hainmueller and Hopkins (2015)). Conjoint survey experiments "ask respondents to choose from or rate hypothetical profiles that combine multiple attributes, enabling researchers to estimate the relative influence of each attribute value on the resulting choice or rating" (Hainmueller, Hopkins and Yamamoto 2014, 2). Conjoints are particularly suited to the task at hand because they not only capture the direction of respondents' preferences, but also their intensity (Abramson, Koçak and Magazinnik 2019).[11] As such, we can think of conjoint estimates as representing the weights sampled populations assign to different fairness rules for a particular task, as depicted by justice judgment theory. In this case, respondents were presented with pairs of profiles in which income level, source of income, and percentage of income paid in sales taxes were ran-

[11] While there is some debate regarding the value of this feature when it comes to studying electoral behavior (see Abramson, Koçak and Magazinnik (2019) and Bansak et al. (2020)), its value when it comes to understanding the drivers of policy preferences is undeniable.

domly varied, and asked to choose which one of these profiles should pay a higher tax rate. Given that distributive fairness judgments are always relative rather than absolute (Tyler 1984), this approach is expected to be intuitively appealing to respondents. Essentially, this design allows me to identify which individual attributes people take into consideration when deciding how to distribute the tax burden, as a way of getting at which fairness considerations they are applying. The main intuition, summarized in table 1, is that if people apply ability to pay considerations (i.e., they think richer people should pay more taxes) they should choose on the basis of level of income; if they apply deservingness considerations (i.e., they think people who did not exert effort should pay more) they should choose on the basis of source of income; and if they apply compensatory considerations (i.e., they think people who have benefitted from the state should pay more) they should choose on the basis of whether the source of income resulted from state benefit and/or the percentage of income paid in sales taxes.[12]

Table 1: Attributes, Attribute Levels and Fairness Tests

Attribute	**Attribute Levels**	**Fairness Argument**
Annual income	<low (∼40th percentile)>	Ability to pay
	<medium (∼80th percentile)>	
	<high (∼95th percentile)>	
Source of income	<effort>	Deservingness
	<luck>	
	<social background>	
	<state benefit>	(Positive) Compensation
% of income paid	<low>	(Negative) Compensation
in sales taxes	<medium>	
	<high>	

Note: Actual attribute levels vary by country. See table 2 in the SI for the full list.

This conjoint design offers several advantages. First, estimates for all attributes represent effects on the same outcome (the probability that a profile will be chosen to receive the higher tax rate), which means they can be compared in order to assess the relative

[12]It is not immediately clear whether both will matter, as it may be the case that people want to compensate for a state benefit, but do not perceive the unequal incidence of indirect taxes as one.

influence of different attributes (and ultimately, fairness considerations). Second, the fact that attributes vary randomly allows me to identify the independent effects of correlated attributes. In fact, as a result of studying conceptions of fairness individually, existing estimates are often biased by the confounding of level and source of income, as people infer the latter from the former (i.e., people assume that the rich earned their wealth through effort (Weiner and Kukla 1970)). Third, the forced choice component -as opposed to asking respondents to directly assign a tax rate to each profile-, neutralizes attitudes about the overall level of taxation and identifies the attributes that make citizens appear as more or less taxable to the respondent. This allows me to disentangle preferences regarding the size of taxation from the distributive issues linked to its shape (Barnes 2015). Fourth, leaving the intended use of the revenue collected unspecified means I can focus on respondents' preferences for how to distribute the tax burden, assuming that due to random assignment beliefs about spending will be balanced across treatment groups (Ballard-Rosa, Martin and Scheve 2017). Fifth, I can assess the existence of heterogeneity in preferences by respondent characteristics, and the extent to which attributes interact with each other. In this regard, it is especially interesting to examine whether compensatory arguments come into play regardless of level of income or adherence to equal treatment. Finally, the absence of material stakes in conjoint designs helps to minimize the presence of self-serving bias.

In terms of the attribute levels used, annual incomes are chosen to represent low, middle and high income levels (in the 40th, 80th and 95th percentiles of the income distribution, respectively).[13][14] Sources of income were chosen through formative studies run on independent samples in each country with the purpose of identifying sources of income that would be interpreted as resulting from effort, luck, social background and state benefit, and were relatively orthogonal to one another and to the level of income.[15]

[13]To see the complete U.S. version of the survey go to `https://nyu.qualtrics.com/jfe/preview/SV_ehfLU3JUO4VDDaR?Q_CHL=preview`. The survey was programmed in Qualtrics using the "Conjoint Survey Design Tool" made available by Strezhnev et al. (2013).

[14]In Chile and Argentina levels of income in the low and middle categories had to be selected at somewhat higher points in their personal income distributions to ensure that the lowest level of income was above the income tax exemption threshold.

[15]See supplemental information (SI) section 1 for details on the formative study.

Shares of income paid in sales taxes were chosen so as to approximate the actual shares of income paid by families at different points in each country's income distribution.[16] It is worth noting that the experiment does not require that respondents know what these rates actually are, or whether they are regressive or not. The point of this attribute is to assess whether respondents react to the violation of equal treatment represented by the fact that the sales tax burden, which every consumer is subject to, is unevenly distributed.[17]

Interpretation of the source of income attribute warrants clarification. Sources of income were chosen so as to represent the components of deservingness considered in past research (effort, luck, social background), as well as state benefit. The rationale behind them is not that individual income taxes should vary with the source of income, which as Seligman rightly noted would be impracticable, but to show that people's tax preferences are guided by deservingness considerations linked to the source of income. Their practical implication can be found in substantiating special rates on lottery winnings, inheritance, or war profits taxes, but also wealth taxes when the rich -as a class- have been unfairly benefitted by the state.

Paying a lower share of income in sales taxes is included as an example of a negative benefit (everyone else pays a high proportion but some are exempted from this burden). On the other hand, having a source of income resulting from a state benefit is included as an example of a positive benefit (some are privileged while the rest were not). In line with the discussion above, the state benefit sources of income that are used -owning a business that was bailed out by government, and owning a company that receives government

[16]For the U.S., the Institute on Taxation and Economic Policy shows that on average across all states, families in the lowest 20% in the income distribution pay 7% of their family income on sales and excise taxes, while families in the top 1% only pay 0.8%. Moreover, in some states the share paid by low-income families is as high as 12.6% (Washington) and the share paid by top income families is as low as 0.1% (Montana) (Davis et al. 2015). Percentages were adjusted upward in Chile and Argentina to account for the fact that their VAT rates (19 and 21% respectively) are much higher than in Australia (10%) or the U.S.

[17]As such, if respondents are unaware of the fact that in reality the group paying the lowest share is the rich, this would suggest that these estimates also represent a lower bound of what the effect of this attribute would be under complete information.

subsidies- are ones that are not exclusively enjoyed by the rich.[18] I thus test whether people apply compensatory arguments -whether they want to use taxes to compensate for a state benefit-, even when the benefitted are not rich, as suggested by justice judgment theory.

These negative and positive benefits can be thought of as representing the different triggers of compensatory arguments for taxing the rich that are present in peace and crisis times. As argued by Scheve and Stasavage, during peacetimes compensatory arguments can build on the negative benefit granted to the rich by virtue of a lower consumption tax burden (2016). In times of crisis -be it mass wars, financial crises, pandemics or other types of massive asymmetric shocks-, compensatory arguments can highlight clear and manifest benefits granted exclusively to the rich. History suggests we should expect compensatory arguments to be more effective in this latter case. Since positive benefits are not associated to crises in the experiment though, any effects are likely a lower bound of what could be expected in such a context.

In terms of presentation, two profiles were presented side-by-side on the same screen, with the following prelude (examples are taken from the U.S. survey, others are equivalent):

> Many observers in the United States have discussed the possibility of changing the federal income tax code to address multiple issues. The design of a new tax system raises a number of questions, including whether and why some people should pay higher rates than others. We are interested in what you think about this.
>
> We will show you profiles of random individuals. You will be shown pairs of individuals, along with several of their attributes. For each comparison we would like to know which of the two individuals you think should pay a higher

[18] A potential concern here is that as a result of the 2008 financial crisis respondents may be biased into thinking the attribute used in the U.S. and Australia (owning a business that was bailed out by government) is targeted at the rich. Even if this were the case, the level of income attribute is expected to correct this assumption. Moreover, evidence from Chile and Argentina shows that results are robust to using other types of state benefit.

tax rate. In total, we will show you five comparison pairs.

Bear in mind that when we talk about tax rates we mean the percentage of their income that someone pays in taxes. People with different incomes who pay the same rate actually pay different amounts (i.e., 30% of an income of $100,000 is $30,000, but of an income of $50,000 it is $15,000).

Please take your time when reading the attributes of each individual. People have different opinions about this issue, and there are no right or wrong answers.

This introduction was followed by a screen similar to figure 1.

Figure 1: Example of Choice-Based Conjoint Survey

Attributes	Individual 1	Individual 2
Percentage of income paid in sales taxes	10%	1%
Source of income	Receives annuity from lottery prize	Owns business that was bailed out by government
Annual income	$40,000	$160,000

Which of the two individuals would you personally prefer to charge a higher tax rate to?

Individual 1 | Individual 2

In order to maximize the number of observations and allow respondents to familiarize themselves with the format of the experiment, each subject saw 5 pairs of profiles. After the first pair of profiles, they were asked to justify their choice in an open ended question. In addition to completing their 5 choice tasks, respondents were asked to fill a survey asking for their socio-demographic information (age, gender, education, household income, partisanship, employment status, race, marital status, ideology and zip code of residence). They were also asked to answer a question regarding their general preferences for progressivity, used to measure adherence to equal treatment:

Do you think everyone should pay the same share of their income in taxes or some people should pay a higher share than others?

3 Case Selection and Data

Existing experimental research on fairness preferences has to a large extent been conducted in the U.S. and Europe.[19] In an effort to expand the scope of comparative research on tax fairness to a new region, and maximize the extent to which findings can generalize, I conduct my survey in four different countries: the U.S., Australia, Chile and Argentina. This case selection covers a great deal of variation in both market inequality and redistributive effort, two variables that could potentially be associated with redistributive preferences at the country level.[20] Moreover, including Latin American countries is of particular interest because despite the singularity of their tax regimes we still know relatively little about their tax preferences (in particular in terms of fairness).[21] Nonetheless, to ensure comparability with U.S. and Australian results, and given the online nature of the experiment, two Latin American countries with internet penetration rates at least as high as the U.S. were selected.[22]

The U.S. survey was conducted in October 2017 on an online sample of 2,000 U.S. residents on Amazon's Mechanical Turk (MTurk).[23] Evidence that results from convenience samples such as MTurk replicate in national probability samples is by now compelling (Berinsky, Huber and Lenz 2012; Coppock 2019). Nonetheless, given that my MTurk sample is considerably younger, better educated and more liberal than the population

[19]Notable exceptions are Jakiela (2015) and Cappelen et al. (2013), which conduct experiments in European and African countries, and Heinrich's lab experiments in the Peruvian Amazon (2000).

[20]See SI figure 6 for the relative levels of inequality and absolute redistribution in countries in the sample according to SWIID data (Solt 2020).

[21]Taxation in Latin America is not only regressive, but compared to other countries at their level of development, most Latin American countries are under taxed (Huber and Stephens 2012). Additionally, it is the region with the lowest revenues from direct taxes in the world (Kacef, Weller and Jimenez 2011).

[22]According to the International Telecommunication Union, the percentage of individuals using internet in the US, Australia, Chile and Argentina in 2017 was 75, 86, 82 and 76% respectively.

[23]The design was preregistered in the Political Science Registered Studies Dataverse (doi:10.7910/DVN/QKYQF5). All experiments received approval from NYU's Internal Review Board.

(see SI section 3 for a comparison), I show in the SI that results do not significantly vary when using entropy balancing weights to adjust the sample so that it matches the demographic and geographic margins of the adult population. To avoid paying the variance penalty incurred by weighting though, I present unweighted estimates throughout.

Surveys in Australia, Chile and Argentina were conducted in February 2020 on online samples of 1,500 respondents in each country, provided by the market research company Respondi. Quota sampling was used to select participants from their opt-in pool in proportions representative of their national populations in terms of age, gender and social class.

4 Analysis and Results

Outcome data come from the forced choice made by respondents regarding which profile in each pair should pay a higher tax rate. The unit of analysis is thus the individual profile and outcomes are measured using a dummy variable that takes a value of 1 if a profile is chosen and 0 if a profile is not chosen. The total number of observations is therefore equal to the number of respondents $\times$ 10 (5 tasks $\times$ 2 profiles per task). After removing uninformative responses my full dataset comprises 62,572 observations from 6,341 different respondents in 4 countries.[24][25]

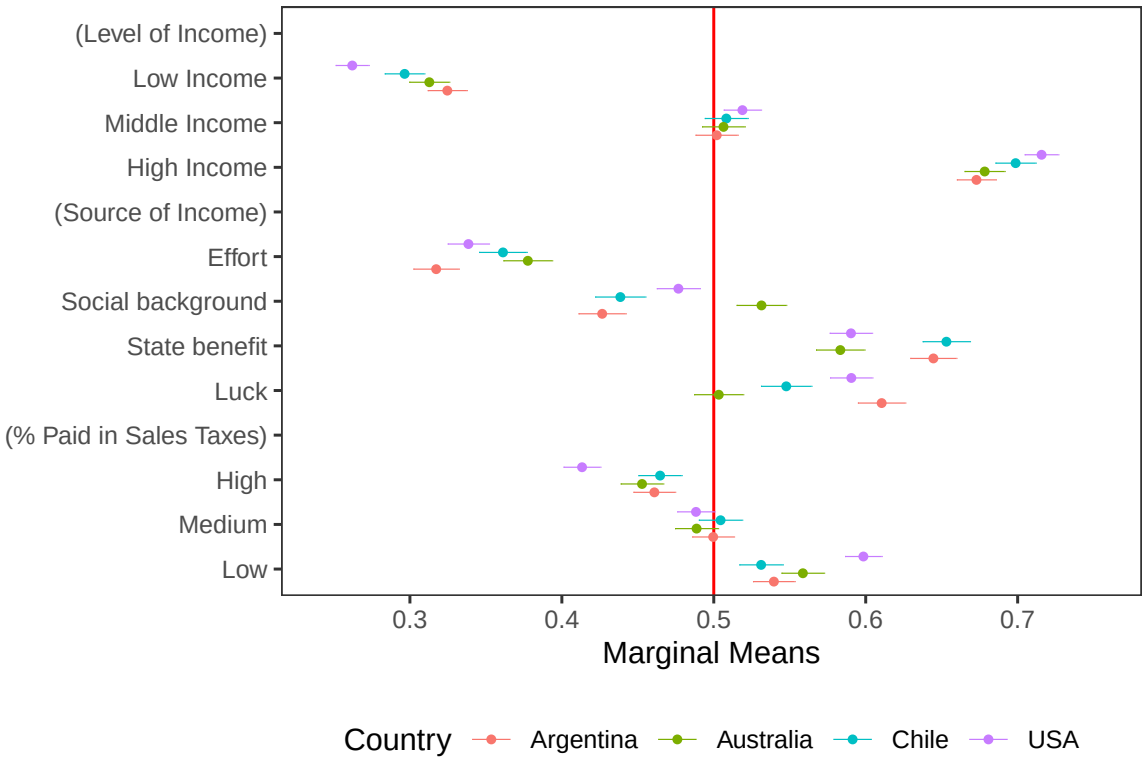
Since I will be comparing preferences across countries, I calculate Marginal Means (MMs) rather than the more standard Average Marginal Component Effects used in conjoint analysis. MMs measure the percentage of times respondents choose a profile with a given attribute level, averaging over all other attributes. Since in a forced choice conjoint design respondents choosing between profiles purely at random would result in a MM of 50%, values above 0.5 indicate features that increase the favorability or probability of selection of a profile and values below 0.5 indicate features that decrease profile favorability. As such, MMs though descriptive present two important advantages over causal AMCEs. First, they convey information about preferences for all feature levels, including base-

[24]I excluded respondents who completed the survey in less than half of the median time, and I also excluded choices from pairs in which both profiles had the same attributes.

[25]1946 respondents in the U.S., 1450 in Australia, 1418 in Chile and 1527 in Argentina.

lines (while AMCEs provide causal effects of other features relative to the baseline). This means they provide information of absolute -rather than relative- favorability, allowing us to identify attribute levels that increase/decrease the overall probability a profile will be chosen. This distinction is important, for an attribute value with a positive AMCE (indicating this attribute value increases the probability of selection relative to the baseline attribute value), may have a MM below 0.5, indicating that overall having that attribute level still reduces the probability a profile will be chosen (though not as much as having the baseline attribute level). Second, when it comes to comparing preferences across groups, conditional MMs are preferable as comparing conditional AMCEs is problematic whenever baseline values are not the same across groups (which is the case here, as in most places) (Leeper, Hobolt and Tilley 2020). Nonetheless, results using AMCEs are included in the SI section A.5.

Figure 2: Marginal Mean Outcomes by Country



Note: This plot shows marginal mean outcomes from forced choice conjoint experiments, by country. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 2 presents unadjusted MMs by country and confirms the relevance of com-

pensatory arguments for respondents' tax preferences. It shows two things we already knew and four we did not. The level of income attribute extends what was shown by Ballard-Rosa, Martin and Scheve (2017) for the U.S.: in line with ability to pay concerns, average preferences are progressive in all four countries. Not only does the probability of being chosen to pay the higher tax rate increase monotonically with level of income, the magnitude of these effects is substantial. In all countries, profiles with the highest income have the largest probability of being selected, suggesting regressive tax systems in Latin America are likely not a result of citizen preferences. Indeed, between 67 and 72% of profiles with the highest level of income were chosen. Moreover, justifications given in response to the open-ended question confirm that choices made on the basis of level of income were guided by ability to pay fairness concerns: respondents claimed taxes will be less of a burden/hardship to that person, or that she can better afford them.[26]

The source of income attribute also confirms findings from the deservingness literature: those whose income results from effort have the lowest probability of selection, and this probability is higher for those with income resulting from luck, with those benefitting from their social background somewhere in between (Durante, Putterman and Weele 2014; Fong and Luttmer 2011; Lefgren, Sims and Stoddard 2016). Australia is the single exception to this trend, with income resulting from social background leading to a higher probability of selection than luck. Moreover, justifications clearly reference the extent to which people "earned" their income or worked hard for it.

The first novel finding here is that people care a lot about compensating for a positive state benefit. In fact, the effect of state benefit is at least as large as that of luck and usually larger. Indeed, despite the fact that source of income is the only attribute presenting substantive differences in its effect across countries, it is interesting to note that the two sources of income with similar effects throughout are effort (everywhere reduces the probability of selection) and state benefit (everywhere increases it). In terms of causal

[26]It could be argued that choices based on level of income are driven by efficiency rather than fairness concerns, as respondents simply chose the high-income profiles to maximize revenue. Open-ended justifications indicate that decisions were largely driven by fairness concerns: not only did respondents overwhelmingly explain their decisions in terms of the fairness concerns hypothesized; the most sparing among them simply said they chose profile x because it was fair.

AMCEs, changing the source of income in a given profile from effort (the baseline) to a state benefit increases the probability it will be selected by between 21 and 33 percentage points on average, depending on the country. This suggests that regardless of levels of inequality, tax progressivity or redistributive effort, citizens across very different contexts share the expectation that the state should treat everyone equally and want violations of this principle to be corrected through higher tax rates. This finding underscores the importance of compensatory arguments in explaining tax preferences, and the need for studies of deservingness to expand upon the basic effort-luck distinction. Furthermore, as predicted by justice judgment theory, the effect of state benefit appears to be independent of whether it is targeted at the rich or not. The fact that a state benefit that was not targeted at the rich had such a large effect, explains why compensatory arguments based on privileges granted exclusively to the rich (especially if this happens in times of crisis), can indeed be powerful enough to shift mass preferences and policies in a more progressive direction. We will examine the moderating role of level of income below.

Open-ended justifications show that in all countries, respondents reacted to the state benefit source of income by demanding a payback of benefits granted by the state.[27] Sample justifications include "Because he is responsible for repaying what he gets from the government as a subsidy" (Argentina) or "Bailed out by the government and should be charged a higher tax rate to compensate for that" (U.S.). The U.S. did stand out however as being the only country in which a significant share of respondents (around 20%) think individuals benefitting from the state should pay a higher tax rate not to compensate for the benefit but as punishment for taking money from the government. Example justifications include: "Because they deserve to be penalized for being bailed out" or "They got bailed out by tax payer money. That is wrong". These types of preferences are however consistent with recent findings showing respondents in the U.S.

[27]Justifications revealed that a small portion of respondents (7.6% in Argentina, 9% in Chile, 0.6% in Australia and 0.6% in the U.S.) chose profiles with the state benefit source of income not because they received bailouts or subsidies but because they owned companies and therefore i) had more control over their income or ii) by principle should pay more than a mere employee. Excluding respondents who interpreted the state benefit source of income in this way does not change the pattern of results in any way.

use high taxes to punish corrupt businesspeople Tella, Dubra and Lagomarsino (2016). Moreover, they remind us that while fairness is often linked to altruism, it also involves an inclination to punish those who are perceived as dodging their fair share of societal burden, as shown by Fehr and Gächter's seminal public goods experiment (2000).

The second novel finding is that negative state benefits in the form of regressive consumption taxes also matter for tax preferences, as indicated by the percentage of income paid in sales tax attribute. In accordance with the application of compensatory arguments, the effect of this attribute is also monotonic, with the probability a profile will be chosen increasing as the share of its income paid in sales taxes decreases.[28] In addition, this attribute presents two policy-relevant particularities. In the first place, unlike most other attributes, its effects represent a strong consensus. That is to say, the level of favorability garnered by this attribute does not significantly vary across different politically relevant groups, expressing a general agreement that surpasses even class and party cleavages.[29] In the second place, both choices and justifications show respondents have a strong commitment to horizontal and vertical equity, as they seek to equalize tax rates whenever income levels are the same, and dislike the combination of high income and a low share paid in sales tax. In fact, in the U.S. 89% of the profiles that combined a higher income and a lower tax rate were chosen, regardless of the source of income.[30] This commitment to vertical equity could well be mobilized politically given the objective regressivity of indirect taxation.

Moreover, it is worth highlighting that source of income and share of income paid in sales tax did not operate as subsidiary criteria, used only when levels of income were equal. In fact, between 18 and 30% of the choices made on the basis of the receipt of a

[28]The larger effect of this attribute in the U.S. could potentially be related to the phenomenon described above. To the extent that a share of respondents in the U.S. view taxes as a penalty (as opposed to a duty to be fulfilled), they may be more sensitive to its unequal distribution.

[29]See SI for results by respondent party identification and by respondent income. Breaking down results by respondent income level also indicates that the experiment did a good job of minimizing self-interest bias and capturing fairness preferences instead, as income only slightly moderates ability to pay preferences.

[30]This percentage was significantly lower, at between 78 and 81% in the other three countries.

state benefit involved picking profiles with a lower level of income.[31] Similarly, between 12 and 18% of the choices made on the basis of share of income paid in sales tax also required picking a profile with a lower level of income.[32] This suggests a significant portion of respondents privilege a compensatory fairness rule over the more established ability to pay ideal.

The third novel finding in figure 2 comes from elucidating the relative importance of the different fairness concerns. It clearly shows that ability to pay concerns have the largest effect on the probability of selection, an effect that can furthermore be expected to continue to grow with the level of income. Compensatory arguments are also shown to be substantively important though. In terms of magnitude, state benefits have the largest positive effect on the probability of selection after level of income in all countries.[33] This, despite the fact that the state benefit source of income can be thought of as representing a lower bound of the effect of a positive state benefit (inasmuch as it is not targeted at the rich nor associated with a time of crisis). Finally, the effect of the share of income paid in sales taxes, while smaller, is still non-negligible, with an effect size at least as large as luck in most countries.

The fourth novel finding is the similarity in trends across all four countries. Indeed, despite large differences in culture, institutions and socio-economic characteristics, both magnitudes and relative ordering of MMs are remarkably similar across countries, with the exception of sources of income in Australia. This finding accords well with Aarøe and Petersen (2014)'s argument that cross-national differences in welfare state preferences hide micro-level similarities in psychological predispositions. They thus highlight the importance of institutions in explaining differences in political outcomes across countries.

[31]The exact percentages were 18% in the U.S. sample, 21% in Chile, 26% in Australia and 30% in Argentina.

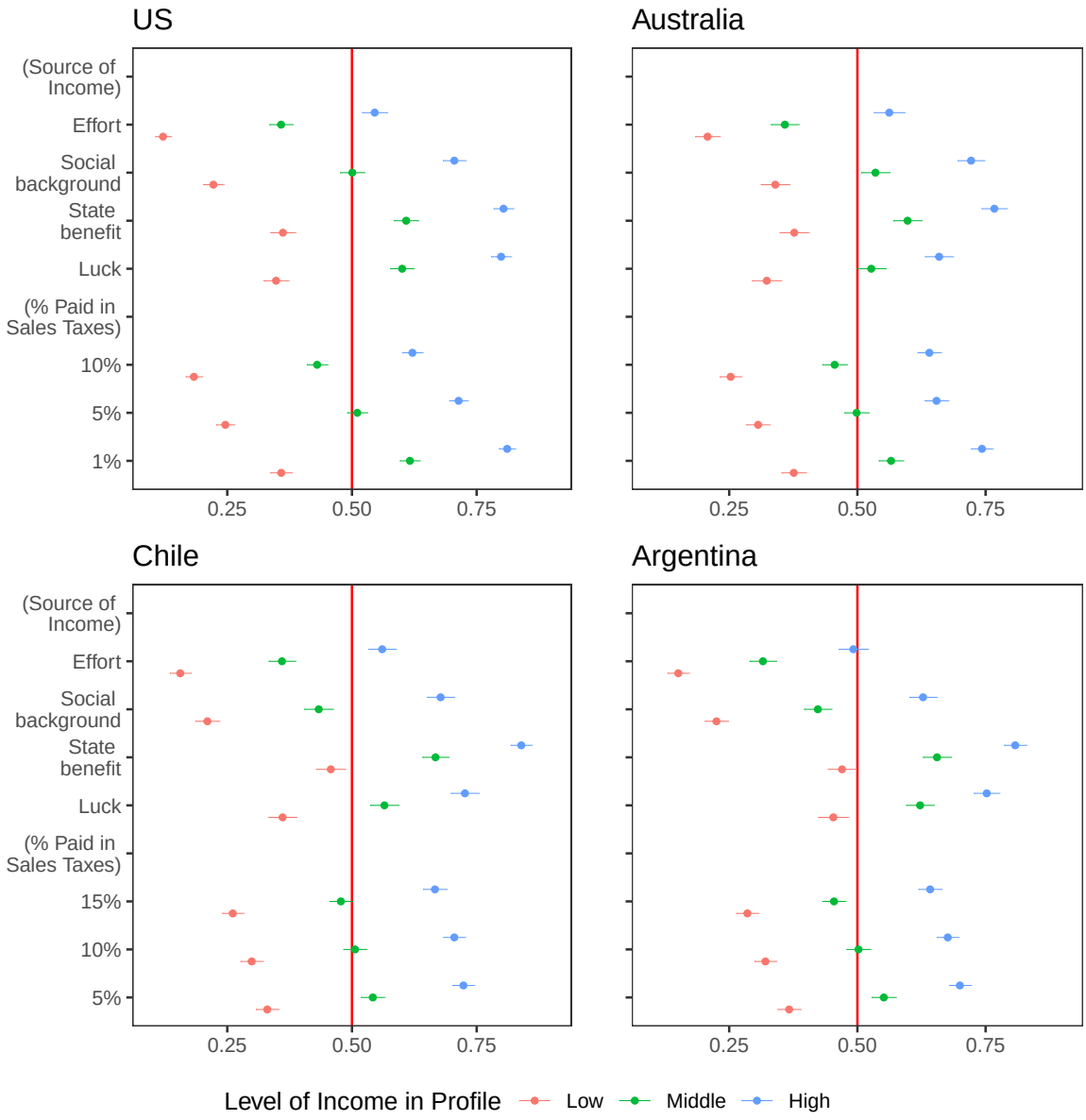
[32]The exact percentages were 12% in Chile and Argentina, 16% in the U.S. and 18% in Australia.

[33]In the case of the US, the 1% share paid in sales taxes and luck and state benefit sources of income are all tied for this largest effect (after level of income). If we scale estimates by taking into account differences in probability of co-occurrence across attributes (Leeper, Hobolt and Tilley 2020), the estimate for 1% is slightly larger than for the other two (0.67 vs 0.63).

4.1 What if They Are Rich?

In addition to the pooled results, my conjoint design also allows me to examine the interactive relationship between different attributes. Above, I have argued that the effects of compensatory arguments can be expected to be even larger when they are targeted at the rich. One way of evaluating this is to look at how the effect of a state benefit varies with the level of income in the profile. To see this graphically, figure 3 presents marginal means by level of income in the profile for each country.

Figure 3: Marginal Mean Outcomes by Level of Income in Profile



Note: Plots shows marginal mean outcomes from forced choice conjoint experiment, estimated separately for profiles with different levels of income. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 3 clearly shows that across countries, being paired with a higher level of income monotonically increases the favorability of all other attributes. In fact, profiles with a low level of income are unlikely to be chosen, whatever their other attributes, while the opposite happens to profiles with a high level of income. Thus, while state benefits do have a larger probability of selection when paired with a high level of income, they are in no way unique in this regard, as the same is true for all other attributes (and to a

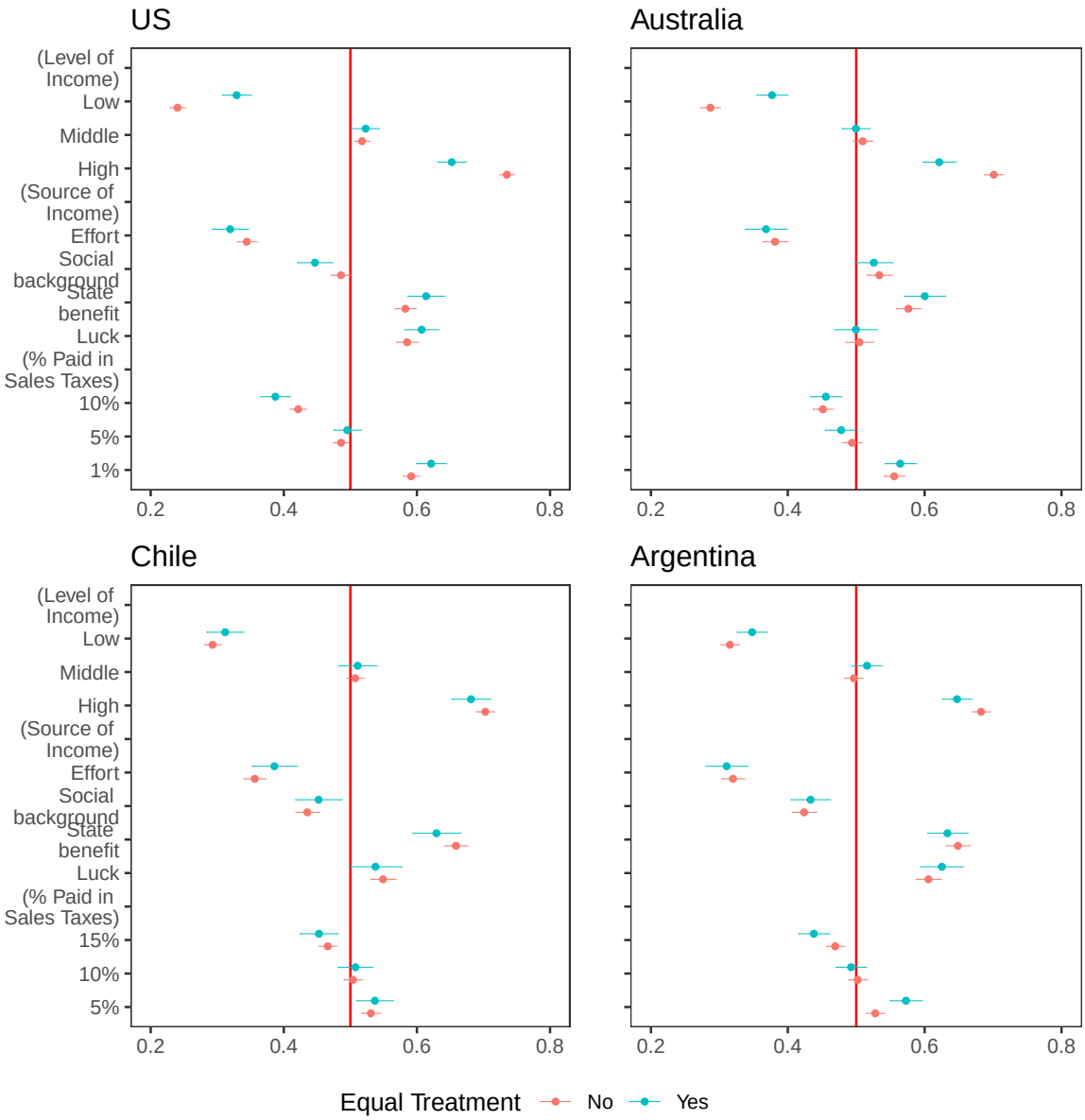
similar extent). Nonetheless, three unique aspects of state benefits bear noting. One, when combined with the highest level of income, the union of compensatory and ability to pay concerns results in state benefits having the largest probability of selection (for the US and Australia this includes negative state benefits). Two, unlike luck or other sources of income, in the real world the case can often be made that state benefits (both positive and negative) are in fact targeted at the rich, boosting their political potency.[34] Finally, as we will see below, in most countries preferences of liberals and conservatives are not significantly different when it comes to state benefits (both positive and negative), and when they are (as in the case of positive state benefits in the U.S.) it is conservatives who are most likely to apply compensatory arguments. This suggests compensatory arguments may have the potential to expand the basis of support for progressive taxes to a key constituency averse to ability to pay arguments.

4.2 Alternative Explanations: Equal Treatment

As mentioned above, compensatory arguments can be thought of as the flip side of equal treatment preferences: given that the state should treat everyone equally, if it does not then compensatory demands arise in an attempt to restore equality. Does this mean compensatory demands are actually explained by equal treatment preferences? Justice judgment theory suggests this should not be the case, and this is indeed what figure 4 shows.

[34]To a certain extent the same can be said about social background, as the rich can enjoy unparalleled opportunities. However, results from my formative studies suggest sources of income resulting from one's social background are often perceived as either resulting from blind (as in unbiased) luck, or nonetheless requiring some level of effort, which explains their intermediate effects. Conversely, while some groups like to claim that the rich exert higher levels of effort, there is no objective evidence of this.

Figure 4: Marginal Mean Outcomes by Equal Treatment Beliefs



Note: Plots show marginal mean outcomes from forced choice conjoint experiment, estimated separately for two different groups of respondents: those who think everyone should pay the same share of their income in taxes, and those who think some people should pay more than others. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 4 presents marginal means separately for respondents who think everyone should pay the same tax rate, and those who think some should pay more than others. Between 20 and 30% of respondents in each country exhibited equal treatment beliefs.[35]

[35]The percentage of respondents with equal treatment preferences in each country are as follows: 24% in the U.S., 29% in Australia, 19% in Chile and 27% in Argentina.

Results thus add to existing evidence that equal treatment beliefs are widespread -beyond the U.S. and Europe-, and correlated with less progressive tax preferences as evidenced by the level of income attribute. However, in all of the countries in the sample sensitivity to compensatory arguments is not limited to people with equal treatment beliefs[36], suggesting the state benefits included in the survey violate a more basic and widespread expectation of equality before the law.

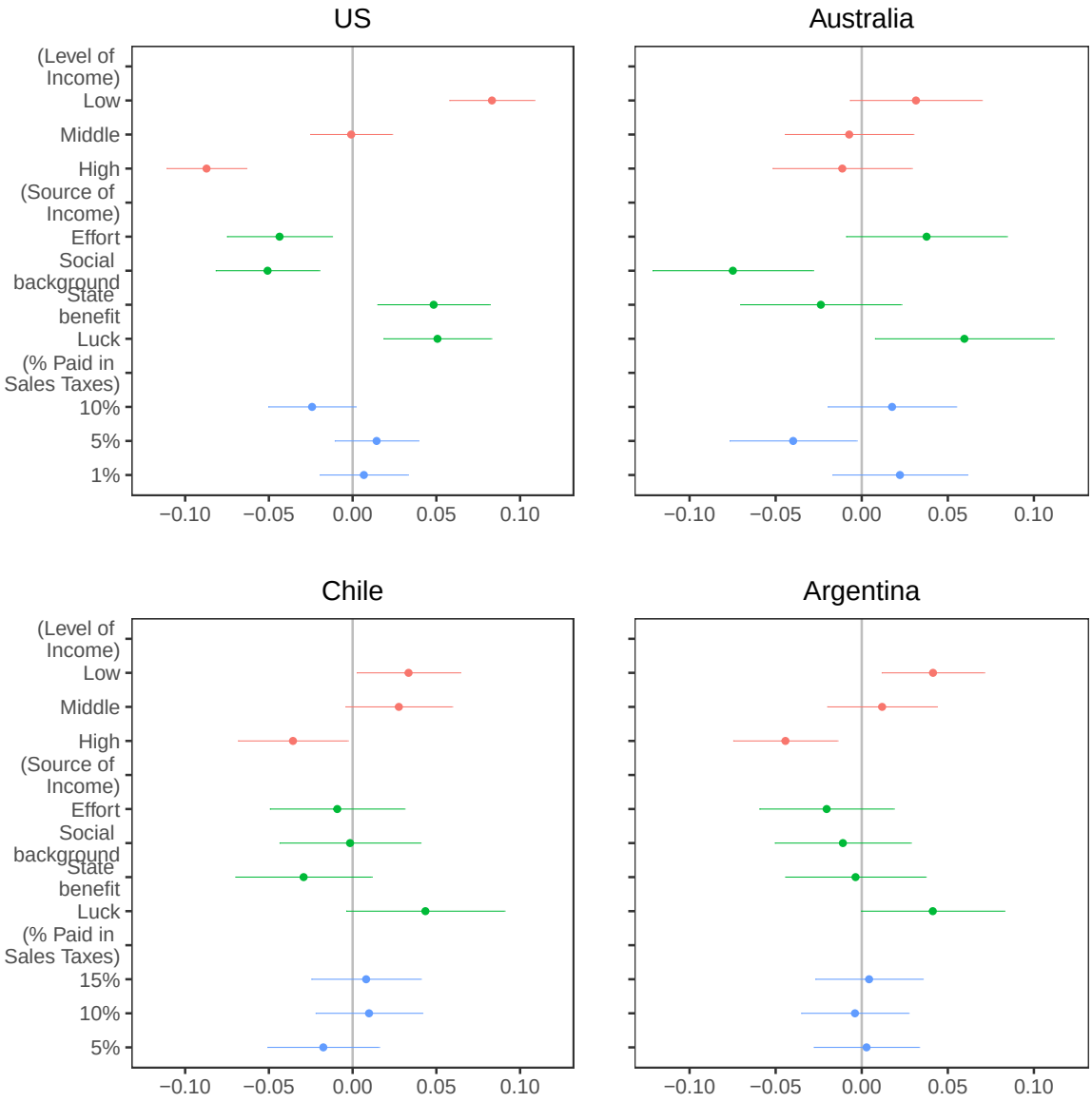
4.3 Probing Political Viability: Ideological Differences

So far we have considered only average preferences, but as social choice theory shows, political outcomes are the result of the interplay of preferences and the institutions tasked with aggregating them. Indeed, one would be hard pressed to explain differences in redistributive and tax policies across the countries studied only on the basis of the individual preferences revealed here (or elsewhere). One important institutional factor to consider is the need to reach consensus across multiple parties, making ideological differences between them particularly relevant. As a way of getting at this with the data at hand I examine whether preferences surrounding state benefits vary significantly by party identification or self-reported ideology.[37] If it were the case, for example, that only Democrats cared about the unequal distribution of the burden of indirect taxes, this would make it less likely that compensatory arguments could lead to an increase in tax progressivity on the basis of this fact.

[36]This measure of equal treatment as support for flat taxes is undoubtedly more restrictive and less nuanced than the one used by Scheve and Stasavage (forthcoming), who measure adherence to equal treatment with a survey question asking respondents whether the state should treat citizens equally regardless of circumstances or take into account economic or other advantages or disadvantages on a scale from 1 to 5. However, it is more relevant to the subject at hand and high levels of support across all countries suggest it is not too extreme. Moreover, the share of respondents who prefer a proportional tax in the U.S. (24%) is similar to the share estimated by them.

[37]The obvious implicit assumption here is that parties are responsive to the preferences of their partisans, which seems reasonable in the context of democratic polities.

Figure 5: Differences in Marginal Means by Respondent Ideological Self-Placement



Note: Plots show estimated differences in conditional marginal mean outcomes by respondent ideological self-placement (left and center-left vs right and center-right). Estimated differences are right-left wing. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 5 presents estimated differences in the preferences of left and right wing respondents in each country.[38] As we can see, there are significant differences in ability to pay preferences in almost all countries (with the exception of Australia), with liberals

[38]Ideological self-placement was determined on the basis of the question "On economic policy matters, where do you see yourself on the left/right spectrum?", which had a 5-point response. See SI figure 16 for marginal means by ideological self-placement (as opposed to the differences between them).

more likely to choose high income profiles and less likely to choose low income ones that conservatives. However, when it comes to state benefits we see that in the case of the positive state benefit the only country where there are significant ideological differences is the U.S. where it is notably conservatives who are more sensitive to this source of income than liberals. In the case of negative benefits, there are no systematic differences in any of the countries, with respondents across ideological groups more likely to choose profiles with a lower tax payment and less likely to choose profiles with a higher tax payment. These results suggest building a broad enough consensus for tax reform on the basis of compensatory arguments should be possible.

Moreover, this pattern of results holds whether using vote choice or party identification or the complete range of ideological self-placement (including centrists) to define subgroups. Nonetheless, I focus on ideological self-placement because party identification is very low in Latin America (making me lose more than 80% of observations in some countries), and vote choice is subject to strategic considerations beyond ideology.[39]

U.S. results, which stand out for their high level of polarization, deserve further discussion. Contrary to claims that the American electorate is not ideologically polarized (Fiorina, Abrams and Pope 2005; Hetherington and Rudolph 2015), these findings show a clear pattern of differences between liberals and conservatives, with liberals more likely to decide on the basis of a profile's level of income (regardless of the level) and conservatives more likely to decide on the basis of its source of income (regardless of the source).[40] This is consistent with an ideological story whereby liberals apply ability to pay considerations and prefer redistributive, progressive taxation, while conservatives apply deservingness considerations that are not linked to progressivity.[41] These differences are also in line with

[39]See SI for results using vote choice, party identification and self-placement including centrists.

[40]Moreover, these differences are not simply an expression of self-interest, as income is not highly correlated with party identification or ideology in the sample (Spearman's ρ=0.10 and 0.11 respectively), and controlling for respondent income does not alter the results.

[41]While ability to pay principles express support for progressive taxation and therefore redistribution, deservingness and compensatory principles do not have direct implications for the distribution of the tax burden across income groups. However, deservingness arguments are often used to oppose progressivity by conflating effort and wealth (arguing the rich deserve their wealth because they have exerted more effort). On the other hand, compensatory arguments have also often been used to promote progressivity

research arguing conservatives in the U.S. prioritize procedural justice rules while liberals give more weight to fair outcomes by applying distributive justice rules (Miles 2014). These large ideological differences, and the ensuing difficulties in building cross-party consensus, may be part of the reason why redistribution in the U.S. is much lower than in other advanced democracies (Elkjaer and Iversen 2021). Notably however, negative state benefits are the one attribute over which preferences coincide even in the U.S.

5 Discussion

As the coronavirus pandemic continues to unfold, calls for increasing taxes on the rich are emerging all over the globe. This paper helps us understand both why this is happening and the conditions under which these demands will be strongest.

I have provided direct, descriptive and causal evidence that compensatory theory is an important driver of tax preferences in general, and tax progressivity in particular. This is true both for positive state benefits -such as bailouts or subsidies- and negative ones -such as regressive consumption taxes-. Moreover, it holds across four different countries with very different institutional, economic and cultural features. While external validity is always a limitation of experimental research, these findings are encouragingly aligned with more descriptive studies suggesting compensatory demands have been successful in driving increases in tax progressivity in the past (Limberg 2019; Scheve and Stasavage 2016).

Results suggest that, as argued by previous work, compensatory arguments can be expected to be most compelling when state benefits are specifically granted to the rich in the context of a crisis. However, while the type of positive benefits granted under these circumstances generate the largest effects, the negative type of state benefits that characterize peacetime tax regimes also offer an opportunity to demand compensation in the form of progressive taxation. The fact that many countries find it difficult to shift away from their reliance on indirect taxation suggests the conditions for compensatory arguments to arise may be more readily available than previously thought.

by demanding the rich pay higher rates of income taxation.

In relative terms, the overall effect of compensatory arguments is shown to be smaller than that of ability to pay concerns. However, it is at least as large as (and often larger than) well-established deservingness concerns. Furthermore, they exhibit two potentially important advantages when it comes to promoting tax progressivity. In the first place, they appeal to a broader set of voters than ability to pay, appearing to overcome the partisan and class divisions that typically impede tax reform. In the second place, compensatory arguments are particularly compelling when state benefits are targeted at the rich, a situation that seems to be becoming habitual. And while increases in the share of income accumulated by the rich may be gradual, making it difficult to mobilize ability to pay concerns, evidence of large and conspicuous benefits to the rich can provide effective focal points for political mobilization.

Indeed, the political success of compensatory arguments will ultimately depend on their effective mobilization by political elites. And here again the limitations of my experimental approach come up. My purpose here was to test whether the public is sensitive to this type of arguments; their actual effectiveness will largely depend on the political supply side, an aspect on which this experiment provides no insight. In fact, while I show that conservatives may in principle be open to compensatory arguments that justify taxing the rich, in practice these positions may change as tax policy discussions become -as they often do- strongly politicized.

The broader implication of these findings is that while inequality may not increase demands for tax progressivity, fairness arguments might. Especially so in times of crisis. In the current context, analogies with mass mobilization wars are hard to avoid. The distribution of burdens can easily be argued to be similar: essential workers, who are disproportionately low income, see their lives and livelihoods at risk, while the rich grow richer. However, the success of current calls for taxing the rich will depend on the extent to which political actors are able to show not just that the rich are profiting while the rest suffer,[42] but that this is the result of deliberate actions (or lack thereof) by the state.

[42]A point that is increasingly being made by the media, see for example CNN, "US billionaires have regained $565 billion in wealth since the pit of the crisis", June 5th 2020, https://edition.cnn.com/2020/06/04/business/billionaire-wealth-inequality-pandemic-jobs/index.html, accessed July 1st 2020 or Reuters "Wall Street ends 2020 with embarrassment of riches", December 3rd

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A Supplementary Information

A.1 Case Selection

Figure 6: Market Inequality and Redistributive Effort

Note: This graph shows mean estimates of the gini index of inequality in equivalized household market income and absolute redistribution from the Standardized World Income Inequality Database. Graph includes most recent estimates for countries with estimates not older than 2010. Three countries with negative absolute redistribution values are excluded.

A.2 Formative Study

The sources of income used in the experiments were the result of formative studies conducted on independent samples in each country with the purpose of identifying sources of income that i) would be interpreted as the product of effort, social background, state benefit and luck, respectively; ii) were relatively orthogonal to one another; and iii) were independent of level of income. In each study, respondents were presented with different sources of incomes and were asked to express their agreement with the statement that each source of income resulted from luck, effort, state benefit and social background on a 7-point likert scale. Results for the sources of income selected in each country are included below. Each figure shows four histograms with the distribution of responses for the selected source of income in each country.

Figure 7: Effort

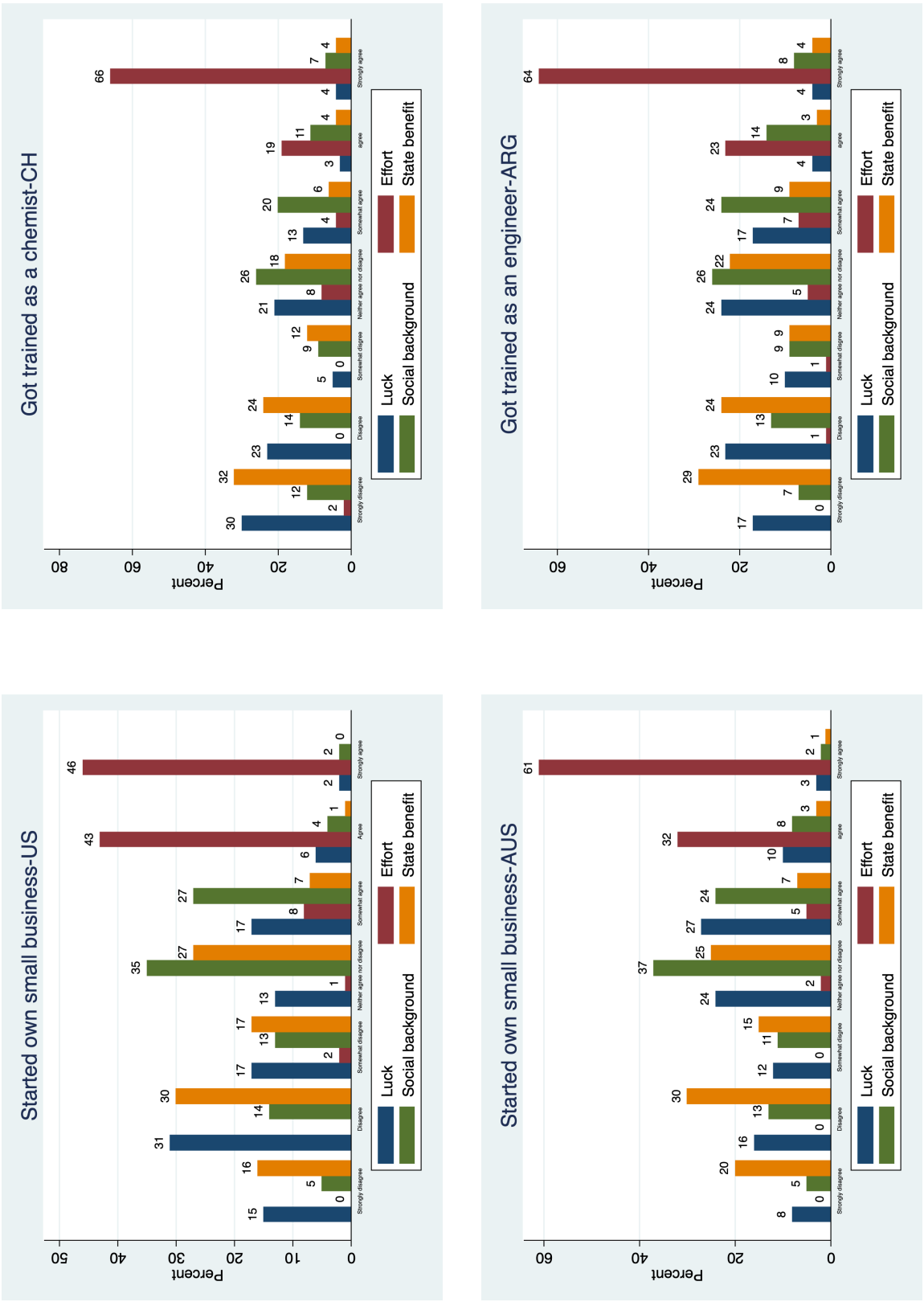


Figure 8: Luck

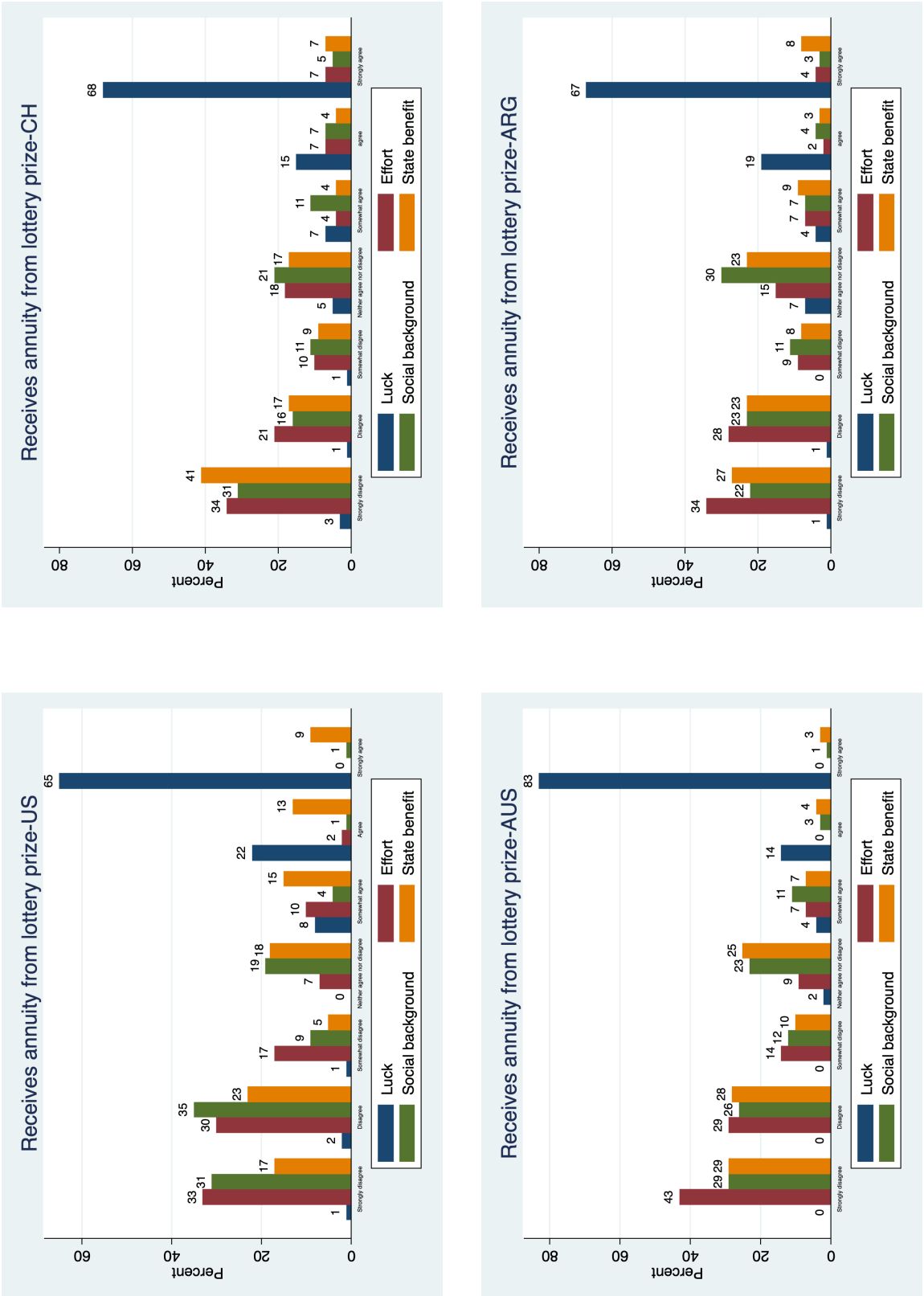


Figure 9: Social Background

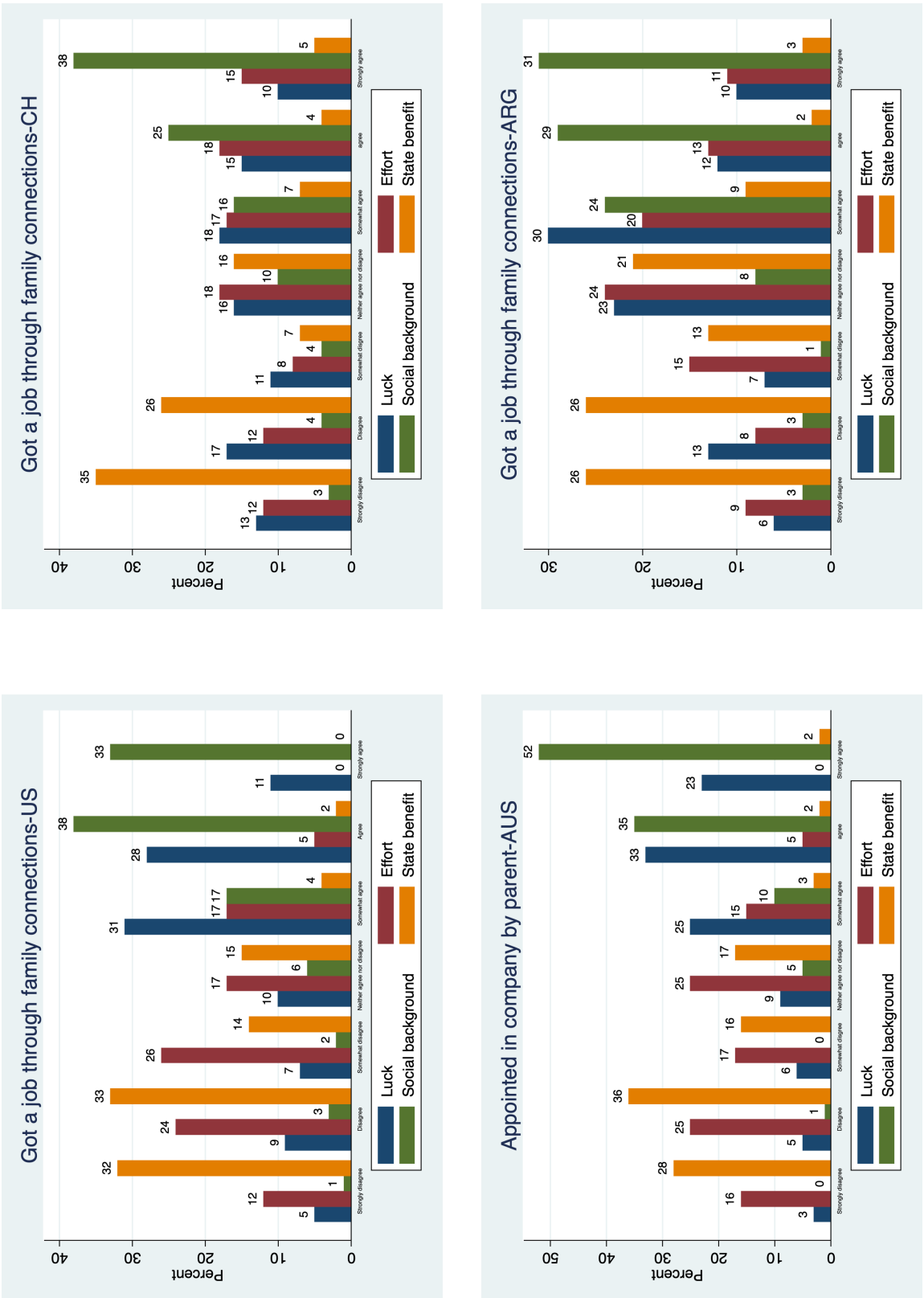
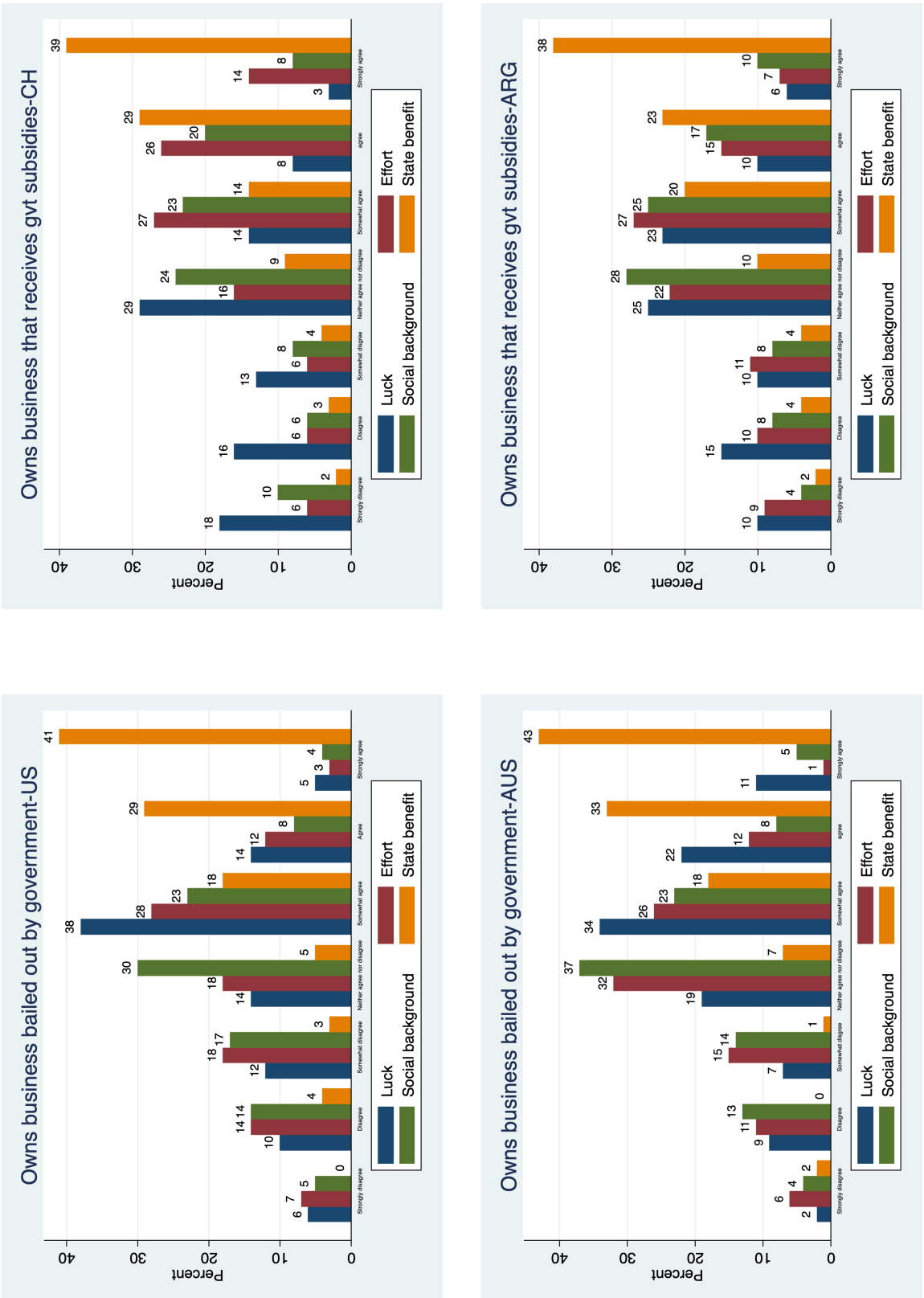


Figure 10: State Benefit



A.3 Attribute Levels by Country

Table 2: Attributes and Attribute Levels by Country

Attributes	**Attribute Levels**			
	Argentina	**Chile**	**Australia**	**U.S.**
Level of income	$25,000	$350,000	$40,000	$30,000
	$60,000	$800,000	$90,000	$80,000
	$100,000	$1,500,000	$160,000	$150,000
Source of income	Receives annuity from lottery prize	Receives annuity from lottery prize	Receives annuity from lottery prize	Receives annuity from lottery prize
	Got trained as an engineer and found a job	Got trained as a chemist and found a job	Started own small business	Started own small business
	Got a job through family connections	Got a job through family connections	Appointed by parent in company they direct	Got a job through family connections
	Owns a company that receives government subsidies	Owns a company that receives government subsidies	Owns business that was bailed out by government	Owns business that was bailed out by government
% of income paid in sales taxes	5%	5%	1%	1%
	10%	10%	5%	5%
	15%	15%	10%	10%

A.4 U.S. Sample and Weights

As stated in the paper, the U.S. survey was conducted on a sample of 2,000 MTurk respondents. The task was published in four batches between the 17th and 18th of October 2017, with the condition that respondents could not participate more than once. The first two batches, of 500 and 1,000 respondents had the restriction that only workers located in the US and with an approval rate of 90% or above could participate. The last two batches, of 300 and 200 respondents, had the additional restriction that respondents had to have annual household incomes above $100,000 and below $25,000, respectively. This was done with two objectives. The first was to ensure sufficient power for analyses involving splitting the sample by income (testing for the presence of self-interest). The second was to make sure representative population weights could be constructed without having to rely on a small number of observations of underrepresented high and low income respondents.

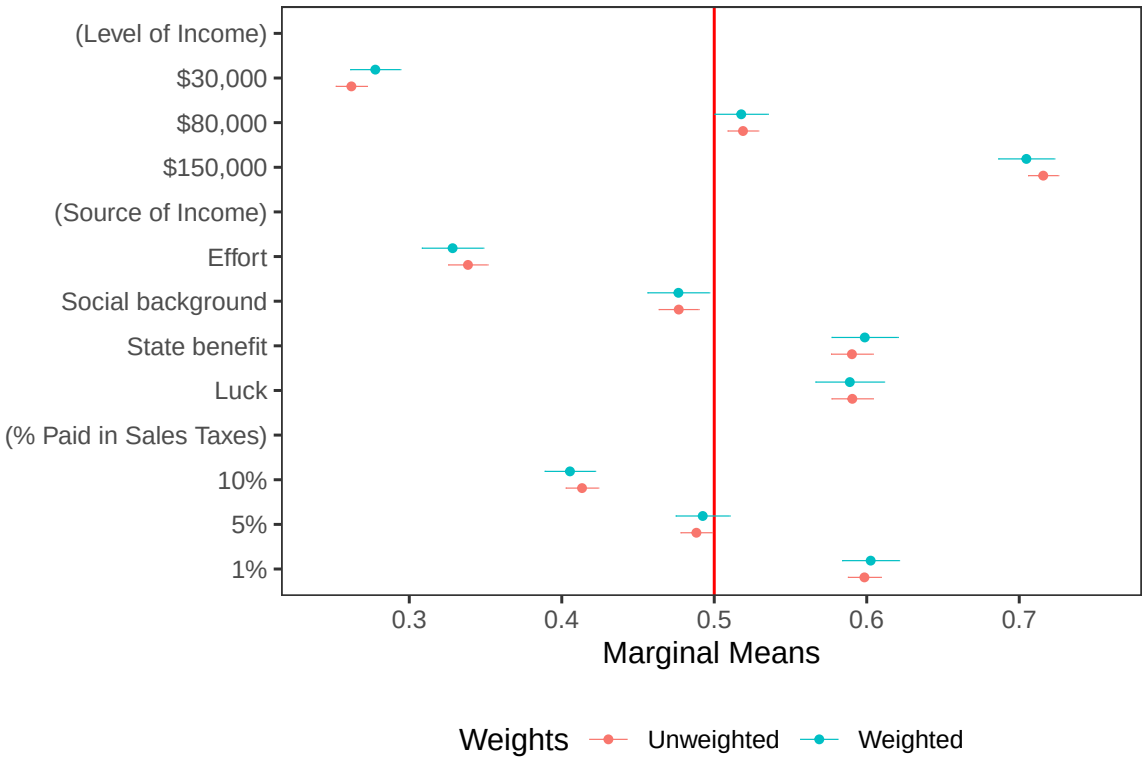
Once the sample was ready, entropy balancing weights (Hainmueller 2012) were constructed to adjust the sample to the margins of the adult population on age, gender, education, race, household income, partisanship and census region. Table 3 presents the distribution of socio-demographics in the raw sample, the weighted sample, and the population. Weights range between 1 and 15.

Table 3: Distribution of Socio-Demographics

Group	Raw Sample	Weighted Sample	Population
Gender: Male	.50	.49	.49
Race: White	.79	.78	.78
Age: 18-29	.29	.21	.21
Age: 30-49	.55	.34	.34
Age: 50+	.17	.45	.45
Education: Some college or less	.33	.60	.60
Education: College graduate	.51	.29	.29
Education: Post-graduate	.16	.11	.11
HH Income: $9,999 or less	.06	.05	.05
HH Income: $10,000-$19,999	.09	.07	.07
HH Income: $20,000-$29,999	.11	.08	.08
HH Income: $30,000-$39,999	.10	.09	.09
HH Income: $40,000-$49,999	.09	.08	.08
HH Income: $50,000-$79,999	.20	.21	.21
HH Income: $80,000-$99,999	.09	.11	.11
HH Income: $100,000+	.25	.32	.32
Region: Northeast	.20	.18	.18
Region: Midwest	.21	.21	.21
Region: South	.40	.38	.38
Region: West	.19	.23	.24
Party ID: Democrat	.44	.35	.35
Party ID: Republican	.22	.28	.28

NOTES. Population data comes from the 2016 Current Population Survey Annual Social and Economic Supplement, except for party identification data, which comes from the 2016 ANES Time Series Study.

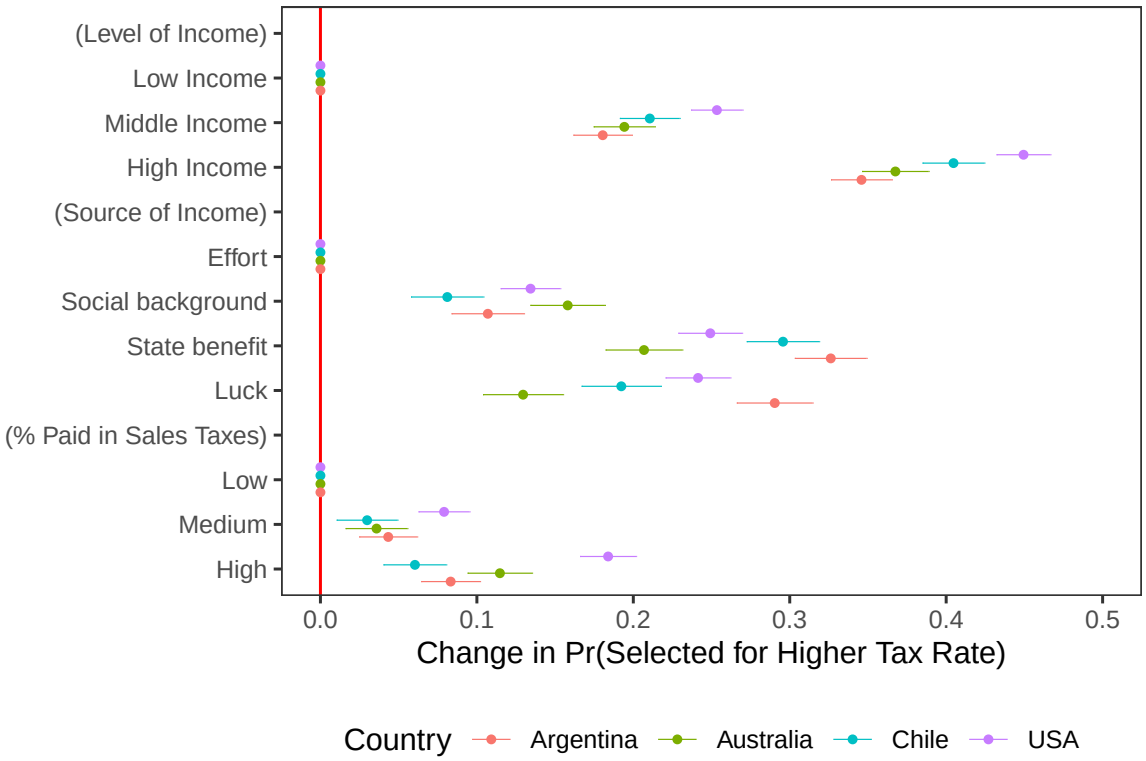
Figure 11: Weighted and Unweighted MMs for U.S.



Note: This plot shows marginal mean outcomes from forced choice conjoint experiments, with and without entropy balancing weights. Standard errors clustered by respondent. Bars represent 95% confidence intervals.

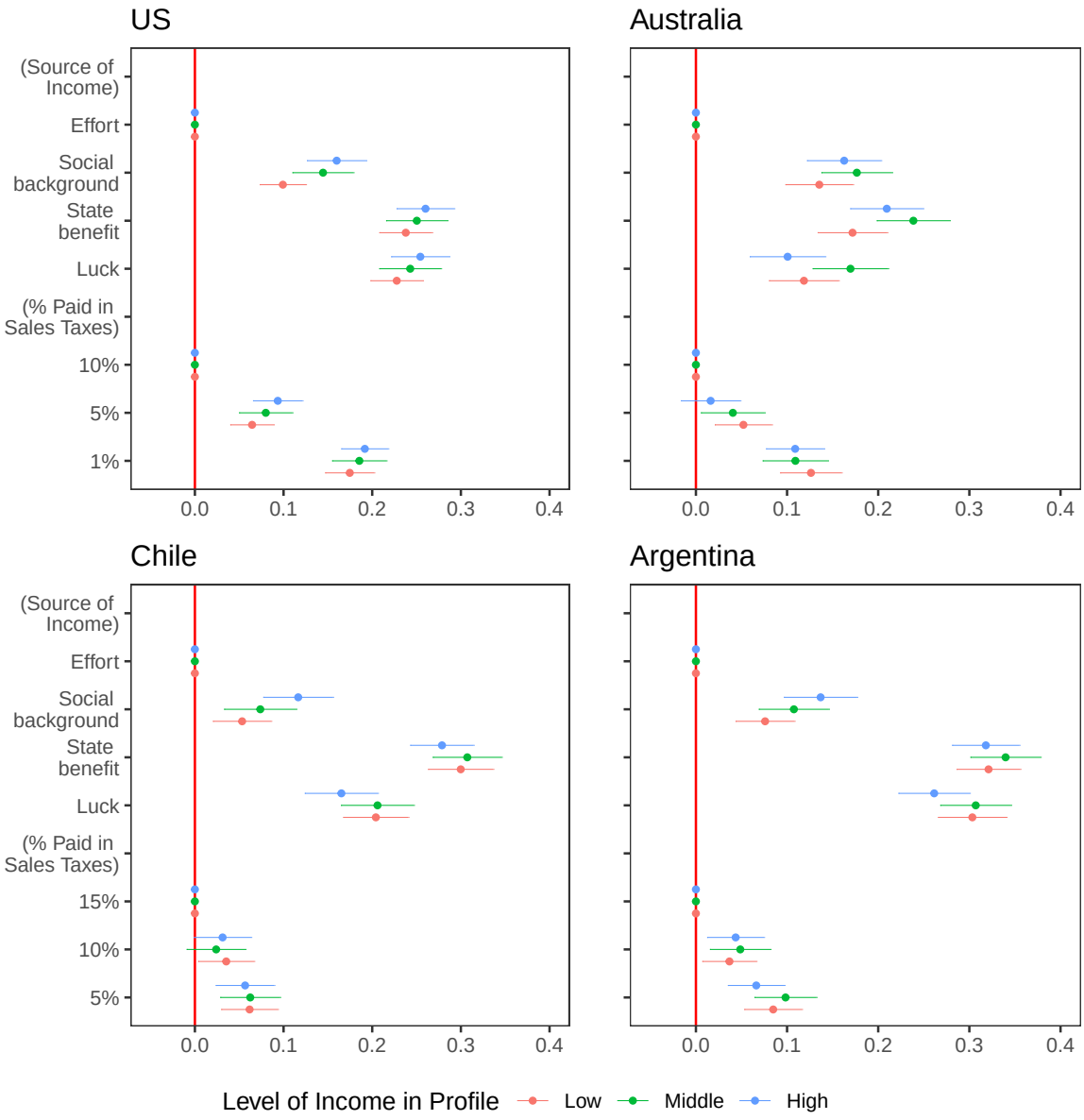
A.5 Average Marginal Component Effects

Figure 12: AMCEs by Country



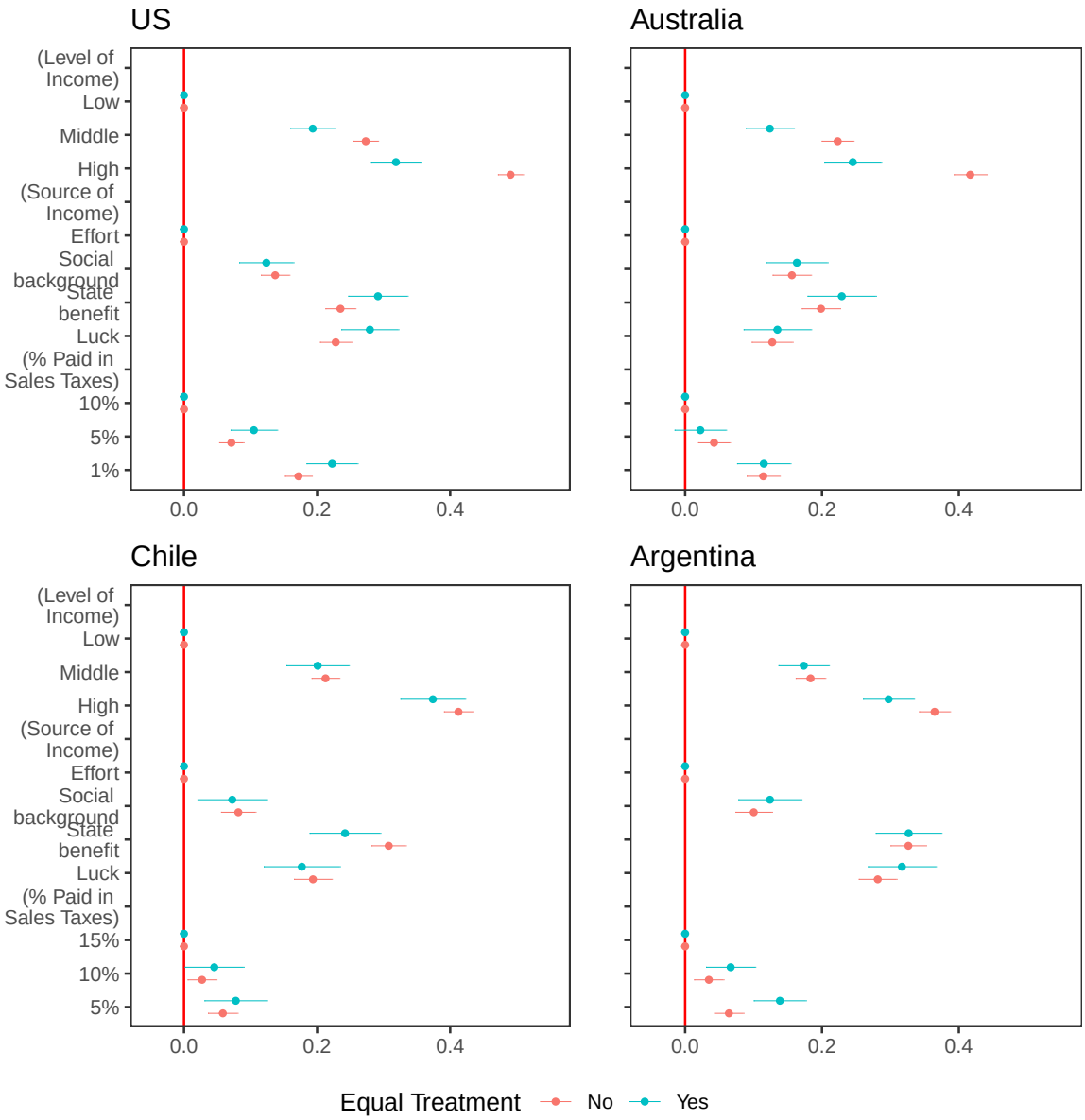
Note: This plot shows estimates of the effects of the randomly assigned individual attributes on the probability of being selected to receive the higher tax rate by country. Estimates are based on OLS model with robust standard errors clustered by respondent. Bars represent 95% confidence intervals. The points without horizontal bars denote the attribute level that is the reference category for each attribute. Attribute levels with the lowest probability of selection are chosen as reference categories for each attribute.

Figure 13: Conditional AMCEs by Level of Income in Profile



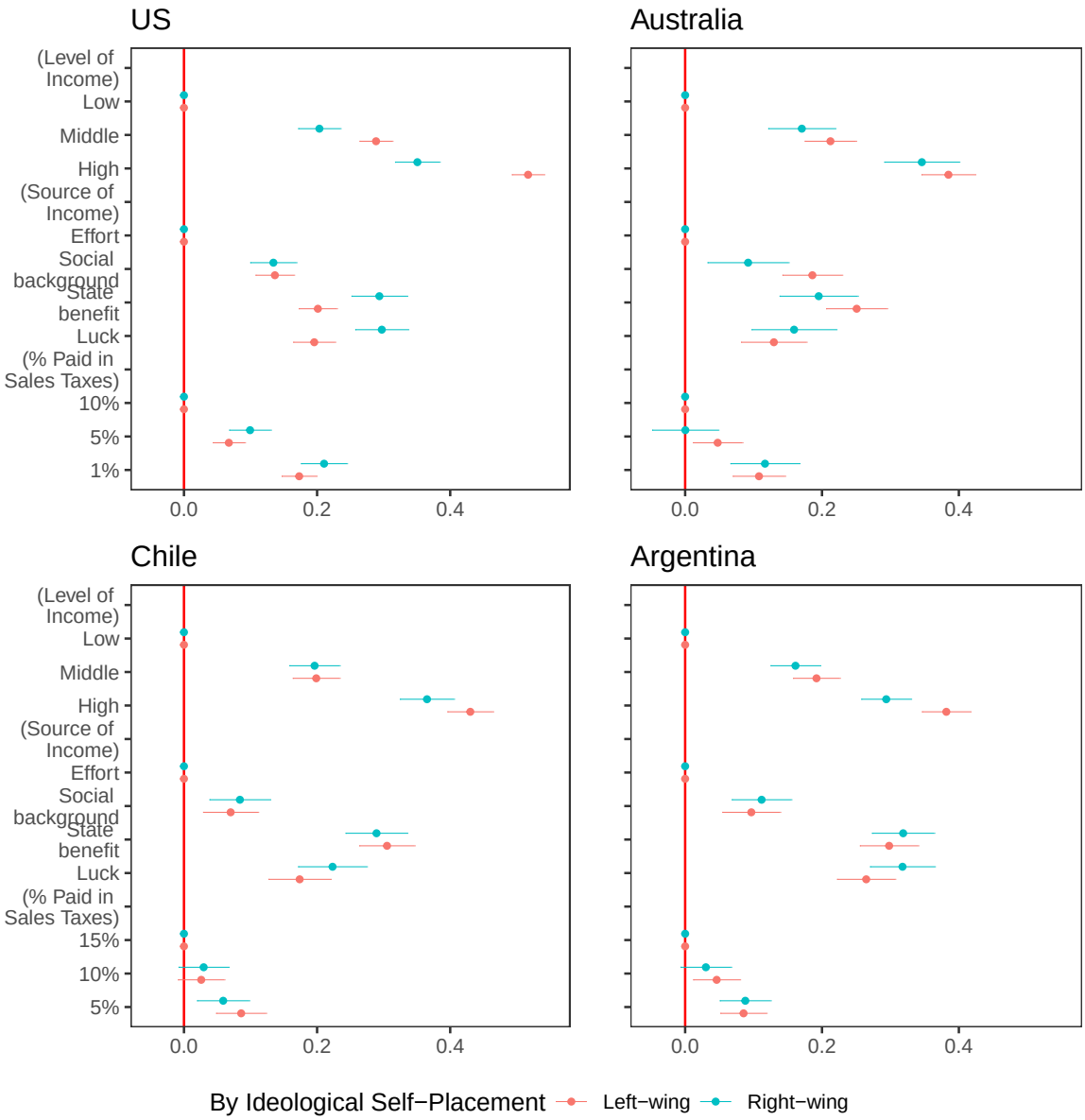
Note: This plot shows estimates of the effects of the randomly assigned individual attributes on the probability of being selected to receive the higher tax rate, by country. Estimates are based on OLS model with robust standard errors clustered by respondent, estimated separately for profiles with different levels of income. Bars represent 95% confidence intervals. The points without horizontal bars denote the attribute level that is the reference category for each attribute.

Figure 14: Conditional AMCEs by Equal Treatment Beliefs



Note: This plot shows estimates of the effects of the randomly assigned individual attributes on the probability of being selected to receive the higher tax rate, by country. Estimates are based on OLS model with robust standard errors clustered by respondent, estimated separately for two groups of respondents: those who think everyone should pay the same share of their income in taxes and those who think some people should pay more than others. Bars represent 95% confidence intervals. The points without horizontal bars denote the attribute level that is the reference category for each attribute.

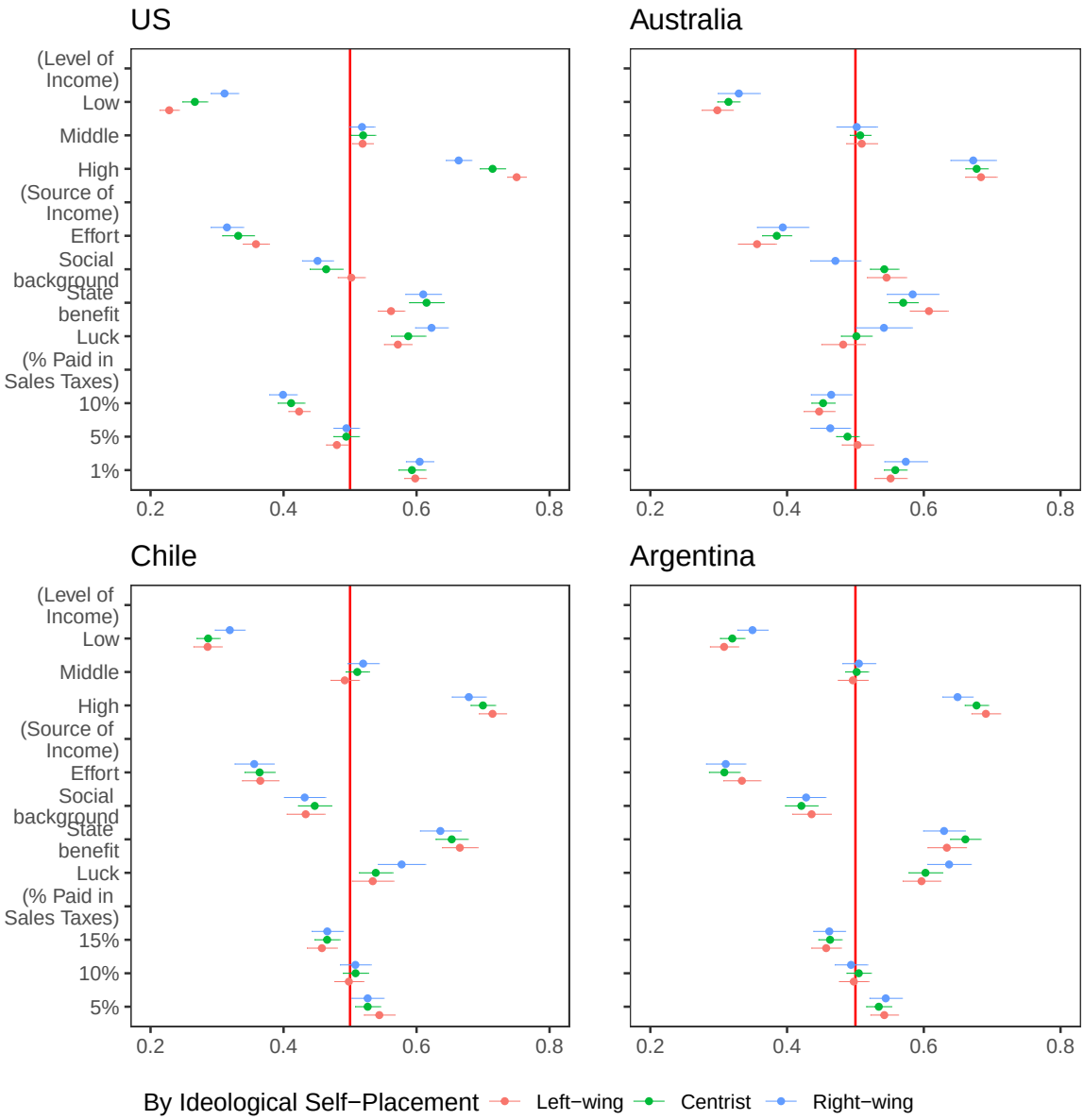
Figure 15: Conditional AMCEs by Respondent Ideological Self-Placement



Note: This plot shows estimates of the effects of the randomly assigned individual attributes on the probability of being selected to receive the higher tax rate, by country. Estimates are based on OLS model with robust standard errors clustered by respondent, estimated separately for two different groups of respondents: those who consider themselves to be left or center-left and those who consider themselves to be right or center-right. Bars represent 95% confidence intervals. The points without horizontal bars denote the attribute level that is the reference category for each attribute.

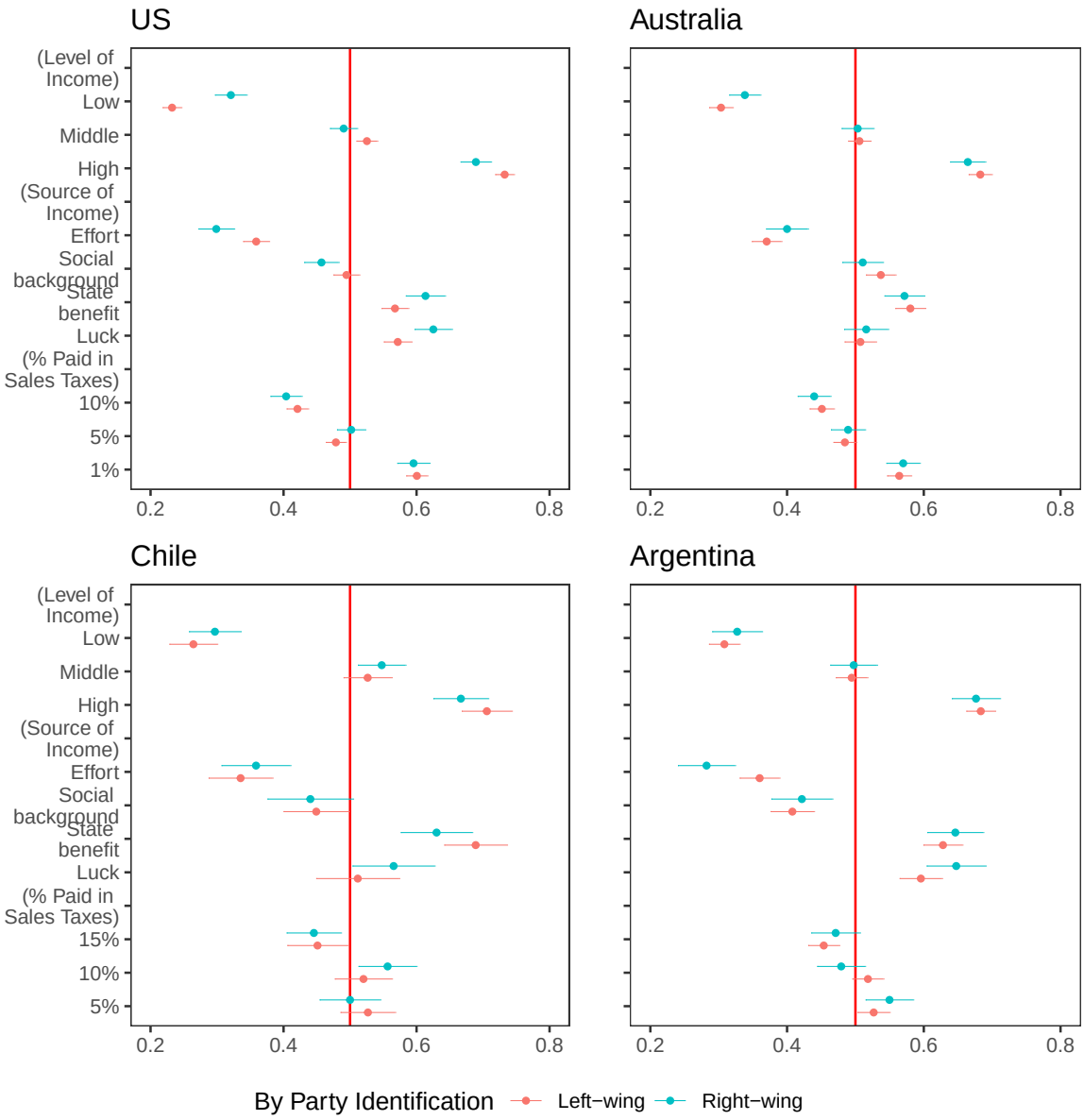
A.6 Marginal Means by Alternative Measures of Respondent Ideology

Figure 16: Marginal Mean Outcomes by Respondent Ideological Self-Placement



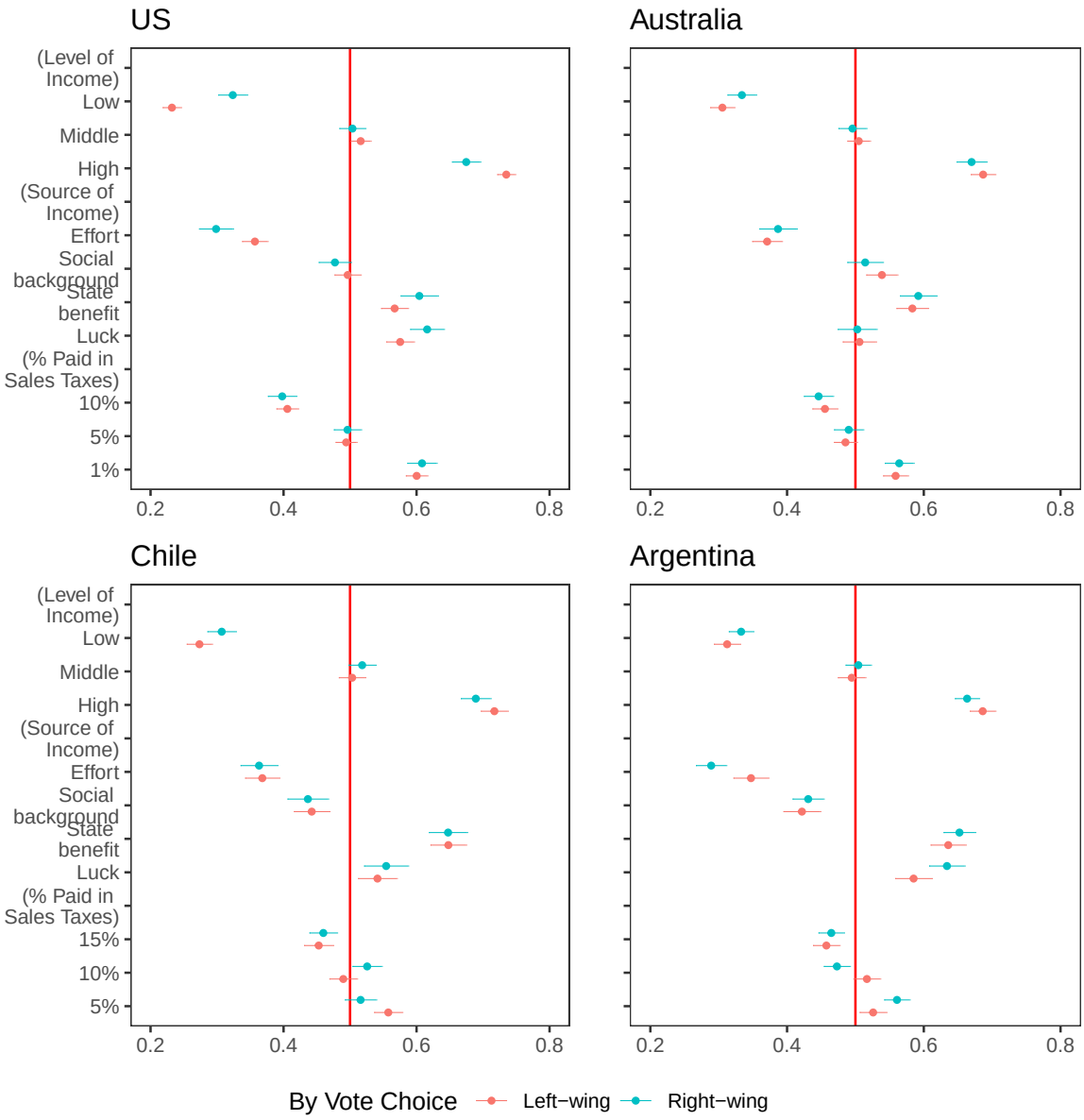
Note: Plots show marginal mean outcomes from forced-choice conjoint experiment, estimated separately for three groups of respondents: those who consider themselves to be left or center-left, center and right or center-right. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 17: Marginal Mean Outcomes by Respondent Party Identification



Note: Plots show marginal mean outcomes from forced-choice conjoint experiment, estimated separately for two groups of respondents: those who identify with left or center-left parties, and those who identify with right or center-right parties. Those identifying with center parties, other parties or as independents are excluded. See tables 4-7 for party codings by country. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 18: Marginal Mean Outcomes by Respondent Vote Choice



Note: Plots show marginal mean outcomes from forced-choice conjoint experiment, estimated separately for two groups of respondents: those who in the last general election voted for left or center-left parties, and those who voted for right or center-right parties. Those who voted for center parties, other parties or did not vote are excluded. See tables 4-7 for party codings by country. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Table 4: Party Coding: Argentina

Ideology	**Party identification**	**Vote choice**
Left	Partido Justicialista	Alberto Fernandez (Frente de Todos)
	Kirchnerismo	Nicolas del Cano (Frente de Izquierda)
	Partido Socialista	
Right	Union Civica Radical	Mauricio Macri (Juntos por el Cambio)
	Propuesta Republicana	Juan Jose Gomez (Frente NOS)
		Jose Luis Espert (Unite por la Libertad y la Dignidad)
Excluded	Other, None	Roberto Lavagna (Consenso Federal)
		Other, Did not vote

Note: The survey question used to capture party identification was: "Generally speaking, which party or political organization do you most identify with?". The survey question used to capture vote choice was: "Who did you vote for president in the 2019 presidential elections?".

Table 5: Party Coding: Chile

Ideology	**Party identification**	**Vote choice**
Left	Partido Socialista de Chile (PS)	Alejandro Guillier (La Fuerza de la Mayoria)
	Partido Radical Socialdemocrata (PRSD)	Beatriz Sanchez (Frente Amplio)
	Partido por la Democracia (PPD)	Marco Enriquez Ominami (PRO)
	Partido Comunista de Chile (PC)	Eduardo Artes (UPA)
	Revolucion Democratica (RD)	Alejandro Navarro (Pais)
Right	Union Democrata Independiente (UDI)	Sebastian Pinera (Chile Vamos)
	Renovacion Nacional (RN)	Jose Antonio Kast (Independiente)
	Partido Evolucion Politica (EVOPOLI)	
Excluded	Partido Democrata Cristiano (PDC)	Carolina Goic (PDC)
	Other, None	Other, Did not vote

Note: The survey question used to capture party identification was: "Generally speaking, which party or political organization do you most identify with?". The survey question used to capture vote choice was: "Who did you vote for president in the first round of the 2017 presidential elections?".

Table 6: Party Coding: Australia

Ideology	**Party identification**	**Vote choice**
Left	Labor	Australian Labor Party
	Greens	Australian Greens
Right	Liberal	Liberal Party of Australia
	National Party	National Party of Australia
		Liberal National Party of Queensland
		United Australia Party
		One Nation
Excluded	Independent, Other	Other, Did not vote

Note: The survey question used to capture party identification was: "Generally speaking, do you usually think of yourself as...". The survey question used to capture vote choice was: "If you voted in the May 2019 Federal election, which party got your first preference in the House of Representatives?".

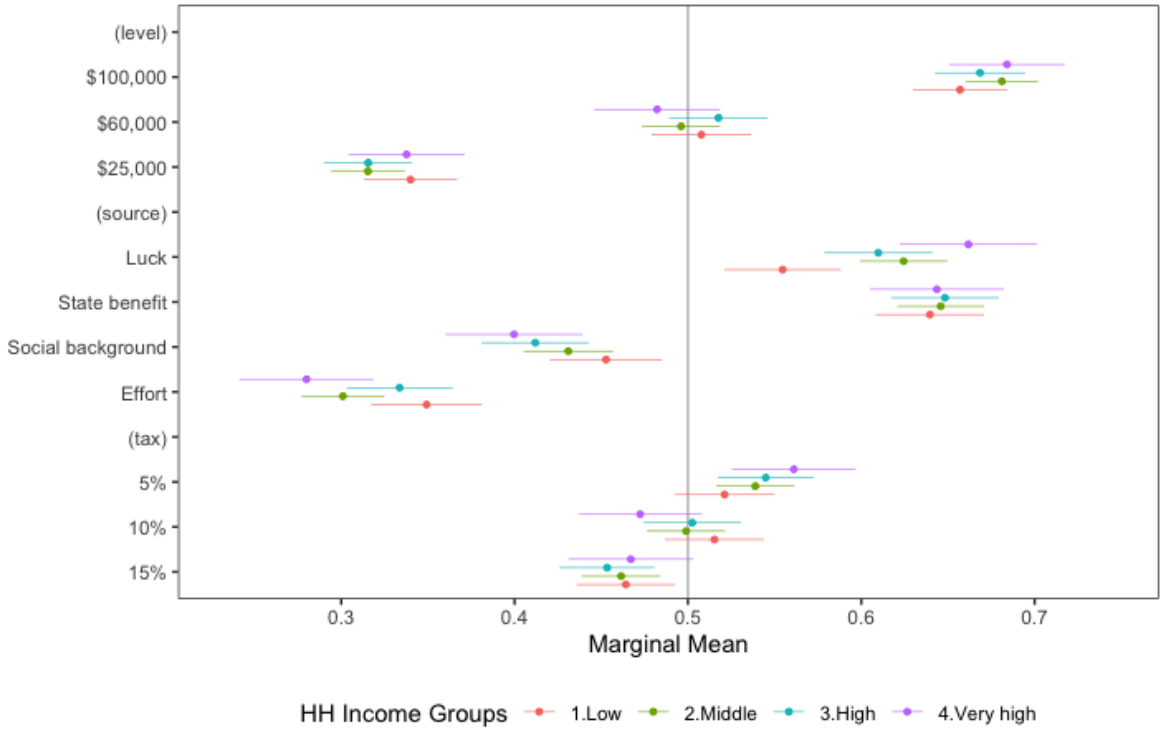
Table 7: Party Coding: U.S.

Ideology	**Party identification**	**Vote choice**
Left	Democrat	Hillary Clinton
Right	Republican	Donald Trump
Excluded	Independent, Other	Other, Did not vote

Note: The survey question used to capture party identification was: "Generally speaking, do you usually think of yourself as...". The survey question used to capture vote choice was: "If you voted in the 2016 presidential election, who did you vote for?".

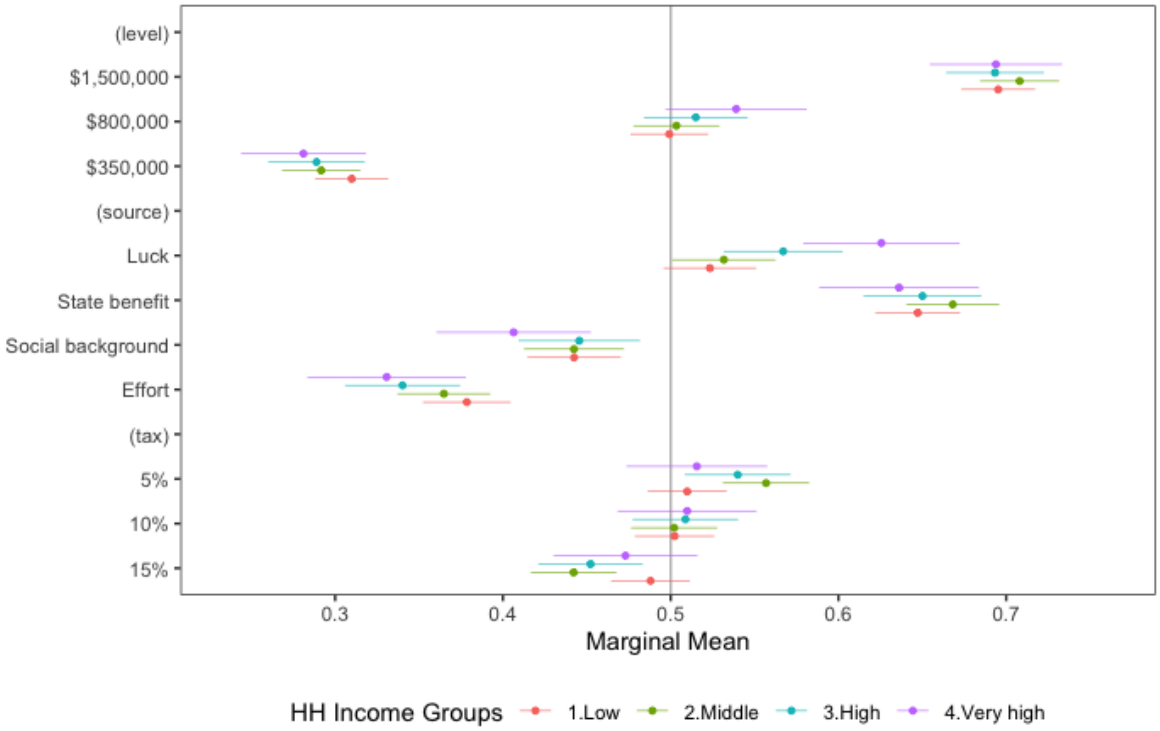
A.7 Marginal Means by Respondent Income Level

Figure 19: MMs by Respondent Income Level: Argentina



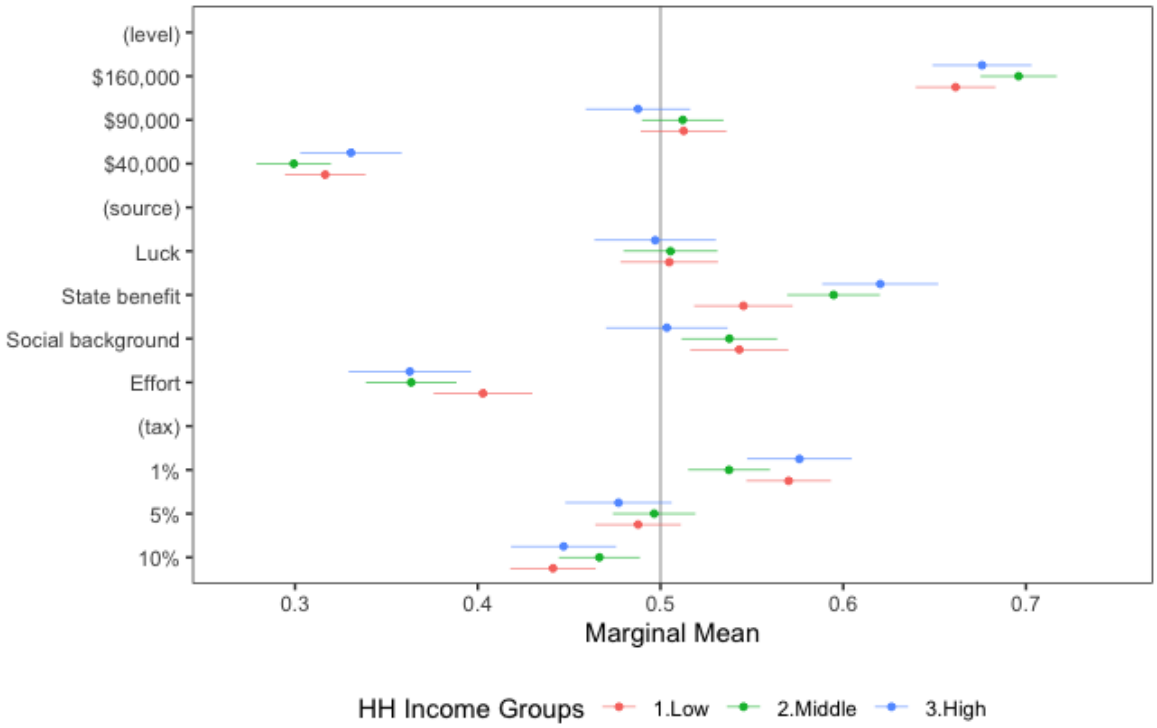
Note: This plot shows marginal mean outcomes from forced choice conjoint experiments, by respondent income level in Argentina. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 20: MMs by Respondent Income Level: Chile



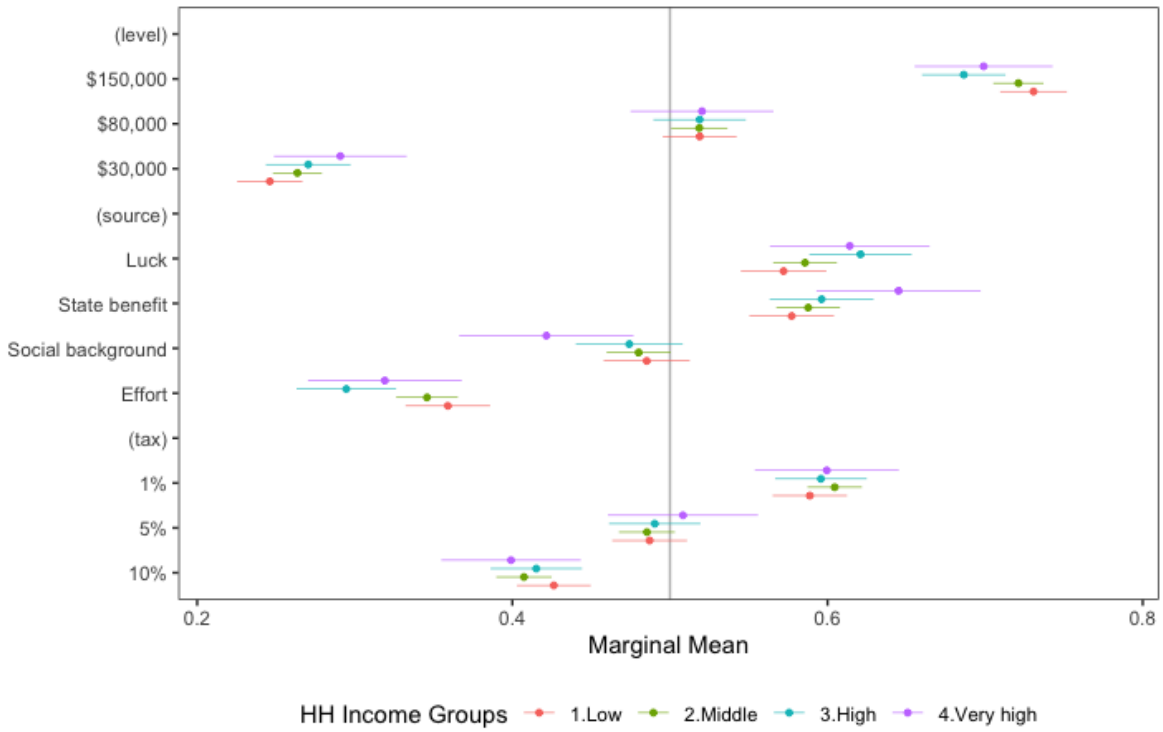
Note: This plot shows marginal mean outcomes from forced choice conjoint experiments, by respondent income level in Chile. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 21: MMs by Respondent Income Level: Australia



Note: This plot shows marginal mean outcomes from forced choice conjoint experiments, by respondent income level in Australia. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.

Figure 22: MMs by Respondent Income Level: U.S.



Note: This plot shows marginal mean outcomes from forced choice conjoint experiments, by respondent income level in the U.S. Estimates are unweighted and clustered by respondent. Bars represent 95% confidence intervals.