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# “The Behavioral Foundations of Social Politics: Evidence from Surveys and a Laboratory Democracy”

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and Erik Wibbels<sup>1</sup>**

## **Abstract**

The dominant theoretical approaches in the comparative political economy of the welfare state provide alternative accounts for why some governments spend more on social policies than others. In the first, poor voters seek to increase their current income by taxing the rich, and social policy serves to *redistribute* income from the rich to the poor. In the second account, voters seek social insurance against future job loss, and social policy serves as an *insurance* mechanism rather than a redistributive one. Both of these accounts share the assumption that voters can clearly distinguish between the redistributive and insurance elements of public policy and, therefore, that individual-level characteristics (income, labor market risks) systematically shape preferences over social policy. Our goal is to examine the soundness of that behavioral assumption. We do so with a laboratory experiment that involves economic production, voting on taxation and fiscal transfers. We treat subjects with social policies that vary in their level of redistribution and insurance to examine how this impacts their preferred tax rate. We complement

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the experimental evidence with data from original survey questions that assess voters' knowledge of the distributive characteristics of different social policies in the U.S. Evidence from both settings suggest only marginal support for behavioral underpinnings of the standard insurance model, particularly as the empirical setting more closely approximates the real world.

Why do some governments spend more on social policies than others? The dominant theoretical approaches to the comparative political economy of the welfare state provide two competing accounts. In the first, poor voters seek to increase their current income by taxing the rich, and social policy serves to *redistribute* income from the rich to the poor. It follows that political systems in which the poor are more powerful will spend more on social policy (Huber and Stephens 2001). In the second account, voters seek social insurance against future job loss. Because wealthier voters have more to lose from job loss, it is the rich who prefer more spending, and social policy serves as an *insurance* mechanism rather than a redistributive one (Iversen and Soskice 2001; Mares 2003; Moene and Wallerstein 2001). It follows that political systems with a higher share of voters exposed to labor market risks will spend more on social policy.

Both of these theoretical accounts are based on unexamined behavioral assumptions. They share the premise that voters can clearly distinguish between the redistributive and insurance elements of public policy and that individual-level characteristics (income, labor market risks) rather than cross-national differences (in norms of fairness or labor market institutions, for instance) shape preferences over social policy. The two lines of reasoning differ on whether voters care more about current consumption (the redistribution model) or future consumption (the insurance model).

As our review of extant work in experimental economics and behavioral psychology demonstrates, there are good reasons to question—albeit for different reasons—the behavioral underpinnings of models of social policy that distinguish between redistribution and insurance. First and most importantly, work in behavioral economics suggests that individuals use rather arbitrary rules of thumb once they are required to think along two dimensions. Since many social policies involve elements of both insurance and redistribution (Moene and Wallerstein 2003), it follows that participants might have a difficult time calculating preferences in a manner consistent with the theoretical predictions in Moene and Wallerstein (2001) and Iversen and Soskice (2001).

Yet if existing behavioral work gives reason to question the behavioral underpinnings of popular models of social policy, it rarely speaks directly to research on the political economy of redistribution and the welfare state. Though informative in a generic way about human psychology, most experiments lack crucial

ingredients of the political world: There is no production, no social choice process, and no redistribution from one person to another. Moreover, while there has been considerable behavioral work on redistribution and insurance separately, there has been very little work (actually, none as far as we can tell) on the capacity of voters/citizens to distinguish the distributive implications of policies that have redistributive and insurance characteristics. In short, there is very little experimental research that speaks directly to the real world of social politics.

In the absence of solid behavioral foundations, existing research on the political economy of the welfare state leaves us with many questions: How do citizens react to the inter-temporal trade-off between current and future income? How do they perceive and react to social policies that combine different elements of redistribution and insurance? Do high-income citizens differ systematically from the poor in how they evaluate risk and redistribution? We see experimental research as a fundamental precursor to developing answers to these questions and understanding whether, when, and why each of the contending approaches to comparative welfare states provide valid explanations for cross-national differences in social policies.

As such, our goal is to examine the soundness of the behavioral assumptions underpinning prominent models of social policy. We do so with an experiment that is designed to assess citizen preferences for redistribution and insurance under various policy treatments that combine different elements of risk, redistribution and insurance. These treatments are designed to elucidate whether participants understand the distinction between the redistributive and insurance elements of social policy, and if so how participants evaluate the trade-off between current consumption and future income security. We complement the experimental evidence with survey data from the Cooperative Congressional Election Study designed to assess if voters understand the distributive and insurance components of various specific social policies and how their understanding of those policies impact preferences over them.

The paper proceeds in five sections. In the following one, we review the behavioral assumptions underpinning the dominant approaches to the political economy of the welfare state and underscore concerns with those assumptions that emerge from experimental research in psychology, political science and behavioral economics. Thereafter we outline our experimental approach to assessing how people evaluate their preferences over redistribution and insurance in a lab setting. The third section offers findings based on 65 participants. To preview, we find that income is negatively related to preferences for redistribution and that risks and income interact to shape preferences for insurance. Contrary to recent models, however, participants key entirely on

risk and not at all on relative income when transfers are paid in equal part for insurance and redistributive purposes. In short, participants show little capacity to distinguish the insurance and redistributive impacts of policies despite our best efforts to encourage them to do so. These findings are broadly consistent with the behavioral work on risk aversion. In the fourth section we present survey-based evidence suggesting that voters have a moderate level of information on the distributive characteristics of different social policies. In a multivariate analysis of preferences for insurance and redistributive spending, we find only tenuous evidence supportive of the behavioral assumptions of standard insurance models of social policy preferences. In the concluding section we overview some of the costs and benefits of our empirical approach, suggest avenues for future research and underscore the importance of placing political economy work on firmer behavioral foundations.

## **I. The Behavioral Underpinnings of Redistribution and Insurance**

The dominant theoretical paradigms in research on the welfare state provide different explanations for cross-national variation in welfare effort. Power resources theory, the most coherent account of social policy qua redistribution, suggests that where the poor are better organized in encompassing unions and better represented by parties of the left, they have greater success in extracting from the rich and redistributing to themselves (Stephens 1979; Esping-Andersen 1990).<sup>1</sup> In most such work, the behavioral assumptions underpinning power resources are not terribly explicit. It is unclear, for instance, whether individuals' preferences for redistribution are a function of their perceived position in the income distribution, their own sense of what they merit, their perception of the resources necessary to meet their needs, or concerns for efficiency. Several such motivations could be consistent with the power resources account, but as Scott et al (2001) emphasize, each such consideration is, in fact, quite different.<sup>2</sup> For instance, a redistributive model built on citizens' perception of needs rather than their position in the income distribution will generate very different predictions. While the former would be highly sensitive to the poor's absolute level of income, the latter relies on a voter's position in the income distribution. One model would predict zero redistribution when the poor have a high enough level of income to meet their needs, while the other model would always predict redistribution since every known income distribution is right-skewed.

In one of the clearest statements on the micro-foundations of power resources theory, Korpi (2006) defines three classes/groups—employers,

employees, and the self-employed—and defines these groups with reference to their labor market positions and returns to collective action. He then combines income support and risk hedging under the heading of “social citizenship”. In his clearest micro-level statement, he discusses the conflict between employers and employees:

One finds the microfoundations for such conflict in the fact that differences in the logics of the situation of these actors generate asymmetric effects of expanded social citizenship rights in distributive conflict—effects that tend to constrain the efficacy of economic resources while broadening the efficacy of labor power.<sup>3</sup>

This passage implies that actors prefer outcomes/policies that are better for them, but it is worth noting that the passage is entirely consistent with individuals maximizing absolute income, relative income, discounted absolute income, and discounted relative income. Indeed, given the breadth of the categories—class and social citizenship—one must do some interpretive work to extract clear micro-foundations. Probably the easiest interpretation bears on relative income, but Korpi himself mentions the issue of risk several times in the surrounding paragraphs. These different motivations have important implications for the predictions of the theory.

Certainly the easiest behavioral assumptions for power resource theorists to take on would be those embedded in traditional models of redistribution that emphasize relative income (Meltzer and Richard 1978; Romer 1975). These median voters assume that voters are utility maximizers, that utility is increasing in income, and that voting over redistribution occurs with reference to a linear tax-transfer system. In a context of two party competition over a single, redistributive dimension, the median voter will prefer more redistribution the larger the gap between their own and society’s mean income. Overall redistribution should thus reflect the level of income inequality in a society. There are well known problems with this model, the most famous (and hotly debated) being that redistribution seems to increase with pre-tax and transfer equality rather than inequality in a society (Moene and Wallerstein 2003; Lindert 2004). All told, empirical confirmation of the Meltzer-Richard model has been hard to come by (Moffitt, Ribar and Wilhelm 1998).<sup>4</sup>

Even more important for our purposes, there is growing evidence that raises doubts about the behavioral foundations of the Meltzer-Richard model. Indeed, even the simple assumption that voters seek to maximize their own income via redistribution runs into problems. While self-interest bearing on

immediate net benefits clearly plays some role in preferences over redistribution (Esarey, Salmon and Barrilleaux 2006; Amiel and Crowell 2002),<sup>5</sup> there is substantial evidence that its role is quite limited. Recent research has suggested, for instance, that voters trade off current net income from taxes and transfers against prospective net income in the event of upward mobility (Benabou and Ok 2001; Alesina and La Ferrara 2004). In these accounts, preferences for redistribution are conditioned by an individual's prospect for upward mobility. When individuals perceive upward mobility as likely, the net present value of future redistribution can be negative, even if they would benefit from redistribution in the current year, and there preferences for redistribution should be correspondingly lower than their current income would suggest.

Issues of upward mobility aside, a large and growing literature suggests that individuals displaying multiple types of "other-seeking" behavior that limits their redistributive preferences. Charness and Rabin (2002), for instance, show that "selfless" behavior can take two forms broadly inconsistent with the Meltzer-Richard model. In some cases, individual concerns for reciprocity and the "poor" are much more important than self interest in shaping preferences over redistribution; in other cases, poor individuals are willing to forego money if they believe that doing so will improve efficiency and overall social welfare. In short, the social consequences of redistribution seem to matter as much, if not more, for experimental participants than the implications of redistribution for themselves. A related set of insights emerges from a long line of work on "second dimension" politics and group identity that emphasizes the importance of religious, ethnic and racial identification in conditioning preferences over redistribution (Roemer 1998; Scheve and Stasavage 2006; de la O and Rodden 2008; Austen Smith and Wallerstein 2006; Shayo 2009). Though the mechanisms vary, the basic insight across these works is that redistributive preferences can be muted by concern for group-level rather than individual-level well-being. In short, we have reason to doubt that voters think and behave as the Metlzer-Richard model would seem to imply with regards to redistribution.

Equally important, models of redistribution built on the median voter provide no foundation for thinking about the demand for social insurance, the single largest portion of contemporary welfare states. As Moene and Wallerstein (2003: 487) note, more than 30 percent of social policy in the OECD is oriented toward insurance against unemployment, ill health or accidents. Social insurance for the elderly adds very substantially to that share. Outside of the OECD, social insurance constitutes an even larger share of social budgets (Wibbels and Ahlquist 2011). As Feldstein (2005) points out,

the underlying aims and implications of means-tested redistribution and event-induced social insurance are very different. Power resources theory, and the broader model of redistribution on which it rests, provide no theorizing on this substantial share of social budgets, nor the behavioral micro-foundations for thinking about the demand for such policies.

Over the last decade, several prominent papers have forwarded models that integrate labor market risk as a crucial parameter impacting the demand for social insurance (Moene and Wallerstein 2001; Iversen and Soskice 2001). These models integrate considerations of both redistribution and insurance by emphasizing that preferences are shaped by relative income, exposure to risk in the labor market and risk aversion. Because the wealthy have more to lose from job loss or other negative shocks, there are a wide array of conditions under which the wealthy prefer more insurance than the poor. For Moene and Wallerstein (2001) these conditions entail high levels of risk aversion and universal provision of benefits. For Iversen and Soskice (2001), in turn, risks are a function of asset specificity; thus, high-income earners with highly specific assets may prefer higher levels of insurance than average income earners with low levels of asset specificity. The key principle underpinning this kind of model is that voters' preferences are not shaped by current income alone but also by the prospect of future income shocks.<sup>6</sup>

These models offer an innovative analytical treatment of the redistributive *and* insurance elements of social policy, but their behavioral foundations are, if anything, more suspect than those underpinning the Meltzer-Richard model. Even with specific reference to unemployment insurance, the insurance model rests on complex cognition with questionable behavioral foundations. A person's risk assessment involves knowledge not just of their own skills, but of their place in a given firm, that firm's place in a given sector, that sector's position in a broader macroeconomy, and that macroeconomy's place in a broader global economy. The more sophisticated versions of the insurance models also require that each individual conduct the counter-factual analysis of what their job prospects would be in the event that they lost their job. As a large body of evidence makes clear, many voters have a difficult time developing internally coherent positions on a host of "basic" issues (Converse 1964; Zaller 1990), particularly as they bear on issues such as taxing and spending (Bartels 2005).<sup>7</sup> Indeed, in the context of risk assessment, Shoemaker and Kunreuther's (1979: 616) three-decade old findings that "highlight people's limited abilities to process information, particularly probabilities..." underscore this point, as does the oft-noted tendency of people to over-weight outcomes considered certain (such as, for instance, having a job tomorrow) relative to those that are merely probable (such as the

likelihood of having a job six months from now) (Kahneman and Tversky 1979).<sup>8</sup>

Considerable behavioral work adds meat to the bones of these general concerns. For starters, there is evidence that people view insurance as an investment rather than as protection against future losses (Slovic et al. 1977). Risk aversion, moreover, is not randomly distributed as in Moene and Wallerstein (2001). From groundbreaking work by Kahneman and Tversky (1979) to more recent work by Beckman (2006), it seems that the wealthy are more risk averse and the poor more risk accepting than standard insurance models suggest. More generally, Kleindorfer and Kunreuther (1999) show that risk aversion varies systematically in ways not captured by insurance models. A related body of work has begun to theorize the evidence that responses to risk are highly emotional and fail to respond to the considerations emphasized in the political economy literature on insurance (Loewenstein, Weber and Hsee 2001). Finally, there is some evidence that labor market vulnerability is as much a function of macroeconomic trends as it is particular skill sets or other individual characteristics as suggested by some insurance models (Bandyopadhyay and Cowell 2007). If that is the case, it might be that *uncertainty* over the business cycle is as or more important than labor market *risks* emerging from asset specificity in shaping preferences for insurance.<sup>9</sup>

Above and beyond these specific concerns with the conceptualization and measurement of risk, there are important questions about the capacity of citizen-voters to distinguish the redistributive and insurance elements of social policies that often combine both. Many unemployment and retirement benefits, for instance, combine caps at the top of the income distribution with redistribution toward the bottom of the income distribution, even as benefits increase in past contributions within the distribution. The insurance models imply that voters can accurately distinguish these elements and form preferences in a manner consistent with their position in the income distribution, their labor market risks, and degree of risk aversion.

Two broad sets of findings in behavioral economics suggest that individuals will not sharply distinguish the redistributive and insurance elements of social policy. First, a long line of theoretical work with extensive empirical backing suggests that individual assessments of risk are deeply affected by their position vis-à-vis a reference point, oftentimes the median income (Cowell and Cruces 2004). One variant of this thinking is evident in the literature on how expectations of upward mobility affect preferences for redistribution (Alesina and La Ferrara 2004; Benabou and Ok 2001). An even larger literature rooted in prospect theory has shown that subjects place

excessive weight on very unlikely events and can switch from risk aversion to risk accepting behavior depending on the baseline risk level or their place in the income distribution (Amiel and Cowell 2002; Gonzalez and Wu 1999; Beckman 2006). In either case, evaluations of income and risk distributions are intertwined in a manner inconsistent with insurance models. Second, one common insight in the behavioral economics literature and some branches of political science research is that voters are either not sophisticated enough to appreciate the relationship between taxing and spending or pay insufficient attention to understand the balance between insurance and redistribution which varies so substantially across social policies. The key and very general finding in the behavioral economics and social psychology literatures is that when participants are forced to think along two dimensions, they oftentimes rely on rules of thumb that have little bearing on the models of redistribution and insurance.

Yet, while existing experimental work provides grounds for skepticism of both the redistributive and insurance models, it rarely deals directly with the issues central to the welfare state literature. Perhaps most importantly, a great deal of experimental work is aimed at understanding abstract notions of “fairness” and equity as they bear on income distributions and assessments of risk (Bond and Park 1991, Beck 1994, Michelbach et al 2003).<sup>10</sup> These experiments typically ask participants to assess income distributions from behind the veil of ignorance or evaluate preferences for different payouts under different probabilities. While these experiments provide important insight into how participants think about fairness, they are largely apolitical: There is typically no earned income, no voting mechanism, and no redistributive winners or losers. By not including these fundamental features of distributive politics, existing experiments on preferences for wealth distributions provided limited insight into the political economy of social policy.

Likewise, the literature on risk is for the most part highly abstracted from real-world assessments of risk in which an individual’s underlying endowments and the broader environment combine to produce shocks with some probability. It is also the case that considerations of risk and redistribution are almost wholly separate in behavioral economics and social psychology.<sup>11</sup> While the behavioral work on inequality aims to understand how people think about fairness, that on risk tends to focus narrowly on failures in insurance markets that emerge from deviations from expected utility theory. Almost no behavioral work examines the relationship between insurance and redistribution that lies at the heart of the contemporary welfare state literature. As a result, there is no assessment of the assumptions that underpin social policy models. Those assumptions range from the very crisp

distinctions at work in some insurance models to the claim that people, for a whole set of different reasons, are incapable of appreciating and responding to policy subtleties.

In what follows we shed some light on these issues by examining social policy preferences in a laboratory democracy. Our experiment avoids abstract income distributions and abstract risks by tying redistributive and insurance considerations to participants' skill and effort. We also simulate a political process that redistributes income in a way that allows participants to see the distributive implications of transfers in a clear way. Our experiment also goes beyond existing experimental work by combining concerns with risk and redistribution.<sup>12</sup>

## **II. The Experiment**

We develop a within-subject repeated measure experiment that aims to resemble society. The experiment consists of three parts: a voting phase in which the participants vote on a tax/insurance rate, a production phase in which participants earn money by answering spelling questions, and a redistribution phase in which participants view the outcome of their effort and the tax-and-transfer process. We expose participants to three policy treatments: a redistribution treatment, an insurance treatment, and a hybrid of the two. In the production phase, participants are provided multiple-choice options for spelling 20 words. Correct answers earn \$.16. Wrong answers are penalized \$-.053, thereby ensuring that guessing is not rewarded. The production phase draws on Esarey et al (2006: 3), who emphasize that the spelling task "mirrors aspects of the real-world work environment that we want to parallel: the task is difficult, uninteresting, performed under deadline pressure and some people are intrinsically more skilled at it than others." Participant performance varied considerably and produced a normally distributed income distribution. The appendix A presents screen shots from the experiment.

We described each phase to the participants in detail and with examples to ensure that they understood the workings of the experiment. In order to familiarize themselves with the basic production process, participants had one trial period to answer spelling questions without earning money. They were then shown how many practice questions they got correct, how much they would have earned, and how all the other participants did. Thereafter, we introduce the mechanics of the political process to participants, where the political process involved voting on a tax rate and the tax rate was determined by the median voter. To familiarize themselves with the political process, participants had one practice round in which each participant voted, did the spelling

exercise; they then saw the tax rate chosen by the median voter, their earnings before taxation, their earnings after taxation, as well as those of all the other research subjects participating in the experiment at the same time.

After the practice round, the participants move to the first treatment, in which government policy is purely redistributive. This phase consists of three parts: First, the participants vote on their preferred tax rate; second, the production phase takes place; and third, the participants see how many questions they answered correctly, how much they earned, and how much each of the other participants earned. Participants also saw the tax rate as determined by the median voter, and how much they earned after taxation.<sup>13</sup> This process repeats itself three times.

Following the redistribution treatment, the participants are introduced to an insurance treatment that is meant to reflect the dynamics of unemployment. In this phase, the participants are randomly assigned a risk of becoming “unemployed”, in which case they are assigned a pre-tax/transfer income of zero and are unable to answer questions for income. The risk of unemployment ranged between 0 and 0.5. This choice was informed by empirical estimates of the actual odds that a worker becomes unemployed in the United States during a recession.<sup>14</sup> We explained that the tax rate in this case would be applied to each participant but that all taxes will go into an insurance pool to be paid out only to those who are unemployed.<sup>15</sup> Once again, the insurance rate was determined by the median voter. Each participant was shown their randomly assigned risk of being “unemployed” in the next phase and asked to vote on the insurance rate. As participants move into the production phase, they become unemployed conditional on their initial probabilities—higher risks are more likely to become unemployed. The employed participants answer questions to earn money. At this point, participants see how many questions they got correct and their gross earnings. They also see the insurance rate as decided by the median voter, the implications of the insurance tax on their gross income, and the pre- and post-tax income of all the other participants, including those who were “unemployed”. This process is repeated three times.

The final treatment combines elements of redistribution and insurance. This is the crucial treatment for theoretical models that assume citizens can distinguish redistribution from insurance in formulating their preferences over social policy. The participants are told that half of the tax money will be paid equally to every individual (redistribution), and the other half will be paid exclusively to those participants who are unemployed. This 50-50 split is based on a recent stream of research showing that the distributive implications of social spending across most countries of the OECD are neutral

(Immerwoll et al. 2005). As in the pure insurance portion of the experiment, participants are shown their risk of being unemployed and asked to vote on their preferred tax rate. Participants then answer questions to earn money. When all participants finish answering questions, they learn how many answers they had correct and their gross income. They also learn the tax rate chosen by the median voter, how much money they earned after taxes, how much they earned (or lost) from the redistributive aspect of taxation, and how much they earned (or lost) from the insurance aspect of taxation. As in the pure insurance phase, participants are informed as to how many participants were unemployed. This process is repeated three times.<sup>16</sup>

At the end of the experiment, each participant receives payment of \$15 for participating, plus any additional money earned during the non-practice phases of the experiment. This additional payment reflected each participant's performance in the production phase and the extent to which the individual benefited from the policies simulated in the treatments. We ran the experiment with 65 participants during January of 2010 in the behavioral lab at Duke's Social Science Research Institute. Participants were taken from the Duke and Durham communities, with the majority being undergraduate students at Duke. The maximum earning was \$34.41, and the minimum was \$18.71.

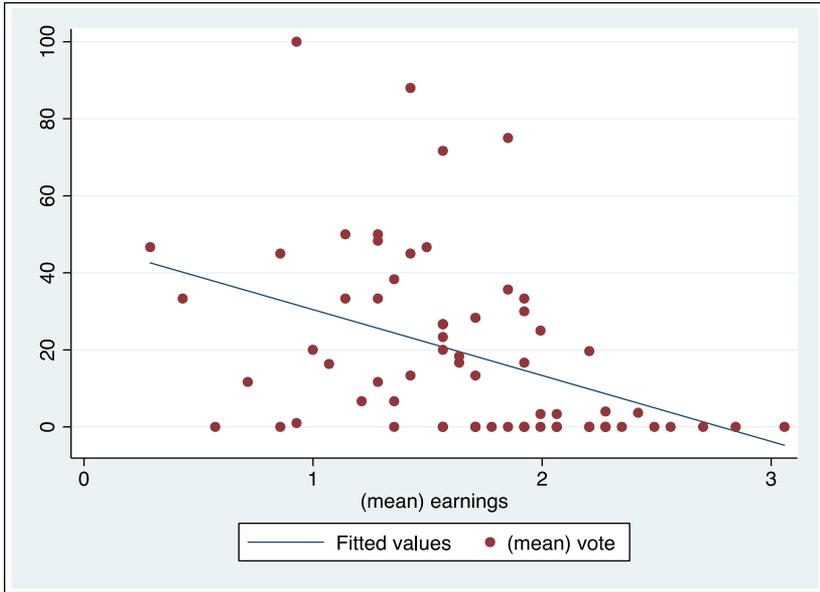
Existing research provides clear expectations as to what we should find in each of the three phases of the experiment. In line with the Meltzer & Richards (1978) model poor spellers (the poor) should vote for higher taxes than good spellers (the rich) in the purely redistributive phase. In the insurance phase, we expect those with the highest risk of unemployment to prefer the highest tax rates for the insurance pool. The most interesting treatment is the one in which participants are primed on social policies that combine elements of redistribution and insurance. Moene & Wallerstein (2001) predict participants will be able to distinguish the redistributive and insurance elements of the tax-transfer and form a preference over the policy reflective of their income and risks. Specifically Moene & Wallerstein (2001) predict that workers will choose a higher tax rate as earnings rise for a given level of risk if risk aversion is sufficiently high. In their original model, Moene and Wallerstein impose the assumption that the risk of a job loss is concentrated among low income earners. Their model, however, can be extended to allow for more realistic and comprehensive joint distributions of income and risks.<sup>17</sup> Along these lines, Rehm, Baissinger and Hacker (2012) have explored empirically the different combinations between economic disadvantage (income) and economic insecurity (risk) as predictors of differences in welfare support across countries. On the basis of these contributions, therefore,

we expect to see a three-way interactive effect between risk, income, and risk aversion. Just as in the insurance case, there should be a positive relationship between risk and preference over social spending: as risk increases so too should an individual's vote for social spending. However, the impact of risk on insurance preferences should be conditioned by income and risk aversion. High risk, poor participants should support a higher level of social spending compared to their high risk, rich counterparts at low levels of risk aversion. This expectation emerges from the fact that social spending in this treatment has features of both insurance *and* redistribution. For poorer participants, these effects work in tandem when facing a high-risk situation, whereas for richer participants, the redistributive aspect of social spending will mitigate the level of support for social spending. As risk aversion increases, however, insurance motives become dominant and high earners consider supporting social spending, provided that the benefits are not targeted exclusively towards low wage workers.

### III. Results

Turning first to the pure redistribution treatment, Figure 1 plots the tax rates each participant voted for against their net earnings in the previous round. As expected, the pattern shows a negative relationship between lagged earnings and preferred tax rates. The bivariate correlation is  $-.4$  between earnings and preferred tax rates. Those earning below the average tend to support larger tax rates than those earning above average.

Table 1 moves beyond correlations and averages by reporting the results of an analysis of the determinants of the tax rate chosen by participants under each of the policy treatments. The independent variables of interest are the level of pre-tax earnings obtained in the previous round, and, in rounds II and III, the risk of unemployment faced by each individual and their risk aversion.<sup>18</sup> We have added a number of relevant controls, including a measure of ideological profile and race. Appendix B presents the descriptive statistics for these variables. All models in Table 1 report OLS estimates with robust standard errors clustered by participant (recall that each participant undergoes each policy treatment several times). In addition to the analysis of treatment I (pure redistribution), Table 1 includes three specifications for both treatment II (insurance) and III (mixed). The first one (columns 2 and 5) assumes that the effects of earnings and risk are independent from one another. The second one (columns 3 and 6) evaluates the conditional relationship between income and risk. Finally, the third one (columns 4 and 7) explores the idea that the effects of income, risk and risk aversion are conditional on one another. The analysis



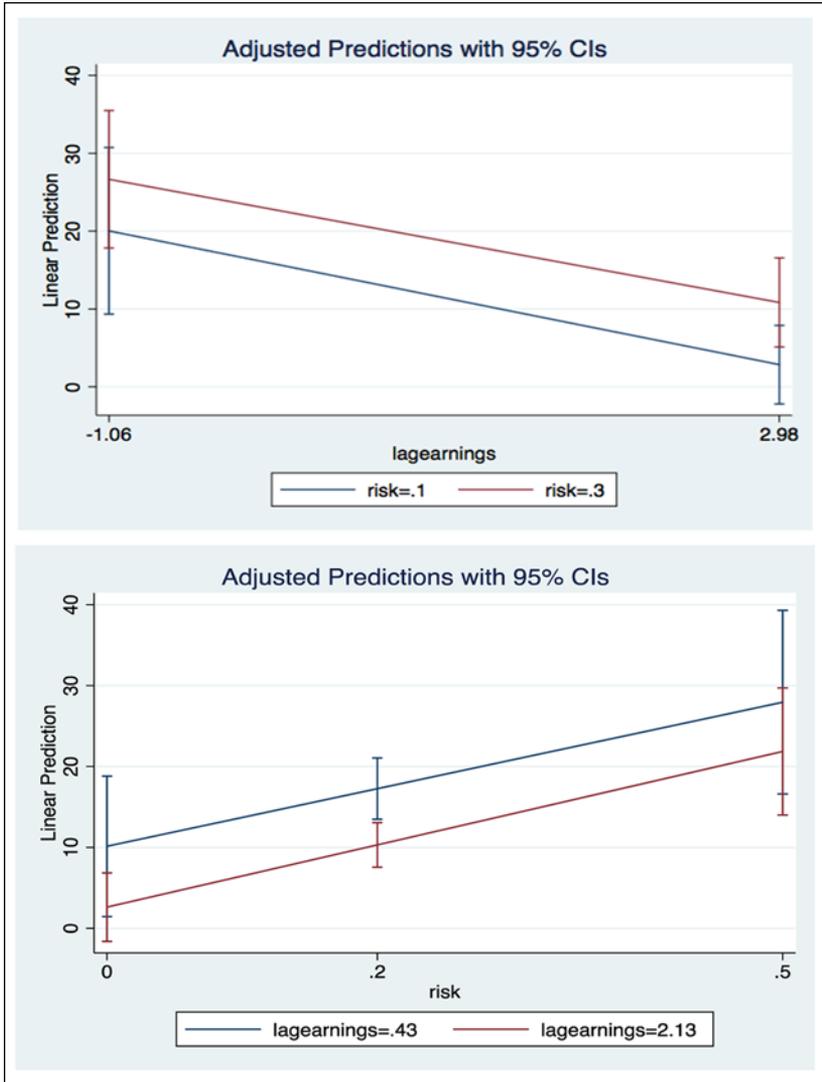
**Figure 1.** Tax Rates and Earnings under the Redistribution Treatment.

of the two and three-way interactions simply reflects two different strategies to evaluate the implications of the key models in the theoretical literature (Moene and Wallerstein 2001; Iversen and Soskice 2001). In the case of Moene and Wallerstein (2001) the level of risk aversion functions as a precondition for insurance to become a normal good, the demand for which in turn reflects the level of risk exposure (i.e. the likelihood of unemployment) and the voter's income level. In the case of Iversen and Soskice, risk translates into preferences differently depending on income and the level of risk, in turn a function of skill specificity (Iversen and Soskice 2001).

Because the interaction coefficients cannot be interpreted directly, Figures 2 and 3 display the predicted tax rates (and their confidence intervals) for different combinations of income and risk, holding the level of risk aversion at its mean.<sup>19</sup> Figure 2 displays the predictions for treatment II, i.e. the pure insurance policy in which transfers only go to those who lose employment. Figure 3 reports the predictions for the data generated by the third treatment, in which half the transfers are allocated on a per capita basis and the other half follow the insurance model. Both figures report predictions based on the three-way interactions.<sup>20</sup> The following findings emerge from the analysis.

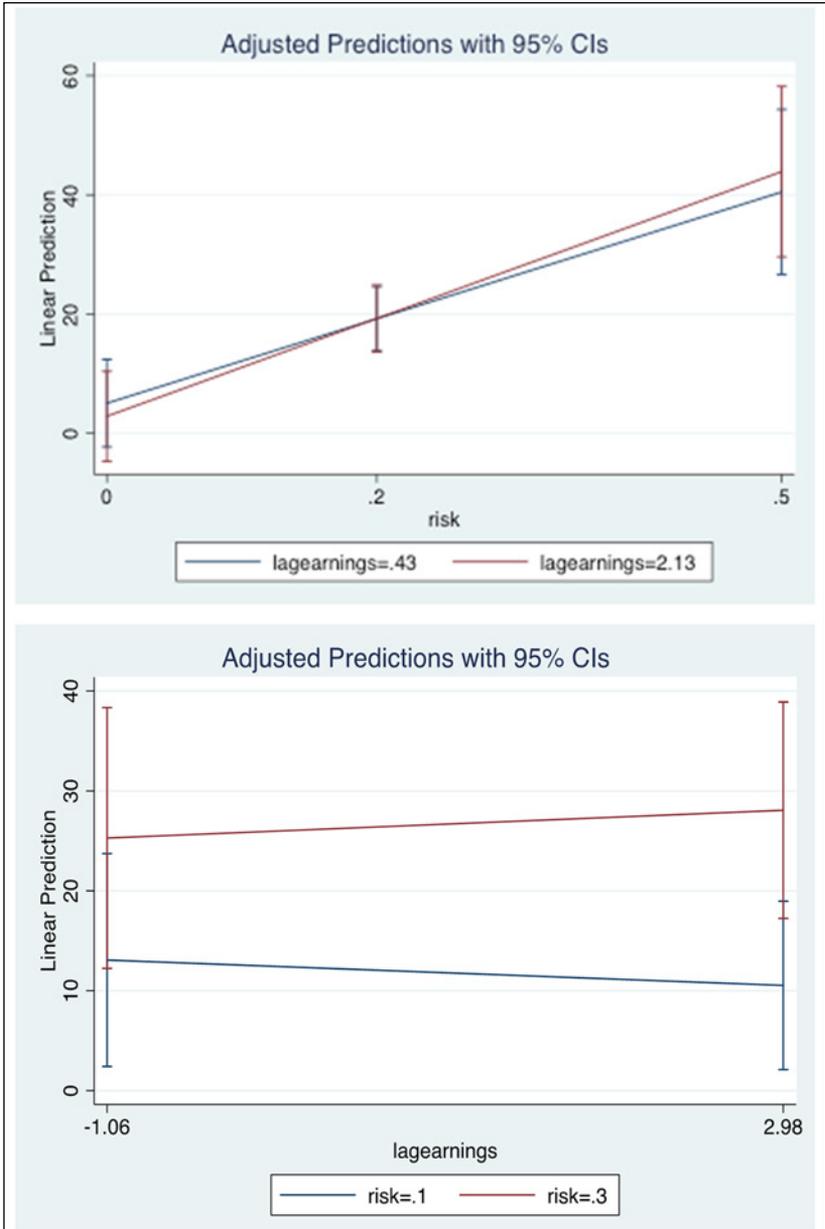
**Table 1.** Preferred Tax Rates Under Three Treatments.

	Treatment I (Redistribution)	Treatment II (Insurance)	Treatment III (Hybrid)
Earnings	-11.37*** (3.8)	-4.10*** (1.17)	-1.085 (2.76)
Risk of Income Loss	—	41.26*** (10.85)	71.36*** (21.4)
Risk Acceptance	—	3.84 (3.48)	4.84 (7.2)
Earnings*Risk	—	1.43 (12.6)	1.87 (11.60)
Earnings*RAcceptance	—	—	—
Risk*RAcceptance	—	—	—
Earnings*RAcceptance *Risk	—	—	—
Ideology	-1.42 (2.66)	.10 (1.41)	-1.77 (2.3)
Intercept	35.00*** (12.04)	7.0 (7.4)	4.34 (10)
N	128	128	128
R-squared	0.20	0.25	0.27



**Figure 2.** Conditional Effect of Income and Risk under Treatment II (Pure Insurance).

Note: Results derived from Table I, Column 4.



**Figure 3.** Conditional Effect of Income and Risk under Treatment III (Combined Redistribution and Insurance).

Note: Results Derived from Table I, Column 7.

Unsurprisingly, in a purely redistributive scenario (Treatment I), only the level of income affects the choice of tax rates. Results change when taxes are distributed as an insurance mechanism only to those who become unemployed (Treatment II). While in some specifications income continues to be a significant and negative predictor of preferred tax rates, the distribution of risk becomes the driving force in terms of voters' preferences. This result is consistent with previous survey-based findings (see Rehm 2008). Interestingly, the predictive power of risk exposure on tax rates is very strong in the pure insurance model (treatment II, column 2) and even stronger in the hybrid model (treatment III, column 5). Thus, when the policy treatment approximates more closely what we see in the world, voters seem to rely entirely on risk.<sup>21</sup> Moreover, the impact of risk appears independent of citizen's income levels in both treatments. The findings reported in Figure 2 show how the impact of risk on the predicted tax rate is independent of income levels (and vice-versa) in a pure insurance system. This lack of conditionality is only reinforced by the predictions displayed in Figure 3.<sup>22</sup>

To summarize, our experimental findings suggest that participants respond to the design of policies. When the policy treatment is purely redistributive, income and tax preferences are inversely related; there is nothing surprising here. As soon as policy incorporates some insurance element, either exclusively (Treatment II) or in mixed form (Treatment III), risk becomes the dominant factor. While the participants in our experiments respond to fundamental differences in policy designs, their calculations do not reflect the fine tuned conditionalities built in the Moene and Wallerstein and Iversen and Soskice models.<sup>23</sup> Indeed, the fact that voters key exclusively on risk when the policy treatment combines insurance and redistribution raises important questions since it suggests that voters might have limited ability to distinguish the insurance and redistributive elements of policies that often combine both. Are voters incapable of distinguishing and reacting to distinctions between insurance and redistribution or are they capable of perceiving these differences and adjusting their preferences accordingly? In the next section we provide a preliminary evaluation of this issue on the basis of new survey questions designed specifically to address these issues.

#### **IV. Evidence from Surveys**

A common critique of experimental work is that it lacks external validity. That the case, we introduced a battery of questions on redistribution, insurance, and social policy in the 2008 Cooperative Congressional Election Survey (CCES) of a nationally-representative sample of 1,000 respondents

between October–November 2008. We asked these questions as part of the “team content” and piggy-backed on the common questions that appears on all CCES surveys. In light of profound shortcomings in standard survey questions about social policy (particularly their inability to distinguish preferences over redistribution from preferences over insurance),<sup>24</sup> we designed the questions to assess two things: First, respondent knowledge of the redistributive and insurance content of specific social policies, including social security, unemployment insurance, Aid for Families with Dependent Children (AFDC), Medicare, Medicaid, and Food Stamps; and second, to assess respondent preferences for government effort on social spending, unemployment insurance, and spending on the poor.

In an initial effort to understand if and how voters understand the redistributive and insurance features of specific policies, we compare how citizens assess the policies with how redistributive they actually are. Respondents were first primed with the following statement, “Redistribution implies that the government uses tax dollars to fund support for the poor. Insurance implies that in the event of a job loss, you will receive benefits that come from the taxes previously deducted from your earnings.” They were then asked to assess how policies score on a scale from purely redistributive (score of 0) to pure insurance (score of 10). Table 2 compares the average response to these policy-based questions with the actual redistributive characteristic of the policies (where available). The indicator of actual redistribution is taken from the OECD (2008), which calculates lorenz curves for policies on the basis of income surveys. Negative values imply that benefits are progressive, meaning they go to the poor. Positive values imply that recipients are concentrated in the upper end of pre-tax income distribution.<sup>25</sup>

Though some of the responses for particular policies seem quite off, one gets a sense looking across policies that respondents do have a sense of which ones are more or less redistributive. Thus, while only 13 percent of respondents know that unemployment insurance combines a fixed amount conditional on previous earnings with a means-tested component, they do, on average, recognize that AFDC, food stamps and Medicaid are policies that are more explicitly redistributive than social security, unemployment insurance and Medicare.

Table 3 moves beyond descriptive statistics to report the results of a logit analysis of preferences for different types of social spending. The dependent variable is an indicator taking on a value of 1 when an individual prefers “more” or “much more” spending on unemployment insurance (Models 1 and 2) and the poor (Model 3). Our key independent variables are income (which increases on a scale from 1 to 14) and risk. The risk measure is coded

**Table 2.** Actual and Perceived Redistributive Impact of Policies.

	Social Security	Unemployment Insurance	Family Benefits	Medicare	Medicaid	Food Stamps
Actual Redistributive Impact (OECD)	-0.04	.07	-0.25	—	—	—
Perceived balance between Redistribution and Insurance (CCES)	.147	.29	-0.56	.05	-0.15	-0.33

\*Scales in both variables range between -1 and +1. In terms of actual impact, values closer to -1 imply a stronger redistributive impact; values closer to +1 imply that transfers' beneficiaries are mostly concentrated in the upper end of the pretax distribution. In terms of citizens' views, values closer to -1 imply that respondents see the policy as a purely redistributive one, whereas values closer to +1 indicate that voters regard the policy as a pure insurance instrument with no redistributive implications.

in response to a question about respondent confidence that their personal income will increase (low risk), stay the same (intermediate risk), or go down (high risk). Absent a measure of each respondent's risk aversion, we interact income and risk. The models discussed above make clear predictions. When it comes to unemployment insurance (Models 1 and 2), the impact of income should be conditioned by risk—high risk, high income respondents should want more spending than low income, low risk respondents. Only income should matter when it comes to spending on the poor (Model 3), with poorer respondents preferring more spending. We include controls for gender, education, race and unemployed status.

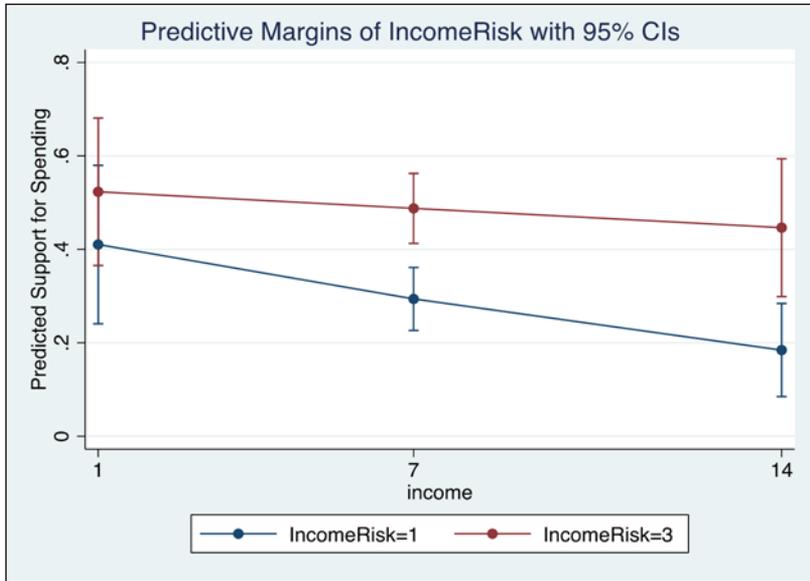
Turning first to Model 1, which is a stripped down estimation of preferences for more unemployment spending, there is some suggestive evidence of a conditional relationship between income and risk. The log-odds on the interaction term suggests that respondents with high income and high risk prefer more unemployment spending than others. To see this more clearly, Figure 4 plots the predicted probability (and corresponding confidence intervals) of a respondent preferring more insurance spending at high (3) and low (1) levels of risk and across the income range. The figure shows that among low risk respondents, the predicted probability of wanting more spending falls with income. That slope is basically flat for high risk respondents, who are predicted to want more insurance spending than “safe respondents” across the income scale. This finding is broadly consistent with Moene and

**Table 3.** Multivariate Analysis of Preferences for Social Spending.

	Model 1: Unemployment Spending	Model 2: Unemployment Spending	Model 3: Spending on the Poor
Income	.88***	.91*	.86***
Risk			
Medium Risk	1.26	1.40	.96
High Risk	1.28	1.56	1.01
Income*Risk			
Medium Risk	1.03	1.01	1.02
High Risk	1.14*	1.07	1.05
Ideology	—	.49***	.33***
Gender	—	1.16	1.06
Education	—	.95	1.02
Race	—	1.37	1.15
Unemployed	—	1.15	.709
Intercept	.66	6.06***	47.96***
N	933	874	874
Psd.R-sq	.05	0.12	0.19

Results are reported as odds ratios. (\*, \*\*, \*\*\*) Indicate statistical significance, respectively, at 10, 5, or 1% level. Logit models predicting support for more or much more (merged in category 1) spending on the relevant policy. Risk is treated as a group variable where respondents sort themselves as belonging to a low (1), middle (2), or high (3) risk group on the basis of their perceived future income security.

Wallerstein (2001)<sup>26</sup>, but Model 2 shows that it is fragile. Once we introduce controls into the model, the results weaken considerably, and a simulation of predicted probabilities as in Figure 4 reveals considerable overlap in the confidence intervals between high and low risk respondents. Income, not risk or some combination thereof, seems to matter when it comes to unemployment insurance. Model 3 extends the analysis to support for spending on the poor. Again, it seems that preferences respond to income, with richer respondents preferring less spending. And again, those preferences are not conditioned by risk, as indicated by the simulated probabilities in Figure 5. While the lack of a conditional effect with regards to spending on the poor is entirely consistent with extant models, the lack of such an effect with regards to unemployment insurance appears inconsistent with them.

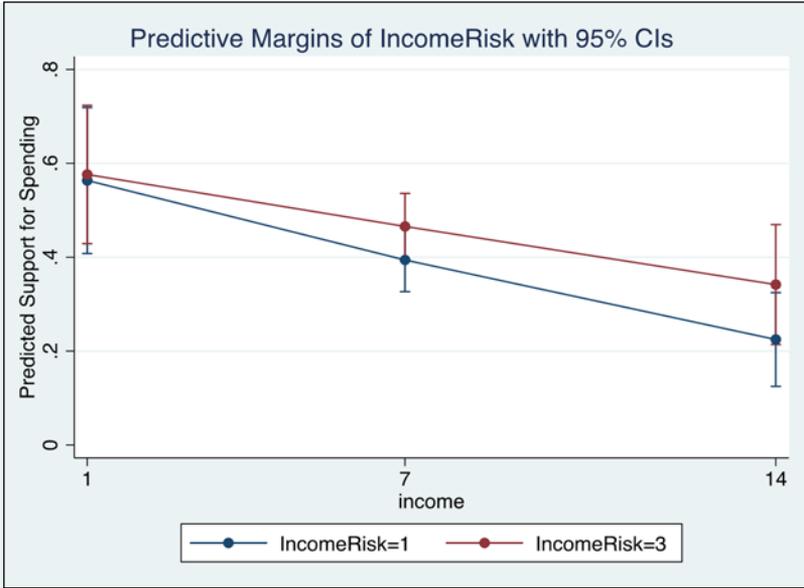


**Figure 4.** Predicted Probability of Supporting More Spending on Unemployment as a Function of Income and Risk.

Note: Results derived from Model 1, Table 2.

## VI. Conclusion

We have emphasized the importance of placing existing research on sounder behavioral foundations. Our efforts yield several results. Under simple income and risk treatments, participants in the laboratory experiment perform as expected. In a purely redistributive system, income is the main predictor of their preferences about the tax rate. In turn, in an insurance system in which transfers are limited to those actually falling into unemployment, risk becomes the key determinant of social policy preferences. These neat findings, themselves consistent with the micro-logic assumed in earlier theoretical approaches, get murkier as the policy design combines, much like most actual social policies, redistributive and insurance elements. Under such conditions, even in a laboratory environment that maximizes participant information in an attempt to elicit the expected behavior, participants appear unable to distinguish between redistributive and insurance motives and continue to key their actions exclusively on risk. The spirit of these experimental results are confirmed with survey evidence, where respondents also fail to display the complex motivational structure developed in the Moene &



**Figure 5.** Predicted Probability of Supporting More Spending on Poor as a Function of Income and Risk.

Note: Results derived from Model 3, Table 2.

Wallerstein model (2001). In contrast to the experimental evidence, though, the preferences of survey respondents appear to be driven almost entirely by their income. In neither case can we uncover evidence that respondents/participants key on both income and risk.

This ambiguity is consistent, however, with the broader literature in experimental psychology and behavioral economics that find participants often use rules of thumb to navigate the complicated nature of risk and redistribution. The guiding intuition in this literature is that individuals take the path of least resistance to form decisions. Seen in this light, the apparent tension between the survey and the experimental results becomes less puzzling. In an experimental setting, risk is known round to round, making the participant’s calculation of expected return a straightforward multiplication of risk and earnings. Compare this to calculations on the returns to redistribution, which requires participants to “determine” their place in the income distribution and compute their expected net benefits from the fiscal system given a particular incidence of risk. Given the choice between easy calculations of risk compared

to a complicated calculation of redistribution, it is easy to understand why participants key on risk.<sup>27</sup>

Our findings suggest that citizens calculate on the basis of income or risk, but not both, which is consistent with research in experimental economics showing that people have a hard time processing information along two dimensions. These results raise questions on the purchase of theoretical models that assume preferences to be a joint function of income, risk, and risk aversion. If experimental participants cannot process the requisite information in a manner consistent with the models even in a laboratory environment explicitly designed to elicit such behavior, it seems unlikely that citizens can do so in the real world, where the process is complicated further by voting procedures, non-linear tax rates, and non-linear benefits. It is unclear from our results if the failure to confirm the behavioral foundations of these influential models results from the complexity of such a calculation (in which case they are making mistakes) or if it reflects a systematic decision-making process ill-captured by the model. Either way, we believe these findings serve as a caution for a literature increasingly reliant upon complex interactions and calculations done by citizens.

Three issues deserve particular attention. First, the literature rarely pays attention to the variation in revenue systems across welfare states and, by implication, to how fiscal progressivity may feedback into preferences themselves. Experimental work will be useful to understand how different forms of financing the welfare state condition the process of preference formation (Cusack and Beramendi 2006; Beramendi and Rehm 2012). Second, if individuals key on either the risk *or* income dimension when deciding on preferences for social spending and political dimensions are malleable by strategic politicians, what are the specific conditions under which individuals actually switch dimensions during the process of preference formation? Addressing this question will advance our understanding of the origins of social policy preferences and the politics of social policy more broadly.

Third, the field needs to unpack more precisely what lies beneath the notion of economic insecurity. While there is something approaching consensus that labor market risks increase the demand for social insurance (Anderson and Pontusson 2007; Baldwin 1990; Rehm 2010), a close reading of the literature reveals an intriguing ambiguity. In the classic accounts linking economic openness to welfare effort, the emphasis is one of two vulnerabilities associated with the global economy. Rodrik (1998) and others argue that international exposure increases the intensity of the business cycle and thereby promotes demand for insurance. Adsera and Boix (2001), on the other hand, emphasize the importance of structural displacements in the labor market caused by international competition. In this account, winners from international trade must compensate labor market losers in order to maintain their political support for economic

openness. In both accounts, it is broad dynamics in labor markets that matter, not the specificity of the skills held by individual labor market participants. In contrast, Iversen and Soskice (2001) emphasize the importance of individual workers' skill profiles. Emphasizing the dangers of specific skills, they write that "Those most fearful of losing the labor market power of their skills, and hence their ability to secure good health and pension plans through their employer, also will be most concerned about guaranteeing a high level of benefits, even if the benefits are 'deferred' to the future."<sup>28</sup>

Thus, the literature provides three general explanations linking economic insecurity to the demand for insurance: one emphasizes the skill differences between job categories (Iversen and Soskice); another emphasizes the volatility of the macroeconomy and common trends across job skills (Rodrik); and yet a third emphasizes secular trends within job categories that would distinguish economic winners and losers (Adsera and Boix). In the first case, risks are specific to individuals and their skill profiles. In the latter two cases, risks are defined by general trends in the labor market that are independent of skill types. We contend that a good strategy to adjudicate between these different mechanisms is to pursue in detail the distinction between risks and uncertainty as sources of motives and preferences (Camerer and Weber 1992; Ahmed and Skogh 2006). Risks refer to an outcome to which individuals can assign a well-defined probability distribution. Uncertainty refers to an outcome over which cannot. Labor market occupations and skills distributions speak to the former (Rehm 2009). Recessions, unexpected economic shocks, or natural disasters speak to the latter. Understanding their differential impacts on the process of preference formation strikes us as a fruitful area for further inquiry.

It is very hard to distinguish the effect of individual characteristics, sectoral location, and macroeconomic risks on preferences for social policy in observational data. That the case, we believe this to be an area of research ripe for additional experimental work to pin down the how and why of individual-level preferences for insurance and redistribution. Standard caveats of experimental research apply to everything we have done here. We have a limited number of participants; they are unrepresentative of the general population; and we have a relatively small number of rounds in which participants can learn to behave in a game theoretic manner. All of these shortcomings emerge from practical limitations on what we were able to achieve in this one experiment. As such, there is tremendous room for experimental refinements and extensions to our approach here. Indeed, we think further experimental work is particularly important in this area of research given the well-known difficulty of pinning down causal inferences in the context of observational data—a difficulty particularly salient for a literature that increasingly relies on complex, interactive and multi-level models with multiple feedback loops in the context of 15 or so cases.

## Appendix A. Screen Shots from the Experiment

### Appendix A. I: The Voting Phase

Then players will answer questions to earn money, however after they get paid the tax rate will be taken from their earnings, and redistributed evenly across the players.

For example say after answering the questions:

Player A's Earnings = 12  
 Player B's Earnings = 8  
 Player C's Earnings = 4

the taxation process will look like this:

Player A's Taxes= (50%) of 12 = 6  
 Player B's Taxes= (50%) of 8 = 4  
 Player C's Taxes= (50%) of 4 = 2  
 Tax Total= 6 + 4 + 2 = 12

The player's earnings after taxes will be as follows:

Player A's Earnings = 12 - 6 (the taxes paid) = 6  
 Player B's Earnings = 8 - 4 (the taxes paid) = 4  
 Player C's Earnings = 4 - 2 (the taxes paid) = 2

But then the taxes will be paid out. This will be done by dividing the total taxes by the number of players in the experiment.

In this example tax payment will look like the following:

Total Taxes = 12  
 Number of Players = 3  
 (Total Taxes/Number of Players) = (12/3) = 4

Therefore 4 will be paid out to each participant.

Player A's Final Earnings = 6 + 4 = 10  
 Player B's Final Earnings = 4 + 4 = 8  
 Player C's Final Earnings = 2 + 4 = 6

This is the earnings after taxes.

As you can see, player A paid 6 of his earnings into the tax system, but got 4 back. Player B paid 4 of her earnings into the tax system, and got 4 back. Lastly, Player C paid 2 into the tax system and got 4 back.

[Move On](#)

THIS IS A PRACTICE VOTE, DESIGNED TO SHOW YOU HOW THE VOTING WORKS.

Below is a place for you to vote on the tax rate that you wish.

Please choose the tax rate as a percentage of earnings that you want (where 0=0%, 50=50%, and 100=100%) and remember to click "submit vote" below:

[Submit Vote](#)

### A.2: The Production Phase:

Time Remaining [sec] 89

Twenty words are listed below on your screen, with four different spellings of each word. Please choose the correct spelling of each word.

<input type="radio"/> anphytactic <input type="radio"/> anophytactic <input type="radio"/> anaphyltatic <input type="radio"/> anaphytactic	<input type="radio"/> exilarating <input type="radio"/> exhilarating <input type="radio"/> exihilarating <input type="radio"/> exlirating	<input type="radio"/> benedictory <input type="radio"/> benedictory <input type="radio"/> benadictory <input type="radio"/> benadictory	<input type="radio"/> ideotac <input type="radio"/> idotic <input type="radio"/> ideotic <input type="radio"/> idotac
<input type="radio"/> garbiology <input type="radio"/> garbalogy <input type="radio"/> garbology <input type="radio"/> garbiology	<input type="radio"/> gynecologic <input type="radio"/> gynecologic <input type="radio"/> gynecologic <input type="radio"/> gynecologic	<input type="radio"/> magisterially <input type="radio"/> magisterally <input type="radio"/> magistarily <input type="radio"/> magstarally	<input type="radio"/> gentely <input type="radio"/> genteely <input type="radio"/> gentely <input type="radio"/> genteely
<input type="radio"/> homanculus <input type="radio"/> homunculus <input type="radio"/> humanculus <input type="radio"/> humonculus	<input type="radio"/> innuendos <input type="radio"/> inuendes <input type="radio"/> innuendoes <input type="radio"/> inuendos	<input type="radio"/> leisure <input type="radio"/> leasure <input type="radio"/> leisure <input type="radio"/> leisure	<input type="radio"/> gaelicize <input type="radio"/> gaelisize <input type="radio"/> gaelicize <input type="radio"/> gaelisize
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Clicking "Continue" will submit your answers. Please double check your work.

**submit answers**

### A.3 The Taxing and Dispersing Phase

The number of questions you answered correct (out of 20) is: 12		The tax rate determined by the median voter is: 28	
Your earnings (in dollars) for this round is: 1.50		Your net earnings is: 1.42	
		After tax your income increased (or decreased) by: -0.073	
The following is the ranked earnings of all the participants before taxes	The following is the earnings before taxes this round	The following is the earnings of all the participants after taxes	The following is benefit from taxes for each individual
1st	2.774	2.343	-0.431
2nd	1.496	1.423	-0.073
3rd	1.283	1.270	-0.013
4th	1.283	1.270	-0.013
5th	1.070	1.116	0.046
6th	1.070	1.116	0.046
7th	1.070	1.116	0.046
8th	0.857	0.963	0.106
9th	0.218	0.503	0.285

**OK**

## Appendix B: Descriptive Statistics

Variable	Operationalization	Mean	Standard Deviation
Earnings	Each Participant's Earnings, Pre-Tax/Insurance per Round	1.45	0.880
Risk of Income Loss	Randomly Distributed Probability of Total Earnings Loss (Ranges from 0% to 50%)	0.210	0.135
Risk Acceptance	Questionnaire from Panel Study of Income Dynamics (PSID) about the Willingness of the Participant to Sacrifice Certain Earnings for an Uncertain Benefit (Coded from 0 to 2, where positive means more risk accepting)	0.545	0.421
Ideology	"When it comes to politics do you think of yourself as: Extremely Liberal, Liberal, Slightly Liberal, Moderate, Slightly Conservative, Conservative, Extremely Conservative (Coded from -2 to 2, where negative is more liberal)	-0.611	1.17

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## Notes

1. In contrast, the varieties of capitalism (VoC) framework emphasizes the importance of specific skills and the demand for insurance against labor market risks as the key factors underpinning the size of the welfare state. We are less interested in the ongoing debate between these schools of thought than in their behavioral assumptions.

2. Indeed, they show that all of these considerations enter into voters' preferences over allocative outcomes, albeit with different weights.
3. Korpi (2006): p. 174.
4. See Milanovic (2000) and Finseeras (2008) for exceptions. In the former case, the positive cross-national association between inequality in factor income and cash transfers seems to be driven by pensions. Since pensions are deferred income, this finding would seem inconsistent with a strict interpretation of Meltzer-Richard. The latter paper uses multi-level modeling to estimate the relationship between individual income, inequality, and individual-level preferences for redistribution in 22 OECD countries and finds evidence supportive of Meltzer-Richard.
5. Esarey et al. find that relative earnings are more important than ideology in shaping preferences for redistribution in an experimental setting. Amiel and Crowell find that abstract concerns for the efficiency costs of transfers are strong attenuated when an individual's income is at stake.
6. For the classic formalization on the relationship between insurance and expected utility, see Friedman and Savage (1948), Varian (1980), and Atkinson (1995).
7. Though see recent evidence in Ansolabehere, Rodden and Snyder (2008) that mass opinions are much more coherent than the conventional wisdom would indicate.
8. The experimental insurance literature has also emphasized that once people have to calculate on more than one dimension, as on the trade-offs between premiums and deductibles, they have a hard time making the decisions implied by insurance models. It is not hard to imagine this finding would extend to publicly-financed insurance, on which voters have to calculate on at least two dimensions—their personal tax costs and their expected benefits.
9. The distinction between uncertainty and risk is crucial in the behavioral economics literature. The former describes a state in which probabilities are known while the latter describes a state in which at least some of the relevant probabilities are not known.
10. There is also a narrow experimental literature aimed at assessing when and why people will buy private insurance.
11. Even in experiments in which researchers purport to be examining both considerations, such as in Amiel and Cowell (2002) and Cowell and Cruces (2004), the insurance and redistribution treatments are entirely separate. This separation is justified as necessary to prevent bias, whereby a similar set of questions on risk and inequality to the same respondent might bias their answers. This problem seems particularly relevant to experiments that are based on evaluations of abstract income or risk distributions. As described below, our experimental approach attempts to resolve this problem by making income and risk distributions concrete.
12. Esarey et al. (2006) focus on the interplay between ideology, benefits and preferences for redistribution. They show that ideology conditions preferences when

benefits combine pure redistribution and disaster compensation. In contrast, our primary focus is on the capacity of participants to distinguish the effect of redistribution and insurance under different policy treatments.

13. One reviewer recommended informing participants of the tax rate before they did the spelling task. Unfortunately, such a design has the potential to have a direct effect on participant effort such that it would complicate any inferences on the link between income, risk and tax preferences. A high tax rate, for instance, would incentive good spellers to under-perform, and it seems entirely plausible that there would be a race by all participants to under-perform. Thus, announcing the tax rate first would be more appropriate if we were interested in testing the effect of taxation on work effort, but it would introduce additional problems for what we are interested in examining, namely the impact of income and risk on tax preferences.
14. We thank Philipp Rehm for his input on this point.
15. We also capped the insurance payout at the maximum earnings for answering every spelling question correctly. Typically, unemployed participants received much less in insurance payout than the other participants who spelled questions, but in one round, a single unemployed person received a payment in excess of other participants. We address this one case in the empirical section.
16. One downside of our design is that we are unable to detect any sequencing effects; all participants are exposed to the same sequencing of treatments—first the redistribution treatment then the insurance one and finally the mixed treatment. It is possible that this sequencing has systematic effects on behavior that we cannot identify. Our defense is two-fold. First, we had limited resources. Given the three-way interaction discussed below, we would need a large number of additional rounds to parse out any sequencing effects. Given the much higher than average cost of our experiment, the costs of running it so many additional times was prohibitive. Second, the treatments are relatively complicated; we were constrained by the need to explain to participants how they would earn money, how the voting systems worked, and how revenues were redistributed. It was our judgment that the simplest treatment was the one bearing on Meltzer-Richard/redistribution. Had we begun with one of the more complicated treatments we would likely have confused more participants, and any finding on the effect of sequencing would necessarily have conflated a true sequencing effect with increased confusion that would have resulted from beginning with the more complicated treatment.
17. Specifically, Moene and Wallerstein(2001) state about their model that “the assumption that only wage earners are subject to the risk of income loss can be replaced by assuming a more general distribution of this risk. As long as the risk for workers with lower income is the same as or greater that the risk for workers with higher income, all the results [...] remain unchanged” (p.865).

18. The index of risk aversion is simply the average of the five items included in the standard questions on risk aversion performed by the Panel Study of Income Dynamics. We thank Philipp Rehm for his suggestions on this point. Source and details available from (<http://psidonline.isr.umich.edu/Data/Documentation/Cbks/Supp/rt.html>) Positive answers (“Yes”) are recoded as 1. Negative answers are recoded as 0. Values closer to 0 reflect very high levels of risk aversion. Values closer to 1 characterize risk-taking respondents.
19. The coefficient on risk aversion itself is not statistically significant in these models. One reviewer was concerned with the positive sign on risk aversion in Models 2, 3, 5, and 6, but these coefficients do not approach statistical significance. It is worth noting that in the best specified models (Models 4 and 7) with a three-way interaction between risk aversion, risk, and income, the coefficient on risk aversion takes on the expected negative sign.
20. The figures are very similar in the case of two-way interactions.
21. One reader has suggested that participants facing the risk of unemployment might have seen it as an opportunity to take part in a lottery in which they get a high pay out for not answering questions. Absent control over the probability of unemployment and a priori information on the tax rate and base, however, gaming the experiment in this way is impossible. The data, moreover, provide no evidence of such behavior. The average earnings of those unemployed were roughly 2/5 the amount of those who were able to answer spelling questions.
22. It is possible to produce figures in which very specific combinations of values of income and risk yield non-overlapping confidence intervals. These cases, however, are so specific and so lacking in robustness that they do not prompt us to revise our fundamental interpretation of the results, namely that there is no substantial conditional relationship between income and risk.
23. To check for further robustness we also included variables for total earnings in each round as well as lagged levels of inequality. None of which changed the results or had a substantive or statistically significant impact.
24. Research in this area has relied on various proxies for social policy preferences, including intention to vote for the left and questions about: whether income should be more or less equal, whether the government should ensure that everyone is provided for, whether people should take responsibility for themselves, whether taxes should be lower or higher, etc. Obviously, none of these questions distinguish social insurance from redistribution.
25. We have rescaled these data to make them comparable with the survey responses.
26. To be precise the Moene and Wallerstein model does not condition income effects on actual risks but on the levels of risk aversion and on the design of the policy (how much it targets low income citizens). In fact, to simplify the presentation, it explicitly assumes that high income citizens face no risk of unemployment. However, even if high wage earners are not sheltered from the risk of

- unemployment, for a realistic range of distributions of risk (see fn. 17 above) and sufficiently high levels of risk aversion, one should see insurance motives dominate preference formation, thereby muting redistributive concerns amongst high earners.
27. It is also the case that the variations in income among participants in laboratory experiments are much smaller. In the real world, income is more consistent through time and more diverse within the population. In addition, risks are much harder to gauge. As a result, the fixed characteristic, income, may carry a stronger weight in shaping decisions about social policy simply by the nature of the setting in which these effects are observed.
28. 2001: p. 876.

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