

# Can You Spare Some Gains?

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## **Abstract**

Most governmental policy actions generate both winners and losers, even if societal welfare improves overall. Often, as is the case with policies related to international trade, potential losers exert political pressure to thwart policies that increase economic efficiency. Our study explores the potential for affecting Pareto improving policy changes through the use of actual redistributive transfers following a policy shock. We design an economic experiment to test for the willingness of “winners” to compensate “losers” through an actual compensation mechanism. A majority of our subjects supported loser compensation and that both self-interest and equity motives appear to drive winners’ decisions.

Key Words: Compensating losers, Trade Policy, Experimental Economics

JEL Classification Codes: C91, F13

## I. Introduction

Over the past several decades the reduced technological and political barriers to trade have spurred a dramatic increase in global economic integration. Though overall global welfare has improved as a result, there are certainly individuals, firms and industrial sectors that have been left less well off as a result of the structural changes associated with globalization. These globalization and trade reform “losers” form an effective protectionist lobby. In a recent speech, U.S. Federal Reserve Chairman Ben Bernanke challenged policymakers “to ensure that the benefits of global economic integration are sufficiently widely shared” in order to avoid the “social and political opposition to openness” that could thwart further global gains.

The objective of our study is to explore the potential for affecting Pareto improving policy changes through the use of actual redistributive transfers following a given policy shock. Traditional welfare analysis employs either the Pareto criterion or the Kaldor-Hicks potential compensation principle to evaluate policy proposals. The first is too restrictive for most practical applied policy analyses, and the second sidesteps not only equity concerns, but also the theory and reality of political economy by implicitly adopting a utilitarian social welfare function.

We design an economic experiment to test for the willingness of “winners” to compensate “losers” through an actual compensation mechanism. The experiment is designed to explore two possible motives for compensating behavior. We first test for ex-ante compensation of losers, motivated at least in part by the winner subjects’ self-interest. That is, would the winners be willing to transfer a portion of their gains to the losers in order to ensure that a welfare-enhancing policy is adopted? Next, we test for purely altruistic post-policy change compensation that we suggest reflects the winner subjects’ preferences for distributional equity. We propose that actual, rather than potential, compensation scenarios be used to design welfare-enhancing policies that recognizes both motives.

## II. Literature Review

Bernanke (2007) writes that three principles seem to be broadly accepted in our society: that economic opportunity should be as widely distributed and as equal as possible; that economic outcomes need not be equal but should be linked to the contributions each person makes to the economy; and that people should receive some insurance against the most adverse economic outcomes, especially those arising from events largely outside the person’s control. He also suggests that despite these guiding principles, important questions remain. For example, how to balance the need for maintaining strong market-based incentives, which support economic growth and efficiency but may be associated with greater inequality of results, against the goal of insuring individuals against the most adverse outcomes, which may reduce inequality but also tends to diminish the strength of incentives.

Bernanke’s comments on globalization reflect the limits of current policy analysis and the potential for a deeper understanding of the importance of distributional issues in addition to overall efficiency impacts. Although much ink has been spilled over the sources of globalization and economic growth, we will briefly sketch the core themes below.

Bhagwati (2004, p. 10) writes that it is true to say that rapid integration of the world economy occurred in the late nineteenth and early twentieth centuries because of decreases in communication and transportation costs. The revolution in transportation and communication technologies weakened the link between Smithian specialization and

geographic concentration making it increasingly possible to separate production tasks in both time and space, thereby fueling globalization (Grossman and Rosi-Hansberg, 2006a).<sup>1</sup> Borjas *et al.* (1997) and Sachs and Shatz (1994) have provided empirical evidence in support of the idea that recent globalization has led to gains in economic efficiency. In particular they find a more efficient allocation of factors across sectors of the economy, encouraged by the increased volume of international trade in the 1980s and 1990s.

Recently, Grossman and Rosi-Hansberg (2006b) have integrated the effects of communication and technological advancement in the international marketplace into their economic off-shoring model. In their model, the impact on domestic wages of any improvement in the technology for off-shoring are decomposed into three components: a labor-supply effect, a relative-price effect, and a productivity effect. They show that the productivity effect can dominate the others in a familiar trade environment, so that improved possibilities for off-shoring low-skilled (and high-skilled) jobs actually will *raise* the wages of domestic workers who perform these types of tasks over the long run. These results should make us feel good about the impacts of globalization.

However, the claim that advances in communication and technology have been an important source of globalization and have led to increases in economic wealth for a long time misses the fact that there are fundamental differences that give globalization today a special and at times sharp edge (Bhagwati 2004, p. 11). The most dramatic changes, argues Bhagwati, are in the degree to which governments have intervened to reduce obstacles to the flow of trade and investments worldwide. Thus, the story of globalization today has two underpinning elements (1) the rate and speed of technical change and (2) the increase in state action to lower or eliminate international trade barriers (Bhagwati 2004, p 11). It is Bhagwati's second element that highlights a troubling truth: "governments that can accelerate globalization can also reverse it" (Bhagwati 2004, p. 11).

Thus, our concern for the future of globalization is derived from is Bhagwati's second element which we will label "government action." History is full of examples of how government may be seduced by calls for equity, whether at the local or global level, whereby the end result is a diminution of efficiency and economic growth. For example, recent calls for "fair trade" have the same seductive characteristics, being that they are really calls for increased trade barriers of one sort or another.

Governmental actions in which at least one party would be made better off and no other party would be worse off would be considered Pareto improving. While governmental actions that satisfy the Pareto criterion would certainly be desirable, we rarely find these "win-win" opportunities in the real world. Most governmental policy changes create both "winners" and "losers" even if overall economic efficiency improves.

Recognizing the practical limitations of the Pareto criterion, the Kaldor-Hicks potential compensation criterion is traditionally used to evaluate governmental policy actions, and is the basis for benefit-cost analysis. Using the Kaldor-Hicks criterion, a policy change is desirable if the winners could, in theory, compensate those that were made worse off by the change to the new policy. Notably, this decision rule does not require that compensation *actually* take place. The overall gains must simply exceed the overall losses to

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<sup>1</sup> For example, Grossman and Rosi-Hansberg (2006a) write that the work product of radiology can be sent electronically to any nearby location in the world without the loss of time and virtually no cost. This has allowed firms to take advantages in differences in factor costs and expertise across countries thereby increasing the benefits of specialization.

be considered a net welfare improving policy according to the Kaldor-Hicks potential compensation criterion.

While the Kaldor-Hicks criterion is a far more practical tool for assessing the overall efficiency of a given governmental action it side-steps equity impacts. To the extent that society is concerned about the distributional impacts of governmental policy, our traditional decision rule may not fully reflect social preferences. It is in this context that contemporary calls for “fair trade” should be heard as the collective voice of the losers rejecting Kaldor-Hicks based policy decisions. The losers’ political voice is gaining strength and it is becoming an increasingly seductive call for erecting trade barriers in an attempt to maintain the status quo.

The opposition to efficiency improving policies is disappointing, especially in light of the thought that in many cases the losers concerns could be addressed. If the gains are large enough, the losers could be compensated so that they are indifferent between the proposed policy and the status quo, while the winners would be better off than in the status quo state. With actual rather than potential side-payments the proposed governmental action could be Pareto improving.

Work by Beekman (1998) and Harrison *et al.* (2002) illustrate the matter by using a computational general equilibrium model. They suggest a modification in government action in the cases where (1) the policy action creates a positive- sum gain, and (2) the policy action does not meet the Pareto criterion. The modification states that the government action contains a provision to actually compensate the losers. If implemented, this provision increases the probability of passing a Pareto improving government action (or even super Pareto improving policy where everyone receives a threshold positive gain).

An important result of the computational models of Beekman (1998) and Harrison *et al.* (2002) is that losers must be compensated for both the *direct* loss and the *indirect* loss of a government action. This outcome makes the compensation larger than the direct cost of say the loss of one’s wages. In addition, they find that there is dead weight loss in the form of transaction-cost associated with making the side-payments to the losers in the system, and the more inefficient the transfer system the higher the transaction costs. Harrison *et al.* (2002, p. 34) write that this is just the price tag for undertaking a policy reform that is more likely to be accepted by all parties; meaning that there is a political trade-off between efficiency and equity which translates into less-efficient reforms having a greater chance of being politically palatable since they are more equitable. The moral of this second-best story is that the dead weight loss resulting from the compensating-losers model is smaller than the dead weight loss associated with government actions that increase trade barriers.

To summarize, the potential winners of a policy reform, in which there are losers, face a simple choice: push for the policy without compensation (with a relatively high payoff but a relatively low probability of acceptance) or accept a modified policy proposal that compensates the losers (with a lower payoff to the winners but a higher probability of acceptance). In the next section, we outline the experimental design we used to test the “compensating-losers” hypothesis.

### **III. The Experimental Design**

Subjects in this experiment were recruited from the University of Tampa, a private mid-sized comprehensive university of 5,100 students adjacent to downtown Tampa, Florida. The experiments were conducted on April 24 & 26, 2007. All subjects were first seated in the same room. Initial written instructions were distributed and read out loud to all

participants. Each subject was issued a subject number which they used as identification for the remainder of the experiment. Subject numbers were used to randomly assign participants to one of three rooms (after multiple switching) so that two subjects remain in room 1, and the remaining subjects are split between rooms 2 and 3.<sup>2</sup>

After participants were separated into the three rooms they were asked to complete a background questionnaire. The purpose of the questionnaire was to collect demographic and attitudinal information, and to settle the subjects into the experiment. Our allocation of subjects allows us to credibly state that we have a group of losers and winners in the experiment while not revealing the identity or number of subjects in each group. We also avoid using the terms “winner” and “loser” in the experimental instructions to avoid bias. Instead we inform subjects that participants are either designated as “Oaks” or “Pines”. The use of “Oaks” and “Pines” has an additional benefit of providing a group context that more closely mimics the trade reform issue we are investigating.

Four subjects were placed in room 1, designated “Pines” in the experiment, and were not asked to make a policy selection. The “Pines” were provided the typed instructions in Appendix 1: Instructions for Pines.

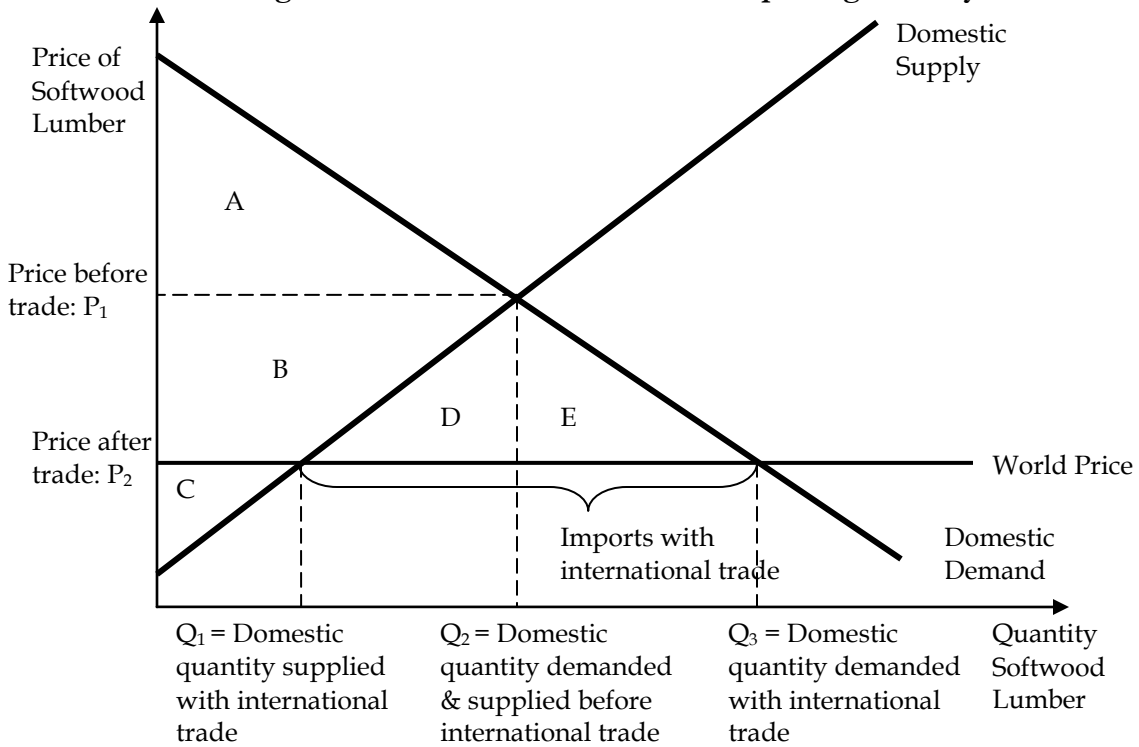
The subjects in room 2 and room 3 were all designated as “Oaks” and were asked to make two different policy decisions. The subjects in room 2 (Treatment 1) were first asked to make an ex-ante allocation decision, then after those responses were collected, were asked to make an ex-post allocation decision. Ex-ante experiment instructions are in Appendix 2 and the ex-post experiment instructions are in Appendix 3. Subjects in room 3 (Treatment 2) were asked to make the same decisions in reverse order, i.e., an ex-post allocation decision and then ex-ante allocation decision.

In our study the Oaks were given opportunities to send some of their higher earnings to the less fortunate Pines. In the ex-ante experiment, Oaks were presented with a self-interested incentive to send compensation to the Pines in order to ensure passage of the welfare improving policy B. However, it may also have been the case that Oaks sent compensation to Pines, in part to avoid the disutility (guilt) associated with policy B’s inequitable distribution of earnings. So, in the ex-ante experiment, if an Oak valued either earnings or equity, she should have selected policy B and sent at least the minimum required compensation to the Pine.

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<sup>2</sup> The physical separation of subjects into different rooms added credibility to subsequent statements that there was more than one group participating in the experiment. Switching participants back and forth between rooms helped maintain the anonymity and obscure the number of subjects in the other rooms.

**Figure 1: International Trade in an Importing Country**



	Before Trade	After Trade	Change: Winner & Losers
Consumer Surplus	A	A+B+D+E	Winners: +(B+D+E)
Producer Surplus	B+C	C	Losers: -(B)
Total Surplus	A+B+C	A+B+C+D+E	Winners: +(D+E)

We designed the ex-post experiment to remove the self-interested motivation for sending compensation to Pines. In the ex-post experiment Oaks were not required to send compensation in order to receive the higher payouts associated with policies B, C, or D. We suggest that any compensation sent in the ex-post setting reflected a pure altruistic preference for equitable income distributions in the experiment.

In the ex-ante experiment, subjects are asked choose between policy A and policy B. Under policy A, Oaks earn \$5.00 and Pines earn \$5.00. If the subject selects policy A, they are paid \$5.00 and the ex-ante portion of the experiment ends. Under policy B, the Oaks earn \$10.00 and the Pines earn \$2.00; however, some earning must be transferred from the Oaks to the Pines to compensate the Pines for the unequal distribution of earnings. The \$2 increase in total earnings in this experiment is representative of the welfare gains shown by area D+E in Figure 1.

The ex-ante experiment instructions state: policy B will only be approved if the payout to a Pine (earnings plus compensation) can be increased to at least \$5.00. In other words, the default policy is policy A until the Pines are paid a minimum of \$5.00 so that they are indifferent between the policy A and policy B payouts. In an effort to make the decision painfully obvious, we told subjects that if they selected policy B they must also select a compensation fund contribution amount from the alternatives in Table 1. The money

maximizing, self-interested decision is simple in this case: in order to earn a maximum payoff of \$7.00, I must pay the “loser” \$3.00; otherwise, policy B fails to pass.

Table 1: Ex-Ante Policy B Decision Matrix

	Your Contribution to Compensation Fund	Oak Payout				Pine Payout				Will Policy "B" be approved?		
		Your Earnings	-	Your Contributions	=	Your Payout	Pine Earnings	+	Your Contributions		=	Pine Payout
<input type="checkbox"/>	\$0	\$10	-	\$0	=	\$10	\$2	+	\$0	=	\$2	<b>NO</b>
<input type="checkbox"/>	\$1	\$10	-	\$1	=	\$9	\$2	+	\$1	=	\$3	<b>NO</b>
<input type="checkbox"/>	\$2	\$10	-	\$2	=	\$8	\$2	+	\$2	=	\$4	<b>NO</b>
<input type="checkbox"/>	\$3	\$10	-	\$3	=	\$7	\$2	+	\$3	=	\$5	<b>YES</b>
<input type="checkbox"/>	\$4	\$10	-	\$4	=	\$6	\$2	+	\$4	=	\$6	<b>YES</b>
<input type="checkbox"/>	\$5	\$10	-	\$5	=	\$5	\$2	+	\$5	=	\$7	<b>YES</b>
<input type="checkbox"/>	\$6	\$10	-	\$6	=	\$4	\$2	+	\$6	=	\$8	<b>YES</b>
<input type="checkbox"/>	\$7	\$10	-	\$7	=	\$3	\$2	+	\$7	=	\$9	<b>YES</b>
<input type="checkbox"/>	\$8	\$10	-	\$8	=	\$2	\$2	+	\$8	=	\$10	<b>YES</b>
<input type="checkbox"/>	\$9	\$10	-	\$9	=	\$1	\$2	+	\$9	=	\$11	<b>YES</b>
<input type="checkbox"/>	\$10	\$10	-	\$10	=	\$0	\$2	+	\$10	=	\$12	<b>YES</b>

In the ex-post experiment, subjects are asked to choose among the following four policy options. If a subject selects policy A, the Oaks are paid \$5.00 and Pines are paid \$5.00. If a subject selects policy B, the Oaks are paid \$10.00 and the Pines are paid \$2.00. If the subject selects policy C, the Oaks earn \$10.00 and the Pines earn \$2.00; however, \$3 in earnings must be transferred from the Oaks to the Pines to compensate the Pines for the unequal distribution of earnings. Under policy C, the Oaks are paid \$7.00 and the Pines are paid \$5.00. Here, Pines are indifferent between policy A and policy C. Lastly, if the subject selects policy D, the Oaks earn \$10.00 and the Pines earn \$2.00; however, \$4 in earnings must be transferred from the Oaks to the Pines to compensate the Pines for the unequal distribution of earnings. Under policy D, the Oaks are paid equally, \$6.00 for the Oaks and the Pines. Subjects in the ex-post experiment making phase see the decision sheet in Table 2.

Table 2: Ex-Post Decision Matrix

Vote		Compensation Plan	Cash Payout at the end of the experiment
<input type="checkbox"/>	Policy <b>A</b>	None	Oak: \$5.00 Pine: \$5.00
<input type="checkbox"/>	Policy <b>B</b>	None	Oak: \$10.00 Pine: \$2.00
<input type="checkbox"/>	Policy <b>C</b>	Oaks transfer \$3 to Pines	Oak: \$7.00 Pine: \$5.00
<input type="checkbox"/>	Policy <b>D</b>	Oaks transfer \$4 to Pines	Oak: \$6.00 Pine: \$6.00

#### IV. Data and Results

95 subjects were recruited with a global e-mail sent to all students at the University of Tampa. We have 91 Oak subjects and 4 Pine subjects. It was a diverse subject pool:

63% white, 6% Hispanic, 6% mixed race, 5% African-American, 4% other, and 1% African. The mean age was 20.44 and 65.9% were female. Students majored in accounting, economics, finance, marketing, business management, health professions, biological sciences, social sciences, history, humanities, and psychology; in addition, subjects were spread across academic levels: 28.6% freshman, 25.3% sophomore; 30.8% junior, 13.2% senior, and 2.2% master students. Subjects held a part-time job 62.6%, a full-time job 6.6%, and did not work 30.8% of the time. And finally, 17.65% of the subjects told us that they do smoke. The average amount earned was \$13.90.

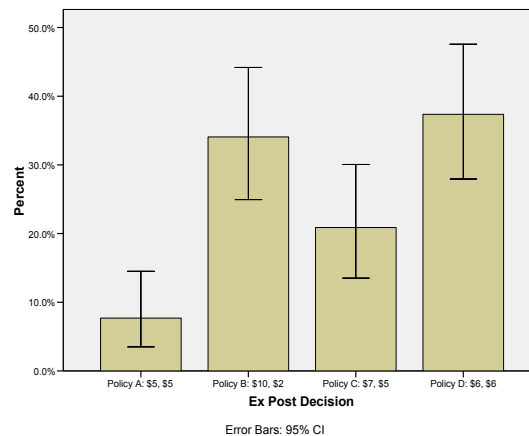
There was no significant effect of treatment (ex-ante, ex-post ordering) in this set of experiments. Given that outcome, the experiments generated the following 12 results:

**Result 1.** In the ex-post experiment, 37.36% of Oak subjects selected policy D, where each subject received an equal split of \$6.00 (Table 3, Figure 2).

Table 3: Ex Ante & Ex Post Policy Selection

	Ex Ante Policy A	Ex Post Policy B	Total N
Ex Post Policy A	5	2	7
Ex Post Policy B	9	22	31
Ex Post Policy C	4	15	19
Ex Post Policy D	7	27	34
Total N	25	66	91

Figure 2: Ex Post Decision



**Result 2.** In the ex-post experiment, 34.07% of Oak subjects selected policy B, which is the wealth maximizing policy (Table 3, Figure 2). Subjects that work full-time and selected policy B behave similarly to subjects that work full-time and who also selected policy D (Table 4).

Table 4: Ex Post Decision

	Parameter	B	Error	Wald	$p > Wald$	Exp(B)
Policy A	Intercept	-1.597	1.266	1.590	.207	
	Part-time	2.446	1.490	2.694	.101	11.541
	Full-time	7.920	2.993	7.003	.008	2751.606
	Not working	0				
	Ex Ante Policy A	-2.660	1.253	4.511	.034	.070
	Ex Ante Policy B	0				
	Smoker	3.055	1.717	3.167	.075	21.228



	Non-Smoker	0				
	Weekly Earnings	-.015	.007	4.857	.028	.985
Policy B	--	0				
Policy C	Intercept	-.996	.793	1.577	.209	
	Part-time	.901	.799	1.272	.259	2.462
	Full-time	3.734	1.990	3.523	.061	41.866
	Not working	0				
	Ex Ante Policy A	.323	.736	.192	.661	1.381
	Ex Ante Policy B	0				
	Smoker	2.666	1.193	4.990	.025	14.376
	Non-Smoker	0				
	Weekly Earnings	-.009	.004	4.374	.036	.992
Policy D	Intercept	-.032	.644	.002	.961	
	Part-time	-.500	.626	.640	.424	.606
	Full-time	-.337	1.621	.043	.835	.714
	Not working	0				
	Ex Ante Policy A	.507	.618	.672	.412	1.660
	Ex Ante Policy B	0				
	Smoker	2.370	1.097	4.667	.031	10.702
	Non-Smoker	0				
	Weekly Earnings	-.001	.001	.904	.342	.999

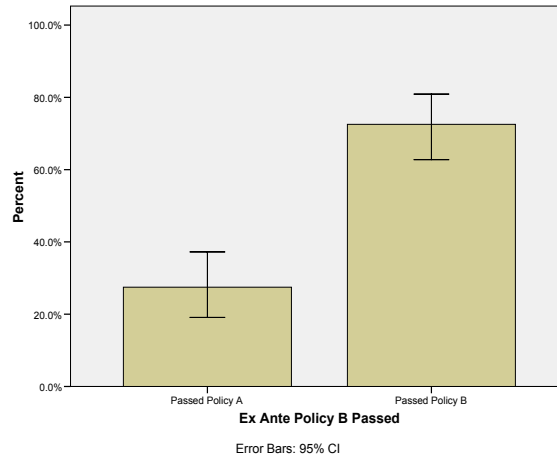
Pseudo R-Square = .352, Chi-Square = 35.630, Likelihood Ratio Test Sig. = .002

**Result 3.** The estimated odds of an Oak subject selecting policy A in the ex-ante experiment is 0.07 times fewer than a subject selecting policy A in the ex-post experiment (Table 4,  $p$ -value = .034). In other words, subjects that selected policy A, in which \$5.00 is allocated to each subject, in the ex-ante experiment did nearly the same in the ex-post experiment.

**Result 4.** Oak subjects that have higher weekly earnings are more likely to select policy B in the ex-post experiment. In the ex-post experiment, the estimated odds of a subject selecting policy A (policy C) and having a lower weekly income is .985 (.992) times more likely than a similar subject who selected policy B (Table 4,  $p$ -value = .028 (.036)).

**Result 5.** 72.5% of Oak subjects selected policy B and a contribution amount that passed in the ex-ante experiment (Figure 3).

Figure 3: Ex Ante Policy (Passed)



**Result 6.** 13.2% of Oak subjects selected a contribution amount of \$3.00 in the ex-ante experiment (giving Pines a total of \$5.00) and selected policy C in the ex-post experiment, giving Pines a total of \$5.00 (Table 5).

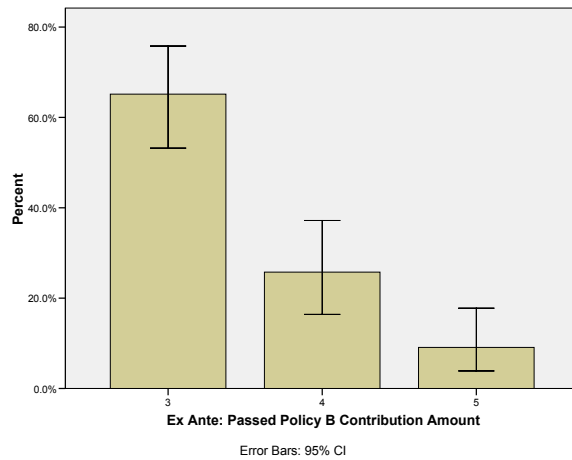
**Result 7.** 14.3% of Oak subjects selected a contribution amount of \$4.00 in the ex-ante experiment (giving Pines a total of \$6.00) and also selected policy D in the ex-post experiment (Table 5). Again, policy D in the ex-post experiment gives Pines \$6.00, making the allocation to Oaks and Pines equal at \$6.00.

Table 5: Ex-Ante Experiment Policy B Contribution by Ex-Post Policy Selection

	\$3	\$4	\$5	Total N
Ex Post Policy A	1	1	0	2
Ex Post Policy B	20	1	1	22
Ex Post Policy C	12	2	1	15
Ex Post Policy D	10	13	4	27
Total N	43	17	6	66

**Result 8.** 65.15% of Oaks of had their policy B contribution selection pass in the ex-ante experiment chose to contribute the minimum contribution amount of \$3.00, giving Pines a total of \$5.00 (Figure 4). In addition, 25.76% and 9.09% of Oak subjects that had their policy B contribution selection pass in the ex-ante experiment chose to contribute \$4.00 and \$5.00, respectively, to the Pines, giving Pines a total of \$6.00 and \$7.00 (Figure 4).

Figure 4: Ex Post Contribution Amount (Passed)



**Result 9.** Oak subjects that contributed more in the ex-ante experiment are correlated with subjects that selected policy D (where Oaks and Pines each allocated \$6.00) in the ex-post experiment (Table 6,  $p$ -value = .000).

Table 6: Ex-Ante Experiment, Policy B Contribution

Parameter	Estimate	Error	$t$	$p >  t $
(Constant)	3.562	.527	6.754	.000
Female	.152	.152	1.002	.321
Ex Post Policy A	.038	.438	.088	.931
Ex Post Policy B	0	-	-	-
Ex Post Policy C	.190	.193	.984	.329
Ex Post Policy D	.629	.168	3.737	.000
Non-Smoker	.193	.185	1.044	.301
Works full-time	-.400	.274	-1.460	.150
Works part-time	-.398	.156	-2.550	.014
Does not work	0	-	-	-
Parental Income	-.001	.001	-2.003	.050
Number in household	-.162	.054	-3.030	.004
Household income	.038	.029	1.310	.196
Father's highest education level	-.131	.055	-2.392	.020
Adjusted R-Square = .325; F-Statistic = 3.842 ( $p$ = .000); Durbin-Watson 1.834				

**Result 10.** If an Oak subject worked part-time (rather than full-time or not at all) they were less likely to contribute more than the minimum amount in the ex-ante experiment (Table 6,  $p$ -value = .014).

**Result 11.** The more income an Oak subject's parents earn, the less likely that that subject is to compensate more than the minimum amount in the ex-ante experiment (Table 6,  $p$ -value = .050).

**Result 12.** The higher the education level of an Oak subject's father, the less likely that that subject is to compensate more than the minimum amount in the ex-ante experiment (Table 6,  $p$ -value = .020).

## V. Conclusions

The economic analysis of proposed governmental policies usually centers on overall gains to society. The win-win requirement of the Pareto criterion is rarely satisfied in the analysis of most policies because some affected agents within the economy are bound to be made worse off even if societal gains exceed losses. Decision makers have, therefore, relied on a Potential Pareto test in which policies are supported if winners could potentially compensate losers and still be better off. Notably the compensation need never take place, so a welfare improving policy usually generates groups of winners and losers.

Policy losers are motivated to oppose the policy change and maintain the status quo. In the case of trade reform and increased global economic integration, losers have exerted significant political pressure and have demonstrated the potential to thwart potential gains in efficiency. A pragmatic alternative is to recognize both the political power of the losers and provide actual transfers from winners to losers so as to address societal preferences for both efficiency and equity. If the losers could be compensated for their loss, then we could consider the proposal to be a Pareto improvement. The political opposition to the proposed policy would be minimized, overall economic gains would be achieved, and fairness preferences would be recognized.

Our research centered on the willingness of winners to compensate losers. We also investigated the motives underlying their decisions to compensate. Did winners act in a self-interested manner to ensure the welfare improving policy was adopted, or were they motivated out of sense of fairness? In either case, if policy winners were willing to compensate, they were indicating a preference for policy change rather than status quo.

Our ex-post experiment does not provide an incentive for self-interested compensation of losers. The money maximizing strategy is for the winners (Oaks) to select Policy B in which there is no compensation paid to losers (Pines). We interpret any compensation provided by winners in this experiment as an indication of our subjects' preferences for equity or fairness. In our ex-post experiment we find that 37.4% of winners chose to split gains equally with losers, and an additional 20.9% of winners distributed at least part of their gains to losers. Only 34.1% of our winner subjects chose the dominant, money-maximizing strategy (no compensation, keep all gains). It appears that more of our subjects were demonstrating some preference for equity. The winners were willing to reduce their own money income in order to generate a more equitable distribution of earnings.

Our ex-ante experiment presented the winners (Oaks) with an opportunity to receive a higher than status quo net payout, via policy B, if they agreed to compensate the Pines for their policy change losses. We found that 72.5% of our winners were willing to send at least the minimum required compensation so that the welfare improving policy B would be approved. Winners' compensation behavior could have been motivated by either preferences for equity, or by a self-interested desire to maximize their own experimental earnings. It is interesting that not all of our subjects were willing to support a Pareto improving deviation from status quo.

Table 7: Student Comments

Subject	What did this experiment remind you of?
89	How government redistributes income.... Government determines what amount will be taken away from wealthier people and given to programs for the less fortunate.
15	It reminded me of a study done in order to reveal what individual consumers would chose if they knew their choices would reflect a group as a whole.
47	...trying to take other peoples money, breaking even, or giving my money away. Although others may benefit from me giving my money away I didn't see the benefits for myself.
29	...working class people. How at times they may be doing the same job, yet they a certain group is paid less. I made sure everyone would get the same amount so it would be equal and the same amount possible at the same time (\$6 instead of \$5).
44	It reminds me of equality.
20	The rich man deciding if he was going to contribute to the earnings of the little man.
26	... how certain groups of people in the U.S. get paid different amounts of money for doing the same thing.
52	Greed vs. giving.
91	It made me think of the welfare of myself and the other person. If I should select an equitable policy or one of personal gain.
94	...taxation, in reference to the ideology of taxing the incomes of different economic classes.
108	Possibly a communist community and sharing profits.

The money-maximizing choice in the ex-ante experiment was to send the minimum \$3 required compensation. Some of the subjects, however, chose to compensate more than the minimum amount. Presumably, overcompensation would indicate that equity concerns were playing a part, perhaps along with self-interest, in the decisions of those subjects. In fact, we find that winners that sent more than the minimum contribution in the ex-ante experiment were more likely to have selected the equitable distribution policy D option in the ex-post experiment. That is, some of our subjects demonstrated a consistent preference for equitable outcomes.

We also find that winners that selected the sub-optimal status quo policy A in the ex-ante experiment were likely to also have selected the sub-optimal status quo option in the ex-post experiment. We take this as a bias for status quo outcomes in these subjects. These Oaks were willing to forgo personal gain, and even possible gains for the Pines, in order to maintain the (equitable) status quo. This status quo preference suggests that proposed welfare improving policies may meet opposition by not only potential losers, but perhaps some potential winners too, even if compensation were an option.

Another finding is that subjects that reported higher weekly earnings (outside the experiment) were more likely to select the money maximizing non-compensation policy in the ex-post experiment, and subjects that reported higher parental incomes were less likely to overcompensate in the ex-ante experiment. These results indicate a negative relationship

between wealth and equity preferences. Perhaps the wealthy are greedy, or the less fortunate are more sensitive to equity issues.

One must tread lightly when extending the results of a laboratory experiment to the behavior and preferences of agents making decisions in the real world. Our qualitative comments as sampled in Table 7, however, suggest that our subjects were associating their experimental experience with the kinds of distributional issues resulting from governmental policy change. Our results indicate that a majority of our winners revealed a willingness to support policies that incorporate actual compensation of losers. Support for compensating transfers in our experiment appears to be driven by equity as well as by self-interested motives. The open question then is: if our subjects, making real economic decisions are willing to compensate potential losers for either reason, then should government promote policies that incorporate compensation for those adversely impacted? We can view compensation programs as either a political payoff required to realize net efficiency gains, or as reflecting societal preferences for equitable distributions. We submit that there is a potential for incorporating actual redistributive transfers into governmental policy proposals such that a Pareto improving public policy is generated.

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## Appendix 1: Instructions for Pines

### Designation:

Participants in this experiment are either designated as an “**Oak**” or a “**Pine**.”

You have been designated as a “**Pine**”.

### Your Instructions:

You have earned a minimum of \$7 from your participation in this experiment. You may earn more based on the responses of other participants in the experiment. While you do not have any additional questions to answer, you need to stay in this room and remain silent, until the questionnaires have been collected from all participants in each of the rooms.

Neither your identity nor your designation will be revealed to other participants. Our assistant, who will pay you at the conclusion of the experiment, will not know your designation, or if you had to make any policy decisions in the experiment. The assistant has simply been instructed to pay you the amount written on a standard form. The other participants will not know who has done what or how the payments were generated. You will be asked to sign a receipt for the amount you receive, but this is only for accounting purposes.

Fill in your subject number: \_\_\_\_\_

You will be notified when the experiment has concluded. Thank you for your participation.

### Appendix 2: Ex ante Instructions

You will be asked to make a policy decision that will impact your own earnings and the earnings of another participant in this experiment. Participants in this experiment are either designated as an “**Oak**” or a “**Pine**.”

You have been designated as an “**Oak**”.

Neither your identity nor your designation will be revealed to other participants. Our assistant, who will pay you at the conclusion of the experiment, will not know your designation, or if you had to make any policy decisions in the experiment. The assistant has simply been instructed to pay you the amount written on a standard form. The other participants will not know who has done what or how the payments were generated. You will be asked to sign a receipt for the amount you receive, but this is only for accounting purposes.

Fill in your subject number: \_\_\_\_\_



You be asked to select one of the following policy options on the next page. The policy option you select will determine your earnings in this experiment.

**Policy “A”:** Oaks earn \$5 and Pines earn \$5. Combined earnings = \$10.

	<u>Earnings</u>	<u>Payout</u>
Oak	\$5.00	\$5.00
Pine	\$5.00	\$5.00

**Policy “B”:** The Oaks earn \$10 and Pines earn \$2. Combined earnings = \$12. Some earnings must be transferred from the Oaks to compensate the Pines.

- As an Oak, you can contribute earnings to a fund that will be used to compensate the Pines for the change to Policy “B”.
- Policy “B” will **only be approved if** the payout to a Pine (earnings plus compensation) can be increased to *at least* \$5. That is, a Pine’s payout using Policy “B” must be *equal to or greater* than their Policy “A” payouts.
- Every dollar an Oak contributes to the compensation fund will lower Oak’s actual payout under Policy “B” by \$1 and increase the Pine’s Policy “B” payout by \$1.
- An Oak would need to contribute at least \$3 in order to sufficiently compensate a Pine for the adoption of Policy B. If an Oak’s contribution is less than \$3, then Policy “A” will pass by default.

Please vote for either Policy “A” or Policy “B” below (check a box)

Policy “A”

	Oak	Pine
Policy “A” Payout	\$ 5	\$ 5

Policy “B” with required compensation fund contribution

If you have selected Policy “B”, please also select a compensation fund contribution amount from the alternatives below (check a box).

	Your Contribution to Compensation Fund	Oak Payout				Pine Payout				Will Policy "B" be approved?		
		Your Earnings	-	Your Contributions	=	Your Payout	Pine Earnings	+	Your Contributions		=	Pine Payout
<input type="checkbox"/>	\$0	\$10	-	\$0	=	\$10	\$2	+	\$0	=	\$2	NO
<input type="checkbox"/>	\$1	\$10	-	\$1	=	\$9	\$2	+	\$1	=	\$3	NO
<input type="checkbox"/>	\$2	\$10	-	\$2	=	\$8	\$2	+	\$2	=	\$4	NO
<input type="checkbox"/>	\$3	\$10	-	\$3	=	\$7	\$2	+	\$3	=	\$5	YES
<input type="checkbox"/>	\$4	\$10	-	\$4	=	\$6	\$2	+	\$4	=	\$6	YES
<input type="checkbox"/>	\$5	\$10	-	\$5	=	\$5	\$2	+	\$5	=	\$7	YES
<input type="checkbox"/>	\$6	\$10	-	\$6	=	\$4	\$2	+	\$6	=	\$8	YES
<input type="checkbox"/>	\$7	\$10	-	\$7	=	\$3	\$2	+	\$7	=	\$9	YES
<input type="checkbox"/>	\$8	\$10	-	\$8	=	\$2	\$2	+	\$8	=	\$10	YES
<input type="checkbox"/>	\$9	\$10	-	\$9	=	\$1	\$2	+	\$9	=	\$11	YES
<input type="checkbox"/>	\$10	\$10	-	\$10	=	\$0	\$2	+	\$10	=	\$12	YES

Appendix 3: Ex Post Instructions

You will be asked to make a policy decision that will impact your own earnings and the earnings of another participant in this experiment. Participants in this experiment are either designated as an “**Oak**” or a “**Pine**.”

You have been designated as an “**Oak**”.

Neither your identity nor your designation will be revealed to other participants. Our assistant, who will pay you at the conclusion of the experiment, will not know your designation, or if you had to make any policy decisions in the experiment. The assistant has simply been instructed to pay you the amount written on a standard form. The other participants will not know who has done what or how the payments were generated. You will be asked to sign a receipt for the amount you receive, but this is only for accounting purposes.

Fill in your subject number: \_\_\_\_\_

You be asked to select one of the following policy options on the next page. The policy option you select will determine your earnings in this experiment.

**Policy “A”:** The Oaks earn \$5 and the Pines earn \$5. Combined earnings = \$10.

	<u>Earnings</u>	<u>Payout</u>
Oak	\$5.00	\$5.00
Pine	\$5.00	\$5.00

**Policy “B”:** The Oaks earn \$10 and the Pines earn \$2. Combined earnings = \$12.

	<u>Earnings</u>	<u>Payout</u>
Oak	\$10.00	\$10.00
Pine	\$ 2.00	\$ 2.00

- Under this policy, the Oaks will earn a *higher* payout and Pines will earn a *lower* payout relative to **Policy “A.”**

**Policy “C”:** The Oaks earn \$10 and the Pines earn \$2. Combined earnings = \$12. However, some earnings are transferred from the Oaks to compensate the Pines.

	<u>Earnings</u>	<u>Compensation Transfer</u>	<u>Payout</u>
Oak	\$10.00	- \$3.00	\$7.00
Pine	\$ 2.00	+\$3.00	\$5.00

- Under this policy, the Oaks must contribute \$3 to compensate the Pines for the change in earnings. The final payout for the Oaks is *higher* than the final payout for the Pines; however, the Pines will be *indifferent* between this policy and **Policy “A.”**

**Policy “D”:** The Oaks earns \$10 and the Pines earn \$2. Combined earnings = \$12. However, some earnings are transferred from the Oaks to compensate the Pines.

	<u>Earnings</u>	<u>Compensation Transfer</u>	<u>Payout</u>
Oak	\$10.00	- \$4.00	\$6.00
Pine	\$ 2.00	+\$4.00	\$6.00

- Under this policy, the Oaks must contribute \$4 to compensate the Pines for the change in earnings. The final payout for the Oaks is *equal* to the final payout of the Pines.

Please vote for one of the Policy alternatives offered below (check one box)

Vote		Compensation Plan	Cash Payout at the end of the experiment
<input type="checkbox"/>	Policy "A"	None	Oak: \$5.00 Pine: \$5.00
<input type="checkbox"/>	Policy "B"	None	Oak: \$10.00 Pine: \$2.00
<input type="checkbox"/>	Policy "C"	Oaks transfer \$3 to Pines	Oak: \$7.00 Pine: \$5.00
<input type="checkbox"/>	Policy "D"	Oaks transfer \$4 to Pines	Oak: \$6.00 Pine: \$6.00