# FRAMING EFFECTS ON PREFERENCES FOR THE INCOME TAX SYSTEM

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**Abstract**

Lack of public support for a tax system can lead to its demise, as demonstrated by the UK poll tax debacle. On the other hand, McCaffery and Baron (2004) argue that the politicians who best frame their arguments will rally public support to sustain the tax system. The present study examines how varying the frames on income tax attributes affects underlying attitudes toward the system. Most prior tax research on framing effects has not made a distinction between different types of framing effects as it has only examined risky choice framing. This study specifically analyzes attribute frames, and particularly focuses on equivalency and emphasis framing. The findings illustrate and document significant effects for these types of frames. For example, taxpayers are significantly more positive about 50 percent of taxpayers paying 4 percent of the taxes than they are about 50 percent of taxpayers paying 96 percent of the taxes. In addition, taxpayer preferences measured using descriptors such as "fair" or "unfair", and "positive" or "negative", affect the relationship between attributes and intentions to support the current tax system. Thus, equivalency and emphasis framing not only affect attitudes toward a specific attribute, but also influence how these attributes are weighted when determining overall tax system support.

**Keywords:** Tax Compliance, Taxpayer Preferences, Tax Attitudes, Framing Effects, Attribute Frames.

## INTRODUCTION

Recent reports have documented the importance of public support for tax systems. Despite an annual U.S. tax gap of $458 billion, most American taxpayers state that cheating on taxes is unacceptable (Internal Revenue Service Oversight Board [IRSOB], 2014), yet it is still imperative that tax administrators should solicit public opinion and respond to citizens' input. Public discourse creates an opportunity for the government to respond to citizens' views and needs. Gathering public opinion, however, is not a simple task, because attitudes can change over time and be altered by the context in which they are solicited (Hite & Roberts, 1991; McCaffery & Baron 2004, 2006).

This paper examines the impact of framing effects on the preferences that taxpayers express toward public policy. In the process, it provides insights into the stability of taxpayer perceptions by demonstrating whether, and when, participants' responses to questions depend on the phrasing of those questions. Going further, the paper then addresses whether framing effects on individual aspects of a system remain pertinent when determining overall sentiment toward a system with many different characteristics. The results are important for policymakers wishing to gauge taxpayer attitudes. In addition, the study is relevant to several research areas focusing on persuasion and behavior from a broad perspective (Petty & Briñol, 2008), in more specific areas, such as nudge (Biddle, Fels, & Sinning, 2018), and within the framework of

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discourse regarding political and social issues (Feinberg & Willer, 2015). Of specific relevance to our study, the paper further informs our understanding of framing in a political context (van der Pas, 2014).

Framing effects are not new to the literature, but that literature has not distinguished between the different mechanisms for framing effects (Druckman, 2001). Furthermore, the tax literature has largely focused on risky choice framing, as developed by Kahneman and Tversky (1979, 1982). Attribute framing provides us with an advantageous framework for examining taxpayer preferences on three levels. First, because it focuses on individual components instead of overall attitude, it has been less fully explored, leaving more unanswered questions. Second, small changes in tax law are easier to accomplish than large-scale reform, so a policymaker who wishes to accomplish change with public support would benefit by singling out one attribute of a tax system. Third, the quantitative nature of a tax system, as well as routine politicization, makes it subject to two forms of attribute framing in particular: equivalence and emphasis. These concepts are explained in further detail later in the paper.

This paper investigates taxpayer preferences toward the income tax system and examines how attitudes toward specific attributes of the system affect behavioral intention to vote for a political candidate who wants to keep the income tax system basically as it is. Differing frames are used to test the stability of the attributes. This paper contributes to the literature by examining taxpayers' preferences toward the often-competing tax attributes of equity, ability to pay, and redistribution, while demonstrating how those preferences are altered by using different frames. Importantly, this study illustrates that the effects of equivalency and emphasis framing extend beyond differences in mean attitude on an attribute. Equivalency and emphasis frames can also affect the resulting correlations between the framed attribute and other associated variables.

Our results show that intention to vote for a pro-income tax politician was influenced by three specific attributes: attitudes toward the equity of the tax system, whether it helps the poor, and the fact that 96 percent of all the income taxes are paid by half of the taxpayers. The effectiveness of the three factors, however, differed according to how they were framed (e.g., fair/unfair, helps the poor/hurts the wealthy, and half paying 96 percent is a positive/negative feature). In addition, respondents were significantly more positive about half of the taxpayers paying four percent of the taxes than about the other half paying 96 percent.

Understanding how different frames influence tax preferences is crucial to determining their true level of acceptability. Politicians, researchers, and policymakers should be interested in discovering which types of frame influence opinion (Boudreau & MacKenzie, 2018; Lamberton, DeNeve, & Norton, 2017). This paper proceeds by reviewing the relevant literature, explaining the research method, presenting the results, and then discussing the study's conclusions and limitations.

## LITERATURE AND HYPOTHESES

### Framing Effects

The theory underlying framing effects grew out of prospect theory, as developed by Kahneman and Tversky (1979). Prior research, however, has documented that framing effects explain a much larger range of behavior than demonstrated in the very early risk preference studies.

Levin, Schneider and Gaeth (1998) show that valence framing effects include at least three different mechanisms: risky choice framing, goal framing, and attribute framing.

Risky choice framing (Kahneman & Tversky, 1979, 1982) involves a choice between options with different risk levels that are mathematically identical to an alternatively stated set of options. Subjects are risk-seeking in negative frames and risk-averse in positive frames. In goal framing, the outcome variable is measured as the extent to which subjects adopt a targeted behavior (Meyerowitz & Chaiken, 1987). Thus, a nudge communication (Thaler & Sunstein, 2008) might emphasize either the positive consequences of displaying the targeted behavior or the negative consequences of not displaying the behavior (e.g., being fully tax compliant). In contrast, attribute framing examines the evaluation of an event or object based on how specific characteristics of the event or object are described (Levin, 1987). Each of these three types of valence framing effect is operationalized by presenting information in either a positive or negative manner.

Druckman (2001) categorized attribute framing as either equivalency or emphasis framing. He asserted that equivalency frames represent scenarios in which precise situations are described in alternate ways, usually mathematically or tautologically equivalent. Emphasis framing is similar but distinct. It describes situations in which attention is drawn to different aspects of the same problem, such as the harmful consequences or the potential benefits of an object or event. Although the equivalency-emphasis dichotomy is useful, the classifications are not precise. For example, Levin et al. (1998) examined the effects of having a half-full and half-empty piggy bank on the likelihood of future savings. The difference was not significant, as the treatment appeared to be overwhelmed by a series of other positive/negative descriptors and motivations for saving that were included in the scenarios. Nonetheless, the notion of half-full versus half-empty exemplifies the gray area between the categorization of equivalency and emphasis frames. The descriptions are mathematically equal, but they emphasize either a favorable or unfavorable perspective, as demonstrated by Reimers (2009).

The present study examines a mathematically equivalent frame describing how much tax is paid by a given proportion of taxpayers. Based on the IRS's Statistics of Income (SOI) data (2018), 50 percent of the taxpayers pay 96 percent of the federal individual income taxes that are paid. Alternatively stated, 50 percent of the taxpayers pay four percent of all federal individual income taxes. Mathematically, the statements are equivalent, but one statement indirectly draws respondents' attention to the top half paying a lot while the other statement draws it to the bottom half paying a little. Given the implied redistributive nature of progressive tax systems, policymakers wanting to determine taxpayers' preferences need to know whether these types of equivalency frames alter taxpayers' attitudes. Thus, we test the following hypothesis:

> **H1:** Evaluations will differ between taxpayers asked about half of the taxpayers paying 96 percent and half paying 4 percent of the income taxes.

The results of this test will document the validity of equivalency framing and provide policymakers with a framework for analyzing whether one side of the scale demands more attention than the other.

## Tax System Attributes

Based on prior tax studies (Roth, Scholz, & Witte, 1989; Roberts, 1994), overall attitude toward the tax system is explained by attitudes toward specific traits of the system (Onu, 2016). However, the literature on attribute framing by Levin et al. (1998) and Druckman (2001) suggests that tax attitudes may differ with context. For example, when income tax rates were framed in percentages rather than in dollar amounts, preferences for rates varied significantly (Hite & Roberts, 1991). In addition, research by McCaffery and Baron (2004) found a penalty aversion bias because of a differential effect when the income tax system was described as either providing a bonus or assessing a surcharge. Research on framing effects supports that literature. More recently, Stanley and Hartman (2018) examined framing and found that taxpayer attitudes differed according to the way government spending was categorized.

Rothman and Salovey (1997) assert that the impact of objectively identical information is differentially affected by positive and negative frames. Building on that theory, prior tax research found that attitudes toward the income tax system differed significantly when soliciting preferences for an unfair and complex income tax system than when soliciting preferences for a fair and simple tax system (Hasseldine & Hite, 2003). The latter study did not distinguish solely between fair and unfair, because the outcome variable included compound descriptors of "unfair and complex" versus "fair and less complex." This undoubtedly encouraged agreement that the system is becoming more unfair and complex rather than disagreement that it is becoming fairer and less complex.

In the current study, the effects of equivalency framing and emphasis framing on key attributes of the tax system are examined to discover the mean differences on attitude toward the attributes themselves, as well as on their differential impact on intended behavior to support the income tax system. Given that equity, redistribution, and ability to pay have been recognized as key variables affecting attitudes toward a tax system (Porcano, 1984), attitude toward those three aspects are examined. The equity and ability to pay factors are presented in "equivalent" frames. Equity is solicited using either a "fair" income tax context or an "unfair" income tax frame. Ability to pay involves the actual statistic regarding who pays most of the federal income taxes. The top half pays 96 percent of the individual income taxes. This "96%" fact is described as either a "positive" feature of the income tax system or a "negative" aspect. The redistribution factor is presented in "emphasis" frames. Redistribution due to income inequality implies taking from upper income taxpayers to help lower economic taxpayers or the poor. This study compares taxpayer attitudes toward the income tax system when references are made to helping the poor versus hurting the wealthy.

We can then perform a precise test of the positive/negative frame posited by prior research (Payne, Laughhunn, & Crum, 1984; Druckman, 2001; Rothman & Salovey, 1997). Levin et al. (1998) point out that attribute frames have used simple negation (such as attractive versus not attractive) as well as sets of linguistic variations (such as percentage fat or lean) to accentuate either positive or negative characteristics of the item being evaluated. For example, Dunegan (1993) reported that significantly lower evaluations were given to project teams (doing funding allocations) when their performance was described as having a 40 percent failure rate rather than a 60 percent success rate.

The overriding theme in attribute framing is that the positive frame refers to some desirable aspect of the attribute and the negative frame refers to an undesirable trait. Levin et al. (1998) explain that framing effects are consistent with the concept of priming, in that positive stimulus

labels lead to more favorable evaluations. That is, the prime forms an evaluative frame which maps a path from the positively or negatively framed knowledge to a readily accessible impression. Similar concepts have been explored in subsequent research, such as in Chong and Druckman (2007). We use these prior findings to posit the following hypotheses:

> **H2:** Equivalency framing will significantly affect voting intention toward a politician who wants to keep the income tax system basically as it is.
>
> **H3:** Emphasis framing will significantly affect voting intention toward a politician who wants to keep the income tax system basically as it is.

## METHOD

Households were randomly selected to participate in a telephone survey on the income tax system by a professional survey research center. Interviewers were trained prior to making the calls and read the questions at a rate of two words per second. The research center conducted the study using the Computer-Assisted Survey Execution System (CASES) software package developed by the Computer-Assisted Survey Methods (CSM) Program, which is managed by the Institute for Scientific Analysis. The research center used the Genesys list-assisted method, which allows for unpublished numbers and new listings to be included in the sample. When using this method, numbers are randomly generated, and those from a database of business and non-working numbers are purged. Household respondents had to be at least 18 years of age in order to participate. We chose a sample limited to one state in order to minimize demographic variation, as cultural differences from different regions would have introduced more statistical noise and a need for greater controls.

As a result, approximately 500 subjects participated in this study. Participants were randomly assigned into two groups. The first group was used to test the impact of the 96/4 equivalency frame. Half of this group received the 96 percent question focusing on the top half, while the remaining subjects received the four percent question focusing on the bottom half. The question was worded as follows:

> *Regarding federal income taxes, it is a fact that taxpayers in the upper (lower) half of the income brackets pay 96% (4%) of all the income taxes collected by the federal government. Is this a positive feature or negative feature of the income tax system?*

Responses were recorded on a scale of 1 (“very positive”) to 9 (“very negative”). This variable depicts an equivalent frame with a different focus for each frame: one on the top half, the other on the bottom half.

Another group of nearly 250 respondents was used to test for between-subject framing effects on three factors related to global attitudes toward the individual income tax system. Each of the three factors was alternatively framed between groups. The frames compare the following: attitudes about the equity attribute in terms of agreement with how fair (unfair) the tax system is, about redistribution in terms of agreement or disagreement that the system helps the poor (hurts the wealthy), and about the attribute for ability to pay in terms of agreement with half paying 96 percent being a negative (positive) feature. Attitudes about the equity, redistribution, and ability to pay attributes are tested for mean differences to examine the direct effects of the equivalency and emphasis frames.

The questions in the separate frames were worded as follows:

> *FAIR (UNFAIR): For the most part, the income tax system is a fair (unfair) system.*
>
> *POOR (WEALTHY): In the long run, the income tax system helps the poor (hurts the wealthy).*
>
> *96% NEGATIVE (POSITIVE): It is a fact that taxpayers in the upper half of the income brackets pay 96% of all the income taxes collected by the federal government. This is a negative (positive) aspect of the federal income tax system.*

Studies on attribute framing typically evaluate the targeted dimension that is portrayed either positively or negatively. Very few studies have examined indirect effects on related dimensions. However, a study by Levin and Gaeth (1988) found that not only did percentage of fat (lean) affect the respondents' preferences for fat or lean meat, it also affected their evaluations of its taste, greasiness, and quality. To the extent that evaluations of specific aspects of an object are influenced by valence-based framing effects, global judgments related to the object could also be affected. This link is vital to the tax research on behavioral interventions following nudge principles (James, 2017). In the tax compliance literature, for example, overall support for the income tax system could be influenced by using valence-based frames to prime various attributes of the tax system. The present study tests not only for a framing effect on a judgment about each specific tax attribute but also for an effect on how framing of the attributes affects how each attribute correlates with the overall evaluation of the tax system. This final variable was tested using the following question:

> *VOTE: If all other issues were similar for two political candidates, do you think you would vote for the politician who wants to keep the current federal income tax system basically as it is?*

## RESULTS

Table 1 presents the descriptive statistics for the participants in this study. The median income of the respondents was in the $50,000 to under $75,000 bracket. The respondents' ages ranged from 18 to 98 with a median age of 43. The median level of education was the completion of "some college". Slightly more than half of them were married (53 percent) and slightly more than half of them were female (54 percent). Most (59 percent) used paid preparers.

*Table 1: Demographic Statistics (n = 489)*

| | |
|---|---|
| Marital status | |
| Unmarried | 47% |
| Married | 53% |
| Gender | |
| Male | 46% |
| Female | 54% |
| Income | |
| <$15,000 | 7% |
| $15,000 - < 25,000 | 8% |
| $25,000 - < 35,000 | 10% |
| $35,000 - <50,000 | 16% |
| $50,000 - <75,000 | 29% |
| $75,000 or more | 30% |
| Education | |
| High School or less | 40% |
| Some College | 25% |
| College Degree | 35% |
| Tax preparer | |
| Self | 41% |
| Paid Preparer | 59% |
| Age* | |
| Median 43 | |
| Mean 46 | |
| S.D. 16 | |
| Range 18 – 98 | |

*Age was the only variable that significantly correlated ($p < .05$) with the targeted dependent variable for voting intention.

The first attitude question that respondents were asked (labeled "good") was used as a randomization check to measure initial attitudes and to test for essentially equivalent random-assignment in Groups A and B for the differing frames. Subjects were asked whether they agreed or disagreed that the "current income tax system is a good way for the government to get revenue" (mean 4.79 on a scale from 1 to 9, s.d., 2.63). Only 36 percent disagreed while 46 percent agreed. Using an analysis of covariance with age and income level, these responses did not differ by random group assignment ($F$=.259, $p$=.611). Thus, subjects' a priori attitudes toward the system did not significantly differ in the groups that received alternate frames.

The only demographic variable that was significantly correlated with a randomization check variable ("good") and the targeted dependent variable ("vote") was age. Therefore, age is included as a control variable in the analyses of covariance (ANCOVAS) and regressions presented in this paper. In addition, given that two of the attributes focus on redistribution and ability to pay, we include the respondents' reported levels of income as a control variable.

## Equivalency Framing

The first hypothesis posited that mathematically equivalent frames would lead to significantly different attitudes. The results in Table 2 support that hypothesis. Respondents were significantly more positive about the lower half of the taxpayers paying 4 percent of the taxes (mean 4.11, s.d., 2.50) than about the upper half of the taxpayers paying 96 percent (mean 4.80, s.d., 2.55). Most (54.5 percent) agreed that half paying four percent was a positive feature of the tax system, while 40.7 percent agreed that half paying 96 percent was positive. In fact, 38.2 percent thought the latter was a negative feature, but only 23.8 percent thought half paying four percent was a negative feature.

A formal test of the first hypothesis was conducted with an ANCOVA, using participants' agreement with the ability to pay question as the dependent variable. The frame (96%/4%) was the independent variable, with responses in the 96% frame reverse-coded, and both age and income level were included as covariates. Although one might expect the result to be driven by self-interest, income did not significantly vary with attitude toward this ability to pay attribute ($F$=.427, $p$=.514), as shown in Panel B. However, the effect of frame was significant ($F$=4.929, $p$=.027). The results are especially important, given that prior research (albeit in non-tax contexts) has suggested that frames using mathematical percentages at extreme ends of the scale tend not to produce framing effects (Levin et al., 1998).

**Table 2: Attitude on Half Paying 96 Percent or 4 Percent**

**Panel A: Descriptive statistics**

| Frame | Mean (s.d./n) | Frequencies | | |
|---|---|---|---|---|
| | | Agree Positive | Neutral | Agree Negative |
| Half Pay 96% | 4.80 (2.55/115) | 40.7% | 21.1% | 38.2% |
| Half Pay 4% | 4.11 (2.50/140) | 54.5% | 21.7% | 23.8% |

**Panel B: Significance tests**

| Variables | Mean Square | df | *F*-test | *p*-Value |
|---|---|---|---|---|
| Covariates | | | | |
| Age | 1.747 | 1 | .273 | .601 |
| Income | 2.726 | 1 | .427 | .514 |
| Frame | 31.623 | 1 | 4.949 | .027 |
| Error | 6.390 | 251 | | |

The second and third hypotheses test the effects of equivalency and emphasis framing on three attributes of the tax system: equity, redistribution, and ability to pay. Table 3 presents the mean responses for each of the targeted attributes. On a scale in which 1 represents strong agreement and 9 represents strong disagreement, Panel A shows that 53 percent disagreed that the system is fair while only 44 percent agreed the system is unfair. When the responses to "unfair" were reverse coded, the means significantly differed at the .05 level (5.74 versus 5.17, $F$=3.768). Thus, the second hypothesis is supported, as an equivalency framing effect is documented in a tax context even though prior research in psychology (Highhouse & Paese, 1996) found attribute framing effects in non-tax contexts but not in a parallel tax context.

*Table 3: Framing Effects on Tax Attribute Variables*[a]

**Panel A: Descriptive Statistics**

| | Mean (s.d.) | Agree % | Disagree % |
|---|---|---|---|
| EQUITY | | | |
| FAIR: "For the most part, the income tax system is a fair system" | 5.73 (2.45) | 31 | 53 |
| UNFAIR: "For the most part, the income tax system is an unfair system" | 4.83 (2.51) | 44 | 38 |
| REDISTRIBUTION | | | |
| POOR: "In the long run, the income tax system helps the poor." | 5.65 (2.77) | 35 | 52 |
| WEALTHY: "In the long run, the income tax system hurts the wealthy." | 6.44 (3.16) | 24 | 69 |
| ABILITY TO PAY | | | |
| 96% NEGATIVE: "It is a fact that taxpayers in the upper half of the income brackets pay 96% of all the income taxes collected by the federal government. This is a negative aspect of the federal income tax system." | 5.07 (2.60) | 39 | 36 |
| 96% POSITIVE: "It is a fact that taxpayers in the upper half of the income brackets pay 96% of all the income taxes collected by the federal government. This is a positive aspect of the federal income tax system. | 5.31 (2.48) | 0 | 42 |

**Panel B: Statistical tests**

| | | Attribute | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Fair/Unfair | | | Poor/wealthy | | | 96% Positive/Negative | | |
| Variable | df | Mean Square | F | P | Mean Square | F | P | Mean Square | F | P |
| Age | 1 | 11.473 | 1.893 | .170 | 1.131 | .127 | .722 | 10.133 | 1.592 | .208 |
| Income | 1 | 24.216 | 3.996 | .047 | 8.432 | .947 | .331 | 16.473 | 2.588 | .109 |
| Attribute frame | 1 | 22.797 | 3.768 | .054 | 39.313 | 4.416 | .037 | 8.002 | 1.257 | .263 |
| Error | 250 | 6.059 | | | 8.903 | | | 6.364 | | |

1 represents "strongly agree" while 9 represents "strongly disagree". Original responses are reported in Panel A but UNFAIR and 96% POSITIVE are reverse coded for the statistical tests.

Although "helps the poor" is not the polar opposite of "hurts the wealthy," the two frames focus attention on different aspects of the same redistribution aspect, which is consistent with the literature that Druckman (2001) describes as emphasis framing. In reality, the tax system may actually be helping the poor more than hurting the wealthy, but that is an empirical question that field data could attempt to answer. Emphasis framing is intended to measure the strength of the psychological perception associated with the positive and negative sides of the event or concept. The results in Table 3 indicate that 52 percent of the respondents disagreed that the income tax system helps the poor, while 69 percent disagreed that it hurts the wealthy. The means significantly differ ($F$=4.416, $p$=.037) with respective means of 5.65 (s.d. 2.77) and 6.44 (3.16), which supports the third hypothesis on emphasis framing. The importance of this difference is illustrated later in this paper when the attribute's impact on support for the system is examined in a regression analysis.

Attribute framing was also tested in an equivalency frame by focusing subjects' attention on how positive or negative the 96% ability to pay feature is. The means did not differ ($F$=1.257, $p$=.263). Table 3 indicates that attitudes were evenly split when the top half of taxpayers paying 96 percent of all income tax was described as a negative aspect; 39 percent agreed, and 36 percent disagreed. When the 96 percent attribute was described as a positive feature, 30 percent agreed that it was positive, but 42 percent disagreed. This result is consistent with the data used to test Hypothesis 1. When asked whether this fact was positive or negative, 41 percent of those respondents stated that it was positive, and 38 percent stated that it was negative. The results, however, were significantly different from the responses about the half paying four percent. The implication is that the equivalency frame may well have been effective in the positive versus negative frame had the four percent complement been the targeted attribute.

**Regression Analyses**

The final dependent variable in this study is voting intention ("vote"). Subjects were asked whether they would support a politician maintaining the current federal income tax system. Responses ranged from 1 to 9, with 1 representing "Yes, definitely" and 9 representing "No, definitely not." Only 26 percent indicated they would vote for a politician who wanted to keep the federal income tax system (mean 5.77, s.d., 2.56); 50 percent indicated they would not vote for such a politician.

To measure the potential influence of factors representing equity ("fair"/"unfair"), redistribution ("help the poor"/"hurt the wealthy"), and ability to pay (top half pay 96 percent of all the income tax paid), these variables were used as independent variables to explain taxpayers' intentions to vote for a politician who supports keeping the current income tax system (a lower score indicates agreement). To control for rival explanations, income and age were included in the model. In addition, initial beliefs about the income tax system ("good") were included in the model to control for prior beliefs. Table 4 presents the results.

**Table 4: Regression on Intention to Vote for a Politician Favoring the Income Tax System (n = 239)**

| Independent Variables | Beta | *t*-statistic |
|---|---|---|
| GOOD | .229 | $3.639^{+++}$ |
| FAIR/UNFAIR | .234 | $3.675^{+++}$ |
| POOR/WEALTHY | .157 | $2.613^{++}$ |
| ABILITY TO PAY | -.077 | -1.275 |
| AGE | .160 | $2.648^{++}$ |
| INCOME | .067 | 1.107 |

Adjusted R-square = .194
$F = 10.086^{+++}$

$^{+}p < .10$, $^{++}p < .05$, $^{+++}p < .01$

Table 4 indicates that the overall model was significant (Adjusted $R^2$=.194, $F$=10.086, $p$<.001). The tendency to vote for a politician who wants to keep the existing income tax system was significantly associated with those who agreed that it is a good system, that it is fair, and that it helps the poor, but who did not agree with half of the taxpayers paying 96 percent of the taxes. In addition, older taxpayers were less likely to vote for a politician who wants to keep the income tax system as it is. Income levels, however, did not affect voting intentions.

When the regression was recalculated with "frame" as an independent variable, it was not significant, and it did not alter the significant results on "good", "fair"/"unfair" and "poor"/"wealthy". To show the relative influence of each attribute frame on voting intention more clearly, separate regressions were computed for each group of frames. The results are presented in Table 5. The results for Frame A show that voting intention was influenced by whether it is a fair tax and helps the poor, but not by the 96% negative attribute. Hence, agreement that the system is fair and agreement that it helps the poor were associated with voting for a politician who wants to keep it as it is. In Frame B, an unfair tax system and the 96% positive aspect were significantly associated with voting intention. The redistribution aspect framed as hurting the wealthy was not significant. In addition, in Frame B, older taxpayers were inclined not to vote to keep a pro-income tax politician, and those who believed that the system was not good were less likely to vote for a politician who wants to keep it. In sum, the influence of attitudes on behavioral intentions to vote for the politician who supports the income tax system was affected by the frame used to measure those attitudes. Although "fair"/"unfair" was significant using both frames, redistribution was significant only when framed as helping the poor. Moreover, the 96% frame was only significant when framed as a positive aspect. Inspection of Frame B (Table 3) shows that more people disagreed than agreed that it is a positive feature. Thus, the association is mostly driven by the fact that those who disagree that it is positive do not intend to vote to keep the system.

**Table 5: Regression on Voting Intention Split by Frame**

| Frame A | | Frame B | |
|---|---|---|---|
| Independent Variables | Beta Coefficient | Independent Variables | Beta Coefficient |
| GOOD | .048 | GOOD | .303$^{+++}$ |
| FAIR | .333$^{+++}$ | UNFAIR[a] | .198$^{++}$ |
| POOR | .204$^{++}$ | WEALTHY | .102 |
| 96% NEGATIVE | .085 | 96% POSITIVE[a] | -.177$^{++}$ |
| AGE | .031 | AGE | .224$^{++}$ |
| INCOME | .132 | INCOME | .046 |
| Adjusted R-square | .199 | Adjusted R-square | .219 |
| F | 8.606$^{+++}$ | F | 6.656$^{+++}$ |

$^{+}p < .10$, $^{++}p < .05$, $^{+++}p < .01$
[a]UNFAIR and 96% POSITIVE are reverse coded

The results in Table 5 support the third hypothesis for emphasis framing. In Frame A, the redistribution factor focused on whether the system helps the poor, and this frame was significantly associated with voting intention (Beta .204, $p<.05$). In contrast, Frame B focused on whether it hurts the wealthy, and this frame was not significantly associated with voting intention (Beta .102, $p>.05$). Hence, framing effects extend to directional associations with related variables. The second hypothesis for equivalency framing was also supported for the ability to pay factor in its effect on related variables. Describing Frame B as a positive aspect (that the top half pay 96 percent) was significantly associated with intention to vote for a politician who wants to keep the income tax system basically as it is (Beta -.177, $p<.05$). The equivalent, but negative ability to pay factor in Frame A was not significantly correlated with voting intention (Beta .085, $p>.05$). It should be noted, however, that the indirect effect of equivalency framing on the related outcome variable was not supported for the equity factor, as the equity concept itself was evidently more salient than the way it was framed.

## DISCUSSION AND CONCLUSION

If taxpayer compliance is linked to attitudes toward the tax system, then improving those attitudes is important when it comes to sustaining the system (Onu, 2016). Understanding those attitudes requires the identification of the relevant attributes associated with that system and then accurate measurement of those attributes without subtle biases, such as the equivalency and emphasis frames documented in this study. Furthermore, research on behavioral nudge communications (e.g. Biddle et al., 2018) must be attentive to the relative saliency of the targeted attributes versus the way in which those attributes are framed.

The saga of the British poll tax illustrates what can happen when tax laws are deemed to be unacceptable by the citizenry (Lymer & Oats, 2017). Determining acceptability, however, is more difficult than achieving consensus on opinion polls. The frame and the context in which

the opinions are solicited must be considered before researchers and policymakers begin to draw conclusions. In the present study, the framing of attitudinal statements was shown to be an important factor in affecting taxpayer responses on the attributes of a tax system, as well as global attitudes toward wanting to keep the current tax system. The average response on the specific attributes differed (equity and redistribution frames), and the frames resulted in differential effects on the association between the specific attributes and behavioral intention to vote for a politician who wants to keep the income tax system basically as it is ("fair"/"unfair", "poor"/"wealthy", "96% positive"/"96% negative" in Table 5). One implication for researchers and policymakers is to avoid affective descriptors. Even simple complements can result in unintended negativity biases or in unequal labels in terms of their emotional intensity (Levin et al., 1998). Another possibility is that researchers should attempt to measure when and why equivalent linguistic variations lead to differing attitudes and relationships with outcome variables. This type of research would be invaluable for tax research carried out under a behavioral insight framework.

Although further context-specific research is required, the results imply that concepts involving equity, redistribution, and ability to pay issues impact preferences regarding income tax systems. The significant associations for redistribution in Frame A and ability to pay in Frame B in this study are especially interesting. Respondents who disagreed that the current income tax system helps the poor tended to indicate they would not vote for a politician wanting to keep the income tax system as it is, all else being equal. The implication, then, is that policymakers wanting to keep the current system should provide information documenting how the tax system benefits lower economic groups or make changes to the system so that the benefits are more explicitly linked to the tax.

Regarding ability to pay, respondents who disagreed that having the top half pay 96 percent of federal individual income tax is positive tended not to vote for a pro-income tax politician. Researchers and policymakers need to further explore the specific reasons why some taxpayers disagree that it is a positive feature. Interestingly, most taxpayers agreed that having the lower half of taxpayers pay four percent is a positive aspect. Future research should test whether attitude on this half of the statistic influences global attitudes toward the tax system.

Within a broader perspective of framing, the study contributes to the existing academic research stream in several respects. First, it focuses on a tax concept and uses respondents who are subject to taxation and can vote in elections; in other words, the study collects data from those with a stake in the policies to which the questions relate. Second, it examines attribute framing, which has been less examined than that of risky choice. Third, it provides nuance to the literature on equivalency framing, indicating that for a given concept (ability to pay), effects can be seen with one variation in words but not with another. This was seen when the framing effect occurred with the 96%/4% juxtaposition but not with the positive/negative juxtaposition using the 96% statistic. Fourth, the paper exhibits framing effects at extreme percentages, instead of those closer to 50% partitions. Fifth, the results tie two types of framing together, linking attribute framing and goal framing by examining the impact of the former on eventual behavioral intentions. Sixth, the paper documents that the strength of a framing effect can have directional variability, as shown by the fact that phrasing regarding helping the poor impacted voting intentions but phrasing regarding hurting the wealthy did not.

This study has several limitations. Although the respondents' demographics were consistent with U.S. national data, they were only from one Midwest U.S. state. Since the purpose of the present study was not to measure national opinions precisely but to examine attribute framing

effects on global and specific aspects of the income tax system, the geographically similar respondents provided a stable sample pool. Another limitation of the present study is that the attributes targeted in this study are not the only attributes relevant to global attitudes toward the system. Moreover, each attribute (equity, redistribution, and ability to pay) has numerous characteristics that could affect judgments.

Future research should examine additional pro and con factors affecting taxpayers' perceptions of the income tax system (e.g., progressivity, marriage neutrality, and punishing or rewarding those who have saved and invested). In addition, studies could be extended to examine populations from different geographical regions. Future research should also investigate how the combination of factors affects taxpayer preferences. The present study combined three attributes for each group of subjects ("fair", "poor", and "96% negative" versus "unfair", "wealthy", and "96% positive"). Voting intentions did not significantly differ by these combinations of frames, but the empirical question of whether some other combination of attributes would affect the outcome variable remains.

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