

HAPPY TAXPAYERS:
HOW PAYING TAXES CAN MAKE PEOPLE HAPPY

By

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Marina Drus

Submitted to the graduate degree program in Psychology and the Graduate Faculty of the
University of Kansas in partial fulfillment of the requirements for the degree of Doctor of
Philosophy.

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Abstract

Past research has shown a link between taxation and higher well-being, but no research so far has revealed a mechanism or established a causal direction. While taxation can benefit individuals through providing better quality public goods, this line of research suggests that taxation may also benefit individuals by strengthening collective identification with other taxpayers. In three studies, I show that when taxation is perceived as a form of prosocial spending rather than personal spending, taxpayers increase their group identification with the other tax beneficiaries, which in turn results in greater happiness and life satisfaction. In Study 1, I established a link between willingness to pay taxes to help others and well-being across time and nations. I examined this by analyzing data from the World Values Survey (WVS). Across 74 nations over 17 years, increase in tax to prevent pollution was positively linked to higher happiness and life satisfaction ($\gamma_{10} = .055, p < 0.001$ & $\gamma_{10} = .195, p < 0.001$, respectively). Likewise, across 19 rich nations, willingness to pay higher taxes to increase their country's foreign aid to poor countries was associated with higher happiness and life satisfaction ($\gamma_{10} = .055, p < 0.001$ & $\gamma_{10} = .186, p < 0.001$, respectively). In Study 2, I replicated the link between willingness to pay taxes for prosocial purposes and subjective well-being with an American student sample and explored whether perceived social impact—the extent to which people feel their taxes benefit their society—mediates this relationship. The results of the bootstrapping analysis revealed a significant indirect effect of prosocial tax on happiness and life satisfaction via social impact, $b = .097, 95\% \text{ CI} = [.0419; .1693]$ and $b = .114, 95\% \text{ CI} = [.0544; .1894]$, respectively. Finally, in Study 3, I manipulated whether taxes were perceived as either a personal or a prosocial benefit or neither and tested whether benefiting other members of one's own group (students from the

University of Kansas) in the prosocial tax condition encourages stronger identification with other KU students, which in turn, improves happiness and life satisfaction. The results of the bootstrapping analysis confirmed a significant indirect effect of prosocial tax on current state of happiness and life satisfaction via increased KU identification, $b = .329$, 95% CI = [.0653; .7959] and $b = .370$, 95% CI = [.0862; .8330], respectively. The implications for tax policies are discussed.

Key words: taxes; willingness to pay; social impact; well-being; happiness; life satisfaction

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Introduction

Many people say they do not like paying taxes. In spite of the fact that taxes pay for essential public goods and services that individuals benefit from, tax aversion is a widespread phenomenon (Sussman & Olivola, 2011). People may dislike taxes for either economic or political reasons. Most importantly, for many people, taxes are perceived as a loss of financial freedom without a fair return (Kirchler, 1998; Sussman & Olivola, 2011). In a series of studies, Sussman and Olivola (2011) found that people tend to avoid taxes more than any other equivalent costs. Participants are more willing to travel to a remote store for a tax-free discount than for a larger discount unrelated to taxes. Likewise, Kirchler (1998) recorded participants' spontaneous reactions to the word "tax" and found that the first spontaneous associations were negative. In addition, the participants did not perceive tax evasion as a major offence but rather as a clever game.

Although no clear explanation for such tax aversion has been found, it may well be driven by the norm of self-interest which people are most likely to follow when they fear that others may exploit them (Miller, 1999). Because paying taxes is not a voluntary action, and the actual benefits derived are often not salient, it may be seen as counter to self-interest. Tax aversion can derive from experiencing an immediate pain of paying (Prelec & Loewenstein, 1998) and no immediate tangible benefits. Hence, people may readily perceive that paying taxes takes away their financial freedom and consequently leads to unhappiness.

People think that pursuing self-interest is crucial for their well-being and, seemingly, have no idea that the opposite is the truth. Indeed, people believe that spending money on themselves will make them happy, although they are actually more likely to report higher well-being when they spend money on others (e.g., Dunn, Aknin, & Norton, 2008). In fact, there is

evidence that most individuals are not aware that devoting time and money to others can increase their well-being (e.g., Aknin et al., 2013a; Anik et al., 2013; Dunn et al., 2008). In the present research, I argue and provide evidence that when paying taxes is perceived as a form of prosocial behavior, it can actually improve one's well-being.

Well-being

Well-being has become a very important concept to study in the 21st century. In a broad sense, well-being can be defined as a psychological state characterized by being healthy, happy, and satisfied with life. Numerous studies have shown that societies and workplaces with happy and satisfied citizens are more efficient, productive, and successful. Happy societies economically prosper (Diener, Suh, Lucas, & Smith, 1999). Indeed, this is a bidirectional relationship—happy individuals are successful across multiple domains, including marriage, friendship, work performance, and health (Lyubomirsky, King, & Diener, 2005).

Why Well-being is Important

Multiple studies point out that happy people are more likely to invest in their society. Positive emotions and feelings encourage people to think and behave in a way that promotes involvement with approach motivation, resource creation, and promotion focus (Baas, De Dreu, & Nijstad, 2008; Elliot & Thrash, 2002; Lyubomirsky, King, & Diener, 2005). Employees primed with happiness are 12% more likely to be productive compared to controls (Oswald, Proto, & Sgroi, 2012). Similarly, stocks of companies with higher levels of employee satisfaction tend to outperform the stock market (Edmans, Li, & Zhang, 2014). In the healthcare industry, happy doctors are more likely to make faster and more accurate diagnoses (Estrada, Isen, & Young, 1997). Higher well-being is also important for education and creative performance. Students from schools that focus on emotional and social well-being outperform students who do

not (Durlak et al., 2011), and positive mood induction increases creativity compared to negative mood or neutral mood controls (Baas, De Dreu, & Nijstad, 2008). Finally, happy individuals have better health and live longer (Diener & Chan, 2011). The most common measure of well-being in social research is subjective well-being. Subjective well-being has been shown to causally influence both individuals' health and longevity (Diener & Chan, 2011).

Subjective Well-being

Subjective well-being (SWB) refers to individuals' evaluations of their lives and can be judged either in terms of its cognitive or affective dimension (Diener & Chan, 2011). Even though both dimensions are separate and moderately correlated, when measuring subjective well-being, most researchers still use both in order to fully understand the phenomenon (Galinha & Pais-Ribeiro, 2012). In addition, subjective well-being can be measured at different levels of analysis—global or specific. The cognitive element of SWB refers to what individuals think about their life satisfaction in either global terms (e.g., satisfaction with life as a whole) or in specific domains (e.g., satisfaction with financial situation or relationship). The affective element of SWB refers to emotions, moods and feelings experienced in either global terms (e.g., happiness as a whole) or specific terms (e.g., positive or negative affect at a given moment). Affect is deemed positive when the emotion is pleasant (e.g., happiness, joy, affection) Affect is deemed negative when the emotion is unpleasant (e.g., guilt, anger, shame).

There is substantial evidence that subjective well-being is a stable construct (Pavot & Diener, 1993). For example, several studies revealed long-term relationships between positively-valenced constructs of extraversion and positive affect and negatively-valenced mood constructs of neuroticism and negative affect (Costa & McCrae, 1980; Emmons & Diener, 1985; Pavot & Diener, 1993). Pavot and Diener (1993) argue that the correlation between personality types and

affective states would not be so strong if affective well-being were based on temporary influences. People are less likely to commit suicide (Moum, 1996) or to become depressed (Lewinsohn, Redner, & Seeley, 1991) if they report higher global life satisfaction. In sum, even though SWB can be affected by transitory events in one's life, individuals experience reasonably stable levels of SBW over time.

Contextual Factors of SWB and Hedonic Set Point

Despite this stability, there is also evidence that subjective well-being can fluctuate by shifts in environmental context. Galinha and Pais-Ribeiro (2012) outline three major perspectives on the role of contextual factors in SWB. The first perspective, a *bottom up* perspective, analyzes the impact of strictly contextual factors in an individual's SWB. From this perspective, well-being is influenced by external life circumstances such as material conditions, life events, and socio-political contexts. The second perspective, a *top down* perspective looks at an impact of intrapersonal (either affective or cognitive) characteristics on SWB. For example, personality is considered to be a very important predictor of SWB—two people can evaluate their SWB in different ways under the same circumstances. The third perspective, *integrative* perspective, suggests that both bottom up and top down perspectives have simultaneous impact on SWB. However, some research suggests that after a period of time the impact of contextual factors decreases and individuals return to their baseline level of SWB or hedonic set point.

The hedonic treadmill model (Brickman & Campbell, 1971) postulates that context only temporarily affects happiness and individuals return to their baseline state of happiness after events pass by. Diener, Lucas, and Scollon (2006) have challenged this model and showed that hedonic set points can change throughout one's life. The original hedonic treadmill model implies that human adaptation is inevitable, and no life circumstances can change the baseline

level of happiness. However, the most recent research indicates that there are notable exceptions. Specifically, Galinha and Pais-Ribeiro (2012) outline several circumstances that can change one's baseline level of happiness for the long run: (1) when basic human needs are not satisfied, (2) when some events such as a bad marriage or unemployment is experienced, (3) when systematic differences are observed between countries with various levels of development.

The cross-national differences in well-being indicate that people do not always adapt to conditions, because the objective conditions in those countries remains consistent for many years (Diener, Lucas, & Scollon, 2006). For example, national levels of wealth and human rights of nations are strong predictors of average national well-being (Diener, Diener, & Diener, 1995). Likewise, 85% of the variance in national levels is explained by objective characteristics such as national gross domestic product per capita, life expectancy at birth, political stability, and divorce rates. A national level of wealth is a very strong predictor of SWB, while personal income remains an inconsistent predictor of SWB (Diener & Biswas-Diener, 2002). In sum, national morale and domestic policies can permanently affect the national level of well-being and change hedonic set-points of a nation. This is important because the cross-national differences in happiness can be substantial. For example, the recent World Happiness Report finds that an average happiness score in Denmark is 7.53 while in Syria it is 3.01 (Helliwell, Layard, & Sachs, 2015). Consequently, policies directed toward improving national levels of well-being among citizens might be crucial for societies to prosper.

Prosocial Involvement and Well-being

The possibility that taxes can be viewed as a form of prosocial spending and improve well-being stems from a growing body of research demonstrating that giving to others has positive consequences for the giver. Lyubomirsky et al. (2005) suggested that a big portion of

our happiness (40%) derives from intentional activities. Additional research indicates that giving either our time or money to benefit others is an effective way to increase well-being (e.g., Aknin et al., 2013a; Anik et al., 2013; Borgonovi, 2008; Brown et al., 2003; Dunn et al., 2008; Grant & Campbell, 2007; Haski-Leventhal, 2009; Lyubomirsky et al., 2005; Schwarz, Meisenhelder, Ma, & Reed, 2003; Thoits & Hewitt, 2001).

Prosocial Behavior and Well-being

Simply spending your time on someone can positively affect personal levels of subjective well-being. For example, people who dedicate their time to helping others through organized volunteer work report higher levels of life satisfaction and happiness than non-volunteers (Borgonovi, 2008; Haski-Leventhal, 2009; Thoits & Hewitt, 2001). Providing help in less formal ways leads to emotional benefits too. Participants who were assigned to help a confederate find a lost piece of paper were happier than participants in the control condition who were not asked to do so (Harris, 1977; Williamson & Clark, 1989). Likewise, students who were required to commit five random acts of kindness a week for six weeks reported greater happiness relative to control participants (Lyubomirsky, Sheldon, & Schkade, 2005). In addition to promoting positive emotions, helping others may improve mental and physical health outcomes. Being kind to others by listening and making them feel loved and cared for is associated with better mental health than receiving help from others (Schwarz, Meisenhelder, Ma, & Reed, 2003).

Helping others also buffers stress. In one revealing study, Brown and her colleagues (2003) examined the effects of giving social support on mortality rates. In a sample of 846 elderly people, participants who reported providing high levels of support to others (friends, relatives, neighbors) were significantly less likely to die over a five-year period than participants who provided little or no support to others. Likewise, in another study, teachers who were asked to recall three times they had a positive impact on students were less likely to report feelings of

burnout than teachers who were asked to recall instances where they had a negative impact on students (Grant & Campbell, 2007).

Prosocial Spending and Well-being

The above evidence suggests that using one's time to help others can have positive emotional consequences for the giver, but recent research has also addressed whether using another personal resource—money—to benefit others through *prosocial spending* can yield positive benefits as well. For instance, spending money on others leads to better well-being in both rich and poor countries around the world. Responses from over 230,000 people in 136 countries show a positive association between charitable donations and life satisfaction (Aknin et al., 2013a). Similarly, spending a greater proportion of one's income on others, by way of giving gifts to others or donating to charity, predicts higher levels of happiness, while spending more money on personal costs (e.g., bills, expenses) or gifts for oneself does not (Dunn et al., 2008). Importantly, Dunn and her colleagues (2008) find that this link is causal. Participants that were randomly assigned to spend a small windfall of \$5 or \$20 on others reported greater happiness at the end of the day than those assigned to spend the same windfall on themselves. Even recalling an instance of prosocial spending can lead to greater happiness than recalling an instance of personal spending. Participants from Canada, Uganda, and India who were randomly assigned to recall a time they spent money on others report higher levels of positive affect than those assigned to recall spending money on themselves (or those assigned to a neutral control group; Aknin et al., 2013a). Finally, spending money on others predicts better behavioral performance. Specifically, sales teams at a pharmaceutical company in Belgium and dodge ball teams in a recreational university league exhibited higher levels of performance when they had been assigned to spend money on their group mates vs. themselves (Anik et al., 2013).

The hedonic rewards of prosocial spending are greatest when people believe that their money has had a positive impact on others. Giving more money to charities that emphasize making a difference in the life of the person receiving it leads to significantly higher levels of well-being than giving to charities that do not (Aknin et al., 2013b). Likewise, recalling instances when spending time on others had a positive impact leads to more happiness than recalling instances when spending time on others did not have a perceived positive impact (Aknin et al., 2013b). Consequently, emphasizing the positive impact of prosocial spending increases the positive emotional rewards of giving.

Taxes as Prosocial Spending

A substantial portion of federal and state taxes are used to pay for infrastructure and services that benefit most citizens, including roads, libraries, police and fire protection, public schools, and universities. Federal tax dollars are allocated to bring relief to victims of natural disasters such as Hurricane Sandy or tornado outbreaks. A part of federal and state taxes goes to subsidize public schools and private universities for those who cannot afford private education. In addition, taxes go to help senior citizens cover their medical needs and alleviate the burden of healthcare costs. Given that a substantial portion of tax dollars goes to help others, I investigate whether perceiving taxation as a form of prosocial spending can bolster individuals' well-being.

Tax Behavior and Morale

In spite of the fact that paying taxes tangibly benefits individuals, tax aversion is a widespread phenomenon (Sussman & Olivola, 2011). Tax morale has also been defined as 'an individual's intrinsic willingness to pay taxes (Aim & Torgler, 2006, p. 224). Previous findings on tax behavior indicate that tax morale is a strong predictor of tax compliance versus tax evasion (e.g., Torgler, Schaffner, & Macintyre, 2007). Based on the framework of Cialdini and

Trost (1998), social norms have been studied as major predictors of tax morale (Bobek, Hageman, & Kelliher, 2013). Cialdini and Trost (1998, p. 152) define social norms as “rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws”. Cialdini and Trost identified four major types of social norms: (1) personal norms—one’s own expectations for ethical or proper behavior, (2) subjective norms—expectations of close others (relatives or friends) for one’s behavior, (3) injunctive norms—general societal expectations of one’s behavior, (4) descriptive norms—values and expectations that develop after observing others.

Research indicates that while personal and subjective norms directly predict tax compliance, injunctive and descriptive norms do not (Bobek, Hageman, & Kelliher, 2013). Grasmick and Bursik (1990) confirmed these results and found that while personal norms were a significant predictor of tax cheating, social norms were not. However, based on Social Categorization Theory (SCT, Turner, 1991; Turner et al., 1987), which I will review in more details in the next chapter, Wenzel (2004) has shown that social norms can also be a powerful predictor of tax morale and compliance. Specifically, he found that those who strongly identify with individuals to whom social norms are attributed report a higher degree of tax morale, while those who report weak identification with individuals to whom social norms are attributed report a lower degree of tax morale.

Tyler (2011) identified two major motives for compliance and cooperative orientation: rational considerations *vs.* community orientation. Based on rational considerations, individuals’ willingness to pay or evade taxes (tax morale) is exclusively determined by the cost and benefit analysis of tax compliance *vs.* tax evasion. The rational framework is mostly concerned with how

power of authority and trust in authority influence tax behavior (Wahl, Kastlunger, Kirchler, 2010).

Alternatively, based on the community orientation, individuals' willingness to pay taxes is influenced by their collective membership and the corresponding collective norms and obligations. If individuals identify with a community, they are more likely to cooperate and obey the norms of this community (Trüdinger & Hildebrandt, 2012). Thus, in community oriented societies, social trust (*vs.* trust in authorities) is much higher, and taxpayers are willing to pay taxes based on the tax behavior of other taxpayers (Frey & Torgler, 2007). In the next chapter, I will introduce more details about the role of social identity in community orientation and identification.

Recent cross-cultural comparisons also suggest that cultural or value orientation affects tax morale. Research in cultural psychology distinguishes two major types of cultural orientation: individualist and collectivist. Individualist cultures (e.g., Western Europe and the U.S.) emphasize personal achievement at the expense of collective goals, resulting in a strong sense of self-interest and competition while collectivist cultures (e.g., Eastern Europe and Asia) emphasize collective goals above individual needs or desires (Triandis, 2001). There are also individual differences in cultural orientation within specific nations. Even in individualist societies, there is variability across population, and some individuals tend to be more collectivist than others. Research indicates that the collectivist mindset has a greater impact on tax morale than individualist reasoning (Alm, Martinez-Vazque, & Torgler, 2006; Jetten et al., 2002; Torgler, 2003; Trüdinger & Hildebrandt, 2012). Within an individualist society, individuals with the collectivist orientation have greater tax compliance than individuals with individualist orientation (Brizi, Giacomantonio, Schumpe, & Mannetti, 2015). Likewise, earlier research has

found that Western Europeans and Americans who endorse the Protestant Ethic Values are more opposed to taxation than those who do not (Furnham, 1983).

Previous Findings on Tax Behavior and Well-being

If perceived as a form of prosocial spending, taxation can improve national levels of well-being. Supporting this possibility, taxation has already been associated with well-being reports both within and across nations. For example, people living in societies with more progressive taxation policies report higher levels of subjective well-being, and this association is mediated by satisfaction with public goods, such as education and public transportation (Oishi, Schimmack, & Diener, 2011). Income taxation positively and reliably predicts subjective well-being across 26 waves of the German Socio-Economic Panel, and this effect is greater for those individuals who consume public goods more frequently, individuals who lived in East Germany prior to 1990, and those who have higher tax morale or willingness to pay taxes (Akay et al., 2012).

Other studies have found positive associations between tax morale and well-being. For instance, a cross-sectional study of households within Italy finds that the moral obligation to pay taxes is associated with greater subjective well-being while cheating or avoiding paying taxes is associated with lower subjective well-being (Lubian & Zarri, 2011). Likewise, based on the data from the World Values Survey, Helliwell (2003) and Verme (2009) find that those individuals who think that it is wrong to cheat on taxes report higher levels of happiness.

These studies, however, have their limitations. First, while these findings suggest that paying higher taxes is associated with well-being, all of these studies are correlational and therefore open to alternative explanations. Second, they suggest that satisfaction with public goods mediates the link between taxation and well-being. While progressive taxation might

imply better quality public goods (Luechinger, 2009; Luechinger, & Raschky, 2009; Junge & Levinson, 2012), better redistributive policies, or a stronger financial safety net through the social security system (Alesina, Di Tella, & MacCulloch, 2004), increased well-being from paying taxes may also arise from feelings of belonging to (or contributing to) the society (Akay et al., 2012; Frey & Stutzer, 2000). For example, in Switzerland, vigorous democratic participation through political institutions is associated with greater subjective well-being (Frey & Stutzer, 2000). Paying taxes to help one's society can be reflective of one's social identity and interpreted as paying a membership fee to be a part of the society (Akay et al., 2012). Consequently, tax compliance might be perceived as a means of supporting a collective to which the individual belongs.

Social Identity, Taxes, and Well-being

There is considerable evidence for the central role of social identity (Tajfel, 1982) and self-categorization (e.g., Turner 1985; Turner, Oakes, Haslam, McGarty, 1994) in well-being and tax behavior. When individuals identify with a collective, they undergo the process of self-categorization (Pickett & Brewer, 2001; Turner et al., 1987). The individuals who strongly identify with a collective are most likely to cooperate and to follow the norms of this particular collective and are more likely to report higher well-being than individuals who weakly identify with that collective.

Overview of Social Identity Theory

Social identity theory argues that an individual's self is derived in part from perceived membership in valued social groups. Individuals tend to categorize people in their social environment into groups to which they belong (ingroup) and groups to which they do not belong (outgroups). "Individuals strive to maintain or enhance their self-esteem; they strive for a

positive self-concept” (Tajfel & Turner, 1979, p.40). Hence, there is a tendency to categorize everybody (including self) in a social environment (Turner, 1985) into groups to which one belongs (ingroup) or does not belong (outgroups). Group memberships that are internalized as important create a sense of “existential security,” and meaningful identification with a social group has the potential to boost self-esteem. Identification with important group memberships predicts personal self-esteem, and collective self-esteem mediates this effect, suggesting that people take pride in and derive meaning from their group memberships (Jetten et al., 2015).

Social Identity and Well-being

Strong group identification predicts significantly greater perceived personal control, and feelings of personal control mediate social cure effects in political, academic, community, and national groups (Greenaway et al., 2015). A higher level of identification with self-categories is associated with enhanced well-being (e.g., Bizumic, et al., 2009; Branscombe, Schmitt, & Harvey, 1999; Greenfield & Marks, 2007; Haslam, et al., 2005; Latrofa, Vaes, Pastore, & Cadinu, 2009; Wegge, et al., 2006). Meaningful group identification benefits individuals in organizational settings. For instance, a high organizational identification predicts high work motivation (e.g., high job satisfaction, personal accomplishments, and low turnover rate) and better subjective well-being (e.g., lower health complaints, lower emotional exhaustion) (Wegge et al., 2006). Likewise, Haslam et al. (2005) find a negative link between social identification and stress and a positive link between social identification and job satisfaction.

In an organizational setting such as high school, a low identification with other high school students was associated with low self-esteem, high stress, depression, aggression, and loss of emotional control (Bizumic et al., 2009). Conversely, identifying with religious organizations is associated with well-being benefits, and a religious social identity mediates the relationship

between frequent attendance of religious services and well-being (Greenfield & Marks, 2007; Ysseldyk, Matheson, & Anisman, 2010). These findings provide evidence that individual functioning is related to organizational or group environment. Individuals in unhealthy organizational settings tend to have lower organizational identification, and a strong organizational identification is essential for motivating individuals' performance and maintaining their well-being (Wegge et al., 2006).

Research suggests that social groups provide people with a sense of worth, purpose, meaning, and belonging which tends to have positive outcomes for subjective and psychological well-being (Haslam, Jetten, Postmes, & Haslam, 2009). Because humans are social beings, others have a particular meaning in people's lives and are a source of personal security, companionship, emotional bonding, and intellectual stimulation (Haslam, Jetten, Postmes, & Haslam, 2009). Belonging to groups enhances one's self-esteem and self-worth, and thus can potentially buffer negative consequences such as being a member of a low-status group. For example, stronger identification with a minority group alleviates the consequences of perceived discrimination by the majority group (Branscombe, Schmitt, & Harvey, 1999). Specifically, African Americans who maintain meaningful identification with their racial group report higher well-being and are less troubled by the perceived racial prejudice on the part of White Americans. Likewise, the same effect is found among Southern Italians who also suffer from a historical social stigma (Latrofa, Vaes, Pastore, & Cadinu, 2009), women (Schmitt, Branscombe, Kobrynowiz, & Owen, 2002), and the elderly (Garstka, Schmitt, Branscombe, & Hummert, 2004). In fact, social identity concerns are central for maintaining personal health and well-being (Haslam, Jetten, Postmes, & Haslam, 2009; Sharma & Sharma, 2010). When social identity is

stigmatized or compromised, it imposes a serious threat to psychological well-being (Sharma & Sharma, 2010; Schmitt, Branscombe, Postmes, & Garcia, 2014).

Social Identity and Tax Morale

National identity represents a more inclusive group identity than, for example, ethnic identity. Research shows that making group identity more inclusive improves intergroup relations (Gaertner, Dovidio, & Bachman, 1996). In fact, doing so has the potential to increase support for proposed national tax hikes. Specifically, Transue (2007) found that priming participants with American national identity (an identity that Whites and minorities share) increased White Americans' support for tax increases for programs that benefit minorities.

Identifying strongly with one's national community is associated with higher tax morale (e.g., Kuzio, 2001; Trüdinger & Hildebrandt, 2012). In the previous chapter, I briefly mentioned the role of community orientation *vs.* rational considerations in tax morale. The socialization under the communist regime has reduced the role of rational considerations and strengthened the relevance of community orientation in norm compliance, and particularly in tax compliance (Trüdinger & Hildebrandt, 2012). To investigate the influence of collective identity on tax behavior, researchers conducted cross-national comparative studies that address the impact of communist rule on the levels of tax morale (Alm, Martinez-Vazque, & Torgler, 2006; Frey & Torgler, 2007; Kuzio, 2001; Torgler, 2003, Trüdinger & Hildebrandt, 2012).

Trüdinger & Hildebrandt (2012) found that rational considerations play a stronger role in tax compliance in Western European cultures while community orientation is a major predictor of tax compliance in Eastern Europe. However, when rational considerations and community orientations are observed working together, community orientation is a more powerful predictor of tax compliance (Torgler, 2003). Torgler (2003) compared tax compliance of East and West

Germany right after the fall of the communist regime (the year of 1990) and seven years later (the year of 1997). In 1990, East Germans were less like to justify cheating on taxes than West Germans. In general, the probability for East Germans to indicate higher tax morale was 27% higher than for West Germans. However, Torgler found that this difference between East and West Germans significantly decreased by 1997, with tax morale decreasing among younger East Germans. Likewise, Russians' tax morale significantly declined in the year of 1999 compared to the year of 1991 (Alm, Martinez-Vazque, & Torgler, 2006). Considering that West Germans have on average relatively high tax morale (Trüdinger & Hildebrandt, 2012), research on cultural differences in tax behavior indicates that community orientation can strengthen tax morale and increase tax compliance even among societies with already-existing high tax compliance.

Overview of the Hypothesis

There is some evidence that people in developed countries with progressive taxation report more happiness than those in countries with less progressive tax policies, and this relationship is mediated by satisfaction with public goods (Oishi, Schimmack, & Diener, 2011). In addition, Akay et al. (2012) find that income taxation predicts well-being in Germany and this effect is more pronounced for those who consume public goods, individuals who lived in East Germany prior to 1990, and those who have higher tax morale or willingness to pay taxes (Akay et al., 2012). While satisfaction with public goods can certainly give people a sense of security, which in turn can benefit their well-being, Akay et al. (2012) suggest that there is another specific channel by which taxation can bolster well-being. Specifically, increased well-being from paying taxes can derive from a feeling of belonging to a society. Indeed, Akay et al. (2012) find that the well-being effect was most pronounced for those who resided in East Germany prior

to 1990 and those who have higher tax morale. Because community orientation is higher in East Germany compared to West Germany (Torgler, 2003), it is plausible to assume that the feeling of belonging to the society is higher among East Germans. In addition, it is still not clear why individuals who exhibit higher tax morale or willingness to pay taxes report higher well-being. Akay et al. (2012) suggest that high tax morale may make individuals feel like they are contributing to their society and, therefore, a part of a large community. So far no research has addressed the effect of paying taxes on well-being that derives from the feeling of belonging or contributing to a society. Taxes should be perceived as a form of prosocial spending when they are viewed as positively benefiting fellow community members. Based on prosocial behavior research, well-being should be improved when the tax is perceived as benefiting others rather than when it is seen as benefiting the self.

However, in order for individuals to feel increased well-being when paying taxes, several conditions should be met. First, paying taxes should give individuals a sense of positive identity (e.g., doing something good to help the society at large or others included in one's group). Previous research has found that reminding individuals about the positive *vs.* negative impact of their taxes (e.g., taxes are spent on roads and bridges *vs.* taxes are spent on big banks and funding lobbyists) increases the acceptance of higher taxes among members of "anti-tax" parties, bringing their responses in line with the preferences of members of "pro-tax" parties (Sussman & Olivola, 2011). Additionally, perceiving one's prosocial spending as having a positive impact increases the emotional rewards of giving (Aknin et al., 2013b). Consequently, individuals should believe that their tax dollars are actually benefiting their society. Second, based on social identity research, individuals should perceive themselves as having a meaningful shared collective identity with the beneficiaries of one's taxes. Since paying taxes is a "quasi-voluntary" act (for

review, see Levi, 1988), having the same group identity with the tax beneficiaries is essential for achieving well-being benefits. Thus, I hypothesize that willingness to pay prosocial taxes leads to a greater well-being and that perception of taxes as prosocial spending improves one's well-being through increased identification with one's collective.

Overview of the Studies

To test the hypothesis that perception of taxes as prosocial tax spending leads to higher well-being, I conducted three studies. In Study 1, I sought to establish a link between paying taxes to help others and subjective well-being across various nations and years. Specifically, I wanted to know whether willingness to pay taxes to help other people would benefit one's well-being. Akay et al. (2012) do not separate in their study willingness to pay taxes to benefit others vs. oneself. They measure general willingness to pay income taxes. I was particularly interested in whether willingness to pay taxes to help others (or prosocial taxes) is also linked to subjective well-being. In Study 1, I used variables from the World Values Survey to establish this link. This allows for generalizing the phenomenon across large and culturally diverse sample of respondents.

In Study 2, I was interested in replicating the link between willingness to help members of one's society and well-being within an American sample. Most importantly, I was interested in whether willingness to pay taxes to help other members of one's society makes individuals feel like they are contributing to their society, and thus increases their well-being. Grant (2008) defines perceived social impact as the extent to which people feel that their own actions are directed to improve the welfare of others. Thus, in Study 2, I was also interested what role perceived social impact plays in the relationship between willingness to pay and well-being. Akay et al. (2012) find that Germans who exhibit higher tax morale (or willingness to pay taxes)

reported higher well-being. It is possible that higher tax morale makes individuals more self-conscious about contributing to their society and improving welfare of their fellow citizens and thus leads to greater well-being (Akay et al., 2012). Alternatively, it is possible that believing that one's tax dollars contribute to society leads to higher tax morale, and this in turn leads to greater well-being. Thus, in Study 2, we explored two mediational models. The first mediational model tested whether higher willingness to pay taxes, if taxes benefit members of one's society, leads to greater well-being among college students and whether perceived social impact—the extent to which students feel their taxes have a positive influence on their society—mediates this relationship. This model was suggested by Akay et al. (2012) as a possible explanation for the relationship between willingness to pay taxes and well-being. The second mediational model tested whether perceived prosocial impact leads to greater well-being and this relationship is mediated by willingness to pay taxes, if taxes benefit members of their society.

In Study 3, I experimentally varied the perceived social impact of paying taxes and tested the causal effect of social impact on well-being. I specifically wanted to know whether thinking about paying taxes to help other members of one's group leads to an increased well-being and whether an increased group belonging mediates this relationship. It is very hard to disentangle the willingness to pay taxes to help oneself *vs.* others in correlational studies, since both constructs hold some of their variance in common. Experimental research allows for unraveling the common variance through experimentally varying the tax beneficiary and, hence, establishing causal relationships. Thus, in Study 3, I was able to manipulate the social impact by varying the tax beneficiary (paying taxes to help others people *vs.* oneself) and comparing the results with a control condition.

Study 1

In Study 1, I examined whether greater willingness to pay taxes for the benefit of others was associated with more positive well-being by analyzing the data from the World Values Survey (WVS). The survey, which started in 1981, consists of nationally representative surveys from almost 100 countries, which cover almost 90 percent of the world's population. The WVS uses a common questionnaire to conduct the non-commercial, cross-national, time series investigation of human beliefs, values, and attitudes. It contains over 400,000 interview responses with almost 400,000 respondents and covers the full range of global countries, from very poor to very rich countries with various cultural orientations. The survey is assessed in waves, and it takes from two to five years to collect data for each individual wave.

The WVS contains two items assessing a respondent's willingness to pay taxes to help others—to increase foreign aid and to prevent environmental pollution. I used the multilevel modeling approach with the measures reflecting willingness to pay taxes to help others as independent variables, and levels of life satisfaction and happiness as dependent variables. Individuals were treated as within-subject variation at a lower level (Level 1) and grouped into (or nested within) a higher aggregate national level (Level 2), which was treated as between-subject variation. I predicted that willingness to pay increased taxes to help others would be associated with increased happiness and life satisfaction. The variables from the WVS that were analyzed in this study are introduced in Appendix A.

Source of Data

I analyzed several waves of data from the WVS. Because wave 1 (1981 -1984) did not contain the demographic information I used as covariates, I included only four out five possible waves in our analysis: wave 2 (1990, 1991); wave 3 (1994-1999); wave 4 (2000-2004); and wave 5 (2005-2008). As shown in Table 1, since one of our independent variables (willingness to pay

pollution taxes) was available for 4 waves and the other independent variable (willingness to pay foreign aid) was available for only the 5th wave, I constructed two data sets—one for each independent variable. Each data set was based on available sample size, number of years, and countries. The first sample of 148,544 respondents from 74 countries over 17 years contained 71,896 males and 74,462 females with the mean age of 40.73 years ($SD = 15.82$). The second sample of 20,294 respondents from 19 rich countries contained 9,895 males and 10,271 females with the mean age of 45.32 years ($SD = 16.86$). The demographic information for each sample is presented in Table 2.

Method

Instruments

Prosocial Tax. The WVS contains two items capturing a respondent's willingness to pay taxes that help others. The first item states "I would agree to an increase in taxes if the extra money were used to prevent environmental pollution"; level of agreement is provided on a 4-point scale (1 = *strongly disagree* to 4 = *strongly agree*). The second item asks, "Would you be willing to pay higher taxes in order to increase your country's foreign aid to poor countries?"; dichotomous responses are coded as yes or no (1 and 0, respectively). The first item may not appear to be as definitively prosocial as foreign aid—for one can care about preventing pollution because of the perceived personal benefits of living in a clean environment. That said, preventing environmental pollution is not simply about reaping immediate benefits; instead it reflects a concern for ensuring that current and future generations inherit a healthy planet. In fact, the Oxford Handbook of Prosocial Behavior specifically identifies environmental behavior as prosocial (Noan & Schultz, 2015).

Subjective Well-being. Well-being was assessed in the WVS in two ways. One item tapped happiness and the other assessed overall life satisfaction. Specifically happiness was measured with the following item: “Taking all things together, how happy would you say you are?” (1=*not happy at all*; 2=*not very happy*; 3=*quite happy*; 4=*very happy*). Life satisfaction was assessed by asking: All things considered, how satisfied are you with your life as a whole these days? (1= *completely dissatisfied* to 10=*completely satisfied*).

Demographics. The WVS contains a wide range of demographic variables, however, to keep demographic variables consistent across all studies and to avoid a problem of multicollinearity, I kept it simple and controlled for major several individual-level demographic variables that past research has found to be correlated with well-being. These controls included age, gender, education, income, and church attendance. I conducted statistical analyses with and without the control variables—the regression coefficients of the models with and without demographics are introduced in Appendix A, Table 3. Because regression coefficients did not change their direction after introducing various demographic variables, I selected the aforementioned variables for my final statistical analysis.

Statistical Models

I used two separate multilevel models to analyze the impact of paying prosocial tax on well-being. The impact of paying higher taxes to prevent environmental pollution was analyzed by implementing a cross-classified model with a random intercept and fixed slopes, in which individuals (Level 1) were nested within the countries and years. Because data assessing the impact of willingness to pay higher taxes to increase foreign aid to poor countries was not collected across many years, it was analyzed only across countries. The equation for Model 1 is presented below:

$$Y_{i(jk)} = \gamma_{00} + \gamma_{10}(\text{POLLUTION TAX}) + \gamma_{20}(\text{AGE}) + \gamma_{30}(\text{FEMALE}) + \gamma_{40}(\text{EDUC}) + \gamma_{50}(\text{CHURCH ATTEND}) + \gamma_{60}(\text{INCOME}) + u_{0j} + u_{0k} + e_{ij}$$

In Model 1, $Y_{i(jk)}$ is the well-being score (either happiness score or life satisfaction score) for respondent i in country j at time k ; γ_{00} represents the expected average well-being score across all countries and across all years when all other independent variables are 0 and participant is a male; γ_{10} , γ_{20} , γ_{40} , γ_{50} , and γ_{60} represent the expected change in well-being scores across all countries and across all years when the corresponding independent variable increases by 1, while controlling for the other independent variables; γ_{30} represents the gender difference in well-being score across all countries and across all years, while controlling for the other variables; u_{0j} is the deviation of the adjusted well-being score average of country j from the mean across countries; u_{0k} is the deviation of the adjusted well-being score average of year k from the mean across years; $e_{i(jk)}$ represents the difference between the actual well-being score and the predicted well-being score for respondent i in country j at time k .

The impact of willingness to pay higher taxes to increase foreign aid to poor countries was analyzed implementing a model with a random intercept and fixed slopes, in which individuals (Level 1) were nested within the countries. The equation for Model 2 is presented below:

$$Y_{i(j)} = \gamma_{00} + \gamma_{10}(\text{FOREIGN AID TAX}) + \gamma_{20}(\text{AGE}) + \gamma_{30}(\text{FEMALE}) + \gamma_{40}(\text{EDUC}) + \gamma_{50}(\text{CHURCH ATTEND}) + \gamma_{60}(\text{INCOME}) + u_{0j} + e_{ij}$$

In Model 2, $Y_{i(jk)}$ is the well-being score (either happiness score or life satisfaction score) for respondent i in country j ; γ_{00} represents the expected average well-being score across all countries and across all years when all other independent variables are 0 and participant is a male; γ_{10} , γ_{20} , γ_{40} , γ_{50} , and γ_{60} represent the expected change in well-being scores across all

countries when the corresponding independent variable increases by 1, while controlling for the other independent variables; γ_{20} represents the gender difference in well-being score across all countries, while controlling for the other variables; u_{0j} is the deviation of the adjusted well-being score average of country j from the mean across countries; $e_{i(j)}$ represents the difference between the actual well-being score and the predicted well-being score for respondent i in country j . The correlational matrix for all variables in Study 1 is introduced in Appendix A, Table 1 & 2.

Results

Environmental Pollution Tax. As seen in Table 3, willingness to pay an environmental pollution tax was associated with higher levels of happiness. Specifically, there was a significant positive relationship between agreeing to pay higher taxes and happiness across countries and years ($\gamma_{10} = .055, p < 0.001$), while controlling for other predictors. Older respondents reported less happiness across countries and years ($\gamma_{20} = -.002, p < 0.001$), and females reported more happiness across countries and years ($\gamma_{30} = .018, p < 0.01$). Education, church attendance, and income positively predicted happiness across countries and years ($\gamma_{40} = .009, p < 0.001, \gamma_{50} = .021, p < 0.001$, and $\gamma_{60} = .044, p < 0.001$, respectively).

The last three columns of Table 3 indicate that findings were similar for life satisfaction. There was a significant positive relationship between agreeing to pay higher taxes to decrease pollution and life satisfaction across countries and years ($\gamma_{10} = .195, p < 0.001$), while controlling for other predictors. As was the case with happiness, older respondents reported lower life satisfaction across countries and years ($\gamma_{20} = -.002, p < 0.001$), and females reported higher life satisfaction across countries and years ($\gamma_{30} = .044, p < 0.001$). Finally, education, church attendance, and income positively predicted life satisfaction across countries and

years ($\gamma_{40} = .025, p < 0.001, \gamma_{50} = .061, p < 0.001, \text{ and } \gamma_{60} = .199, p < 0.001$, respectively). For this model, I also calculated ICCs (interclass correlation coefficients) for country variance and year variance. The ICCs are introduced in Appendix A, Table 4.

Foreign Aid Tax. As seen in Table 4, willingness to pay higher taxes to support foreign aid was associated with higher levels of happiness ($\gamma_{10} = .055, p < 0.001$), while controlling for other predictors. Older respondents reported less happiness across countries ($\gamma_{20} = -.002, p < 0.001$), and females reported more happiness across countries ($\gamma_{30} = .039, p < 0.01$). Education, church attendance, and income positively predicted happiness across these rich countries ($\gamma_{40} = .004, p < 0.001, \gamma_{50} = .024, p < 0.001, \text{ and } \gamma_{60} = .045, p < 0.001$, respectively).

The last three columns of Table 4 demonstrate a similar pattern of results with life satisfaction. Willingness to pay higher foreign aid taxes was positively associated with life satisfaction across these rich countries ($\gamma_{10} = .186, p < 0.001$), while controlling for other predictors. Again, older respondents reported lower life satisfaction across countries ($\gamma_{20} = -.002, p < 0.001$), and females reported higher life satisfaction across countries ($\gamma_{30} = .057, p < 0.001$). Education, church attendance, and income positively predicted life satisfaction across countries ($\gamma_{40} = .025, p < 0.001, \gamma_{50} = .075, p < 0.001, \text{ and } \gamma_{60} = .161, p < 0.001$, respectively). Taken together these results suggest that individuals' willingness to pay taxes to benefit others—either by reducing pollution or supporting foreign aid to poor countries—experience greater well-being than those who are less willing to support prosocial taxation.

Correlations with Identity Measures. I also investigated whether the variables that measure group identity in the WVS had a relationship with the independent variables from this study. I looked at all possible and theoretically acceptable measures of identity introduced in the WVS. As shown in Table 5, more inclusive identity was associated with larger correlations

between the independent variables and group identifications. Willingness to pay higher taxes to increase country's foreign aid to poor countries did not have any relationship with national identification; however, it consistently had a strong relationship with more inclusive identifications such as citizen of the world, Asia, European Union, APEC, and African Union. These data support the account that having a common social identity with tax beneficiaries is essential to be willing to pay taxes that benefit them.

Discussion

The analyses of 148,544 respondents from 74 nations over 17 years revealed positive associations between willingness to pay taxes to prevent pollution and both happiness and life satisfaction. Likewise, 20,294 respondents from 19 rich nations who agreed to pay higher taxes to increase their country's foreign aid to poor countries reported higher happiness and life satisfaction. This clearly prosocial attitude toward taxes reliably predicts both measures of subjective well-being. Prior research (Akay et al., 2012) has also found a link between higher tax morale (intrinsic willingness to pay taxes) and well-being. However, Akay and colleagues (2012) did not separate in his study willingness to pay taxes to help others *vs.* oneself. This study sought to establish a specific link: the link between willingness to pay taxes to help others and subjective well-being. In addition, this study sought to establish a link between willingness to pay prosocial taxes and well-being across an exceptionally large and diverse sample of respondents.

However, this study has several limitations. While it does establish the link between willingness to pay taxes to help others and subjective well-being, it does not reveal why this would be the case. For example, do people who exhibit higher tax morale believe that their taxes benefit their community? It is hard to tell why respondents from rich nations agree to pay higher

taxes to increase their country's foreign aid. Are those who are more willing to do so feel that their actions have a social impact on the world? In Study 2, I sought to answer these questions. I hypothesized that higher willingness to pay taxes to help other members of one's society makes people feel like their contributing to their society, and this in turn leads to greater well-being. Akay et al. (2012) suggest that this kind of mediational relationship can explain the link between tax morale and well-being. Alternatively, a reverse mediational relationship is possible—believing that paying taxes can benefit one's society leads to higher willingness to pay taxes to help members of the society, and this in turn leads to greater well-being. Thus, Study 2 had two main objectives. First, I sought to replicate the link between willingness to pay prosocial taxes and well-being with an American sample, and second, I explored mediational relationships between willingness to pay prosocial taxes, social impact, and well-being.

Study 2

In Study 2, I tested two main hypotheses: (1) does the link between taxation and well-being replicate among US college students, and (2) does perceived social impact mediate this relationship. I was specifically interested in whether willingness to pay taxes to help other members of one's society makes individuals feel like they are contributing to that society, and, thus, increases their well-being. Alternatively, it is possible that knowing that paying taxes can benefit one's society leads to higher willingness to pay taxes to help members of the society, and this in turn leads to greater well-being. Thus, in Study 2, I asked college students from the University of Kansas whether they are willing to pay state and federal taxes if the taxes benefit disadvantaged groups such as low income families, the disabled, seniors, and victims of disasters. I also measured perceived social impact by asking the extent to which students feel their taxes have a positive influence on their society. Finally, I explored two mediational models:

(1) Willingness to pay taxes → Perceived Social Impact → Well-being; (2) Perceived Social Impact → Willingness to pay taxes → Well-being. The material that includes the variables that were analyzed for this study is introduced in Appendix A.

Method

Participants

Four-hundred and twelve undergraduate students participated in partial fulfillment of a course requirement at the University of Kansas. Nine responses were not complete and were excluded from the sample. Because missing data constituted less than 1 percent, I did not conduct multiple imputations. The responses of four-hundred and three students ($M_{\text{age}} = 18.98$, $SD = 1.97$, 45.7% female) were analyzed.

Materials

Prosocial Tax. Willingness to pay prosocial taxes was assessed with a six-item scale relevant to current state and federal income taxation ($\alpha = .90$). Because most undergraduate students are financially dependent on their parents and might have a little actual experience of paying federal or state taxes, students were asked to agree/disagree with hypothetical scenarios of whether they would be willing to pay taxes if the taxes benefit other members of their society. The items were as follows: (1) “I wouldn’t mind paying federal income tax if it is allocated to bring relief to victims of disasters such as Hurricane Sandy and Katrina,” (2) “I wouldn’t mind paying federal income tax if it goes to help senior citizens to cover their medical needs and alleviate their healthcare cost burden,” (3) “I wouldn’t mind paying federal income tax if it goes to help low-income families who are in need of food, shelter, and healthcare,” (4) “I wouldn’t mind paying federal income tax if it goes to provide need-based grants to low-income students to promote access to postsecondary education (e.g., Federal Pell Grant Program),” (5) “I wouldn’t

mind paying state income tax if it goes to programs that promote school readiness for children in low-income families who live in Kansas by providing comprehensive educational, health, nutritional, and social services,” and (6) “I wouldn’t mind paying state income tax, if it goes to help low-income families, the disabled, blind, pregnant women, and residents who are 65 years and older to cover their medical, food, and shelter costs in times of need.” Participants reported their agreement with each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Perceived Social Impact. A 3-item scale adapted from Grant (2008) measured perceived social impact ($\alpha = .85$). The scale contained the following items: (1) “I am very conscious of the positive impact that paying taxes can have on my society,” (2) “I am very aware of the ways in which paying taxes is benefiting my society,” and (3) “I feel that I can have a positive impact on my society through paying taxes.” Respondents reported their agreement with each item on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Subjective Well-being. Well-being was assessed with two widely used and reliable scales: 1) the Subjective Happiness Scale (SHS, Lyubomirsky & Lepper, 1999, $\alpha = .83$), and 2) the Satisfaction with Life Scale (SWLS, Diener et al., 1985, $\alpha = .88$).

Demographics. I controlled for several demographic variables that correlate with well-being and were also used in Study 1. However, because political ideology has been shown to predict well-being in the US and Western European countries (Napier & Jost, 2008), I also controlled for political spectrum. The following control variables were used in Study 2: (1) Gender as reported by participants; (2) Politics, assessed by asking participants to describe where they stand in general on the political spectrum with 1= *extremely liberal*, 2=*liberal*, 3=*slightly liberal*, 4=*moderate*, 5=*slightly conservative*, 5=*slightly conservative*, 6=*extremely conservative*;

(3) Religiosity, assessed by asking participants how religious they are on a 7-point scale ranging from 1=*not at all* to 7=*very*; (4) Satisfaction with one's family financial situation as assessed on a 7-point scale ranging from 1=*not at all* to 7=*very*.

Procedure

Participants completed the questionnaire via a Qualtrics Survey. All measures were presented in the order described above. Items from the Prosocial Tax Scale were randomized.

Results

To examine the effect of prosocial tax and its social impact on well-being, I conducted three types of statistical analyses: (1) A repeated measures ANOVA to analyze the mean level of agreement for the items assessing willingness to pay prosocial taxes (2) Three regression analyses: (a) with prosocial tax as independent variable and happiness and life satisfaction as dependent variables, while controlling for demographic items, and (b) with social impact as independent variable and happiness and life satisfaction as dependent variables, while controlling for demographic items, and (c) with prosocial tax and perceived social impact as independent variables and happiness and life satisfaction as dependent variables, while controlling for demographic items, (3) Two mediational analyses to examine: (a) whether social impact mediates the relationship between prosocial tax and well-being as measured by happiness and life satisfaction, while controlling for demographic items, (b) whether prosocial tax mediates the relationship between social impact and well-being, while controlling for demographic items. The correlational matrix for all variables in Study 2 is introduced in Appendix A, Table 5.

Prosocial Tax. First, I explored the mean level of agreement for all the items assessing willingness to pay prosocial tax. A repeated measures ANOVA revealed a significant effect of willingness to pay prosocial taxes, Wilks' Lambda = .76, $F(5,398) = 24.54, p < .001$. As shown

in Table 6, KU students were more willing to a federal income tax if it is allocated to bring relief to victims of disaster and a state income tax if it goes to programs that promote school readiness for children in low-income families who live in Kansas. KU students were less willing to pay a federal income tax if it goes to help low-income families who are in need of food, shelter, and healthcare. Although, the statistical test was significant, the mean differences were around half a standard deviation of each other.

Second, I explored the relationship between prosocial tax and well-being. The regression conducted on prosocial tax predicting happiness indicated that the model was significant, $F(5, 397) = 7.13, p < .001$, explaining 28.7% of the variance ($R^2 = .082$ and adjusted $R^2 = .071$). The results are shown in Table 7 columns 2, 3, and 4. For this model, prosocial tax did not directly predict happiness ($b = .082, t(402) = 1.52, p = .13$), and neither did gender ($b = .159, t(402) = 1.40, p = .16$). However, religiosity, politics and satisfaction with family finances did predict happiness ($b = .065, t(402) = 2.06, p = .04$; $b = .136, t(402) = 3.16, p < .001$; and $b = .096, t(402) = 2.90, p < .001$, respectively).

The regression with prosocial tax predicting life satisfaction indicated that the model was significant, $F(5, 397) = 10.92, p < .001$, explained 34.8% of the variance ($R^2 = .121$ and adjusted $R^2 = .110$) and yielded the results introduced in Table 7 columns 5, 6, and 7. As can be seen in Table 6, prosocial tax did predict life satisfaction ($b = .124, t(402) = 2.13, p = .03$). Gender, politics, and religion did not predict life satisfaction ($b = .159, t(402) = 1.40, p = .16$; $b = .065, t(402) = 2.06, p = .04$ and $b = .136, t(402) = 3.16, p < .001$ respectively), while satisfaction with family finances did ($b = .136, t(402) = 3.16, p < .001$).

Perceived Social Impact. The regression conducted with social impact predicting happiness indicated that the model was significant, $F(5, 397) = 11.55, p < .001$, explained 33.1%

of the variance ($R^2 = .011$ and adjusted $R^2 = .099$) and yielded the results shown in Table 8 columns 2, 3, and 4. In this model, social impact predicted happiness ($b = .192$, $t(402) = 3.82$, $p < .001$), but so did politics ($b = .141$, $t(402) = 3.44$, $p < .001$), satisfaction with family finances ($b = .081$, $t(402) = 2.49$, $p < .025$), gender ($b = .238$, $t(402) = 2.11$, $p = .04$) and religiosity ($b = .068$, $t(402) = 2.21$, $p = .03$, respectively).

The regression conducted on social impact predicting life satisfaction indicated that the model was significant, $F(5, 397) = 14.35$, $p < .001$, explaining 39.1% of the variance ($R^2 = .153$ and adjusted $R^2 = .142$) and yielded the results introduced in Table 8 columns 5, 6, and 7. In this model, social impact predicted life satisfaction ($b = .238$, $t(402) = 4.46$, $p < .001$), satisfaction with family finances ($b = .220$, $t(402) = 6.35$, $p < .001$), and gender ($b = .257$, $t(402) = 2.14$, $p = .03$). However, in this model, politics and religiosity did not predict life satisfaction ($b = .048$, $t(402) = 1.09$, $p = .28$, and $b = .022$, $t(402) = 0.67$, $p = .51$, respectively).

The results of the third regression—the regression conducted on prosocial tax and perceived social impact predicting happiness and life satisfaction are introduced in Table 9.

Mediations. To test the relationship between prosocial tax, social impact, and well-being I conducted two different mediation analyses. For the mediations, I used bootstrapping procedure (Preacher & Hayes, 2008) and the PROCESS statistical software tool (Hayes, 2012). I conducted 5,000 bootstrap iterations with 95% confidence intervals (CI).

My first mediational model tested whether willingness to pay prosocial taxes leads to higher well-being through an increased social impact. First, I explored the mediational relationship between willingness to pay prosocial taxes and happiness. As shown in Figure 1, social impact mediated the relationship between prosocial tax and happiness while controlling for demographic variables. A series of regression analyses revealed that prosocial tax did not

directly predict happiness ($b = .082, p = .130$), but did significantly predict social impact ($b = .490, p < .001$). Social impact and prosocial tax were then simultaneously entered as predictors into a regression equation with happiness as the outcome variable. The absolute value of the relationship associated with prosocial tax and happiness was significantly reduced ($b = -.014, p = .811$), whereas social impact remained a significant predictor of happiness ($b = .198, p < .001$). The results of the bootstrapping analysis confirmed that there was a significant indirect effect of prosocial tax on happiness via social impact with the bias corrected confidence interval not including zero, $b = .097, 95\% \text{ CI} = [.0419; .1693]$.

Second, I explored the mediational relationship between willingness to pay prosocial taxes and life satisfaction. As shown in Figure 1, social impact mediated the relationship between prosocial tax and life satisfaction. Prosocial tax directly predicted life satisfaction ($b = .124, p = .033$) and significantly predicted social impact ($b = .490, p < .001$). Social impact and prosocial tax were then simultaneously entered as predictors into a regression equation with life satisfaction as the outcome variable. The absolute value of the relationship associated with prosocial tax and happiness was significantly reduced ($b = .010, p = .879$), whereas social impact remained a significant predictor of life satisfaction ($b = .234, p < .001$). The results of the bootstrapping analysis confirmed that there was a significant indirect effect of prosocial tax on happiness via social impact with the bias corrected confidence interval not including zero, $d = .114, 95\% \text{ CI} = [.0544; .1894]$.

My second mediational model tested whether prosocial impact leads to greater well-being via an increased willingness to pay prosocial taxes. First, I explored the mediational relationship between social impact and happiness. A series of regression analyses revealed that social impact directly predicted happiness ($b = .192, p < .001$) and significantly predicted prosocial tax ($b =$

.430, $p < .001$). Social impact and prosocial tax were then simultaneously entered as predictors into a regression equation with happiness as the outcome variable. The absolute value of the relationship associated with social impact and happiness slightly increased ($b = .198, p < .001$) and the relationship associated with prosocial tax and happiness was not significant ($b = -.014, p = .811$). The results of the bootstrapping analysis confirmed that there was no significant indirect effect of social impact on happiness via prosocial tax with the bias corrected confidence interval including zero, $b = -.006, 95\% \text{ CI} = [-.0648; .0457]$.

Second, I explored the mediational relationship between social impact and life satisfaction. A series of regression analyses revealed that social impact directly predicted life satisfaction ($b = .238, p < .001$) and significantly predicted prosocial tax ($b = .430, p < .001$). Social impact and prosocial tax were then simultaneously entered as predictors into a regression equation with life satisfaction as the outcome variable. The absolute value of the relationship associated with social impact and life satisfaction slightly reduced ($b = .234, p < .001$) and the relationship associated with social impact and life satisfaction was not significant ($b = .010, p = .879$). The results of the bootstrapping analysis confirmed that there was no significant indirect effect of social impact on life satisfaction via prosocial tax with the bias corrected confidence interval including zero, $d = .004, 95\% \text{ CI} = [-.0508; .0616]$.

Discussion

One of the main objectives of Study 2 was to replicate the link between willingness to pay prosocial taxes and well-being among American students. I found that willingness to pay predicted life satisfaction, but this relationship was not significant for happiness. It is possible that the emotional component of subjective well-being, happiness, among KU undergraduates is affected by willingness to pay taxes to a lower degree and, mainly, the cognitive component of

subjective well-being, life satisfaction, drives the well-being effect. Thus, the power needed to achieve significant results for happiness is lower than for life satisfaction. For example, increasing sample size can reveal a significant relationship between willingness to pay prosocial taxes and happiness. Indeed, the relationship between willingness to pay and happiness was only marginally insignificant ($p = .13$). Thus, Study 2 only partially replicated findings from Study 1.

The second objective was to establish a mediational relationship between willingness to pay prosocial taxes, perceived social impact, and well-being. To do so, I tested two different mediational models. The model in which perceived social impact predicted well-being via prosocial tax only revealed direct effect between social impact and well-being. There was no indirect effect of social impact on well-being via willingness to pay. However, the model in which willingness to pay prosocial taxes predicted well-being via social impact revealed a significant indirect relationship between willingness to pay and well-being (both happiness and life satisfaction). There was a direct relationship between willingness to pay prosocial taxes and life satisfaction, but no direct relationship between prosocial tax and happiness. Although this model might appear counterintuitive, Akay et al. (2012) suggest that this kind of mediational relationship can explain the link between tax morale and well-being. Tax morale is measured by economists by assessing an individual's willingness to pay taxes (e.g., Akay et al., 2012; Frey & Stutzer, 2000). In Study 2, I asked college students to agree/disagree with hypothetical scenarios: whether they are willing to pay federal or state income taxes if the taxes benefit various members of their society. Akay et al. (2012) suggest that higher willingness to pay taxes to help other members of one's society can make people feel like their contributing to and, thus, benefiting their society, and this in turn can lead to a greater well-being. It is highly likely that this mediational model captured the effect proposed by Akay and colleagues. Thus, Study 2 has

found that willingness to pay taxes leads to greater well-being through perceived social impact—the extent to which students feel their willingness to pay taxes benefits their society.

Studies 1 and 2 have revealed that individuals who are willing to pay prosocial taxes report higher levels of well-being. The studies presented so far have been correlational and are open to reverse causation and third variable alternatives. Indeed, it is not clear whether perception taxes as prosocial spending specifically drives this relationship. When participants think about paying taxes to help other members of their society, they might also be thinking about how taxes benefit them personally. Correlational studies make it difficult to disentangle perceived social impact from perceived personal impact. In addition, it is not clear why the perceived social impact—a feeling that one’s taxes contributing to one’s society—mediates the relationship between willingness to pay prosocial taxes and well-being. Akay et al. (2012) and Frey & Stutzer (2000) suggest that the feeling that one’s taxes benefit a society or group increases belonging to this society or group. Therefore, in Study 3, I used an experimental design and directly manipulated social impact of paying taxes and compare it with a control condition. In addition, I investigated whether an increase in group identification (or belonging to one’s group) mediates the relationship between perceived social impact and well-being.

Study 3

In Study 3, I experimentally manipulated perceived social impact by (a) varying tax beneficiary, and (b) adding a control condition in which no specific tax beneficiaries were mentioned. I also included a measure of belonging or identification with other tax beneficiaries to detect whether increased group identification mediates the relationship between social impact and well-being. I hypothesized that paying taxes to help other members of one’s society or group leads to higher well-being because it increases one’s sense of belonging with the members of this

society or group. That is, benefiting other members of one's own group in the prosocial tax condition should encourage stronger identification with the group, which in turn would improve participants' well-being.

Method

Participants

One-hundred and twenty eight undergraduate students ($M_{\text{age}} = 19.59$, $SD = 2.47$, 43.8% female) participated in partial fulfilment of a course requirement at the University of Kansas. All participants were recruited through the Psychology Department participant pool.

Materials and Procedure

Participants were invited into a lab and were randomly assigned to one of three tax framing conditions: personal, prosocial, and control tax conditions (see Appendix A). They first read a paragraph about social impact of taxes on the society (*prosocial tax condition*) vs. them personally (*personal tax condition*) vs. no paragraph was introduced (*control condition*). Right after the paragraph, participants were introduced with a pie chart displaying the main revenue sources for the University of Kansas. The pie chart indicated that 45% of the university's revenue comes from Federal and State taxes, which provide general funds for current operations of the university. A further 25% of the university's revenue was shown in the pie chart as derived from tuition and fees assessed against students for educational purposes. The remaining 35 % of revenue shown on the pie chart resulted from sales and auxiliary enterprises, including endowment support.

Along with the pie chart, participants received written information indicating that public universities such as KU receive much of their funding from tax revenues. In the *personal tax condition*, participants were told that taxes benefit them *personally* and that by paying federal

and state taxes it allows public universities like KU to charge lower rates of tuition for them *personally*. In the *prosocial tax condition*, participants were told that taxes benefit *those KU students who are in need* and that paying federal and state taxes it allows public universities like KU to charge lower rates of tuition for *KU students who are in need*. In the control condition, participants were simply asked to review the pie chart concerning KU revenue with no further information about beneficiaries provided.

Afterward, participants completed an attention check in which they identified what percentage of KU revenue came from each category in the pie chart. To bolster the manipulation, participants were asked to think about one or two instances when paying taxes benefited them personally (*personal tax condition*), benefited their fellow KU students (*prosocial tax condition*), or to recall mundane events of the previous day (*control condition*).

Participants were then asked to complete a survey in which they reported their current state of happiness (“All things considered, how happy are you right now?” *1=not at all* to *10=extremely*), life satisfaction (“All things considered, how satisfied are you with your life as a whole these days?” *1=not at all* to *10=extremely*), identification with KU students (“I identify with KU students” *1=strongly disagree* to *7=strongly agree*), and demographics. Additionally, to make sure participants believed the information introduced in the experimental manipulation, participants were also asked to what extent they believed the information provided in each experimental condition (*1=not at all* to *7=very much*).

Results

Attention and Information Check. After participants were introduced with the revenue pie, they were asked to complete the attention check in which they had to identify what percentage of KU revenue came from each category in the pie chart. Only four participants did

not pass the attention check. However, excluding these four participants from the sample did not affect the statistical results and, thus, no participants' data were excluded from the final statistical analysis. Additionally, at the very end of the experiment, I asked participants to what extent they believed the information provided in each condition. A one-way ANOVA revealed no effect of experimental condition on the extent to which participants believed the information in the experimental manipulation, $F(3, 124) = 1.32, p = .27$. The average mean agreement was 4.59 ($SD = 1.15$).

Experimental Manipulation. A one-way ANOVA revealed no direct effect of experimental condition (personal tax condition vs. prosocial tax condition vs. control condition) on current happiness and life satisfaction, $F(3, 124) = 1.10, p = .34$, partial $\eta = .02$ and, $F(3, 124) = .61, p = .20$, partial $\eta = .03$, respectively. However, as seen in Figure 2, there was a significant effect of experimental condition on KU identification, $F(3, 124) = 4.60, p = .01$, partial $\eta = .08$. Post hoc comparison using Turkey HSD test indicated that identification with KU for the prosocial condition ($M = 6.20, SD = .88$) was significantly higher than for the personal condition ($M = 5.57, SD = 1.25, p = .03, d = 0.54$) and the control condition ($M = 5.58, SD = 1.25, p = .03, d = 0.55$). There was no significant difference between the control and personal conditions ($p = .99$). Because the correlation between the dependent variables was .75, I combined the dependent variables and introduced a statistical analysis with the combined variables in Appendix A.

Mediation. To examine whether perceived social impact of prosocial taxes led to higher levels of happiness and life satisfaction through group identification, I conducted a mediational analysis with KU identification as the proposed mediator. For this analysis, the prosocial tax condition was contrasted with the control condition (Dummy 1: prosocial tax condition = 1; all other conditions = 0) and the personal tax condition was contrasted with the control condition

(Dummy 2: personal tax condition = 1; all other conditions = 0). As shown in Figure 3, KU identification mediated the relationship between Dummy 1 (prosocial tax condition) and current state of happiness, as well as between prosocial tax and life satisfaction, while controlling for Dummy 2 (personal tax condition). A series of regression analyses revealed that Dummy 1 did not directly predict happiness, $b = .403, p = .262$ nor life satisfaction, $b = .594, p = .091$. However, it did significantly predict increased KU identification, $b = .618, p < .001$, while controlling for Dummy 2. Dummy 1, Dummy 2, and KU identification were then simultaneously entered as predictors: (1) into a regression equation with current state of happiness as the outcome variable, (2) into a regression equation with reported life satisfaction as the outcome variable. The absolute values associated with Dummy 1 and current state of happiness and Dummy 1 and life satisfaction were significantly reduced, $b = .074, p = .831$ and $b = .225, p = .496$, respectively, whereas KU identification remained a significant predictor of current state of happiness and life satisfaction, $b = .532, p < .001$, and $b = .598, p < .001$, respectively.

The results of the bootstrapping analysis confirmed a significant indirect effect of the prosocial tax condition on current state of happiness and life satisfaction via increased KU identification; the confidence interval did not include zero, $d = .329, 95\% \text{ CI} = [.0653; .7959]$ and $d = .370, 95\% \text{ CI} = [.0862; .8330]$, respectively. Next, I switched Dummy 1 with Dummy 2, making Dummy 2 (personal tax condition) an independent variable and Dummy 1 (prosocial tax condition) a control variable. The results of the bootstrapping analysis did not provide evidence of a significant indirect effect of personal tax condition on current state of happiness and life satisfaction via increased KU identification; the confidence interval included zero, $d = -.005, 95\% \text{ CI} = [-.3947; .2560]$ and $d = -.006, 95\% \text{ CI} = [-.3953; .3163]$, respectively.

Interaction with Gender. A 3 x 2 factorial between ANOVA was conducted on happiness and life satisfaction, with experimental condition (personal tax vs. prosocial tax vs. control) and gender (male vs. female) as independent variables. There was no significant condition by gender interaction on happiness, $F(3, 124) = 0.04, p = .96$; and there was no significant condition by gender interaction on life satisfaction, $F(3, 124) = 0.18, p = .83$. There was no main effects of condition on happiness, $F(3, 124) = 0.99, p = .37$ and life satisfaction, $F(3, 124) = 1.38, p = .26$, respectively. There was no main effect of gender on happiness, $F(3, 124) = 1.68, p = .20$, but there was a marginally significant main effect of gender on life satisfaction, $F(3, 124) = 3.49, p = .06$. On average females reported higher life satisfaction ($M = 8.23$; $SD = 1.74$) than males did ($M = 7.67$; $SD = 1.52$).

A 3 x 2 factorial between ANOVA was conducted on KU identification, with experimental condition (personal tax vs. prosocial tax vs. control) and gender (male vs. female) as independent variables. There was no significant condition-by-gender interaction on KU identification, $F(3, 124) = 0.43, p = .65$. However, there was a main effect of condition on KU identification, $F(3, 124) = 4.60, p = .02$. Post hoc comparison using Turkey HSD test indicated that identification with KU for the prosocial condition ($M = 6.20, SD = .88$) was significantly higher than for the personal condition ($M = 5.57, SD = 1.25, p = .03, d = 0.54$) and the control condition ($M = 5.58, SD = 1.25, p = .03, d = 0.55$). There was also a main effect of gender, $F(3, 124) = 5.66, p = .02$. Females reported higher KU identification ($M = 6.07$; $SD = 1.11$) than males ($M = 5.58$; $SD = 1.14$).

Discussion

Study 3 revealed that perceived social impact of prosocial tax spending indirectly leads to greater well-being, both life-satisfaction and happiness, through increased sense of belonging

with one's group beneficiaries. This study did not find a direct link between perceived social impact of prosocial tax spending and well-being; however, benefiting the ingroup in the prosocial tax condition encouraged stronger group identification, which in turn improved participant well-being. When asked to think about paying taxes to benefit other KU students, KU student participants significantly increased their identification with them. This, however, was not the case when KU students were asked to think about paying taxes to benefit themselves or when no specific benefits were mentioned.

This study has several limitations that need to be addressed. First, I used a single-item measure to assess social identity. Generally, it might be difficult for single-item measures to achieve good reliability because the constructs they assess might be broad and heterogeneous. However, Postmes, Haslam, & Jans (2013) assessed reliability of the single-item social identity (SISI) measure—"I identify with my group"—and found that the reliability of the SISI is high, and the social identity construct is sufficiently homogeneous to be operationalized with the single item. Second, the relationship between the prosocial tax condition and well-being did not reach statistical significance. For the same reasons, there was only indirect and no direct effect of experimental manipulation on dependent variables. Recently, Rucker, Preacher, Tormala, & Petty (2011) proposed that overemphasizing the direct relationship between independent and dependent variables can lead to misleading conclusions in theory testing. A potential reason for insignificant direct effect could be differential power for detecting these effects (Rucker, et al., 2011). This can happen for various reasons: (1) when an outcome variable and predictor are moderately reliable and a mediator is highly reliable, (2) when the predictor exhibits a stronger influence on the mediator than on the outcome variable, and (3) when a sample size is not sufficient.

It is possible that the experimental manipulation had limited statistical power because of the modest sample size. If this is the case, then increasing sample size should increase the statistical power. It is also likely that experimental manipulation exerted a stronger influence on the mediator than on the dependent variable. These suggestions are consistent with the observed power. For example, the observed power was only .24 for the prosocial tax condition predicting happiness and .34 for the prosocial tax condition predicting life satisfaction. In comparison, the observed statistical power for the prosocial tax condition predicting KU identification was .77. Another possibility might be the experimental manipulation itself. KU students' average mean agreement with whether they believed the experimental information was only 4.59 on a 7-point scale. It is possible that doubting the information I provided in the experimental manipulation could decrease the effect of the experimental manipulation on subjective well-being. However, the information that I provided in the experimental manipulation was not deceptive. Participants were even provided with a link where they could check the presented information. It seems that the participants had a preconceived judgment that did not allow them to trust the information completely. Another possibility is that college students might have little experience of paying taxes, and thus they are unable completely to relate to the provided information. An experimental manipulation with a different population (experienced taxpayers or college students from a different university) or an experimental manipulation where participants are paying actual taxes could help to improve the statistical outcome.

General Discussion

Summary of the Studies

I hypothesized that viewing tax spending as prosocial behavior leads to higher subjective well-being and this effect is mediated by an increased sense of belonging with the tax

beneficiaries. To support this hypothesis, I conducted three studies. In Study 1, I established a link between paying taxes to help others and well-being across time and nations. I examined this by analyzing the data from the World Values Survey (WVS). Across 74 nations over 17 years, increase in taxes to prevent environmental pollution was positively linked to improved subjective well-being (both happiness and life satisfaction). Similarly, respondents from 19 rich nations who agreed to pay higher taxes to increase their country's foreign aid to poor countries reported higher subjective well-being. Prior research has shown that willingness to pay taxes is associated with well-being only in developed countries with progressive taxation (Akay et al., 2012; Oishi, Schimmack, & Diener, 2011). However, Study 1 revealed that the effect of willingness to pay taxes on well-being can be generalized across multiple nations. In addition, previous studies did not distinguish between willingness to pay taxes to benefit others *vs.* oneself. Findings of Study 1 established that willingness to pay taxes to help others (or prosocial taxes) is also linked to subjective well-being. These findings are consistent with Helliwell (2003) and Verme (2009) who in the past found positive significant associations between willingness to cheat on taxes and decreased well-being.

In Study 2, I replicated the link between willingness to pay prosocial taxes and subjective well-being with an American sample and explored mediational relationship between willingness to pay prosocial taxes, perceived social impact, and subjective well-being. In Study 2, college students were asked to indicate their willingness to pay prosocial taxes if these taxes benefit other members of American society such as low-income families and children, the disabled, victims of natural disasters, and senior citizens. I also assessed perceived social impact—the extent to which students feel their taxes have a beneficial influence on their society. In Study 2, I tested two mediational models: (1) willingness to pay prosocial taxes is linked to well-being via

perceived social impact, and (2) perceived social impact is linked to well-being via willingness to pay prosocial taxes. Aknin et al. (2013b) found that perceiving one's prosocial spending as having a positive impact increases the emotional rewards of giving, and Akay et al. (2012) suggested that greater willingness to pay taxes (tax morale) increases the feeling of contributing to one's society, and this in turn leads to greater well-being. Consistent with Akay et al. (2012) and Aknin et al. (2013b), the results of Study 2 indicate that greater willingness to pay prosocial tax was linked to greater subjective well-being via increased perceived social impact. Although, at first glance, the alternative mediational model might make more sense, it did not reveal indirect relationship between perceived social impact and well-being via willingness to pay prosocial taxes.

Study 2, however, only partially replicated the findings from Study 1. While in Study 1 willingness to pay higher prosocial taxes directly predicted happiness and life satisfaction, in Study 2 willingness to pay prosocial taxes only directly predicted life satisfaction. There was also an indirect relationship, and no direct relationship, between willingness to pay prosocial taxes and happiness. Since the relationship between willingness to pay prosocial taxes and happiness was only marginally insignificant, it is reasonable to assume that increasing sample size would help to improve statistical power and hence to reach statistical significance. It seems that the well-being effect of willingness to pay prosocial taxes in Study 2 was primarily driven by the cognitive component of subjective well-being, life satisfaction.

Finally, in Study 3, to disentangle perceived social impact from perceived personal impact, I experimentally manipulated perceived social impact by varying the beneficiary of taxes to test the causal effect of prosocial tax condition on well-being. Specifically, I manipulated whether taxes were perceived as either prosocial (benefiting others), personal (benefiting

oneself), or neither (no specific tax beneficiary was mentioned). I also tested whether perceiving one's taxes as benefiting other members of one's own group (students from the University of Kansas) in the prosocial tax condition encourages stronger identification with other KU students, which in turn, improves their well-being. Recalling instances when paying taxes helps other KU students indirectly led to greater subjective well-being (as measured by happiness and life satisfaction) through an increased identification with these students. Although paying prosocial taxes did not directly predict subjective well-being, benefiting the ingroup in the prosocial tax condition encouraged stronger group identification with the ingroup, which in turn led to improved well-being among participants.

Since paying taxes is a "quasi-voluntary" act (Levi, 1988), having the same group identity with the tax beneficiaries is essential for achieving well-being benefits. These findings are consistent with prior research that investigates the role of social identity in tax morale and well-being. Stronger and more inclusive group identification has been associated with a higher willingness to pay taxes (e.g., Alm, Martinez-Vazque, & Torgler, 2006; Jetten et al., 2002; Transue, 2007; Trüdinger & Hildebrandt, 2012; Torgler, 2003; Wenzel, 2004) as well as well-being (e.g., Bizumic, et al., 2009; Branscombe, Schmitt, & Harvey, 1999; Greenfield & Marks, 2007; Haslam, et al., 2005; Latrofa, Vaes, Pastore, & Cadinu, 2009; Wegge, et al., 2006). In addition, Akay et al. (2012) and Frey & Stutzer (2000) have suggested that the feeling that one's taxes benefit other members of one's society can increase belonging to this society (Akay et al., 2012; Frey & Stutzer, 2000).

The findings of Study 3 are consistent with these accounts. KU student participants increased their identification with other KU students when they were asked to recall instances when taxes benefited their fellow KU students in need *vs.* them personally *vs.* no specific tax

beneficiary. However, Study 3 did not replicate the direct relationship between perceived social impact of prosocial taxes and well-being. Two factors could have led to this outcome: (1) participants were college students who could have only little experience of paying taxes, or (2) participants did not completely believe the information provided in the experimental manipulation. The possible remedies might include: (1) an experimental manipulation with experienced taxpayers or college students from a different university, or (2) an experimental manipulation where participants are paying actual taxes.

Implications for Tax Policy

High levels of national well-being have been linked to more prosperous societies (Diener, Suh, Lucas, & Smith, 1999). Contrary to the hedonic treadmill model (Brickman & Campbell, 1971), the cross-national differences observed for well-being point out that people do not always adapt to the objective conditions, if these remain consistent for many years (Diener, Lucas, & Scollon, 2006). Failed domestic policies might permanently decrease national levels of well-being and change a hedonic set-point of nations.

For instance, research has shown that social cohesion or social trust is another essential means to improve tax morale (willingness to pay taxes) and national levels of well-being. Trust in fellow citizens facilitates a stronger sense of belonging to communities and nations (Helliwell, Huang, Grover, & Wang, 2014), and stronger and more inclusive group identification leads to increased well-being (e.g., Bizumic et al., 2009; Branscombe, Schmitt, & Harvey, 1999; Greenfield & Marks, 2007; Haslam et al., 2005; Latrofa, Vaes, Pastore, & Cadinu, 2009; Wegge et al., 2006). Distrust in fellow citizens can significantly hinder tax morale, as a weak social cooperation limits the possibility of exploitation by political elites or free-riding citizens (Scholz & Lubell, 1998), consequently leading to a weak group identification.

Strong identification with a collective is important because it encourages more cooperation, social trust, and better norm compliance (Helliwell, Huang, Grover, & Wang, 2014; Trüdinger & Hildebrandt, 2012). Consequently, higher levels of tax morale have been linked to a stronger sense of social cohesion or stronger identification with the collective (e.g., Cullis, Jones, & Savoia, 2011). My research supports the essential role of group identity in tax morale and well-being. In Study 1, more inclusive identity was associated with more willingness to pay taxes to prevent environmental pollution as indicated by larger correlations between identity measures and willingness to pay. In addition, willingness to pay higher taxes to increase country's foreign aid to poor countries had a stronger relationship with more inclusive group identifications such as citizen of the world, Asia, European Union, APEC, and African Union, but no relationship with national identity, indicating that meaningful and inclusive identity with tax beneficiaries is important to be able to pay taxes that benefit the recipients.

Moreover, in Study 3, KU students increased their identification with other KU students when taxes were framed as prosocial spending (taxes spent on other KU students), and this in turn led to both increased happiness and life satisfaction. This was not the case when taxes were framed as personal spending (taxes spent on self) or no specific tax beneficiary was assigned. These results indicate that tax spending benefits well-being when taxpayers feel meaningful and strong identification with other tax beneficiaries. Thus, my first recommendation is that government officials *must* stress more inclusive and meaningful national identity if they want to achieve higher national tax morale and well-being. This can be achieved by highlighting collective goals over personal priorities or highlighting an inclusive national identity over an ethnic or racial identity. This is especially important for such a multicultural and ethnically diverse country as the United States.

In addition, government officials should stress the positive benefits of paying taxes on a society. In Study 2, greater willingness to pay taxes if these help disadvantaged members of one's society increased the feeling of contributing to one's society, and this in turn led to greater well-being. Aknin et al. (2013b) found that perceiving one's prosocial spending as having a positive impact increases the emotional rewards of giving, and the research on prosocial behavior has clearly shown that spending money on others, and not on self, leads to increased well-being (e.g., Aknin et al., 2013a; Dunn et al., 2008). Thus, my second recommendation is that government officials *must* stress positive benefits of taxes on the society and its citizens if they want to achieve higher levels of well-being among taxpayers.

Specific Implications for Tax Policies in the U.S.

Relatively recent polls, focused on inequality, taxes, and mobility and conducted between 1990 and 2011, that analyzed American attitudes towards taxation deliver somewhat contradictory and alarming results (Shaw & Gaffey, 2012). Americans understand the value of taxation but they are very apprehensive about including all income and ethnic groups in the circle of eligible tax beneficiaries. The polls reveal that Americans are aware of growing wealth inequality and declining economic opportunities and that they are willing to see the government as a means to provide these opportunities. They would also like to see a more equitable distribution of national income (Shaw & Gaffey, 2012).

However, a majority of Americans see their country as a nation of haves and have-nots. According to Shaw & Gaffey (2012), 66% of Americans think that wealth in the U.S. should be evenly distributed, but only 47% believe that the redistribution should be achieved through heavy taxes on the rich. Fewer Americans thought that the rich pay too little in taxes in 2011 (59%) than in 1992 (77%) and more Americans thought that low income people pay too little in taxes in

2011 (21%) than in 1992 (8%). The same percentage of Americans thought that the middle class pays too little in taxes in 2011 as in 1992 (5%). Consequently, more Americans thought that rich people pay too much in taxes in 2011 (13%) compared to 1992 (4%) and fewer Americans thought that poor people pay too much in taxes in 2011 (45%) compared to 1992 (57%). Strikingly, fewer Americans think that the middle class pays too much in taxes in 2011 (44%) compared to 1992 (57%) and more Americans think that the middle class pays their fair share in taxes in 2011 (50%) compared to 1992 (36%). These poll results seem troubling. They are indicative of a national class divide. Income inequality has significantly increased for the last 30 years in the U.S. (Shapiro, 2005), and yet more Americans think that the poor should pay more in taxes and the rich should pay less. This is consistent with the prior research on income inequality and its consequences—as income inequality increases, social cohesion decreases (Pryor, 2012; Wilkinson & Pickett, 2009; for detailed review also see Uslaner & Brown, 2005). It is especially troubling because recent research has linked rising inequality across the globe to lower tax morale (Trüdinger & Hildebrandt, 2012).

Americans are now more inclined to regressive taxation attitudes—the rich paying fewer taxes and the poor paying more taxes, but these kinds of attitudes toward taxation can hinder the quality of citizens' lives. Progressive taxation (the rich paying more and the poor paying less), on the other hand, is not only designed to decrease ethnic and class divides, but also to increase the national level of well-being (Diener, Lucas, Schimmack, & Helliwell, 2009). First, progressive taxation delivers better access to the social safety net across all class groups. Second, well-being research stresses the progressive taxation argument (see Layard, 2005)—since life satisfaction increases exponentially with individual income, significantly larger absolute amounts of income are needed to achieve the same amount of life satisfaction for the rich compared to the amount

that is needed to increase life satisfaction for the poor. Taxation is less of a burden for high-income people, and thus taxing the rich to help the poor can significantly increase the national level of well-being. In addition, research suggests that stressing materialistic values and social comparison of incomes have adverse effects on life satisfaction (Helliwell & Huang, 2009; Kasser & Ryan, 1993; Luttmer, 2005; Nickerson, Schwarz, Diener, & Kahneman, 2003).

Recent research has shown that increased income inequality in the U.S. has also increased the racial divide: rising income inequality is significantly associated with prejudice towards African Americans (Drus, Crandall, & Schoemann, 2015). This divide might adversely affect the national level of well-being and economic prosperity of a multicultural country such as the United States. First, racial discrimination towards African Americans has been associated with greater symptoms of depression and lower levels of life satisfaction on the part of African Americans (e.g., Prelow, Mosher & Bowman, 2006; Sharma & Sharma, 2010; Williams, Spencer, Jackson, 1999). Second, because African Americans constitute 11% of the national work force (U.S. Bureau of Labor Statistics, 2015), stigmatizing this group may lead to a decrease in national productivity and an increase in dependency on government social services. Finally, because discriminatory attitudes deemphasize relatedness, morality, and collective harmony, this could decrease well-being among White Americans as well.

Research indicates that when individuals define themselves as members of different groups, it encourages greater competitiveness and less cooperation (Brewer & Schneider, 1990; Schopler & Insko, 1992). On the other hand, when people identify with a more inclusive group, emphasis on self-interest diminishes and emphasis on the interest of others and of a collective as a whole increases (Brewer, 1991; Morrison, 1997; Sharma & Sharma, 2010). In laboratory conditions, priming participants with American national identity (the identity that White

Americans and minorities share) increased White Americans' support for tax increases for programs that benefit minorities (Transue, 2007). When a national identity is maximized and stressed as a more inclusive identity, a concern for a fair society motivates taxpayers rather than a concern for one's personal interests (Wenzel, 2004). Because of cultural individualism, middle class Europeans and Americans tend to pursue their self-interest at the expense of the collective (Sharma & Sharma, 2010). If no specific policies are implemented to increase social cohesion and to stress the collective in the United States, it might be difficult for Americans' well-being to benefit from taxation. On the contrary, although I have no data to support this, I suspect American taxpayers' well-being will gradually decrease, the more they perceive racial and class divides within the nation.

Limitations and Future Directions

This line of research has its limitations. First, a behavioral experimental study, where participants actually pay prosocial taxes, would certainly be a valuable addition to this project and could strengthen the conclusion. In Study 3, participants were asked to recall instances where taxes benefit others *vs.* oneself, but no actual tax paying behavior was measured. However, it is important to see whether actual behavior can deliver the same results or even improve the results of Study 3 (e.g., finding a significant direct effect between willingness to pay and well-being). Participants can be invited to a lab to do a task for which they would receive a cash payment. Some percentage of this payment, framed as a tax, could be either allocated towards helping other students *vs.* oneself. Participants assigned to the prosocial tax condition would be told that tax proceedings will go to benefit other students, and participants assigned to the personal condition would be told that tax proceedings will go to benefit oneself. Group identification and well-being should be measured afterwards.

Second, although, this study does not test it, it is important to know whether having weak identification with the tax beneficiaries can actually hinder or even decrease ones' well-being. I showed that perceiving tax as prosocial spending increases one's well-being through an increased belonging with tax beneficiaries. In Study 3, baseline level of identification with other tax beneficiaries (other students from the University of Kansas) was relatively high. That is, KU students had a strong and meaningful identification with other KU students. However, when I asked them to recall instances where taxes help other KU students, they increased their identification, which in turn led to increased well-being. Future studies should address the role of weak identification with taxpayers on well-being.

Third, it is important to know whether perceived identity threat can lead to decreased well-being and tax morale. It is possible that some of the resistance to taxation in the U.S. has to do with the perception of identity threat on the part of White Americans from minority groups. For example, White Americans felt more deprived during the Civil Rights movement because government programs were aimed to improve position of African Americans and were deemed as providing advantages that White Americans did not receive (Begley & Alker, 1982). The relations between Whites and African Americans in the U.S. have changed over several decades and shifted from a battle over basic civil rights to a conflict over educational, political, and socio-economic resources (Bobo, 1988). More recent research indicates that White Americans view Black–White relations as a zero-sum game and feel that while perceived discrimination against African Americans by White Americans has decreased over the past six decades, perceived discrimination against White Americans by African Americans has significantly increased (Norton & Sommers, 2011). Consequently, future research should address the role of identity threat in taxation and well-being.

Finally, future research should address the role of inclusive social identity in taxation and well-being. It is not clear whether social norms that stress more inclusive identity could decrease the effect of identity threat and to increase tax morale and well-being. Some past research has already partially answered this question. For instance, priming White Americans with more inclusive identity increased White Americans' support for taxes that are allocated to social programs that benefit minorities. I speculate that this kind of inclusive identification with minority taxpayers can also strengthen overall well-being for White Americans and the minority groups. After all, it is prosocial, not personal, spending that improves individuals' well-being.

Conclusion

Paying taxes does not have to be painful and aversive. In fact, this research reveals how paying taxes, under certain conditions, can improve individual and national levels of well-being. Stressing the collective (or prosocial norms over norms of self-interest) and highlighting the positive benefits of taxation for a society might be essential to achieve the well-being effect from taxation. Consequently, national tax policies should be directed at highlighting collective goals over personal priorities and at highlighting positive rewards of taxation for the society as a whole.

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Table 1. *Data sets constructed for each measure of prosocial tax based on available sample size, number of years, countries, and waves.*

Prosocial Tax Measures	<i>N</i>	Years	Countries	Waves
I would agree to an increase in taxes if the extra money were used to prevent environmental pollution	146,358	17	74	2 nd (1990, 1991); 3 rd (1994-1999); 4 th (2000-2004); 5 th (2005-2008)
Would you be willing to pay higher taxes in order to increase your country's foreign aid to poor countries?	20,166	-	19	5 th (2005-2008)

Table 2. Descriptive statistics of demographics with means (and standard deviations) for data sets pertaining to each measure of prosocial tax¹.

Prosocial Tax Measures	Males/Females	Age	Income	Education	Church Attendance
I would agree to an increase in taxes if the extra money were used to prevent environmental pollution	71,896/74,462	40.73(15.82)	4.55(2.41)	4.58(2.83)	4.34(2.54)
Would you be willing to pay higher taxes in order to increase your country's foreign aid to poor countries?	9,895/10,271	45.32(16.86)	4.96(2.47)	4.78(2.23)	5.26(2.53)

¹ 1) Gender and age as reported by respondents, 2) Income scales ranging from 1 (lower or 1st step) to 10 (higher or 10th step), 3) Education (1 = Inadequately completed elementary education; 2 = Completed elementary education; 3 = Incomplete secondary school, technical/vocational type; 4 = Complete secondary school, technical/vocational type; 5 = Incomplete secondary, university-preparatory type; 6 = Complete secondary, university-preparatory type; 7 = Some university without degree/Higher education, lower-level tertiary certificate; and 8 = University with degree/Higher education); and 4) Church attendance (1 = Practically never; 2 = Less often; 3 = Once a year; 4 = Other specific holy days; 5 = Only on special holy days/Christmas/Easter days; 6 = Once a month; 7 = Once a week; 8 = More than once a week).

Table 3. Model estimates (standard deviations), effect sizes, and confidence intervals of Model 1 predicting well-being (happiness and life satisfaction) by willingness to pay taxes to prevent environmental pollution across the nations and throughout the years in Study 1.²

Independent Measures	Happiness			Life Satisfaction		
	γ (S.E.)	Effect Size	95% CI	γ (S.E.)	Effect Size	95% CI
Intercept	2.80(.0377) ***	-	2.726 to 2.874	5.13(.1485) ***	-	4.839 to 5.421
Pollution Tax	.055(.0021) ***	.06	.051 to .059	.195(.0067) ***	.17	.182 to .208
Age	-.002(.0001) ***	-.05	-.002 to -.002 ^p	.002(.0004) ***	-.04	.001 to .003
Gender	.018(.0036) **	.01	.109 to .025	.044(.0114) ***	.02	.022 to .066
Education	.009(.0009) ***	.09	.007 to .011	.025(.0029) ***	.06	.019 to .031
Church attendance	.021(.0009) ***	-.07	.019 to .022	.061(.0026) ***	-.16	.056 to .066
Income	.044(.0008) ***	.14	.042 to .046	.199(.0027) ***	.48	.194 to .204

*** $p < .001$ ** $p < .01$ * $p < .05$

^pRounded values from -.0022 to -.0018

² The first and third columns contain the regression coefficients for Level-1 predictors for happiness and life satisfaction across countries and years. The second and fourth columns present the fixed effects effect size or beta coefficients. The third and sixth columns present the 95% confidence interval of the parameter estimates.

Table 4. Model estimates (standard deviations), effect sizes, and confidence intervals of Model 2 predicting well-being (happiness and life satisfaction) by willingness to pay taxes to increase foreign aid for poor countries across the nations in Study 1.³

Independent Measures	Happiness			Life Satisfaction		
	γ (S.E.)	Effect Size	95% CI	γ (S.E.)	Effect Size	95% CI
Intercept	3.13(.0481) ***	-	3.036 to 3.224	6.73(.1400) ***	-	6.702 to 6.757
Foreign Aid Tax	.048(.0101) ***	.03	.028 to .068	.186(.0287) ***	.04	.130 to .242
Age	-.002(.0003) ***	-.05	-.003 to -.001	-.002(.0008)*	-.01	-.001 to -.004
Gender	.039(.0092) ***	.03	.021 to .057	.057(.0261)*	.01	.006 to .108
Education	.004(.0025)	.01	-.001 to .009	.025(.0070) ***	.02	.011 to .039
Church attendance	.024(.0025) ***	.08	.019 to .029	.075(.0059) ***	.08	.063 to .087
Income	.045(.0021) ***	.14	.041 to .049	.161(.0059) ***	.15	.149 to .172

*** $p < .001$ ** $p < .01$ * $p < .05$

³ The first and third columns contain the regression coefficients for Level-1 predictors for happiness and life satisfaction across rich countries. The second and fourth columns present the fixed effects effect size or beta coefficients. The third and sixth columns present the 95% confidence interval of the parameter estimates.

Table 5. *Correlations (sample sizes) of independent variables and identity measures from the WVS, Study 1*

	I would agree to an increase in taxes if the extra money were used to prevent environmental pollution			Would you be willing to pay higher taxes in order to increase your country's foreign aid to poor countries?		
	Correlation	Sample Size	Sample Size	Correlation	Sample Size	Sample Size
I see myself as a world citizen	.19**	59,734		.18**		17,433
I see myself as a citizen of Asia	.20**	7,847		.22**		1,322
I see myself as a citizen of European Union	.17**	18,074		.15**		8,586
I see myself as a citizen of APEC	.16**	1,717		.11*		459
I see myself as a citizen of the African Union	.15**	10,734		.11*		2,297
I see myself as a citizen of Latin America	.04**	4,760		n/a		n/a
I see myself as a citizen of Arab Union	.07*	1,161		n/a		n/a
I see myself as a citizen of the Caribbean	.08*	978		n/a		n/a
I see myself as a citizen of CIS	.04	961		n/a		n/a
I see myself as a citizen of North America	.01	4,716		.06*		1,790
I see myself as a citizen of my country (nation)	.06**	61,616		.00		17,900
I see myself as a citizen of my province and region	.03	2,068		.10*		623
I see myself as a citizen of my local community	.06**	61,243		.03*		17,814
I see myself as a citizen of a country other than mine	.03	2,039		.03		612

Table 6. Mean level of agreement and standard deviations for all items assessing willingness to pay prosocial tax, Study 2 ⁴

Prosocial Tax Item	Mean	SD
I wouldn't mind paying federal income tax if it is allocated to bring relief to victims of disasters such as Hurricane Sandy and Katrina.	5.38	1.22
I wouldn't mind paying federal income tax if it goes to help senior citizens to cover their medical needs and alleviate their healthcare cost burden.	4.97	1.28
I wouldn't mind paying federal income tax if it goes to help low-income families who are in need of food, shelter, and healthcare.	4.76	1.50
I wouldn't mind paying federal income tax if it goes to provide need-based grants to low-income undergraduates to promote access to postsecondary education (e.g., Federal Pell Grant Program).	4.89	1.44
I wouldn't mind paying state income tax if it goes to programs that promote school readiness for children in low-income families who live in Kansas by providing comprehensive educational, health, nutritional, and social services.	5.18	1.27
I wouldn't mind paying state income tax, if it goes to help low-income families, the disabled, blind, pregnant women, and residents who are 65 years and older to cover their medical, food, and shelter costs in times of need.	4.90	1.38

⁴ Participants reported their agreement with each item on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Table 7. Model estimates and effect sizes of the model predicting well-being by willingness to pay taxes in the US student sample, Study 2.

Independent Measures	Happiness			Life Satisfaction		
	<i>b</i> (S.E.)	β	97.5% CI	<i>b</i> (S.E.)	β	97.5% CI
Intercept	3.115(.43) **	-	2.140 to 4.091	2.582(.46) **	-	1.538 to 3.625
Prosocial Tax	.082(.05)	.08	-.040 to .205	.124(.06)*	.11	-.006 to .255
Gender	.159(.11)	.07	-.097 to .415	.156(.12)	.06	-.118 to .430
Politics	.136(.04)*	.18	.039 to .232	.047(.05)	.06	-.057 to .150
Religiosity	.065(.03)*	.11	-.006 to .135	.018(.03)	.03	-.058 to .093
Financial Satisfaction	.096(.03)*	.15	.021 to .171	.240(.04)**	.34	.160 to .320

** $p < .001$ * $p < .05$

Table 8. Model estimates and effect sizes of the model predicting well-being by social impact of taxes on society in the US student sample, Study 2.

Independent Measures	Happiness			Life Satisfaction		
	<i>b</i> (S.E.)	β	95% CI	<i>b</i> (S.E.)	β	95% CI
Intercept	2.502(.40)**	-	1.600 to 3.405	1.954(.43)**	-	.992 to 2.916
Perceived Social impact	.192(.05)**	.19	.079 to .304	.238(.05)**	.21	.118 to .358
Gender	.238(.11)*	.11	-.016 to .492	.257(.12)*	.10	-.014 to .528
Politics	.141(.04)**	.18	.049 to .232	.048(.04)	.06	-.050 to .145
Religiosity	.068(.03)*	.11	-.001 to .138	.022(.03)	.03	-.052 to .096
Financial Satisfaction	.081(.03)*	.12	.008 to .154	.220(.04)**	.31	.142 to .298

** $p < .01$ * $p < .05$

Table 9. Model estimates of the model predicting well-being by willingness to pay taxes and social impact in the US student sample, Study 2

Independent Measures	Happiness <i>b</i> (S.E.)	Life Satisfaction <i>b</i> (S.E.)
Intercept	2.554(.46)**	1.919(.49) **
Prosocial Tax	-.014(.06)	.010(.06)
Perceived Social Impact	.198(.056)**	.234(.06)**
Gender	.242(.12)*	.254(.12)*
Politics	.138(.04)**	.049(.05)
Religiosity	.068(.03)*	.022(.03)
Financial Satisfaction	.080(.03)*	.221(.04)**

** $p < .01$ * $p < .05$

Figure 1. Meditational models showing the effect of prosocial tax on happiness and life satisfaction through social impact in Study 2.

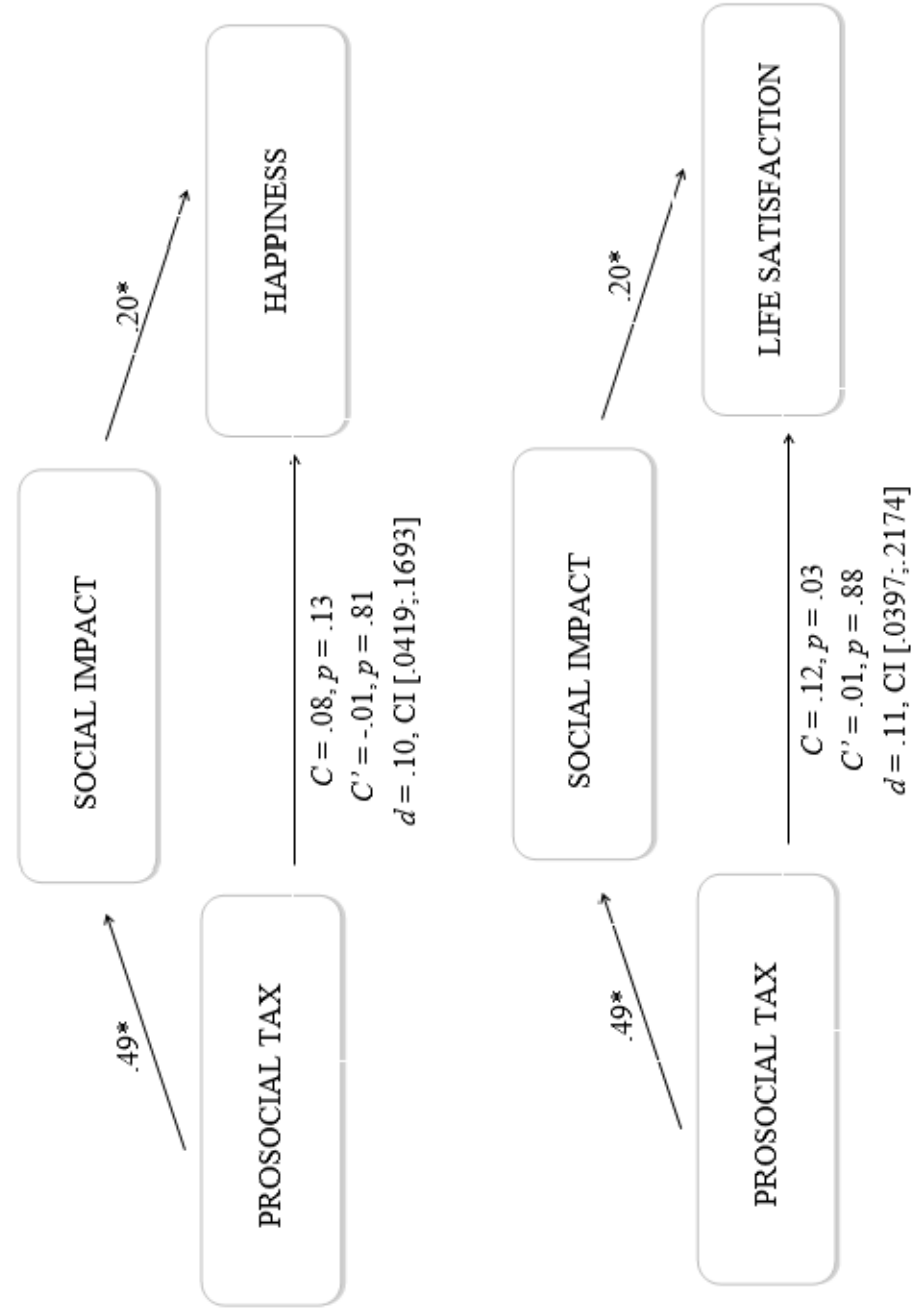


Figure 2. *The effect of condition on KU identity, Study 3.*

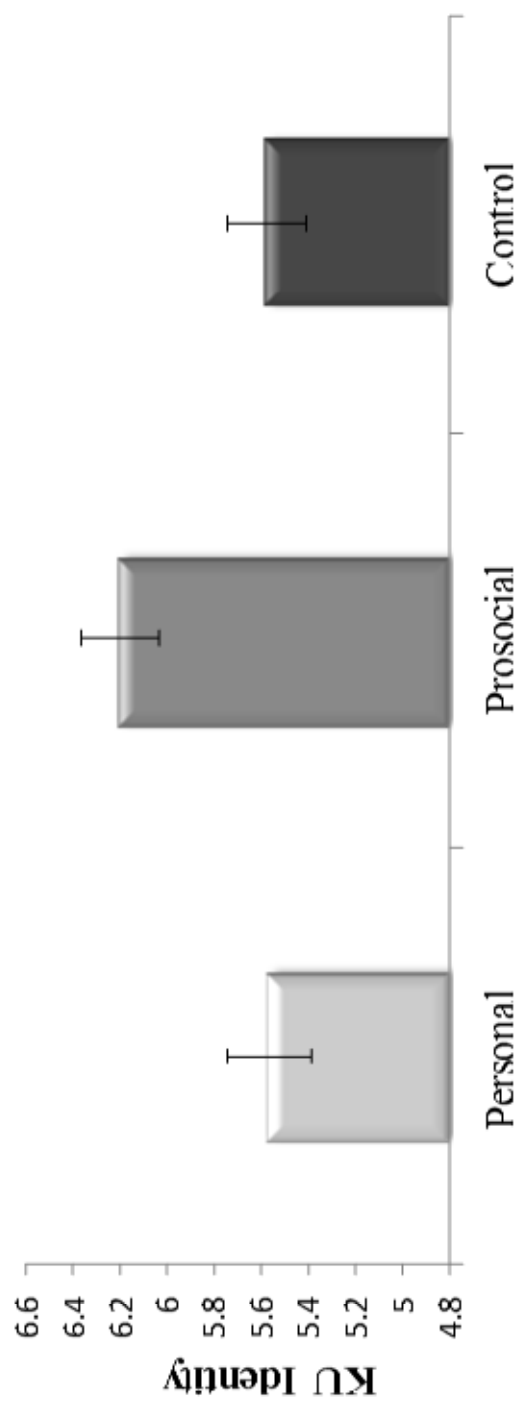
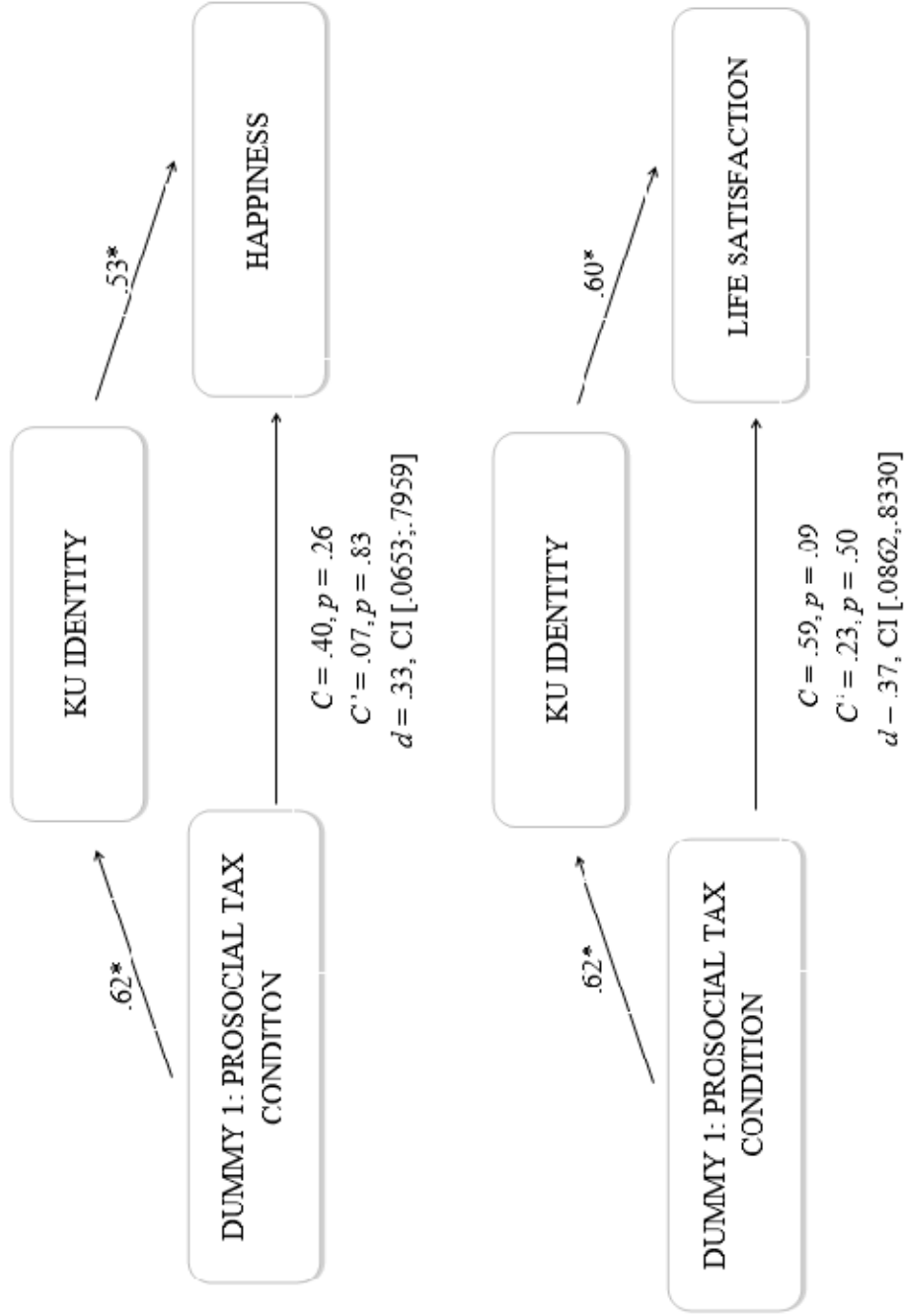


Figure 3. Meditational models showing the effect of prosocial tax on happiness and life satisfaction through increased KU identification, Study 3.



Appendix A

Study 1: Variables from the WVS

Independent Variables

1. “I would agree to an increase in taxes if the extra money were used to prevent environmental pollution”; level of agreement is provided on a 4-point scale (1 = strongly disagree to 4 = strongly agree).
2. “Would you be willing to pay higher taxes in order to increase your country’s foreign aid to poor countries?”; dichotomous responses are coded as yes or no (1 and 0, respectively).

Dependent Variables

1. “Taking all things together, how happy would you say you are?” (1=not happy at all; 2=not very happy; 3=quite happy; 4=very happy).
2. Life satisfaction was assessed by asking: All things considered, how satisfied are you with your life as a whole these days? (1= completely dissatisfied to 10=completely satisfied).

Demographic Questions

1. Gender and age as reported by respondents;
2. Income scales ranging from 1 (lower or 1st step) to 10 (higher or 10th step);
3. Education (1 = Inadequately completed elementary education; 2 = Completed elementary education; 3= Incomplete secondary school, technical/vocational type; 4 = Complete secondary school, technical/vocational type; 5= Incomplete secondary, university-preparatory type; 6= Complete secondary, university-preparatory type; 7= Some university without degree/Higher education, lower-level tertiary certificate; and 8= University with degree/Higher education);
4. Church attendance (1 = Practically never; 2 = Less often; 3 = Once a year; 4 = Other specific holy days; 5 = Only on special holy days/Christmas/Easter days; 6 = Once a month; 7= Once a week; 8= More than once a week).

Study 2: Material

Demographic Questions

Please complete the following information about yourself:

1. Ethnicity:

_____ Arab/Middle Eastern _____ Black/African American
 _____ Hispanic/Latino _____ South Pacific Islander
 _____ Asian _____ Central Asian/Indian/Pakistani
 _____ Native American/Indian _____ White/Caucasian

Other (please indicate) _____

2. Gender: MALE / FEMALE

3. Age: _____

4. Religious affiliation _____

5. What do you believe best describes your affiliation with U.S. political parties?

1	2	3	4	5	6	7
Strong Democrat			Independent			Strong Republican

6. What best describes where you stand on politics in general?

1	2	3	4	5	6	7
Very Liberal			Moderate			Very Conservative

7. How religious are you?

1	2	3	4	5	6	7
Not at All Religious						Very Religious

8. Are you satisfied with your personal financial situation?

1	2	3	4	5	6	7
Not at all Satisfied						Very Satisfied

9. Are you satisfied with your family's financial situation?

1	2	3	4	5	6	7
Not at all Satisfied						Very Satisfied

Attitudes towards Taxes Scale (included in the Study 2)

Below are a series of statements concerning your attitudes towards taxes, with which you may agree or disagree. For each statement, please indicate the degree of your agreement or disagreement on the scale 1 to 7.

- | | | | |
|--|--------------------------|---------------|-----------------------|
| 1. I wouldn't mind paying federal income tax if it is allocated to bring relief to victims of disasters such as Hurricane Sandy and Katrina. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |
| 2. I wouldn't mind paying federal income tax if it goes to help senior citizens to cover their medical needs and alleviate their healthcare cost burden. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |
| 3. I wouldn't mind paying federal income tax if it goes to help low-income families who are in need of food, shelter, and healthcare. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |
| 4. I wouldn't mind paying federal income tax if it goes to provide need-based grants to low-income undergraduates to promote access to postsecondary education (e.g., Federal Pell Grant Program). | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |
| 5. I wouldn't mind paying state income tax if it goes to programs that promote school readiness for children in low-income families who live in Kansas by providing comprehensive educational, health, nutritional, and social services. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |
| 6. I wouldn't mind paying state income tax, if it goes to help low-income families, the disabled, blind, pregnant women, and residents who are 65 years and older to cover their medical, food, and shelter costs in times of need. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |

Attitudes towards Taxes Scale (not included in Study 2)

Below are a series of statements concerning your attitudes towards taxes, with which you may agree or disagree. For each statement, please indicate the degree of your agreement or disagreement on the scale 1 to 7.

- | | | | |
|--|--------------------------|---------------|-----------------------|
| 1. I wouldn't mind paying federal income tax if it goes to national defense to protect me from foreign invasion. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |
| 2. I wouldn't mind paying federal income tax if it goes to Social Security Funds that will provide me with a retirement pension in the future. | <i>Strongly Disagree</i> | 1 2 3 4 5 6 7 | <i>Strongly Agree</i> |

3. I wouldn't mind paying federal income tax if it goes to provide me with lower medical costs when I retire.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
4. I wouldn't mind paying state income tax if it goes to subsidize the University of Kansas to decrease the tuition cost for me.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
5. I wouldn't mind paying state income tax if it goes to pay for salaries of police officers and firefighters to keep me safe.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
6. I wouldn't mind paying state income tax if it goes to build safe highways that I use.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

The Protestant Work Ethic Scale (Mirels & Garrett, 1971, not included in Study 2)

INSTRUCTIONS: Below are a series of statements regarding society. Please circle the number that best describes your reaction to each statement. There is no right or wrong answer to each of the questions; we are interested in your views.

1. Most people spend too much time in unprofitable amusements.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
2. Our society would have fewer problems if people had less leisure time.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
3. Money acquired easily is usually spent unwisely.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
4. Most people who don't succeed in life are just plain lazy.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
5. Anyone who is willing and able to work hard has a good chance of succeeding.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
6. People who fail at a job have usually not tried hard enough.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

7. Life would have very little meaning if we never had to suffer.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

8. A distaste for hard work usually reflects a weakness of character.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

9. I feel uneasy when there is little work for me to do.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

10. If people work hard enough they are likely to make a good life for themselves.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

11. The person who can approach an unpleasant task with enthusiasm is the person who gets ahead.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Perceived Social Impact (adapted from Grant, 2008)

1. I am very conscious of the positive impact that paying taxes can have on my society.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

2. I am very aware of the ways in which paying taxes is benefiting my society.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

3. I feel that I can have a positive impact on my society.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Perceived Prosocial Identity (adapted from Grant, 2008, not included in Study 2)

1. I see myself as caring.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

2. I see myself as generous.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

3. I see myself as compassionate.

Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

4. I see myself as someone who regularly goes out of my way to help others.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
5. I see myself as selfish.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
6. I see myself as ruthless.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Perceived Government Prosocial Identity (adapted from Grant, Dutton, and Rosso, 2008; not included in Study 2)

1. I see the federal government as being genuinely concerned about its citizens.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
2. I see the state government as being genuinely concerned about its residents.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Trust in Government (not included in Study 2)

1. I trust the federal government to do what is right.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
2. The federal government is run by a few big interests looking out for themselves.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
3. I trust the state government to do what is right.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
4. The state government is run by a few big interests looking out for themselves.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Personal Reaction Inventory (Crowne, D. P., & Marlowe, D., 1960, not included in Study 2)

1. I like to gossip at times. True/False
2. There have been occasions when I took advantage of someone. True/False
3. I'm always willing to admit it when I make a mistake. True/False
4. I always try to practice what I preach. True/False
5. I sometimes try to get even rather than forgive or forget. True/False
6. At times I have really insisted on having things my own way. True/False
7. There have been occasions when I felt like smashing things. True/False
8. I never resent being asked to return a favor. True/False
9. I have never been irked when people expressed ideas very different from my own. True/False
10. I have never deliberately said something that hurt someone's feelings. True/False

Measure of Happiness, Health, and Life Satisfaction (not included in Study 2)

1. All in all, how would you describe your state of health these days?
 1- *very poor* 2- *poor* 3- *fair* 4- *good* 5- *very good*
2. All things considered, how happy are you right now?
Not happy at all 1 2 3 4 5 6 7 *Extremely happy*
3. All things considered, are you happy with your life as a whole?
Not happy at all 1 2 3 4 5 6 7 *Extremely happy*
4. Please imagine a ladder with steps numbered from zero at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?

0 1 2 3 4 5 6 7 8 9 10

Measure of Happiness and Life Satisfaction (included in Study 2)

1. For each of the following statements and/or questions, please tell me which number you feel is most appropriate in describing you.
 - a) In general, I consider myself:

1	2	3	4	5	6	7
<i>Not a very happy person</i>						<i>A very happy person</i>
 - b) Compared to most of my peers, I consider myself:

1	2	3	4	5	6	7
<i>Less happy</i>						<i>More happy</i>
 - c) Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

1	2	3	4	5	6	7
<i>Not at all</i>						<i>A great deal</i>

d) Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

1	2	3	4	5	6	7
Not at all						A great deal

2. Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding. The 7-point scale is as follows:

1 = strongly disagree

2 = disagree

3 = slightly disagree

4 = neither agree nor disagree

5 = slightly agree

6 = agree

7 = strongly agree

1. In most ways my life is close to my ideal.
2. The conditions of my life are excellent.
3. I am satisfied with my life.
4. So far I have gotten the important things I want in life.
5. If I could live my life over, I would change almost nothing.

Study 3: Experimental Manipulation and Dependent Variables

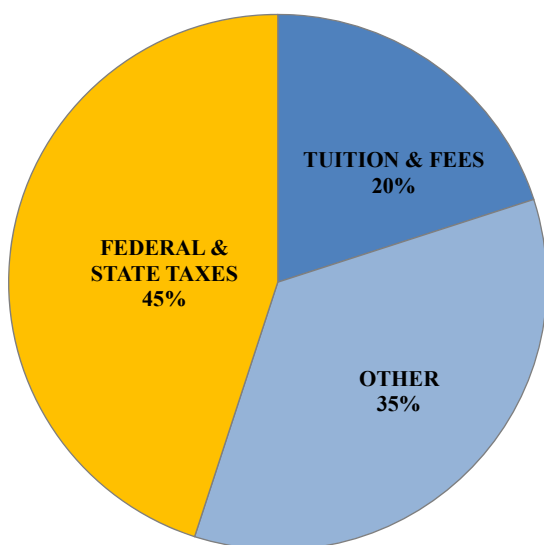
Prosocial Condition

Not everybody enjoys paying taxes but everybody does whether those are income or sales taxes. Although you may not realize it, taxes also play a variety of positive roles **in your society**. Roads, fire departments, police departments, libraries, and water sanitation are all things **most other individuals in your society enjoy** on a day-to-day basis and they would not exist without taxes.

Taxes directly benefit **those KU students who are in need**. Public schools such as KU receive much of their funding from tax revenues. The lower tuition is based on the theory that students from the state, or their parents, have contributed to subsidizing the university by paying federal

and state taxes. This is what allows public universities like KU to charge lower rates of tuition for **KU students in need**.

Below is a chart showing a breakdown of the main sources of revenue and their descriptions for the University of Kansas. We have simplified the chart for you, but you can view the original one at: <https://publicaffairs.ku.edu/budget>. Please study this information carefully. We will ask you some questions related to it on the next page.



University Revenue

FEDERAL & STATE TAXES – Revenue coming from Federal and State taxes that is providing general funds for current operations of the university as well as educational, research and public service agreements.

TUITION & FEES – Revenues from tuition and fees assessed against students for educational purposes.

OTHER – Sales and services of educational departments, auxiliary enterprises, KU endowment support and other revenues.

We would like to ask you several questions about the information about KU that we provided.

What percentage of KU revenue comes from the following categories?

1. Tuition & Fees
 - a. 45%
 - b. 35%
 - c. 20%
 - d. 50%

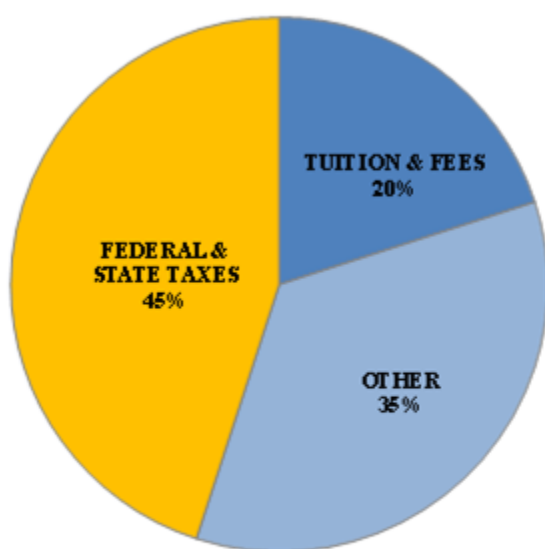
2. Other
 - a. 20%
 - b. 45%

Personal Condition

Not everybody enjoys paying taxes but everybody does whether those are income or sales taxes. Although you may not realize it, taxes also play a variety of positive roles **in your personal daily life**. Roads, fire departments, police departments, libraries, and water sanitation are all things **you personally enjoy** on a day-to-day basis and they would not exist without taxes.

Taxes directly benefit **you personally**. Public schools such as KU receive much of their funding from tax revenues. The lower tuition is based on the theory that students from the state, or their parents, have contributed to subsidizing the university by paying federal and state taxes. This is what allows public universities like KU to charge lower rates of tuition for **you personally**.

Below is a chart showing a breakdown of the main sources of revenue and their descriptions for the University of Kansas. We have simplified the chart for you, but you can view the original one at: <https://publicaffairs.ku.edu/budget>. Please study this information carefully. We will ask you some questions related to it on the next page.



University Revenue

FEDERAL & STATE TAXES – Revenue coming from Federal and State taxes that is providing general funds for current operations of the university as well as educational, research and public service agreements.

TUITION & FEES – Revenues from tuition and fees assessed against students for educational purposes.

OTHER – Sales and services of educational departments, auxiliary enterprises, KU endowment support and other revenues.

We would like to ask you several questions about the information about KU that we provided.

What percentage of KU revenue comes from the following categories?

4. Tuition & Fees

- e. 45%
- f. 35%
- g. 20%
- h. 50%

5. Other

- e. 20%
- f. 45%
- g. 35%
- h. 10%

6. Federal & State Taxes

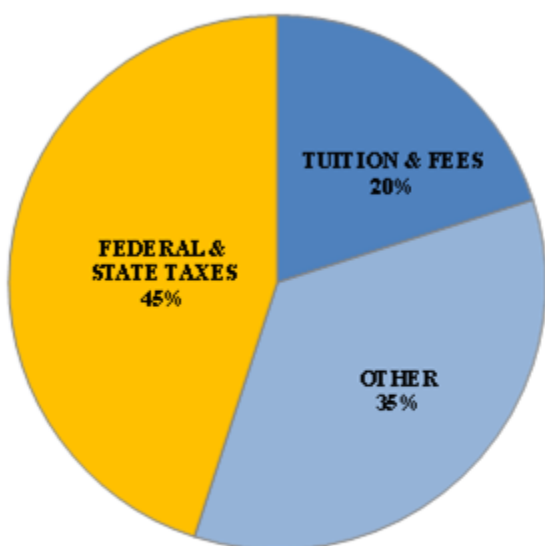
- e. 10%
- f. 20%
- g. 35%
- h. 45%

Now, we would like you to think about other ways that paying taxes can benefit you personally. Below, please give an example of 1 or 2 additional ways and write about them below.

Control Condition

Below is a chart showing a breakdown of the main sources of revenue and their description for the University of Kansas. We have simplified the chart for you, but you can view the original one at: <https://publicaffairs.ku.edu/budget>. Please study this information carefully. We will ask you some questions related to it on the next page.

KU receives funding from a variety of sources. For the fiscal year ending June 30, 2012, Federal and State taxes made up 45 % of annual revenue. Other revenues such as sales and services of educational departments, auxiliary enterprises, KU endowment support accounted for 35% of the total revenue, and tuition and other student fees accounted for 20%.



University Revenue

FEDERAL & STATE TAXES – Revenue coming from Federal and State taxes that is providing general funds for current operations of the university as well as educational, research and public service agreements.

TUITION & FEES – Revenues from tuition and fees assessed against students for educational purposes.

OTHER – Sales and services of educational departments, auxiliary enterprises, KU endowment support and other revenues.

We would like to ask you several questions about the information about KU that we provided.

What percentage of KU revenue comes from the following categories?

7. Tuition & Fees

- i. 45%
- j. 35%
- k. 20%
- l. 50%

8. Other

- i. 20%
- j. 45%
- k. 35%
- l. 10%

9. Federal & State Taxes

- i. 10%
- j. 20%
- k. 35%
- l. 45%

Think about your day yesterday and in 2 or 3 sentences write down some mundane events that took place on this day (where you had your meals, etc.).

Well-Being Measures

1. I feel happy when I think about the benefits my tax dollars have.
Not at all Happy 1 2 3 4 5 6 7 8 9 10 *Extremely Happy*
2. Right now, I am satisfied with how my taxes are used.
Very Dissatisfied 1 2 3 4 5 6 7 8 9 10 *Very Satisfied*
3. All things considered, how happy are you right now?
Not at all Happy 1 2 3 4 5 6 7 8 9 10 *Extremely Happy*
4. All things considered, how satisfied are you with your life as a whole these days?
Very Dissatisfied 1 2 3 4 5 6 7 8 9 10 *Very Satisfied*

Identity Measure

1. I identify with KU students.
 Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Attitudes towards taxes

1. I am willing to pay taxes if it benefits me personally.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
2. I am willing to pay taxes if it benefits other KU students.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
3. Taxes are paid to enjoy numerous worthwhile benefits in our society.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
4. I am willing to pay federal and state taxes.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
5. Federal and state taxes should be eliminated.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Perceived Prosocial Identity

1. I see myself as caring.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
2. I see myself as generous.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
3. I see myself as someone who regularly goes out of my way to help others.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Trust in Government

1. I think the government uses our tax dollars well.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
2. I think the government wastes our tax dollars.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
3. The government does not use our tax dollars in a proper way.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
4. In general, I trust the government to do what is right.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*
5. I see the government as being genuinely concerned about its citizens.
Strongly Disagree 1 2 3 4 5 6 7 *Strongly Agree*

Please complete the following information about yourself:

1. Ethnicity (please circle one): Arab/Middle Eastern; Black/African American;
Hispanic/Latino; South Pacific Islander; Asian; Central Asian/Indian/Pakistani; Native
American/Indian; White/Caucasian; Other (please indicate) _____
2. Gender: MALE / FEMALE .
3. Age: _____
4. What do you believe best describes your affiliation with U.S. political parties?

1	2	3	4	5	6	7
Strong Democrat			Independent			Strong Republican

5. What best describes where you stand on politics in general?

1	2	3	4	5	6	7
Very Liberal			Moderate			Very Conservative

6. How religious are you?

1	2	3	4	5	6	7
Not at All Religious						Very Religious

1. Are you satisfied with your personal financial situation?

1	2	3	4	5	6	7
Not at all Satisfied						Very Satisfied

2. Which income category below best describes the total income of all members of your family living in your house before taxes. This figure should include salaries, wages, pensions, dividends, interest, and all other income.

- from \$0 to \$30,000
- from \$30,001 to 60,000
- from \$60,001 to \$90,000
- from \$90,001 to \$120,000
- \$120,001 and up

3. Do you pay in-state or out-of-state tuition?

- In-state
- Out-of-state

4. Are you a US citizen?

- Yes
- No

5. Are a resident of Kansas?

- Yes
- No

We would now like to ask you a few questions about your perceptions about the information we provided in this study today.

1. Earlier in the experiment we told you about how your tax dollars can benefit you personally. To what extent did you believe that information? **PERSONAL CONDITION**

OR

Table 1. Correlational Matrix for Independent Variable #1, Control Variables, and Dependent Variables, Study 1 (N = 146,258)

	1	2	3	4	5	6	7	8
1. Income	-	-	-	-	-	-	-	-
2. Education	.32**	-	-	-	-	-	-	-
3. Gender	-.04**	-.05**	-	-	-	-	-	-
4. Age	-.08**	-.21**	-.01**	-	-	-	-	-
5. Church Attendance	.08**	.09**	-.05**	-.02**	-	-	-	-
6. Happiness	.17**	.08**	.01*	-.07**	.08**	-	-	-
7. Life Satisfaction	.22**	.10**	.00	-.02**	-.03**	.47**	-	-
8. Willingness to pay higher taxes to prevent pollution	.07**	.09**	-.01**	-.06**	-.04**	.09**	.09**	-

** $p < .001$ * $p < .05$

Table 2. Correlational Matrix for Independent Variable # 2, Control Variables, and Dependent Variables in Study 1 ($N = 20,166$)

	1	2	3	4	5	6	7	8
1. Income	-	-	-	-	-	-	-	-
2. Education	.36**	-	-	-	-	-	-	-
3. Gender	-.05**	-.03**	-	-	-	-	-	-
4. Age	-.09**	-.24**	-.01	-	-	-	-	-
5. Church Attendance	.00	.09**	-.06**	-.08**	-	-	-	-
6. Happiness	.16**	.09**	.02*	-.06**	-.09**	-	-	-
7. Life Satisfaction	.19**	.10**	.00	-.02**	-.08**	.53**	-	-
8. Willingness to pay higher taxes to increase foreign aid	.07**	.10**	-.02**	-.06**	-.09**	.10**	.11**	-

** $p < .001$ * $p < .05$

Table 3. *Regression Coefficients of Independent Variables with and without Demographics, Study 1*

Independent variable	Happiness			Life Satisfaction			
	$\gamma(S.E.)$	Z_{test}	p	$\gamma(S.E.)$	Z_{test}	p	N
I would agree to an increase in taxes if the extra money were used to prevent environmental pollution							
Pollution variable without control variables	.069(.002)	36.51	<.00001	.241(.006)	39.57	<.00001	186,534
Pollution variable with control variables (age, gender, education, church attendance, income)	.055(.002)	25.98	<.00001	.195(.007)	28.86	<.00001	147,533
Pollution variable with control variables (age, gender, education, church attendance, income) plus marital status	.054(.002)	25.83	<.00001	.194(.007)	28.79	<.00001	147,312
Would you be willing to pay higher taxes in order to increase your country's foreign aid to poor countries?							
Foreign aid variable without control variables	.076(.010)	7.89	<.00001	.288(.028)	10.46	<.00001	22,751
Foreign aid variable with control variables (age, gender, education, church attendance, income)	.048(.010)	4.74	<.00001	.186(.029)	6.5	<.00001	20,294
Foreign aid variable with control variables (age, gender, education, church attendance, income) plus marital status	.050(.010)	5.03	<.00001	.191(.029)	6.69	<.00001	20,248

Table 4. *The inter-class correlation coefficients for country and year variance of the cross-classified model measuring environmental pollution, Study 1*

DV	ICC	
	country	year
Happiness	.12	.01
Life satisfaction	.20	.01

Table 5. Correlational Matrix for Independent Variables, Control Variables, and Dependent Variables in Study 2 (N = 403)

	1	2	3	4	5	6	7	8
1. Gender	-	-	-	-	-	-	-	-
2. Politics	-.09	-	-	-	-	-	-	-
3. Religiosity	.18**	.28**	-	-	-	-	-	-
4. Financial satisfaction	-.10	.29**	.00	-	-	-	-	-
5. Prosocial Tax	.12*	-.36**	-.09	-.21**	-	-	-	-
6. Prosocial Impact	-.15**	-.15**	-.11*	.04	.44**	-	-	-
7. Happiness	.07	.21**	.16**	.17**	-.02	.14**	-	-
8. Life satisfaction	.04	.11*	0.04	.32**	.02	.20**	.59**	-

** $p < .001$ * $p < .05$

Table 6. Correlational Matrix for Dummy Variables, Mediator, and Dependent Variables in Study 3 (N = 128)

	1	2	3	4
1. Dummy 1: Prosocial Tax Condition	-	-	-	-
2. Dummy 2: Personal tax Condition	-.48**	-	-	-
3. KU Identity	.26**	-.13	-	-
4. Happiness	.13	-.09	.37**	-
5. Life satisfaction	.16	-.05	.42**	.75**

Factor Analysis of 12 items from Attitudes towards Taxes Scale, Study 2

Table 7. *Factor loadings and communalities based on a principle components analysis with oblimin rotation for 12 items of Attitudes towards Taxes Scale (N = 403)*

<i>Attitudes Towards Taxes</i>	Factor 1	Factor 2
1. I wouldn't mind paying federal income tax if it goes to help senior citizens to cover their medical needs and alleviate their healthcare cost burden.	.788	-.140
2. I wouldn't mind paying state income tax, if it goes to help low-income families, the disabled, blind, pregnant women, and residents who are 65 years and older to cover their medical, food, and shelter costs in times of need.	.775	-.335
3. I wouldn't mind paying federal income tax if it is allocated to bring relief to victims of disasters such as Hurricane Sandy and Katrina.	.773	-.005
4. I wouldn't mind paying federal income tax if it goes to provide me with lower medical costs when I retire	.763	.037
5. I wouldn't mind paying state income tax if it goes to programs that promote school readiness for children in low-income families who live in Kansas by providing comprehensive educational, health, nutritional, and social services.	.759	-.289
6. I wouldn't mind paying federal income tax if it goes to help low-income families who are in need of food, shelter, and healthcare.	.752	-.374
7. I wouldn't mind paying federal income tax if it goes to provide need-based grants to low-income undergraduates to promote access to postsecondary education (e.g., Federal Pell Grant Program).	.748	-.262
8. I wouldn't mind paying federal income tax if it goes to Social Security Funds that will provide me with a retirement pension in the future.	.729	.145
9. I wouldn't mind paying state income tax if it goes to pay for salaries of police officers and firefighters to keep me safe.	.658	.412
10. I wouldn't mind paying state income tax if it goes to subsidize the University of Kansas to decrease the tuition cost for me.	.658	.225
11. I wouldn't mind paying state income tax if it goes to build safe highways that I use.	.585	.431
12. I wouldn't mind paying federal income tax if it goes to national defense to protect me from foreign invasion.	.397	.667

Factor Analysis

Initially, attitudes towards taxes were measured with 12 items. Six items measured attitudes towards taxes that benefit participants personally (personal items) and 6 items measured

attitudes towards taxes that benefit other members of the society (prosocial items). I was hoping that I will be able to distinguish “personal” variance from “prosocial” variance. Thus, initially, the factorability of the 12 items from Attitudes Towards Taxes Scale was examined. Principle components analysis with direct oblimin rotation was used. The eigen values showed that the first factor with eigenvalue over 1.2 explained 50% of the variance, and the second factor with eigenvalue over 1.2 explained 11% of the variance. However, the factor analysis indicated that some prosocial items had primary factor loading with the first factor of .4 or above and also had cross loading of .3 or above with the second factor (see items# 2 and 6). The same was the case for personal items. Some of the personal items had primary factor loading with the first factor of .4 or above and also had cross loading of .4 or above with the second factor (see items# 9 and 11). Only personal item# 12 had primary factor loading with the second factor of .4 or above and also had cross loading of .3 or above with the first factor. Because it was hard to separate the variance of prosocial items from the variance of personal items, prosocial items were excluded from the scale. The second component analysis yielded only one factor that explained 60% of variance. The factor loading matrix for this final solution is presented in Table 6 below.

Table 6. Factor loadings and communalities based on a principle components analysis with oblimin rotation for 6 prosocial items of Attitudes towards Taxes Scale ($N = 403$)

<i>Attitudes Towards Taxes</i>	Factor 1
1. I wouldn't mind paying state income tax, if it goes to help low-income families, the disabled, blind, pregnant women, and residents who are 65 years and older to cover their medical, food, and shelter costs in times of need.	.854
2. I wouldn't mind paying federal income tax if it goes to help low-income families who are in need of food, shelter, and healthcare.	.845
3. I wouldn't mind paying state income tax if it goes to programs that promote school readiness for children in low-income families who live in Kansas by providing comprehensive educational, health, nutritional, and social services.	.820
4. I wouldn't mind paying federal income tax if it goes to help senior citizens to cover their medical needs and alleviate their healthcare cost burden.	.794
5. I wouldn't mind paying federal income tax if it goes to provide need-based grants to low-income undergraduates to promote access to postsecondary education (e.g., Federal Pell Grant Program).	.791
6. I wouldn't mind paying federal income tax if it is allocated to bring relief to victims of disasters such as Hurricane Sandy and Katrina.	.769

Statistical Analysis with Combined Dependent Variables, Study 3

A one-way ANOVA revealed no direct effect of experimental condition (personal tax condition vs. prosocial tax condition vs. control condition) on the overall level of well-being, $F(3, 124) = 1.48, p = .23$, partial $\eta = .02$. However, as seen in Figure 2, there was a significant effect of experimental condition on KU identification, $F(3, 124) = 4.60, p = .01$, partial $\eta = .08$. Post hoc comparison using Turkey HSD test indicated that identification with KU for the prosocial condition ($M = 6.20, SD = .88$) was significantly higher than for the personal condition ($M = 5.57, SD = 1.25, p = .03, d = 0.54$) and the control condition ($M = 5.58, SD = 1.25, p = .03, d = 0.55$). There was no significant difference between the control and personal conditions ($p = .99$).

To examine whether prosocial taxes led to higher levels of well-being through group identification, I conducted a mediational analysis with KU identification as the proposed mediator. For this analysis, the prosocial tax condition was contrasted with the control condition (Dummy 1: prosocial tax condition = 1; all other conditions = 0) and the personal tax condition was contrasted with the control condition (Dummy 2: personal tax condition = 1; all other conditions = 0). KU identification mediated the relationship between Dummy 1 (prosocial tax condition) and current state of well-being, while controlling for Dummy 2 (personal tax condition). A series of regression analyses revealed that Dummy 1 did not directly predict well-being, $b = .499$, $p = .132$. However, it did significantly predict increased KU identification, $b = .618$, $p < .001$, while controlling for Dummy 2. Dummy 1, Dummy 2, and KU identification were then simultaneously entered as predictors: 1) into a regression equation with current state of well-being as the outcome variable, 2) into a regression equation with reported well-being as the outcome variable. The absolute values associated with Dummy 1 and current state of well-being and Dummy 1 was significantly reduced, $b = .149$, $p = .632$, whereas KU identification remained a significant predictor of current state of happiness and life satisfaction, $b = .565$, $p < .001$. The results of the bootstrapping analysis confirmed a significant indirect effect of prosocial tax on current state of well-being via increased KU identification; the confidence interval did not include zero, $b = .349$, 95% CI = [.0845; .8678].

Next, I switched Dummy 1 with Dummy 2, making Dummy 2 (personal tax condition) an independent variable and Dummy 1 (prosocial tax condition) a control variable. The results of the bootstrapping analysis did not provide evidence of a significant indirect effect of personal tax on current state of well-being via increased KU identification; the confidence interval included zero, $b = -.007$, 95% CI = [-.6283; .6416].

Alternative Hypothesis

I also investigated an alternative hypothesis. In Study 2 & 3, I measured prosocial identity (see the material for Study 2 in this Appendix). Alternatively, I hypothesized that willingness to pay taxes to help others can increase one's prosocial identity (or one's perception of being kind and helpful), and this in turn can lead to increased well-being.

In Study 2, my first mediational model tested whether willingness to pay prosocial taxes leads to higher well-being through an increased prosocial identity. Prosocial identity mediated the relationship between prosocial tax and happiness while controlling for demographic variables. A series of regression analyses revealed that prosocial tax did not directly predict happiness ($b = .072, p = .180$), but significantly predicted prosocial identity ($b = .490, p < .001$). Prosocial identity and prosocial tax were then simultaneously entered as predictors into a regression equation with happiness as the outcome variable. The absolute value of the relationship associated with prosocial tax and happiness was significantly reduced ($b = -.015, p = .777$), whereas prosocial identity remained a significant predictor of happiness ($b = .479, p < .001$). The results of the bootstrapping analysis confirmed that there was a significant indirect effect of prosocial tax on happiness via prosocial identity with the bias corrected confidence interval not including zero, $b = .087, 95\% CI = [.0473; .1392]$.

Second, I explored the mediational relationship between willingness to pay prosocial taxes and life satisfaction. Prosocial identity mediated the relationship between prosocial tax and life satisfaction. Prosocial tax directly predicted life satisfaction ($b = .118, p = .042$) and significantly predicted prosocial identity ($b = .182, p < .001$). Prosocial identity and prosocial tax were then simultaneously entered as predictors into a regression equation with life satisfaction as the outcome variable. The absolute value of the relationship associated with prosocial tax and

happiness was significantly reduced ($b = .073, p = .214$), whereas prosocial identity remained a significant predictor of life satisfaction ($b = .248, p < .001$). The results of the bootstrapping analysis confirmed that there was a significant indirect effect of prosocial tax on life satisfaction via prosocial identity with the bias corrected confidence interval not including zero, $d = .045$, 95% CI = [.0170; .0874].

Next, I explored the relationship between conditions and prosocial identity in Study 3. A one-way ANOVA revealed no direct effect of experimental condition (personal tax condition vs. prosocial tax condition vs. control condition) on prosocial identity, $F(3, 124) = .75, p = .48$, happiness, $F(3, 124) = 1.10, p = .34$, and life satisfaction, $F(3, 124) = 1.61, p = .20$. Thus, I can rule out the alternative hypothesis that willingness to pay taxes to help others leads to increase in well-being via prosocial identity. Since prosocial identity did not change with the experimental manipulation in Study 3, it is reasonable to assume that the causal relationship that I found in Study 2 (willingness to pay \rightarrow prosocial identity \rightarrow well-being) is reversed. That is, increased wellbeing may lead to higher willingness to pay taxes to help others via increased prosocial identity.