DETRIMENTAL DETERMINANTS: THE IMPACTS OF NEOLIBERALISM ON PRO-ENVIRONMENTAL BEHAVIOR

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Joshua N. King

B.A., Webster University, 2008

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DETRIMENTAL DETERMINANTS: THE IMPACTS OF NEOLIBERALISM ON PRO-ENVIRONMENTAL BEHAVIOR

Joshua N. King, Candidate for the Master of Arts Degree

University of Missouri – Kansas City, 2015

ABSTRACT

The mounting evidence of anthropogenic climate change in the past 30 years has beckoned the social sciences to illuminate and address the complex phenomena underlying actions that impact the environment. While many studies have considered salient indicators of pro-environmental behavior (PEB) in the United States, little research has assessed how economic ideologies influence such behaviors at the individual level. Accordingly, this study develops and tests a sociological augmentation of the Theory of Planned Behavior in an effort to understand how neoliberal market ideology impacts the frequency and likelihood of behaviors that benefit the environment. Using data from the 2010 General Social Survey and the Environment III module of the International Social Survey Program (N=1430), the impacts of market-fundamentalist endorsements are tested using hierarchical regression techniques on a variety of environmentally significant behavioral outcomes. Results indicate that neoliberalism overall plays a significant and often negative role in individual pro-environmental behavior, which empirically challenges the assertion that markets can simultaneously self-regulate and address environmental degradation. Insights for future research, theoretical synthesis, and public policy are discussed.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the College of Arts and Sciences, have examined a thesis titled "Detrimental Determinants: The Impacts of Neoliberalism on Pro-Environmental Behaviors," presented by Joshua N. King, candidate for the Master of Arts degree, and certify that in their opinion it is worthy of acceptance.

Supervisory Committee

Marc Garcelon, Ph.D., Committee Chair
Department of Sociology and Anthropology

Ricardo Marte, Ph.D.
Department of Sociology and Anthropology

Shannon Jackson, Ph.D.
Department of Sociology and Anthropology

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I would like to thank my wife, Sobia Paracha, for her support, kindness, anda parathas, and countless hours of conversation (not including the hours I was just thinking out loud). You are perfect.

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This work is dedicated to climate activists all over the Earth—the only planet we seem to have. Specifically, I would like to recognize those who participated in the People's Climate March, and the official creation of the Missouri Clean Energy Coalition, two events which coincidentally bookended the authoring of this study.

CHAPTER 1

INTRODUCTION

"The best time to plant a tree is twenty years ago. The second best time is now." The relevance of this well-known Chinese proverb is uncanny when considering the current crises of global warming. It is pertinent, because we as a species have indeed lapsed in our abilities to recognize the dire trajectories upon which we have placed ourselves, and we must accept that all we have left is the second best time to act, and *fast*—indeed, there may be no third. The proverb is also literal, because it speaks to one of nature's primary mechanisms for removing carbon dioxide from the atmosphere, which is in fact our current, self-made dilemma. Alas, it is even somewhat ironic, in that its country of origin is now one of the primary contributors to the greenhouse gases that are destroying the inhabitability of the planet.

To be sure, the time to act is now, and *the time is right*. With the outcry of united voices around the world, over 300,000 participants in the Peoples Climate March issued a resounding thunderclap in anticipation of literal ones, mounting the dangers and dialogue of climate change on an international stage in the biggest climate-based march in history (Goodman & Gonzalez, 2014a). Yet, the increasing trend of collective climate concern has been met continuously with a combination of deliberate denial, lip service, and disregard for over three decades (Klein, 2014). In the cognitive dissonance of profit, power, and progress, political leadership in the U.S. and abroad has balked at the warning signs and been led by the "invisible hand" of market fundamentalism down the road of neoliberalism, which has transformed the political, cultural, and literal landscape of the world for the worse (Harvey, 2005). Unfortunately, this dogma of unfettered

development has only amplified the insatiable growth fetish of the dominant American paradigm, and neoliberalism is now a cornerstone of most Americans' worldviews, “to the point where it has become incorporated into the common-sense way many of us interpret, live in, and understand the world” (Harvey, 2005, p. 3). But as Bill McKibben, outspoken climate activist and founder of 350.org has stated, “In the world we grew up in, our most ingrained economic and political habit was growth; it's the reflex we're going to have to temper, and it's going to be tough” (2010, p. 47). Indeed, it appears that the current moment may be the precise point in which this tempering will occur, while both tempers and temperatures flare.

The purpose of this thesis is to capitalize on that moment by asking a very important question: how does neoliberal ideology impact individuals' engagement in pro-environmental behaviors (PEB)? Using Ajzen’s (1991) Theory of Planned Behavior, Martin Patchen's (2010) theoretical framework of environmentally significant behavior (ESBF), and multiple sociological critiques of neoliberalism, this study quantitatively assesses indicators of neoliberal beliefs on a variety of specific pro-environmental behaviors. These behaviors are recognized by Stern (2000) as representing a gradation of activities related to environmental benefit, including: car use, water and energy conservation, recycling and green purchasing activities, support for higher prices and taxes, and financial and signature contributions. The analysis is done through the use of hierarchical regression techniques using the 2010 General Social Survey, based on a pragmatic theoretical adaptation of Ajzen’s original model (1991).

The assertion of the current study is that the institutional framework of neoliberalism plays an important role in the recognition and mitigation of environmental

issues. It is hypothesized here that beliefs which support unchecked growth are likely connected to a deficit in pro-environmental behaviors. In this effort, the current investigation serves to empirically legitimize what is intuitively obvious. By doing so, this study bridges a gap in the literature between sociological, institutional analyses (which are critical of neoliberal trends) and social-psychological, individual analyses (which leave such institutional concerns largely unaddressed). Ultimately, the goal is to merge context with agency in both empirical observation and theoretical synthesis.

CHAPTER 2

LITERATURE REVIEW

The mounting evidence of anthropogenic climate change in the past 30 years has beckoned the social sciences to illuminate and address the complex phenomena underlying actions that impact the environment—for if certain types of human behavior cause climate change, what causes those behaviors? To begin this analysis, some space must be given to establishing the problem of climate change from a physical science basis and to generating an understanding of the importance of the project at hand. To be sure, a basic and operational understanding of climate change is sufficient for contextualizing the current project. There are three basic ideas about global warming which one must have: what is happening, why it is happening, and what to do about it. While the current endeavor is predominantly aimed at addressing the last of these, what follows is a brief introduction to the first two, to provide a cursory understanding of climate change and to convey the immediacy of the current research.

Evidence of Climate Change

The fundamental fact of global warming is the phenomenon of the greenhouse effect. This is the process by which (a) the sun's energy is transmitted to the earth in visible light, (b) the earth reflects heat back toward space in the infrared spectrum, and (c) certain types of gases in the atmosphere (specifically carbon dioxide) capture the infrared light and bounce it back toward the earth (Kolbert, 2007). The greenhouse-effect has been observed, studied, and verified for over 150 years, from the early work of John Tyndall to the most recent reports of NASA's Goddard Institute; as Kolbert (2007) put it, “it is not remotely controversial; indeed, it's recognized as an essential condition of life

on the planet" (p. 37). Under 'normal' conditions, the greenhouse gases (GHG) in the atmosphere keep the earth at a relatively stable temperature for long periods of time (around 57 degrees Fahrenheit)—if they did not, the earth's surface would freeze—but the effect is scalable; that is, the more greenhouse gases like CO_2 are released into the atmosphere, the more infrared heat is trapped. This is what is meant by *global warming:* the increased greenhouse gases trap more heat, and result in an increasing global temperature (IPCC, 2014; Kolbert, 2007; McKibben, 2010).

The primary authority on climate change research and evidence is the United Nations Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 "to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts" (IPCC, 2014c). Analyzing thousands of research findings from multiple sources, the IPCC has continued to generate periodic Assessment Reports (AR)—approximately every five to seven years since 1990—which summarize and organize the key findings in climate science research, and condense the findings in Summary Reports for Policy Makers (Union of Concerned Scientists, 2014). The most recent round of reports, the AR5, was completed in 2014, consisting of documents outlining the anthropogenic causes of climate change, the ramifications for humans and ecologies, and mitigation strategies (IPCC, 2013; IPCC, 2014a; IPCC 2014b).

To measure greenhouse gases, the unit of Parts Per Million (ppm) is commonly used, which is the fractional amount of a contaminant within 1 million divisible parts of a material of interest (IPCC, 2014; Kolbert, 2007). The term *Gigatons of CO_2 or Its Equivalents* ($GtCO_2eq$) is also used. The first measurement of CO_2 in ppm took place in

1959 at the Mauna Loa observatory in Hawaii, with a value of 316 ppm (Kolbert, 2007). This number has increased rapidly since, oscillating with minor seasonal fluctuations in its continual steady rise. At the time of writing, the current CO_2 concentration in the earth's atmosphere is 399.01 ppm, though it breached the 400 ppm mark earlier in 2014, following seasonal oscillation patterns (NOAA, 2014). This increase in CO_2 concentration in the atmosphere has been coupled with a consistent rise in average global air temperatures, which has been corroborated in analysis of permafrost drill samples in Alaska, which do not vary in the way air temperatures do (Kolbert, 2007). As stated by the Intergovernmental Panel for Climate Change (IPCC), "Mitigation scenarios in which it is *likely* that the temperature change caused by anthropogenic GHG emissions can be kept to less than 2 degrees Celsius relative to pre-industrial levels are characterized by atmospheric concentrations in 2100 of about 450 ppm CO_2eq" (2014, p. 10). This goal to stay under 450 ppm carbon dioxide or its greenhouse equivalents by 2100 is obviously lofty, given that in the past 50 years the CO_2 concentration has risen 80 ppm, or nearly double the concentration in nearly half the time. However, in his book on current disasters resulting from climate change, McKibben (2010) noted that this goal is actually somewhat conservative as a measure of safe levels of greenhouse gas concentration, and that some researchers such as James Hansen, the former director of NASA's Goddard Institute for Space Studies, believe "the safe number was, at most, 350 ppm" (p. 15).

But the issue of rising global temperatures isn't simply a matter of 'turning off' the greenhouse gases. The rising temperature is inexorably linked to various climate feedback systems that exacerbate global warming (Kolbert, 2007). One of these is the ice-albedo feedback loop, in which rising temperatures melt highly reflective snow and

replace it with highly absorptive ocean water, which rises the temperature of the oceans and further melts snow and ice (Kolbert, 2007, p. 31). Another is the ice-sheet melt feedback observed in Greenland, whereby a melting ice sheet, impacted by rising global temperatures, begins to flow faster and thin out, causing it to melt more quickly (Kolbert, 2007, p. 54). These, and other feedback systems, are what make the issue of climate change so complex, because they are instigated by increased GHG, but then themselves contribute to rising temperatures. It is as if we as the human species have set in motion many tiny snowballs rolling down the inclines of alarming growth charts, waiting until they grow in intensity to recognize the resultant, uncontrollable deluge. Unfortunately, *increasing* snow is not the problem.

Another crucial phenomenon in the concerns of global warming is the thermohaline circulation process. This is the conveyor belt of sinking salt water in the arctic which draws tropical warm water toward the poles, generating weather patterns around the globe (Kolbert, 2007). By increasing global temperatures, warming the oceans, and melting fresh water out of glacial reserves, we effectively expand the tropic regions, and consequently alter the patterns of the weather (Kolbert, 2007). This is the reason that some areas are seeing intense cold despite the globe actually "warming." The warming does not manifest in all places becoming proportionally hotter, but in a warmer globe that changes where the hot and cold places are, as well as how extreme they get. Indeed, the tropics have expanded by two degrees latitude in the past 30 years, forcing rain patterns in Australia to shift southward into the ocean: "they are trying to avoid the term *drought* because it implies the condition may someday *end*" (McKibben, 2010, p. 5).

To understand these phenomena, scientists use a variety of complex measurement processes—such as ice-core analysis and remote sensing—which produce data that inform advanced climate modeling (Kolbert, 2007). As Kolbert (2007) states, “there are two types of equations that go into a climate model. The first group expresses fundamental physical principles, like the conservation of energy and the law of gravity. The second group describes...patterns and interactions that have been observed in nature” (p. 103). By coding these parameters into models like the one used by the Goddard Institute for Space Studies, scientists can run models on past weather events to see how accurately they perform, and then run projections into the future to see how the globe will respond to different levels of greenhouse gases and feedback loops (Kolbert, 2007; McKibben, 2010). This kind of modeling serves as the basis for CO_2 concentration targets like those set by the IPCC—450 ppm CO_2eq by 2100—because it generates different scenarios (contingent on comprehensive action plans known as 'mitigation strategies') in which greenhouse gas emissions create 'points of no return' for inhabiting the earth (IPCC, 2014b). And the time frame of these issues is critical. Most projections are based around targets set for 2100 and interim targets for 2050—within the next 86 years (IPCC, 2014b). This underscores an integral trait of global warming, for it is neither a sudden crash of immediately recognizable events, nor a distant prospect for our great grandchildren: it is an escalating issue which begins slowly and quietly amidst the random variability of normal weather fluctuation, and then amplifies through feedback systems and continued emission concentration into catastrophic consequences for life on earth. In fact, it was precisely this kind of warning that James Hansen issued in the 1980s, already 99 percent confident that global warming was beginning to take effect (Kolbert,

2007). As McKibben (2010) put it: “Forget the grandkids; it turns out this was a problem for our *parents*” (p. 16).

Indeed, the effects of global warming are already observable; the volume *is* turning up, and with it the level of the sea. The rising tides caused by warm-water expansion and ice melt have forced people to abandon their homes across the globe, from Shimsharef, Alaska, to Miami Beach, Florida, despite political hand wringing (Kolbert, 2007; Mishak, 2014). The Dutch have created new houses with built-in floatation to anticipate flooding (Kolbert, 2007), and the president of the Maldives announced a budget plan to “relocate the population to Sri Lanka or Australia before the ocean finally rose too high for its survival” (McKibben, 2010, p. 37). But sea levels are not the only rising concern. The increasing temperatures have expanded the inhabitable regions of various species of mosquito, and made it easier for them to overwinter in their existing ecosystems (Kolbert, 2007; McKibben, 2010). Massive outbreaks of dengue fever and malaria have literally swarmed developing countries, costing the global economy billions of dollars, and the global ecology millions of lives (Kolbert, 2007; McKibben, 2010). But other creatures have not and will not fare as well: the current epoch has given way to extreme losses in global biodiversity (Kolbert, 2007, Veron, 2008). With the spread of wild fires, the acidification and warming of the oceans, drought, disease, diminishing food supply, and debilitating storm surges, global warming is the harbinger of literally grave consequences for nearly all life forms on earth, and this is just the tip of the diminishing iceberg (Kolbert, 2007; McKibben, 2010).

The scope of this kind of wide-scale death has only occurred five times before on the planet, during what are called *mass extinction events*: “characterized by fundamental

changes in plant and animal diversity as many high-level taxonomic groups go extinct over the same geological time interval" (Veron, 2008, p. 460). In a study based around fossil records in coral reefs, Veron (2008) conducted a review of causal theories for mass extinction events and assessed their implications with global carbon cycles, after which he concluded:

> ...primary causes of mass extinctions are linked in various ways to the carbon cycle in general and ocean chemistry in particular with clear association with atmospheric carbon dioxide levels. The prospect of ocean acidification is potentially the most serious of all predicted outcomes of anthropogenic carbon dioxide increase. This study concludes that acidification has the potential to trigger a sixth mass extinction event and to do so independently of anthropogenic extinctions that are currently taking place. (Veron, 2008, p. 459).

Accordingly, this has caused a shift in how geological science has come to be studied, and, to use a term coined by Nobel Prize winner Paul Crutzen, we can now think of the current epoch as the *anthropocene,* which "suggests that the Earth has now left its natural geological epoch.... Human activities have become so pervasive and profound that they rival the great forces of nature and are pushing the Earth," (Steffen, Crutzen, & McNeill, 2007). Crutzen identified the anthropocene as beginning with the Industrial Revolution in the 1800s, which served as the catalyst for large scale, human-caused CO_2 release, primarily through the burning of fossil fuels.

This term is used to account for the climate changes in the current time period—"anthro" connoting humans, and "genic" connoting a generation of phenomena—that is, "human caused." Indeed, climate change events have occurred in the past before women

and men walked the earth, but this *specific* event—the rise of GHGs in the past 200 years and their effects—is not just a human reaction to a natural occurrence, but a *natural reaction to a human occurrence* (Kolbert, 2007; McKibben, 2010). The Vostok Ice cores taken in 1999 show the transitions of temperature and CO_2 level over the past 800,000 years, and it is clear: since the industrial revolution and the advent of fossil fuel emissions on a mass scale, the CO_2 concentration in the atmosphere has accelerated and exceeded beyond any previous point in measurable geodesic history, and the global temperature has broken records set as far back at 400,000 years ago (IPCC, 2013; Kolbert, 2007). The evidence is irrefutable, and only continues to increase, as data on emissions have shown: "Annual anthropogenic GHG emissions have increased by 10 $GtCO_2eq$ between 2000 and 2010, with this increase directly coming from energy supply (47%), industry (30%), transport (11%) and buildings (3%) sectors" (IPCC, 2014b, p. 8). By recognizing this causal role of human activity in climate change, it subsequently becomes possible to conduct an analysis of the causes of that activity.

Critiques of Neoliberalism

Despite the overwhelming scientific evidence, a rampant denial of the anthropogenic causes of climate change and an obfuscation of the systemic processes that facilitate them have gained a significant foothold in the past thirty years—especially in the United States—a denial founded in cultural and ideological shifts, and an obfuscation manifested in economic and national policy changes (McKibben, 2010). Accordingly, a sociological analysis of those systemic processes is necessary, as they relate to the concept of *neoliberalism*. In his book, *A Brief History of Neoliberalism*, David Harvey states:

> Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets, and free trade. *The role of the state is to create and preserve an institutional framework appropriate to such practices.* The state has to guarantee, for example, the quality and integrity of money. It must also set up those military, defense, police, and legal structures and functions required to secure private property rights and to guarantee, by force if need be, the proper functioning of markets.... But beyond these tasks the state should not venture...because, according to the theory, the state cannot possibly possess enough information to second-guess market signals (prices). (2005, p. 2, italics added)

Similarly, Mudge (2008) highlights that neoliberalism as an ideology can be understood as an historical development fueled by the interplay between intellectual, bureaucratic, and political institutions in the West throughout the twentieth century, all of which hinge "on a single, fundamental principle: the superiority of individualized, market-based competition over other modes of organization" (p. 706). Intellectually, neoliberalism has come to assert a kind of market fundamentalism, i.e. that fluctuations in economic exchange systems serve as the basis for how other institutions should be arranged, and that this basis is unquestionable. Bureaucratically, neoliberalism asserts austerity policies and free market efforts that undercut the state's socially liberal policies. In the political sphere, it places "the market" above reproach by evoking intellectual neoliberal economic

theory and effecting bureaucratic neoliberal policies that re-center political discourse on key assumptions about free-trade superiority.

For the purposes of the current study, then, *neoliberalism* is defined as *an institutional framework and ideological [1] perspective that supports market and trade freedoms; limits government spending, regulation, and organization in favor of laissez faire policies; asserts austerity measures; and focuses on economic growth as the primary means and measure of success.*

Tracing the development of this economic perspective, it was in the works of Friedrich von Hayek, an Austrian political philosopher, that the origins of neoliberalism started, which hinged on the deregulation of markets to preserve economic freedom (Harvey, 2005; Mudge, 2008). Drawing on the economic liberalism advanced by Adam Smith in the 18th Century, Hayek and others[2] reinvigorated the theories of market superiority and deregulation in response to the Keynesian interventionism, state planning, and socialism that had begun to take hold in global political discourse (Harvey, 2005, p. 21). Hayek authored a collection of books, including *The Road to Serfdom*, and founded the Mount Pelerin Society in 1947, which emphasized a resurgence of liberal economics and rallied economists and philosophers dedicated to free market thinking. Though marginalized during much of the twentieth century, Hayek's philosophy gained momentum throughout the 1970s as a response to the stagflation, political crises, and economic downturn of that decade (Mudge, 2008). In the academic sphere, neoliberalism was advanced by Milton Friedman and Arnold Harberger at the University of Chicago, again in response to Keynesian economics and the "embedded" liberalism of the post-war era which placed constraints on markets for the purposes of stability after the Great

Depression (Harvey, 2005). But as Coleman (2013) notes, this resurgence of economic liberalism was not the only new thing about *neo*liberalism. Coleman identifies two specific shifts the neoliberals made that broke away from the economics of Locke, Smith, and Mill: first, a transition in the conceptualization of freedom that replaced manipulative constraints with chosen constraints, effectively placing individual choice at the center of the definition of freedom (2013). Second, rather than solely asserting the supremacy of market forces, "neoliberals' contribution was to shift the burden of the case for liberalism *from market success to government failure*" (2013, p. 87, italics original). Given the substantial critiques of market idealism due to the Great Depression, it was not enough to echo the classical claim of liberal economics that markets could self-regulate and, by way of Smith's 'invisible hand,' effect the goods of society. Instead, neoliberal intellectuals advanced the position that governments had failed to establish better conditions for facilitating wealth, personal choice, and economic exchange using a mixture of two explanations: first, governments were viewed as sites of exploitation that siphoned off the wealth—and therefore, freedom—of individuals (Coleman, 2013). Second, neoliberals argued that government had no contractual obligation to the public to ensure the latter's interest, and therefore the government could not be expected to commit to the freedom, wealth, and choice of the people, and instead could be suspected to deceive the public toward projects only tangential to their interests (Coleman, 2013).

This intellectual reinvigoration and adaptation of economic liberalism was manifested in a collaborative economic development program in Chile under a group of Friedman's students (known as the "Chicago Boys") who played an instrumental role in the transformation of Chile's economic system into the exemplar of neoliberal policy

after the Pinochet Coup of 1973 (Brender, 2010). Subsequently, this implementation of neoliberal policy gave empirical credence to neoliberalism as a system of organization and served as a foundation for its widespread assertion in intellectual spheres (Mudge, 2008). Neoliberalism as a political agenda culminated in the United States when Ronald Reagan, echoing the claim of government failure, stated in his inaugural speech that "government is not the solution to our problem; government is the problem" (Lillian Goldman Law Library, 2014). Subsequently, Reagan executed his promise of economic growth through the measures that had been recently empirically validated by the Pinochet Coup: a collection of tax and budget cuts, battles with labor organizations, and sweeping austerity measures in social welfare programs (including the EPA). These were mirrored by the administration of Margaret Thatcher in the United Kingdom, and all served as the catalyst for a trend toward neoliberal legitimacy in an increasingly global political sphere (Harvey, 2005, p. 25).

In addition, an important campaigning component advanced neoliberalism on the cultural and political stage: a collection of privately funded organizations including the Fraser Institute, the Atlas Economic research Foundation, the CATO Institute, the Heritage Foundation, and the American Enterprise Institute—all of which paved the way for deregulation in prospective markets and the subsequent financialization of the global economy (Harvey, 2005; Mudge, 2008). These organizations have played a key role in the dissemination of neoliberal thinking in both Europe and the U.S., and that role has been primarily tied to effecting market-favorable policies by cultivating relationships between corporate interests and political and state leaders (Mudge, 2008, p. 713).

But the key shift in the public sphere came from the Republican Party's ability to "mobilize its popular base to vote against its material interest on cultural/religious grounds" (Harvey, 2005, p. 51). As Harvey notes, the combination of evangelical social aspirations (such as Jerry Falwell's moral majority), an appeal to white working class males, and a collection of neoconservative figureheads merged into an "unholy alliance between big business and conservative Christians" which solidified the party's constituency around a neoliberal platform while simultaneously funding its moral crusade (2005, p. 50). By using massive amounts of wealth and power, neoliberal corporate and political actors could disseminate both moral and economic perspectives across the country, transforming how the public would come to understand the concepts of labor, finance, health care, environment, and even the concept of "liberalism." To address the last of these, Antonio (2013) conceptually rectified the discrepant use of the word "liberal" by separating it into the terms *social liberalism*— following the late American usage in which regulation of markets, increases in governmental social welfare programs, and the rise of the middle class prevail—and *market liberalism*—following the traditional European meaning, in which free markets, cuts in government spending and organization, and austerity measures dominate.

However, while the history of neoliberalism in the United States is inexorably tied to the transformation of the Republican Party and the conservative right, the former should not be conflated with the latter two: neoliberalism is not necessarily a "Republican" or "conservative" ideology, but an increasingly ubiquitous institutional worldview. Indeed, as Mudge (2008) notes, the social sciences have often ignored the adherence to market fundamentalism among center-left political agents in the U.S. and

Europe, which has undermined the systematic analysis of the totality of neoliberalism. As an example, the Clinton administration "fell directly into the neoliberal fold of policy prescription and implementation," as signaled by the signing of the North Atlantic Free Trade Agreement (NAFTA) (Harvey, 2005, p. 51). Moreover, in the political changes occurring in the far right throughout the 1980s and 1990s, many U.S. Democratic leaders started shifting their base toward market-friendly politics out of the fear of losing their political base (Harvey, 2005). Indeed, by the 2008 recession, market-fundamentalist perspectives had become a staple of the American political discourse on both sides of the aisle. Accordingly, in the current study, neoliberal ideology is not used to signal one half of a traditional left-right distinction, but is considered across political divisions in an effort to more accurately expose distinctions from the "top-down."

With respect to the anthropocene, neoliberalism has played an especially dangerous role. While the Industrial Revolution and rise of capitalism certainly spurred anthropogenic climate change, it is the philosophical trajectory of neoliberalism which serves as the most substantial inhibitor of climate action, because *the philosophy itself undercuts the necessary mechanisms for systemic change.* To be sure, neoliberalism's placement of markets above political and bureaucratic regulation undermines the scrutiny of the market's environmental impacts. As Antonio notes,

> Denial of anthropogenic climate change has been nearly a Republican Party doctrine. Conservatives charge that environmental regulation stems growth, kills jobs and violates property rights; they call for Environmental Protection Agency shutdown. … That pseudoscientific and antiscientific propaganda, paid for by wealthy corporate and individual sponsors, often has been granted parity with

> science in media reportage and has too often dominated congressional and public conversation about climate and environment manifests neoliberalism's deployment of concentrated wealth and power to serve immoderate ends. (2013, p. 34.)

Though Antonio specifically recognizes the climate denial of the Republican Party as stemming from neoliberalism, it is additionally telling that center-left Democrats have tended to acquiesce to this trend. Indeed, it is striking to note that the evidence of climate change emerged in tandem with the rise of neoliberalism in the United States, because the former has increasingly beckoned socially liberal reforms while the latter has pushed market-liberal policies. Neoliberalism as a philosophical perspective is hinged on property, money, deregulation, and free economic exchange and the intentional distrust of governmental intervention; despite the supposed superiority of markets and the promise of "green neoliberalism," much empirical evidence has shown that neoliberal policy has cultivated no room for incorporating environmental concern into its bottom line, and no tolerance for governmental regulations which require its businesses to do so (Enoch, 2007). Neoliberalism, therefore, is theoretically doomed to fail as a solution to environmental and climate issues, and its institutional framework must be scrutinized seriously in order to stave off dire consequences for the planet.

Unfortunately, in the battle between capitalism and the climate, the former has dominated, shaping the mainstream reaction to global warming—a denial on the level of cultural cognitive dissonance, [3] tailored to the interests of the capitalist class (especially the fossil fuel industry), meticulously calculated and disseminated by conservative think tanks, amplified through political loudspeakers, and reflected in both public policy and

public opinion (Klein, 2014; Kolbert, 2007; McKibben, 2010). Organizations like the Heritage Foundation, the CATO Institute, and the Koch brothers' Americans for Prosperity and American Legislative Council (all key players in the neoliberal transition previously mentioned), have actively worked to vilify climate scientists and environmental advocates, repudiate legitimate climate science, and foster a national climate skepticism for political ends (Antonio, 2013; Klein, 2014; Kolbert, 2007; Markle, 2014; McKibben, 2010).

However, the most damaging aspect of the pervasiveness of neoliberalism is that it undercuts any legitimate effort to stop climate change by framing growth at all costs as "a necessary, even wholly 'natural', way for the social order to be regulated" (Harvey, 2005, p. 41). Business leaders, politicians, and citizens alike echo the toxic rhetoric of progress and economic expansion as both the solutions to global warming and the litmus test for feasible strategies to stop it. As recently as the 2014 COP 20 Summit in Lima, Peru, political leaders in the developed world have continued to soft-ball myopic benchmarks and platitudes recognized by climate scientists and activists as wholly insufficient; much of the discourse is directed at change on an individual level and using developing countries as scapegoats for failed policy adoption (Goodman & Gonzalez, 2014b). This has led to what Haq and Toulin call the "third era" of climate change, in which "one group of people (namely rich people everywhere, but mostly in rich countries) have caused the problem, and another group of people (namely poor people especially in poor countries) will suffer most of the adverse consequences, in the near term" (2006, p. 2). This third era is characterized by an emphasis on the individual as both the cause and solution of global warming, *and is reflective of a larger, more*

pervasive neoliberal ideology. Accordingly, this politicization and focus on the individual as the center of mitigation—combined with the cultivated rejection of government 'as the problem'—has forced the understanding of and reactions to climate change to be seen through the capitalistic lenses of free-market trends, austerity, diluted avenues for real change, and individual responsibility (Klein, 2014). In reaction to the individualist environmentalism of the current era, Klein has argued that we must

> …move the ideological pole far away from the stifling market fundamentalism that has become the greatest enemy to planetary health…. For a quarter of a century, we have tried the approach of polite incremental change, attempting to bend the physical needs of the planet to our economic model's need for constant growth and new profit-making opportunities. The results have been disastrous, leaving us all in a great deal more danger than when the experiment began. (2014, p. 26).

Tracing the effect of this third era, Markle (2014) has shown through qualitative analysis how the neoliberal, individualized framing of climate change mitigation stems substantive change at the individual level, through excuses, accounts, and minor behavior changes that assuage the compelling call to act for the environment. As Markle states:

> The American culture of environmentalism is shaped by three interest groups: political, corporate and environmental; and is embedded within the national ideology of individualism. Political and corporate interests tend to align with one another and conflict with core environmental interests, resulting in a culture of environmentalism that is individualized and consumer based. (2014, p. 249).

What emerges here is an ideology that has gained political power and permeated American culture, founded on a philosophy which is fundamentally opposed to its own sustainability. Such an ideology opposes meaningful climate action on all levels that would make a necessary difference in the face of climate projections—namely public actions coordinated by government policy—steadily narrowing the frame in which environmental problems, environmental solutions, and environmentalism may be viewed. Most detrimentally, it obfuscates structural problems by turning the spotlight on ordinary citizens to shoulder the responsibility of sustainability, mitigation, and adaptation, in what one might call *neoliberal environmentalism*. By this I mean that neoliberal ideology restricts institutional, regulatory, and figurational action in favor of the supposed superiority of businesses and the "demand" of consumers. This individualistic approach to environmental activity calls on citizens to vote green by buying green: to replace their light bulbs, recycle their waste, and reuse shopping bags without significantly reducing their consumption, making significant lifestyle changes, or considering an alternative framework to a model of growth. This echoes the view by Gershon (2011) that this ideology has effected at the individual level a neoliberal agency: "a neoliberal vision of people owning themselves as though they were a business" (p. 539). Gershon asserts that all social operators—people, governments, businesses—are defined and socially constructed by neoliberalism, and where economic liberalism viewed the self as an owner of the body and the ability to work (effectively, as property), a neoliberal agency construes the actor as a personal project, a collection of skills for improvement, to be capitalized upon (2014, p. 539). As she states:

> …neoliberal agency emerges as conscious choices that balance alliances, responsibility, and risk using a means-ends calculus. The freedom that neoliberalism provides is to be an autonomous agent negotiating for goods and services in a context where every other agent should ideally be also acting like a business partner or competitor. (Gershon, 2014, p. 540).

Through this sense of agency, neoliberal environmentalism situates the individual at the center of environmental action, and places all other scales of activity outside the realm of permissible or trustworthy discourse. As such, it is imperative that this neoliberal environmentalism and the ideology on which it stands be empirically tackled in two ways: first, by demanding an analysis of the structural and institutional forces at work by key propagators of neoliberal rhetoric, which has seen an increasing surge in recent research (Antonio, 2013; Klein, 2014; Mudge, 2008). Second, by investigating how such an ideology actually influences individuals' engagement in environmental action, to illuminate whether a neoliberal ideology actually fosters or hinders pro-environmental behavior—the focus of the current project.

To this end, the empirical literature tracing the connection between neoliberalism and environmental degradation has taken various forms across multiple disciplines, conceptualizing both in divergent ways (Bakker, 2010). Predominantly, the study of the impact of neoliberalism on environmental issues often circles around the failures of localized or national policies at benefiting the environment, or as context for framing conflicts of natural resources. Unfortunately, in an extensive literature review, the author could find no studies which have undertaken the quantitative analysis of the relationship of neoliberalism and individual environmental behavior in the field of sociology. Though

the work of Cordano, Frieze, and Ellis (2004) did look at the impact of attitudes about property rights and regulation on a variety of PEB intentions, it did not theoretically organize these attitudes as indicative of an underlying neoliberal ideology, nor did it address the historical context of such attitudes. Similarly, the work of Coffey and Joseph (2013) assessed the significance and impacts of political views and ideology on different pro-environmental behaviors, but their conceptualization of ideology was ambiguous, did not draw upon literature about neoliberal economic perspectives, and mirrored the division between democrats and republicans in U.S. politics. As neoliberalism is involved in shaping the cultural context in which environmental behavior may be understood, it becomes imperative to expose this link: tracing the institutional social factors of neoliberalism in the study of individual reactions to climate change, accounting for both agency and context at the individual level of analysis. To approach this goal, the current study turns to a review of social psychological literature, mapping out both the illuminating findings behind individuals actions, as well as the shortcomings of an isolated framework devoid of a critical institutional theory.

Pro-Environmental Behaviors

To understand what kinds of behaviors benefit the environment, a careful analysis of behavior conceptualization and impact is crucial. The predominant conceptualizations of pro-environmental behavior as a dependent variable in existing research fall into two primary categories. First, PEB is represented through self-reported *behaviors* (Bamberg & Schmidt, 2003; Coffey & Joseph, 2013; Joireman, Van Lange, & Van Vugt, 2004; Liu & Sibley, 2012; Norgaard, 2006; Scannell & Gifford, 2013; Scherbaum, Popovich, & Finlinson, 2008; Starr, 2009; Wall, Devine-Wright, & Mill, 2007). Second, it is

represented through self-reported *intentions* of behaviors (Bamberg & Schmidt, 2003; Coffey & Joseph, 2013; Cordano, Welcomer, Scherer, Pradenas, & Parada, 2011; Liu & Sibley, 2012; Scherbaum et al., 2008; Wall et al., 2007). It should be noted that in some cases intentions are also identified as independent variables acting upon actual behaviors, in accordance with models that identify intention as a mediating construct on behavior (Bamberg & Schmidt, 2003; Wall et al., 2007).

Subsequently, pro-environmental behaviors and intentions are operationalized on a variety of activities related to the environment. These include transportation modes (Bamberg & Schmidt, 2003; Joireman et al., 2004; Wall et al., 2007), conservation activities (Coffey & Joseph, 2013; Scherbaum, Popovich, & Finlinson, 2008), personal sacrifices (Liu & Sibley, 2012; Scannell & Gifford, 2013), recycling (Coffey & Joseph, 2013), consumption practices (Starr, 2009) and different forms of civic environmentalism such as social movement support (Stern, Dietz, Abel, Guagnano, & Kalof, 1999). Indeed, one study by Armel, Yan, Todd, and Robinson (2011) identified ten indices of pro-environmental behavior on the Stanford Climate Change Behavior Survey, ranging from food packaging to energy use. In rarer instances, actual emissions data may be linked to individual pro-environmental behavior, but this is an exception within the literature (Liu & Sibley, 2012).

From these operational definitions, it becomes clear that PEBs exhibit a gradation. As Stern (2000) noted, PEBs tend to fall on different spectra between direct, low-impact, private-sphere actions (such as recycling, conserving home energy, and buying green products) and indirect, high-impact, public-sphere actions (environmental citizenship, policy support and reform, and signing petitions). As such, different pro-environmental

behaviors exhibit different amounts of sacrifice, energy, commitment, behavior change, and ultimately, impact for the environment. These varying degrees exemplify the difficult fact that not all pro-environmental behaviors are created equal, and they complicate the measurement and comparison of each behavioral outcome.

To organize this wide array of measurement of pro-environmental behavior, Markle (2013) asserted that the construct of "pro-environmental behavior" inherently begs the question of the degree to which the behavior actually benefits the environment. Indeed, some researchers have used variables such as elevator usage and hours of television viewed (Armel et al., 2011) as proxies for PEB, which Markle has called into question as being legitimate, environmentally significant actions with a direct impact on the environment (2013). To be sure, there are behaviors which one may *think* benefit the environment, and others that more significantly do so. Starting from evidence in physical science regarding the most detrimental causes of global warming and degradation, Markle (2013) created the Pro-Environmental Behavior Scale (PEBS) to standardize the PEB construct along the three most beneficial forms of environmental behavior at the individual level: transportation mode, conservation practices, and civic environmentalism. This focus echoes the recent IPCC reports showing that annual anthropogenic greenhouse-gas emissions are generated predominantly in the energy, industry, and transport sectors (IPCC, 2014b). Theoretically, this approach organizes the conceptualization of PEB in parallel spectra: first, it underscores an important emphasis on highlighting, promoting, and studying significant actions for the environment against insignificant proxies. Second, it links individual behaviors to systemic and institutional problems that endanger the planet's biodiversity.

Crucially, then, pro-environmental behavior research and its programmatic implementations must be oriented at the onset toward things which have the most impact on the environment. Any research program regarding PEB must assess the behavioral outcome of interest for its significance in both (a) decreasing pollution, waste, and emissions in the environment, and (b) contributing to an institutional shift toward sustainability.

Social-Psychological Models of PEB

To make sense of what encourages behavior beneficial to the environment, many indicators [4] have been tested through experimentation and empirical study, and these determinants are organized and explained by statistically modeled theories. Importantly, each PEB is a separate, multivariate issue, impacted by a variety of independent and mediating variables, and it is therefore often useful to articulate impacts in terms of widely tested models rather than single variables. As such, a variety of theoretical models have been posited within the social-psychological literature in recent decades, and six core models have emerged as predominant front-runners in the study of the PEB. They are presented in Figure 1 below. [5] Their respective indicators are discussed here in an effort to shed light on trends within the literature, specifically regarding a lack of institutional considerations. The indicators are italicized below for the purposes of clarity.

First, theoretical frameworks proposed by Ajzen, such as the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and the Theory of Planned Behavior (TPB) (Ajzen, 1991) have been used widely to frame PEB (Cordano et al., 2011; Steg, 2005; Wall et al., 2007). The theory of reasoned action asserts that *beliefs* about environmental behaviors influence a person's *attitude* toward that behavior, and that social motivations

and pressures influence *subjective norms* with respect to the behavior (Cordano et al., 2011). The more favorable the attitudes and subjective norms, the more intentions are driven toward environmental behavior, and intention subsequently drives the behavior. In their study, Cordano et al. (2011) found that while TRA did perform well in modeling a variety of behavioral intentions, it did so based primarily on the *subjective norm* variable, though it exhibited limitations in cross-cultural differences.

On the other hand, Ajzen's (1991) Theory of Planned Behavior is an augmentation of the theory of reasoned action which incorporates *perceived behavioral control*, and is a more robust and widely used general theory of behavior (Armitage & Conner, 2001). This augmented theory suggests that *attitudes* about a behavior, *subjective norms* accounting for pressure from others regarding the behavior, and the *perceived control* over the ability to perform the behavior all converge on a behavioral intention, which then determines the behavioral outcome in a more-or-less rational assessment after the intention is formed (Ajzen, 1991). In multiple studies, TPB has been found to explain PEBs based on the formulation of intentions (Bamberg & Schmidt, 2003; Steg 2005; Wall et al., 2007). In general, when (a) attitudes toward a behavior are favorable, (b) an individual's reference groups (such as family, friends, and coworkers) support and participate in the behavior, and (c) the ability to execute the behavior is relatively easy and doesn't require an excess of sacrifice, the likelihood of behavioral execution is very high. A number of studies have found the TPB to be powerful in explaining transportation mode choice, participating in a national recycling program, and other PEBs (Bamberg & Schmidt, 2003; Bamberg & Moser, 2007; Lin, 2012; Oom Do Valle, Rebelo, Reis, Menezes, 2005; Tikir & Lehmann, 2011; Wall et al. 2007).

However, existing research has often used the TPB in a vacuum, by which the institutionally cultivated aspects of behavior, especially the socio-contextual impacts of subjective norms [either descriptive or injunctive, as distinguished by Cialdini, Reno, and Kallgren, (1990)], are either minimized, or discarded entirely (Armitage & Conner, 2001), and subsequently reported to be weak indicators of the outcome variable (Wall et al., 2007). Indeed, as Armitage and Connor (2001) note in their meta-analysis of TPB, "the most likely explanation for poor performance of the subjective norm component lies in its measurement: many authors use single item measures, as opposed to more reliable multi-item scales" (p. 478). In fact, Armitage and Connor (2001) found that studies with more items dedicated to subjective norm assessment produced higher explanatory power and direct effects on behavior, and they therefore called for more targeted studies of the subjective norm construct, which has been echoed by others (Bamberg & Schmidt, 2003; Steg, 2005; Wall et al. 2007).

As Bamberg & Schmidt (2003) note, TPB "views the individual mainly as a utility-maximizing actor" involved in conscious decision making, which is a useful framework for PEBs since many involve intentional behavior change (p. 267). However, in their research of the TPB model and the incorporation of value ideology types, Tikir and Lehmann (2011) discovered a key finding: that when underlying values and belief systems were included in the TPB, *they appeared to explain more variance than the rational-theory constructs, suggesting that the utility-maximization element may be more appropriately considered as a partial mediation of institutional influence*.

Other theories have been used to model PEB as well. Like TPB, Triandis' Theory of Interpersonal Behavior (TIB) models social behavior based on understandings of the

behavior and social norms, but it differs in that it (a) emphasizes a decrease in conscious assessment as a behavior becomes routinized in the form of *habit*, (b) identifies cognition as the locus of rational decisions about behaviors, (c) addresses social influences as more prominent, and (d) offers a component of *affect* beyond rational calculation (as cited in Bamberg & Schmidt, 2003). While Bamberg & Schmidt (2003) noted that the intentional construct of the TPB could be used to model the conscious decisions of self-reported assessments, it was the efficacy of the habitual and affective components of TIB which further explained actual PEB action (in this case, the difference between intending to travel by alternative means and still using a car for personal transport). Though understudied in its own right, TIB is a critical addition to the TPB framework by balancing the predictive weight of social influence and habit against isolated and deliberate action—its lack of representation in the literature may be attributable to the difficulty of measuring its constructs, especially habit (Bamberg & Schmidt, 2003). Additionally, the importance of the constructs of affect and *emotions* has been stressed in other literature bases investigating PEB, and such studies have emphasized a fine balance between arousing people to action and relegating them to fatalism (Norgaard, 2006; Scannell & Gifford, 2013).

The Normative Action Theory (NAT) offered by Schwartz (1977) has also been utilized to explain environmental activity (Bamberg & Schmidt, 2003; Cordano et al., 2011; Wall et al., 2007). NAT focuses specifically on *altruistic* behavior, and treats *personal norms* as moral necessities which control behaviors; personal norms are in turn influenced by *awareness of consequences* for behavior, and an assessment of the *ascription of responsibility* (i.e. who should act), and these culminating personal

obligations drive individuals' altruistic actions (Bamberg & Schmidt, 2003; Cordano et al., 2011; Wall et al., 2007). In an optimal formation of the NAT model, an enhanced awareness of consequences and the self-accepted responsibility to stave off these consequences develop a strong moral obligation to act, which fosters a normative environmental behavior. In their studies, both Cordano et al. (2011) and Wall et al. (2007) found NAT to be a good model of PEB (of behavioral intentions and car-use reduction, respectively), and additional research on altruism has shown it to be a key indicator in conservation and recycling behaviors (Milfont, Duckitt, & Cameron, 2006).

As mentioned previously, a key limitation of these kinds of models has been their vacuous deployment, disregarding respondents' dispositions, values, and institutional context. One notable exception has arisen in the work of Dunlap and Van Liere (Dunlap & Van Liere, 2008; Van Liere & Dunlap, 1981), in the creation of the New Environmental Paradigm and New Ecological Paradigm (abbreviated interchangeably as NEP). These scales have been used to assess and frame environmental behaviors, and they represent the dominant scaling technique for quantitatively addressing environmental concern (Dunlap, 2008; Xiao & Dunlap, 2007). The NEP originally developed as a reaction to the Dominant Social Paradigm (DSP) offered by Pirages and Ehrlich in 1974 (as cited in Dunlap, 2008), and it consisted of three sub-domains, including *ecological limits to growth*, *maintaining a balance with nature*, and *rejecting the idea that nature exists for human use* (Dunlap, 2008). The New Ecological Paradigm was developed as a way to augment the original NEP, and it was adapted to address measurement issues and more holistically include environmental problems, as well as global warming (Dunlap, Van Liere, Mertig, & Jones, 2000). Using NEP, Stern et al.

(1999) merged environmental concern with the NAT model, creating the Values-Beliefs-Norms (VBN) theory. Stern et al. (1999) used VBN to assess individuals' support for environmental social movements across a variety of behavioral outcomes. As a synthetic theory, VBN suggests that v*alues*—i.e. political, social, personal and traditional—converge in a worldview about the environment, and when these values are believed to be threatened, individuals assess consequences and the responsibility of the issue (as in NAT), which results in the development of *personal norms* (obligations) that align with that worldview (Cordano et al., 2011; Scherbaum et al., 2008). VBN has been used to account for a range of PEBs, including how personal norms mediate the impact of environmental world views on energy consumption practices in an organizational context (Cordano et al., 2011; Scherbaum et al., 2008).

The differentiation between values, beliefs, and attitudes is somewhat ambiguous across multiple models. Cordano, Frieze, and Ellis (2004) followed the definition of Rokeach for a value as "... an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (as cited in Cordano et al., 2004, p. 29). This, they argue, serves as the basis for ideologies, object-specific beliefs, and attitudes about actions or outcomes. With respect to beliefs, the term applies across PEB literature to assertions of fact (whether objectively true or not) about an activity or an outcome, whereas attitudes are more centered on positive/negative assessments toward those outcomes.

A variety of other indicators also come into play, from additional theories and empirical studies (many of which are contextualized by the NEP scale). These include

many *demographic variables*—such as sex, education, and income—which have illuminated behavior patterns in specific populations: women, highly educated individuals, and those with higher incomes tend to engage in pro-environmental behavior more often than their counterparts (Coffey & Joseph, 2013; Liu & Sibley, 2012; Starr, 2009). Furthermore, both liberal *political views* and general involvement in *political engagement* increase the likelihood of PEB (Dunlap et al, 2000; Coffey & Joseph, 2013; Starr, 2009). Many communication studies also point toward the importance of *message framing* and prompt construction, and evidence has emerged that *psychological proximity* and *future orientation* are strong indicators of environmental behaviors (Scannell & Gifford, 2013; Joireman et al., 2004; Patchen, 2010).

Overall, these theoretical perspectives differ in varying degrees along multiple research scenarios. Importantly, their syntheses have yielded more explanatory power than any single one alone, and many studies have tested and suggested continued use of hybrid theories—such as TPB/TIB/NAT and NAT/VBN models (Bamberg & Schmidt, 2003; Cordano et al., 2011; Oom Do Valle et al., 2005; Scherbaum et al., 2008; Wall et al., 2007). Indeed, multiple studies have concluded that a synthetic approach to PEB modeling—using an admixture of salient constructs—would behoove future research and policy development (Bamberg & Schmidt, 2003; Cordano et al., 2011; Wall, Devine-Wright, & Mill, 2007). One key study by Bamberg and Moser (2007) comprised an empirical review of social-psychological theories and retested variable relationships using published covariance matrices in a Meta-Analytic Structural Equation Model. Using this synthesized model, Bamberg and Moser (2007) found overarching support for TPB when including moral and emotional constructs, which supported "the [intuitive]

view of pro-environmental behavior as a mixture of self-interest and pro-social motives" (p. 21). Taken in tandem with the findings of Cordano et al. (2004) and Tikir and Lehmann (2009) that the addition of underlying value indicators increases the explanatory power of the TPB, the literature suggests that a modified Theory of Planned Behavior—including the empirical investigation of institutional endorsements—could prove extremely fruitful in modeling PEBs.

Theoretical Framework

From a paradigmatic standpoint, the pitfall in the majority of the abovementioned theories is the omission of an appropriately weighted institutional analysis (with the exception of VBN, which is often outperformed by the TPB). All models, to some degree, fail to connect institutional context, demographics, and cognitive processes in a theoretically comprehensive way. As mentioned previously, the TPB and NAT essentially treat the individual as a utility-maximizing agent in a vacuum, weighing consequences and calculations based on cognitive processes. This approach epistemologically ignores the institutional forces that allow (or impede) those calculations, and it inadvertently serves to perpetuate the narrowing of the frame of neoliberal environmentalism from a social-scientific standpoint of legitimacy.[6] Though their derivatives, the TIB and VBN, respectively, add components which partially address some of these issues, their empirically observed explanatory power and problematically operationalized constructs beckon a better heuristic device for theorizing PEB, one which draws from both the social-psychological and sociological paradigms.

The work of Nicos Mouzelis is fruitful when considering how to develop a holistic theory for social phenomena. In a hallmark work, *Sociological Theory: What Went Wrong,* Mouzelis (1995) asserts that 'conceptual pragmatism' should be used in the generation and use of social theories

> ...to clarify current conceptual tools and to construct new ones by following criteria of utility rather than truth.... [T]o solve puzzles that hinder the open-ended, dialogic communication between social scientists; and, more positively, to facilitate the empirical investigation of the social world via asking theoretically interesting questions, providing conceptual means for comparative work, for moving from one level of analysis to another, etc. (Mouzelis, 1995, p. 9).

Rather than miring analysis with traditional (and problematic) micro/macro and agency/structure distinctions, Mouzelis offers a set of insights and comprehensive rules for an open-ended paradigm (1995, 2008). Drawing on a vast body of sociological theory, Mouzelis asserts that

> …individuals and structures must be viewed as analytically distinct entities…. Although structures do not constitute essences and although they are symbolically constructed, their causality is different from that of actors. *Structural causality* refers to the enablements and constraints that actors face in specific social contexts, whereas actors' causality entails decision-making, agentic powers. (Mouzelis, 2008, p. 274).

Mouzelis connects these causal relationships by asserting that both *intra-* and *interactions* at the individual level take place, considering both *internal environments of action* (or the internalized, socialized background information, similar to Bourdieu's *habitus*), and

external environments of action, such as the "institutional, figurational, symbolic, and material configurations" (2008, p. 275). By merging the works of Parsons and Elias, Mouzelis effectively addresses the disjunctive perspectives of *structural* analyses, [7] suggesting that "instead of using social structure in an undifferentiated or vague manner, the concept of figuration (or figurational structure) should be used when referring to actor-actor relationships, and the concept of institutional structure for reference to institution-institution (or role-role-) linkages" (1995, p. 80).

This position begins to rectify the truncated analytical mode of conventional PEB models. By weighing out information, relying on internalized information, and accounting for institutional systems as well as significant others' perspectives, the individual acts based on internal, habitualized, affective influences, as well as on rationally assessed calculations of the *social* and the *individual* needs at hand. [8] This rectifies a key shortcoming of utilitarian theories (such as TPB), which cannot account for altruistic and irrational behaviors without construing them as somehow inherently rational. What's more, Mouzelis' warns against both *system essentialism* and *actor essentialism*, where in the former individual agency is minimized, and in the latter institutional influence is ignored. To account for this, Mouzelis states:

> To avoid system essentialism, one should always keep in mind that structures must be systematically linked to their producers. To avoid actor essentialism, one should take seriously into account the fact that actors' identities and interests are not pre-constituted but symbolically constructed within specific institutional contexts. (2008, p. 275).

In a similar vein, Mouzelis treats the micro/macro distinction carefully. Because institutional systems can arise in both large and small groups of people, and because action can take place among a mass of people or by the behaviors of a single one, Mouzelis tempers micro- and macro-reductionism by emphasizing the importance of *configurational wholes.* These must be treated separately, and they cannot be reduced to the aggregate of individual behaviors, nor can they be disregarded as constitutive elements in the formations of *institutional wholes* (2008).

In terms of motivation, Mouzelis also points out that symbolic (institutionally formed) motivations and perspectives must be given the appropriate weight alongside rational, economic, material perspectives (and vice versa). Again, this echoes the limitations of TPB and NAT, and stresses the need to develop "*conceptual tools specific to the non-economic spheres*" (Mouzelis, 2008, p. 276).

Patchen: Environmentally Significant Behavior

In sum, the work of Mouzelis provides the basis for a paradigmatic rationale which beckons the merging of sociological critique and social-psychological assessment. To dovetail these in the context of pro-environmental behavior, Patchen's framework of environmentally significant behavior (ESBF) offers one comprehensive and intuitive synthetic theory, which can be used to organize the above models and variables, while simultaneously meeting Mouzelis' outline for assessing heuristic utility (namely that a framework facilitate investigation and not impose its order on the phenomena it attempts to frame) (Patchen, 2010). Though it draws primarily on TPB and additional appraisal theories, the ESBF's inclusion of values (as emphasized in VBN theory), habitual and affective components of TIB, and demographic and social considerations make it an ideal

theory of inclusion to address findings in the literature. Briefly, Patchen's theoretical framework suggests that environmental behaviors are contingent on the intention, or W*illingness to Act*, which is developed by a collection of rational and affective factors, following both TPB and TIB (2010). These, in turn, are influenced by *Appraisal of the Situation*, encompassing constructs from the NAT and VBN theories. While Patchen (2010) does not explicitly identify types of beliefs (such as control, normative, and role beliefs) in his theory like the TPB or TIB models, or specific worldviews like the NEP or VBN, these beliefs and values are implicitly included within his *Personal Characteristics* arena. Further, aspects of actual behavior control, institutional and space-time constraints, social norms, and macro-level impacts can be organized by Patchen's arena of *Social Influences* (2010), on which more conventional sociological foci can shed light. What's more, the ESBF gradation from immediate, cognitively calculated determinants of behavior to extant, indirect indicators such as social and personal indicators provides a robust contextualization of behavior that reflects the empirically observed, mediated relationships of indirect indicators (Bamberg & Schmidt, 2003; Oom Do Valle et al., 2007).

Patchen's model is helpful in coordinating a comprehensive assessment of pro-environmental behavior from a practical standpoint, shining intuitive light on the complexity of PEB from individual, figurational, and institutional angles. What emerges from this theoretical intersection is a systemic totality of impacts on pro-environmental behavior: in the background, there are the extant personal and social factors from past experience and exposure; in the foreground, the individual's agency and emotion at work in the weighing of information and intention. These factors ultimately shape behavior in a

mixture of rational calculation, psychological relevance, moral obligation, and social context. Unfortunately, the breadth of Patchen's model prevents it from being tested through statistical methods. However, its structural layout and underlying variable distribution make it ideal for framing derivative models for empirical assessment.

Theory of Neoliberal Environmental Behavior

Though Patchen's model cannot be tested empirically, a pragmatic derivation of his framework can be useful to investigate a specific relationship between institutional influences and individual activity. Accordingly, in consideration of (1) the immediacy of climate change and the need to study behaviors which meaningfully curtail its exacerbation, (2) the institutional influence of neoliberalism as an ideological force on American citizens, (3) the robust evidence of the Theory of Planned Behavior in modeling PEBs and emerging evidence that the TPB mediates institutional context, (4) the opportunity for theoretical synthesis and its warrant in the literature, and (5) the need to pragmatically span the divide between sociological and social-psychological approaches to understanding individual pro-environmental behavior, I have created a conceptual model for empirical analysis which I term the Theory of Neoliberal Environmental Behavior (TNEB), which is shown in Figure 3. This framework is designed to isolate and focus on the institutional factors of neoliberal ideology, to use the mediation of the utilitarian constructs of the TPB model, and to assess these indicators for their impacts on pro-environmental behaviors. Importantly, this model is offered only as a heuristic device to organize the empirical analysis in the current study. It does not (and cannot) serve as a grand theory of explanation for all types of behavior. Rather, this model is derived from more encompassing theories to specifically assess the relationship

between neoliberalism as an institutional framework and individual behaviors which mitigate global climate change. Specifically, the Theory of Neoliberal Environmental Behavior incorporates indicators of government disapproval, the importance of free market exchange and private enterprise, and the dominance of economic progress over the environment into Ajzen's Theory of Planned Behavior, as well as considerations of demographic controls as included by Patchen's ESBF. To be sure, the TPB is an ideal base model given its explanatory power in previous studies and its promising ability to mediate beliefs and values. However, for the current study, the TPB is especially potent because it represents the most utilitarian model of pro-environmental behavior: it views the actor's behaviors as based on a means-ends calculus. In this way, the TNEB empirically investigates neoliberal environmentalism by integrating indicators of neoliberal ideology into an existing social psychological model of neoliberal agency. In essence, the TNEB adds the belief in extreme utilitarianism to an extremely utilitarian model, while controlling for important demographic characteristics. Having reviewed previous perspectives and set the theoretical stage, the current study now turns to a description of the statistical procedure used to test the TNEB.

Hypotheses

H1: That an adapted model, with institutional variables and demographic controls, will have more explanatory power than the TPB model alone.

H2: That even while controlling for demographics, intentions, and rational assessment, neoliberal endorsements will remain empirically significant predictors of pro-environmental behaviors.

H3: That empirically significant neoliberal indicators will reflect a negative impact on pro-environmental behaviors.

CHAPTER 3

METHODS

Data Set and Participants

To assess the impact of neoliberalism on pro-environmental behavior at the individual level, the current study executed a secondary data analysis on the 2010 panel of the General Social Survey (GSS), conducted by the National Opinion Research Council (NORC, 2014; Smith, Marsden, Hout, & Kim, 2013). The 2010 data set was ideal for a variety of reasons. First, it used random sampling, over sampling, and cross-sectional data collection methods to obtain a nationally representative sample of American citizens over the age of eighteen ($N = 2044$), providing strong bases for the generalizability of statistical results. Participants took part in the survey in face-to-face interviews with trained survey staff, the use of computer-assisted personal interviewing (CAPI),[9] and occasionally via telephone (NORC, 2014). Second, by using existing data, the current study conserved valuable energy and resources that could be used for primary data collection elsewhere. Third, the most beneficial component of the 2010 GSS was its inclusion of the Environment III module of the International Social Survey Program (ISSP). This module was a collection of questionnaire items catered specifically to environmental behaviors and intentions, as well as key indicators of neoliberal thinking, tapping the roles of government and private enterprise in addressing environmental issues. The ISSP is an international coalition of social research organizations from over 50 countries, and its modules have been used for a variety of national and international comparative studies (Bandilla, Bosnjak, & Altdorfer, 2003; Franzen, 2003; Hufken, 2010; ISSP, 2010; Levin, 2014). Thus the use of this secondary data was justified on

theoretical, methodological, and ethical bases, since it conserved resources and provided strong grounds for generalizability with the use of internationally recognized data collection standards.

Procedure

For the current study, a hierarchical regression was used on the items shown in Table 1.[10] Using SPSS Version 21.0 (IBM Corp., 2012), the regression model conceptually organized the indicator items into "blocks" of influence outlined by the Theory of Neoliberal Environmental Behavior proposed in this paper, and assessed the increase in explanatory power (measured by significant ΔR^2) when each new block of indicators was introduced. As with standard ordinary least squares (OLS) regressions, each block in the hierarchical regression produced an upper bound (R^2) and lower bound (Adjusted-R^2) for the percentage of variance in the dependent variable explained by the model of independent variables. Coefficients were assessed in the same way as well: a significance test was conducted for each coefficient, and its sign and magnitude indicated the direction and amount of change in the dependent variable given a one-unit change in the value of the coefficient. The benefit of this hierarchical regression technique was its merger of quantitative analysis and theory, which allowed the researcher to enter indicators into the regression analysis in stages established by a conceptual framework. Hierarchical regressions have been used in past PEB research to assess determinants of civic environmentalism (Hartig, Kaiser, & Strumse, 2007), buying or seeking out green products (Hartig, Kaiser, & Strumse, 2007; Kautish & Soni, 2012; Suki, 2013), endorsing environmentally sustainable business management practices (Fryxell & Lo, 2003; Ng & Burke, 2010), and car use reduction (Thogersen & Moller, 2008).

In comparison with other statistical procedures, hierarchical regression has many benefits. First, for the current application, hierarchical regression was an improvement over ordinary least squares regressions, which enter all indicators into the regression model at once, leaving only one conceptual stage for the researcher to establish and precluding an analysis of the increased variance explained by adding indicators. What's more, Lewis (2007) highlights a variety of ways in which hierarchical regression is more advantageous than stepwise regression techniques, wherein indicators are retained in the regression model based on their impact on the R^2 value. While stepwise regressions may be useful for identifying a core set of indicators with the most impact, the models they produce are susceptible to variations in sampling error, which make empirical reproduction difficult [11] (Lewis, 2007; Thompson, 1995). Moreover, stepwise regressions effectively preclude a quantitative assessment of a theoretical framework, since the computer—not the researcher—determines which indicators enter the model (Lewis, 2007). It should also be noted that while Structural Equation Modeling (SEM) is often used to test mediation, factor relationships, and theoretical models of pro-environmental behaviors, the available data set did not provide enough items, in terms of specificity or quantity, to facilitate the use of SEM, [12] which would ultimately require extensive primary data collection. Accordingly, hierarchical regression was employed here as a middle ground between OLS/stepwise regression techniques and more advanced but stringent modeling methods, and because of its established use in the study of pro-environmental behaviors specifically.

In addition, two multivariate logistic regressions were conducted, one for each of two pro-environmental behaviors that were assessed as binary (dichotomous) variables

(measures discussed below). Logistic regression differs from linear regression in important ways. First, instead of modeling an increase or decrease in an outcome for a continuously linear variable, logistic regressions model the probability (or likelihood) of a case falling into one of two discrete, mutually exclusive categories (e.g. "Have Not/Have," "No/Yes;" "Null/Target") which are numerically coded as "0/1" for the calculation of probabilities (Wright, 1995). Second, where linear regressions minimize the sum of the squared residuals between observations and the line of best fit (hence the term "ordinary *least* squares"), logistic regressions maximize the probability that the modeled outcome will match the classification of the observed outcome—that the observed "yes" cases are correctly modeled into the predicted "yes" category—which is based on the *maximum likelihood criterion* (Wright, 1995). This criterion is generally reported using the deviance (*-2LL*), which *decreases* as independent variables in the model maximize the likelihood of correct classification, meaning that lower deviance values indicate better model fit; its value is computed by multiplying the log likelihood for the sample by a value of -2 (Wright, 1995). Third, for the inclusion of new blocks into the model, chi-square tests are used rather than F-statistics to check for the significance of whole blocks, and *Cox and Snell* R^2 replaces Adjusted-R^2 as the lower bound of variance explained, where *Nagelkerke* R^2 serves as the upper bound. Fourth, rather than interpreting coefficients as slope changes in terms of magnitude and direction, coefficients in logistic regression are interpreted as the impact on the odds ratio of the outcome variable—that is, how the coefficient increases or decreases the odds of falling into the target ("Yes") category. Rather than positive and negative signs, beta coefficients higher than 1 indicate an increase in the likelihood of the target value of the outcome

variable, and coefficients less than one indicate a decrease in the odds of the target outcome (Wright, 1995). Within PEB literature, multivariate logistic regressions have been used to model a variety of behaviors, including the likelihood of sorting garbage, engaging environmental education programs, and reusing plastic bags (Chen, Peterson, Hull, Lu, Hong, & Liu, 2013), the likelihood of investing in socially responsible investment packages (Nilsson, 2008), and the likelihood that individuals will recycle at home (Pearson, Dawson, & Breitkopf, 2012).

Indicators for each regression block were selected based on a consideration of both theory and previous research. To do this, the command "Display Dictionary" was used to generate a full list of the 2010 GSS items' names, labels, and scale levels (nominal, ordinal, interval), as well as missing values. This information was copied into an Excel spreadsheet, and all 794 items were reviewed for their relevance as proxies for the constructs of the TNEB model. Through this process, indicators were flagged as proxies for pro-environmental behaviors, intention, subjective norm, perceived behavioral control, attitude, and neoliberal ideology. These items were then reassessed in a reflexive consideration of theory, previous research, conformity to the assumptions of regression analyses, and the discretion of the researcher.

Table 1 shows a comprehensive list of the items, their variable names, and anchor points, while Figure 4 includes a diagram of the regression model with variables entered into corresponding regression blocks. For Block 1, a collection of demographic items were assessed for the purposes of control, including total annual household income (*income06*), the age of the respondent (*age*), years of education (*educ*), the sex of the respondent (*sex*) and the respondent's political orientation between liberal and

conservative poles (*polviews*). For Block 2, a single intentional item, (*ihlpgrn*) was used as a proxy for all PEB intentions, stating "I do what is right for the environment, even when it costs more money or takes more time," with anchor points 1 = "Agree strongly," 2 = "Agree," 3 = "Neither agree nor disagree," 4 = "Disagree," and 5 = "Disagree strongly."

Following the work of Terry, Hogg, and White (1999), Block 3 consisted of proxy variables reflecting the constructs from Ajzen's Theory of Planned Behavior (1991). Three items were used to tap subjective norms (*grneffme, othssame, usdoenuf*), while two items were used for perceived behavioral control (*helpharm, toodifme*), and three items reflected general PEB attitudes (*impgrn, grncon, grnexagg*), with one specific item related to concern about global temperature rise (*tempgen1*). In addition, behavior-specific attitudinal items were used in models related to specific behaviors (*carsgen, watergen, indusgen*). First, the model assessing impacts on driving behavior included an item measuring the respondent's assessment of the danger of pollution caused by cars. Similarly, the model for water conservation included an indicator of the danger of the pollution of water systems.

Finally, Block 4 contained the items measuring neoliberal ideology in accordance with the perspective that beliefs in general are more "distant" indicators of behavior than attitudes, norms, and control assessments (Ajzen, 1991; Cordano et al., 2004; Uyeki & Holland, 2000). These included statements such as "Private enterprise is the best way to solve America's economic problems" (*privent*), "People worry too much about human progress harming the environment" (*grnprog*), and "It is the responsibility of the government to reduce the differences in income between people with high incomes and

those with low incomes" (*goveqinc*). These items were grouped by three categories: Market Superiority (*grnecon, grwthelp, privent*); Economic Progress Vs. The Environment (*econgrn, grnprog, grwtharm, harmsgrn*), and Government & Regulation (*busdecid*, [13] *goveqinc, grnintl*). Placing these items in the final block of the hierarchical regression was key because it facilitated the assessment of additional variance explained when neoliberal ideology is introduced into the model, after accounting for controls, intentions, and utilitarian assessments.

A Chronbach's alpha of .61 was obtained for all items in Block 4, suggesting that the indicators fit reliably well together as an assessment of neoliberal ideology. [14] However, given that this value fell below the conventional .70 critical value, and that a scale was not necessitated by excess multicollinearity (as discussed below), the items were entered individually into the regression analysis in an effort to glean as much information as possible from each indicator in its own right. [15]

Though a large number of indicators was used in each analysis, this was supported by precedent in PEB literature (Sterns, 1999; Terry et al., 1999). Moreover, the use of many indicators was facilitated by the large, valid sample size provided by the GSS in each model. Across all models, the lowest number of included cases ($N = 766$) offered a 29.46:1 ratio of participants to indicators in the model; all other models had ratios of 30:1 or better, in excess of the conventional 5:1 minimum and 20:1 conventional recommendation for linear regressions (Harrell, 2001).[16] Additionally, a low degree of multicollinearity in the indicators supported multivariate interpretation by ensuring that the added variance explained in each block was the unique variance explained by new

indicators, rather than a duplication of variance explained by previous indicators, with which the new were highly correlated (Shultz & Whitney, 2005).

Using the procedure outlined above, a collection of hierarchical regression analyses were conducted on multiple pro-environmental behaviors. In accordance with Markle (2013) and Stern (2000), outcomes were selected based on environmental impact, and they represented a range of private and public activities, direct and indirect impacts, and degrees of personal sacrifice. First, linear hierarchical regressions were conducted to assess the frequency of limiting car use (*driveless*), reduction of home energy and water use (*redcehme, h2oless*), and personal sacrifices (*grnsol, grnprice, grntaxes)* for the express purpose of benefiting the environment.[17] Next, logistic hierarchical regressions were used to assess the likelihood of engaging in two types of civic environmentalism: donating money (*grnmoney*) and signing a petition (*grnsign*) for environmental reasons in the past five years.

Support for the hypotheses was assessed through an analysis of the regression results. Specifically, Hypothesis 1 was supported if the introduction of neoliberal items in Block 4 caused a significant increase in R^2 for the model. This was assessed through an F-test for ΔR^2, as shown in Tables 3 through 12. Support for Hypothesis 2 emerged if the neoliberal items in Block 4 produced significant coefficients, as determined by a t-test for each indicator (also shown in Tables 3 through 12). Finally, if the sign of such significant neoliberal coefficients was *negative*, it provided support for Hypothesis 3, i.e. that the neoliberal indicator decreased the behavioral outcome in question. As such, the hypotheses were methodologically nested, meaning that the emergence of negative, significant coefficients (Hypothesis 3) presupposed the significance of those coefficients

(Hypothesis 2), and significant coefficients generally corresponded to an increased R^2 value due to their inclusion (Hypothesis 1).

CHAPTER 4

RESULTS

To assess the impacts of neoliberalism on a variety of pro-environmental behaviors, hierarchical regressions were used to model the Theory of Neoliberal Environmental Behavior proposed in this study. Preliminary analysis of the descriptive statistics are discussed below, before an analysis of each PEB regression result.

Descriptive Statistics

The descriptive and frequency statistics for all items are included in Table 2. An item analysis revealed some skewness among each of the indicators and outcomes variables in the analysis, though the greatest magnitude exhibited across all items was 2.25, well below a critical maximum value of |3.00| (Kline, 2011). Similarly, Kurtosis among all indicators and behavioral outcomes exhibited a maximum magnitude of 3.10—again, well below a critical maximum value of |8.00| (Kline, 2011). Moreover, an analysis of frequency histograms did not suggest skew was caused by social desirability bias in responses, but positive skew in behavioral outcomes (i.e., a higher number of responses indicating less PEB activity) may have instead reflected the lack of openness to PEBs exhibited by Americans, relative to other Western countries from which many studies in PEB originate (Markle, 2014; Patchen, 2010). In addition, an investigation of the correlation matrix between all indicators and outcomes revealed an acceptable degree of multicollinearity, with the highest magnitude of $r = .71$, short of the critical maximum value of |.80| which could otherwise impede regression techniques (Wright, 1995). Finally, collinearity tolerances were all above .60, in excess of the |.10| minimum cutoff; these high values did not indicate duplicate variance in independent items, suggesting

that each indicator used in the model could potentially increase the explanatory power of the model on the merits of its own unique variance (Berkman & Reise, 2012; Shultz & Whitney, 2005).

A few observations in the independent variables are worth noting. First, the average household income in the study was characterized by the category of $35000 to 39000 per year. Second, the sample average in political views was just slightly more conservative than moderate or liberal (M = 2.92), and there were slightly more females (56.4%) than males. Interestingly, the average score for intention across the sample was 2.38, indicating more agreement with intending to help the environment, and indeed, 49.2% of the sample stated that they agree with the intention, even when it costs more or takes more time to help the environment. Environmental concern was negatively skewed with a mode of "very concerned," indicating that more people had concerned attitudes about environmental issues than not. Further, disagreement with the assertion that there are more important things to do than worry about the environment was high (M = 2.37). Interestingly, the perceived danger of environmental degradations decreased from water pollution (M = 2.96) to pollution caused by industry (M = 2.89), to the pollution caused by cars (M = 2.53), and finally an rise in global temperatures (M = 2.45). This last trend in perceived danger appears to highlight a curious aspect of neoliberal environmentalism: a disconnection between pollution and the resultant dangers of climate change, whereby immediately recognizable consequences (water contamination, smog) are given more weight than long term consequences of global temperature rise.

Among the indicators of neoliberal ideology, it is telling that more individuals supported government regulation over businesses to protect the environment than not

(87.4%), and that they also supported international regulations which the U.S. should be made to follow (M = 1.03). They agreed that economic growth will slow down unless the environment is taken care of (M = 1.60), and further believed that almost everything we do in modern life harms the environment (M = 1.76). However, the majority disagreed that *economic growth* always harms the environment (55.5%), and they tended to assert private enterprise as the best solution to America's economic problems (M = 2.25). Above all, they asserted that to protect the environment America needs economic growth, with a mode of "Agree" (50.4%) and a high average (M = 2.46). Thus, what emerges from these figures is a quantitative picture of the sample that reflects the American public in 2010: expressing more concern and support for the environment while still endorsing the market and growth imperatives that endanger it.

Hierarchical Regression Results

The results of the first hierarchical regression, on driving less for environmental reasons, are shown in Table 3.[18] The entry of Block 1 (as shown in Table 3) revealed an *Adjusted-*R^2 = .05, $F(5, 760) = 8.33$, $p < .001$, meaning the Block 1 model explained approximately 5% of the variance in the behavioral outcome. An increase in age increased driving attenuation, β = .09, as did liberal political views (β = .19). However, higher income appeared to have a negative impact on driving reduction (β = -.10). At Block 2, the explanation of variance increased dramatically to approximately 11%; at this point, age and income became insignificant, and political views and intention (β = .27) became the primary factors involved in driving frequency. When TPB indicators were entered in Block 3, *Adjusted-*R^2 rose to .17, based on a significant addition of variance explained, ΔR^2 = .07, $F(10, 749) = 6.03$, $p < .001$. Political views became insignificant,

but the indicator for intention remained a positive, significant indicator. In addition, stronger attitudes about the dangers of car pollution (β = .11), the perceived ease of helping the environment (β = .10), and the subjective endorsement that the United States is doing too little to help the environment (β = .08) all reflected a significant increase in driving reduction. This shows initial support for the TPB model, since one indicator from each construct (subjective norm, perceived behavioral control, and attitude) was a significant positive coefficient, and the influence of each was in the direction anticipated by the theory (Ajzen, 1991). This aligns with previous research on the explanatory power of the TPB model in explaining car use reduction (Bamberg & Schmidt, 2003).

The indicators of neoliberal ideology were entered in Block 4. This resulted in a significant increase in the change of *Adjusted-*R^2 to 19%, with an added 3% of variance explained, ΔR^2 = .03, $F(10, 739) = 2.52$, $p < .005$. This provided initial support for Hypothesis 1, that institutionalized neoliberal endorsements add significantly more explanatory power to the solely utilitarian model of the Theory of Planned Behavior. In addition, two coefficients from this block emerged as significant predictors, supporting Hypothesis 2. First, the assertion that economic progress is not hindered by the environment had a negative impact on driving attenuation (β = -.12)—i.e., this indicator served as a detrimental determinant of driving reduction, directly supporting Hypothesis 3. This triangulates the findings of Tikir & Lehmann (2011), that an inclusion of worldview in the TPB model increases the explanation of variance in PEBs. Additionally, the observation in the current study that explained an attenuation of car use speaks more generally to the issue of pro-environmental transportation choice in tandem with Tikir &

Lehmann, since their findings showed an *increase* in public support for the use of public transportation (2011).

However, in opposition to Hypothesis 3, the assertion that "people worry too much about human progress harming the environment" appeared to *increase* driving attenuation (β = .10), apparently supporting this pro-environmental behavior. However, it should be noted that, because this item asserts "human" progress and not "economic" progress, some caution should be used in the interpretation of this as a positive coefficient, as human progress may have been conceptually ambiguous.

At Block 4, it is also informative to review the items from other blocks. Intention, car pollution attitude, perceived ease of control, and U.S. environmental effort all remained significant when neoliberal items were entered, suggesting overall support for the Theory of Neoliberal Environmental Behavior as an institutional augmentation of the Theory of Planned Behavior. Interestingly, age reemerged as significant and positive (β = .09), while income again receded in significance. Overall, the model for car use reduction supported all three research hypotheses.

Most striking was that political views were no longer significant with the inclusion of this block. This suggests that neoliberal ideology reflects a pervasive institutional framework that undermines political affiliation in environmental actions, and appears to play a mixed role in influencing driving behavior. This corroborates the assertion by Mudge (2008) that neoliberalism cannot simply be confined to the rhetoric of the Conservative Right, but that it must be viewed as an underlying ideology across the aisle of American political discourse. With respect to social psychological research, this also speaks to the findings of Coffey and Joseph (2012), in that the measurement of

neoliberal ideology appears to undermine the impact of political ideology on pro-environmental behavior.[19]

The results for modeling water use reduction and conservation are displayed in Table 4. As can been seen from Table 4, the introduction of controls explained virtually no variance in water consumption, and none of the controls produced significant coefficients. With the inclusion of intention in Block 2, the *Adjusted-R^2* increased dramatically to .07, suggesting that intention alone accounted for 7% of the variance in saving water for environmental reasons. The addition of TPB variables in Block 3 increased this number slightly, with a significant $\Delta R^2 = .02$, $F(10,777) = 2.03$, $p < .05$, resulting in 8% explained. Interestingly, environmental concern became an important, positive factor at Block 3, with a β value of .08, but one's attitude about the danger of water pollution was *not* a significant indicator. Again, intention was a significant, positive predictor across Blocks 2 through 4, and it exhibited the highest beta magnitude ($\beta \geq .21$, depending on the blocks).

The inclusion of neoliberal items at Block 4 again yielded support for Hypothesis 1 with a significant increase in the explanatory power of the TNEB, this time to an *Adjusted-R^2* of .09. With the inclusion of this block, environmental concern became insignificant, while the reduction in perceived difficulty in helping the environment became a significant, positive coefficient ($\beta = .09$). What's more, the addition of neoliberal indicators added *more* explanatory power to the model (as assessed by comparing ΔR^2 values) than the attitude, subjective norm, and perceived behavioral control indicators from the Theory of Planned Behavior in Block 3. Upon inspection of the coefficients, two neoliberal items were significant (H2), and both were negative (H3).

Asserting that the economy is not dependent on the environment (β = -.12), and that economic growth does not harm the environment (β = -.10) were both negative predictors of reducing water consumption. What is striking about these indicators of neoliberal ideology is that they were significant when controls and indicators of utilitarian assessment were *not*—views about the economy and economic growth both had greater magnitudes of impact (as identified by their beta values) than perceived behavioral control and were significant where attitudes, subjective norms, and demographics did not appear to play a role. Additionally, political views did not emerge as significant during any block in this model. This suggests clear support for all three research hypotheses, but it also indicates that, like the findings of Tikir & Lehmann (2011), the underlying institutional variables can emerge with more meaningful impacts on environmental activity than the utilitarian model placed in front of it, and those institutional forces can be influential even when the utilitarian model itself does a modest job of explaining the behavior in question.

The reduction of home energy consumption for environmental reasons appeared not to be impacted by neoliberal indicators, with an insignificant addition of variance explained, ΔR^2 = .01, $F(10, 768) = 1.22$, n.s. Table 5 shows the regression results for this behavior. At Block 1, an increase in age and a more liberal political perspective effected a reduction in home energy use. With the inclusion of intention, the impact of age was moderated, though political views remained significant. In both Block 3 and Block 4, concern for the environment and intention were the only significant indicators (with β = .13 and β = .26, respectively), buttressing the results of Scherbaum et al. (2008) that environmental intention is a significant predictor of energy reduction. Similar to the

results of driving practice, the impact of political views disappeared when these blocks were entered, suggesting that concern for the environment undermines the impact of political views on energy consumption, in contradiction to Coffey & Joseph (2012). The change in R^2 with the inclusion of neoliberal items at Block 4 was not significant, but the entire model was, with an *Adjusted*-R^2 value of .17, F (26, 768) = 7.33, $p < .001$, suggesting that approximately 17% of the variance in home energy reduction could be explained by the research model. Last, it is intriguing that attitudes toward the specific dangers of industrial pollution and global warming were not significant, while overarching general concern about environmental issues was; this may indicate that participants recognize a connection between energy consumption and environmental danger but not the specific mechanisms through which they are related (i.e. the increase in atmospheric CO_2 caused by industrial energy production).

Similar to the results for reducing home energy consumption, the frequency of avoiding products for environmental reasons was not impacted by neoliberal endorsements. Again, political views began as significant, but they became moderated by the introduction of general environmental concern and were no longer significant in Block 3 (as shown in Table 6). Given an extensive body of marketing literature on environmental purchasing behaviors (Kautesh & Soni, 2012; Starr, 2009; Suki, 2013), it is informative to note that global environmental concern and intention both played a significant, positive role where age, education, income, sex, and political views were insignificant in influencing purchasing decisions. The Block 4 model in which these two indicators alone were significant explained 22% of the variance in avoiding products for environmental reasons, $F(26, 766) = 9.51$, $p < .001$.

With respect to recycling frequency, control variables played an important part. Liberal political views, higher incomes, more education, and higher age all increased the frequency of recycling for environmental reasons (as shown by Block 1 in Table 7). These variables remained important when one's general intention to help the environment was included at Block 2. When TPB items were entered through Block 3, again political views were moderated and lost significance. At Block 3, increased concern about the dangers of industrial pollution (β = .12) and general concern for environmental issues (β = .10) both facilitated recycling while age, education, and income all remained significant and positive indicators. With respect to previous literature, this builds on the findings of Oom Do Valle et al. (2005) and Terry et al. (1999) that the TPB performs well in modeling recycling behavior. However, the inclusion of neoliberal indicators at Block 4 resulted in no significant change in explaining the variance in recycling frequency and therefore provided no support for Hypotheses 1 through 3.

In contrast, the TNEB worked well in modeling one's willingness to pay higher prices to protect the environment. The results—shown in Table 8—indicated that only political views were significant when entering control variables in Block 1, and that liberal political views specifically increased willingness to pay higher prices (β = .28). As expected, the inclusion of environmental intention at Block 2 was also significantly positive. Strikingly, the entry of Block 3 into the regression analysis revealed that a participant's attitude about the dangers of global warming played a significant role in his/her willingness to pay higher prices to help the environment. Specifically, when one perceives a rise in the world's temperature caused by climate change as more dangerous, s/he was more willing to pay higher prices to protect the environment (β = .12). In

addition, general concern about environmental issues was also a positive, significant indicator of willingness to pay higher prices (β = .17), as was the attitude that environmental problems are not exaggerated (β = .12) and the subjective norm that the United States is doing too little to help the environment (β = .13). Knowing whether the way one lives is helpful or harmful to the environment had an interesting, *negative* impact on willingness to pay higher prices (β = -.08), suggesting that the more ambiguous one's perception of the impact of one's life on the environment is, the more open to paying higher prices s/he becomes. One explanation for this could be that participants with higher levels of perceived control may assert their lifestyles as not harmful to the environment and therefore not need to pay higher prices. Yet another explanation could be that participants recognize their lifestyles do impact the environment, but they don't see paying higher prices as a viable solution. Conversely, perhaps those who find it difficult to determine whether their lifestyles harm or help the environment view paying higher prices as a clear path to mitigate such ambiguity. Whatever the case, this finding was curious, for it may constitute a *de facto* neoliberal institutional influence, in the sense that a lack of clear understanding about lifestyle impacts results in a default, market-based approach to solving environmental problems—akin to voting with one's money, one may also pay to help the environment.

The entry of neoliberal indicators in Block 4 resulted in a significant change of accounted variance [ΔR^2 = .04, $F(10, 762) = 3.99$, $p < .001$]. This resulted in a high value of *Adjusted-*R^2 for the model, explaining 30% of the variance in willingness to pay higher prices (H1), and all previously significant indicators from Blocks 1 through 3 remained significant at Block 4. An inspection of the coefficients revealed that a belief that the

environment should be superseded by market concerns about prices and jobs had a significantly negative impact on willingness to pay higher prices to help the environment (β = -.11). Similarly, asserting that people worry too much about human progress harming the environment also had a negative impact (β = -.08), as did the position that economic growth does not harm the environment (β = -.10). Viewing private enterprise as a solution to America's economic problems was a positive indicator of paying higher prices for the environment (β = .08), which is an intuitive finding: those who view private enterprise as a solution to economic problems could reasonably be expected to view private enterprise as a solution to other problems, including environmental ones. Though this last indicator contradicted the third research hypothesis, the other indicators in the model aligned with the hypothesized impact of neoliberalism as stated in Hypothesis 3: in this case, neoliberal ideology seems to have a conflicting impact, where the emphases on economic growth and human progress both decrease the willingness to pay increased costs for environmental benefit, but the assertion of private enterprise as a solution still frames this behavior as permissible. In total then, paying higher prices to help the environment appears to be a quasi-acceptable neoliberal environmental behavior.

It is also important to note that with the addition of Block 4, political views remained significant in modeling a willingness to pay higher prices. That both political views and neoliberal ideology were simultaneously significant suggest that both play separate but key parts in influencing individuals' willingness to use their purchasing power to help the environment. Because hierarchical regression does not articulate path analysis between blocks, it is reasonable to observe that while controlling for neoliberal

institutional influences, liberals are still more willing to pay more to help the environment than conservatives.

While the results for paying higher prices were mixed, the results for willingness to pay higher taxes were more concrete. Again, political views were significant, with more liberal respondents more willing to pay higher taxes for the environment ($\beta = .29$), as shown in Table 9. Intention was also significant in Block 2. At Block 3, political views remained significant, while concerns about the danger of climate change, general environmental concern, and the underestimation of environmental problems all played significant roles in increasing willingness. This adds evidence for the use of TPB in modeling support for higher taxes as a single behavioral outcome, where previous research has assessed this willingness as part of collapsed scales (Cordano et al., 2004; Lin, 2013).

The inclusion of neoliberal items to paying higher taxes (in Block 4) resulted in a significant increase in ΔR^2, $F(10, 766) = 4.79$, $p < .001$, and the model at Block 4 explained about 29% of the variance in willingness to pay higher taxes for the environment—supporting H1. It is interesting to note that in this particular model, the addition of neoliberal items resulted in as much ΔR^2 (4%) as the inclusion of intention at Block 2 (4%), suggesting that the neoliberal institutional framework influences willingness to pay higher taxes for the environment *as much as an intention to help the environment*. From the coefficients, this analysis showed full support for Hypotheses 2 and 3: a rejection of the government's role in mitigating income inequality ($\beta = -.09$), an assertion that market concerns should supersede environmental ones ($\beta = -.11$), and the belief that people worry too much about human progress harming the environment ($\beta =$ -

.08) were all significant, negative influences. Importantly, political views, general environmental concern, and the belief that environmental problems are not exaggerated all remained significant in the final block. This again gives credence to the idea that political views and neoliberal beliefs play separate but significant roles in impacting pro-environmental behavior: in this case, to use Antonio's (2013) terms, high levels of market liberalism and low levels of social liberalism resulted in two distinct, detrimental impacts. In comparison to the previously investigated behavior, willingness to pay higher prices conforms to a neoliberal framework—which explains the mixed evidence for Hypothesis 3 in that case—but paying higher taxes to help the environment runs in direct contradiction to the framework of neoliberal environmentalism, and that results in a unidirectional attenuation of pro-environmental willingness to pay taxes.

As has been shown in climate science research (IPCC, 2014b; IPCC, 2014c), the effects of climate change are anticipated to impact a variety of individuals extensively in the next 50 to 100 years. Accordingly, it is illuminating to assess how willing participants would be to accept cuts in their standard of living in order to protect the environment. Interestingly, this analysis showed that education level—alongside political views and intention—was an important demographic consideration in Blocks 1 and 2 (Table 10). Higher levels of education played a significant, positive role in the willingness to sacrifice one's standard of living ($\beta \leq .08$). However, with the inclusion of utilitarian assessments in Block 3, both political views and education became insignificant: in their place, a variety of noteworthy coefficients emerged. First general environmental concern ($\beta = .24$) was a significant, positive indicator. Second, the subjective norm of feeling environmental impacts on one's everyday life ($\beta = .09$) also significantly facilitated

willingness to sacrifice standard of living. The significance of everyday life impacting willingness to sacrifice is important, echoing the work of Scannell & Gifford (2013) that suggests that psychological proximity—i.e. the perception of environmental problems 'close to home'—increases pro-environmental behavior. In addition, a high degree of perceived behavioral control ($\beta = .12$), and the subjective norm that the United States does too little to help the environment ($\beta = .07$) were both significantly associated with cuts in standard of living. Overall, then, when individuals felt the impact of environmental problems, believed they could do something about them, and perceived the United States to be doing too little to address them, they were more receptive to changing their lives as a solution to environmental peril.

The entry of Block 4 revealed a striking challenge to this utilitarian model. The inclusion of neoliberal items resulted in a significant increase in ΔR^2, [$F(10, 767) = 3.88$, $p < .001$] with a total *Adjusted*-$R^2 = .26$, $F(25, 767) = 12.39$, $p < .001$. But when neoliberal items were entered, the impact of subjective norms—feeling environmental problems in everyday life and viewing others as doing too little to address them—*went away*. This suggests that a neoliberal framework moderates the impact of subjective norms on willingness to sacrifice one's standard of living. That is, when considering neoliberal beliefs as influential on sacrificing standard of living, the perception of environmental problems impacting everyday life as well as a concern that the United States is doing too little no longer carries any weight. In other words, neoliberal beliefs undermine the means-ends calculus of neoliberal agency, and subvert the influence of subjective norms in everyday life. Crucially, of the neoliberal items which were significant, *all of them were negative*: stressing jobs and prices over the environment,

rejecting international regulations, and asserting that people worry too much about human progress all decreased the willingness to sacrifice standard of living, while simultaneously erasing the perceived immediacy of environmental harm in everyday life. Though this trend appeared only in this model, it warrants future investigation, as it unequivocally supports the research hypotheses and quantitatively exhibits how neoliberal ideology appears to contradict—and indeed undermine—experiences and perceptions in everyday life that recognize environmental hazards and facilitate the meaningful behaviors that address them.

Logistic Regression Results

Two final pro-environmental behaviors were assessed using nested logistic regression techniques. These two behaviors were whether the respondent had signed a petition or donated money for an environmental cause in the past five years. Because these questions used simple "Yes/No" binary response anchors, logistic regressions were used instead of hierarchical linear regressions, and the logistic regression blocks were identical to those used in the hierarchical linear regressions.

For the likelihood of participants signing a petition for an environmental issue, the model chi-square was significant, $\chi^2(5) = 73.38$, $p < .001$. This model had a lower *-2LL* value (771.58) than the constant model alone, and it accounted for between 9% and 14% of the variance in the likelihood of signing a petition for an environmental issue, with over three quarters of the respondents accurately classified (*PAC* = 77.3). An analysis of the control variables revealed that education, sex, and political views all played significant roles in the odds that a participant would sign a petition to help the environment. Specifically, males ($\beta = .63$), those with higher education ($\beta = 1.17$), and

self-identified liberals (β = 1.43) all had higher odds of signing. The inclusion of intention at Block 2 resulted in an increase in explanatory power [*Pseudo-*R^2 = .10, $\chi^2(6)$ = 81.83, $p < .001$] and a decrease in deviance (*-2LL* = 763.14), both indicating more explanatory power than the consideration of controls by themselves (though education, sex, and political views all remained significant at Block 2). Interestingly, at Block 3, intention became *insignificant*, while controls remained the same. The subjective norm that environmental issues impact one's everyday life become a significant coefficient (β = 1.39), increasing the odds that an individual would sign a petition for the environment, and mediating their global environmental intention. This corroborated the findings of other investigators (Chen et al., 2013; Scannell & Gifford, 2013) that perceived exposure to environmental problems in one's life has a direct influence on the likelihood of engaging in pro-environmental activities.

The inclusion of neoliberal items at Block 4 yielded an increase in explanatory power (explaining 15% to 24% of petition signature variance), a decrease in deviance (*-2LL* = 712.85), and a significant model overall, $\chi^2(25) = 132.12$, $p < .001$, but it failed to generate significance as an exclusive set of predictors ($\chi^2(10) = 13.83$, n.s). This provided little support for Hypothesis 1. However, in support of Hypothesis 2, two indicators of neoliberal ideology were significant: the idea that economic growth does not harm the environment, and the view of economic growth as an environmental solution. The first reflected—counterintuitively—an *increase* in the odds of signing (β = 1.34), whereas the second reflected a decrease (β = .78) in support of Hypothesis 3. While the first is difficult to interpret without further investigation, the second shows that viewing economic growth as a solution to environmental problems decreases the odds of signing a

petition to help the environment. Put differently, viewing economic activity as a solution to environmental issues was diametrically opposed to engaging in democratic activity as a solution to environmental issues. Alone, this second indicator reflects Coleman's (2013) view that neoliberalism replaces democratic process with market exchange. In tandem with the other significant coefficient from this block, the two contradictory coefficients may reflect a cultural cognitive dissonance about the impact of the economy on the environment. Future investigation could prove fruitful in clarifying this discrepancy.

Lastly, a logistic regression was conducted in order to model variation in the likelihood that a participant would donate money for an environmental cause. Again the control model was significant, $\chi^2(5) = 76.98$, $p < .001$, with a deviance of 777.89. With a *Cox-and-Snell-R^2* of .09 and a *Nagelkerke-R^2* of .14, the control model itself explained between 9% and 14% of the variance in donating behavior. Additionally, 77.5% of the observed responses were accurately classified with the theoretical model. An analysis of Wald's tests for significant coefficients revealed that higher education ($\beta = 1.16$), higher household income ($\beta = 1.06$), and liberal political views ($\beta = 1.39$) all increased the odds that a person would donate money to help the environment, and it is intriguing to note that income exhibited the least magnitude of these three controls, suggesting that education and political alignment were marginally more important than the amount of money one has when modeling financial contribution. With the inclusion of intention at Block 2, all statistical indications of explanatory power model significance improved, and both intention and the previously significant controls retained significance.

Similar to the results for signing a petition, the inclusion of Block 3 eliminated the significance of environmental intention, as well as the significance of political views. In both donating money and signing a petition, the lack of significance for intention reflects Stern's et al. (1999) observation that forms of civic environmentalism are elusive to model with common theories of behavior. Again, the subjective norm of environmental problems having a direct effect on a participant's life appeared to increase the odds of donating ($\beta = 1.30$), along with global environmental concern ($\beta = 1.60$), the perceived lack of difficulty to help the environment ($\beta = 1.42$), and the idea that the United States does too little to help the environment ($\beta = 1.50$). This suggests strong support for the Theory of Planned Behavior, as each construct (subjective norm, perceived behavioral control, and attitude) was represented as significant in the model, explaining between 18% and 28% of the variance in the likelihood of environmental donation.

Neoliberal items were not significant as a discrete block, $\chi^2(10) = 4.37$, n.s., but the model overall was, $\chi^2(25) = 164.71$, $p < .001$. The inclusion of neoliberal ideas improved the value of deviance, reducing the *-2LL* from Block 3 (694.53) to 690.16, and it additionally increased the classification (*PAC* = 80.6) and variance explained (19 to 28 percent). An analysis of the coefficients revealed no significant impacts from neoliberal ideas, contradicting both Hypotheses 2 and 3, and suggesting that, in this analysis, neoliberalism does not impact the likelihood that individuals will donate money to help the environment.

CHAPTER 5

DISCUSSION

The purpose of this study was to assess the impact of neoliberal ideology on a variety of pro-environmental behaviors. The proposed model, the Theory of Neoliberal Environmental Behavior, was found in certain cases to explain more variance in the outcome variables than the base Theory of Planned Behavior alone; in many instances, neoliberal endorsements were found to have significant, negative impacts on behaviors benefiting the environment, even when controlling for demographics, political views, and utilitarian assessments.

Table 13 summarizes the support for the research hypotheses for each pro-environmental behavior investigated. From this table, it is clear that endorsing neoliberalism appears to be an inhibitor of certain pro-environmental behaviors, while for others it plays no significant role. However, an analysis of the table as a whole yields a stark result: the behaviors that align with a neoliberal form of environmentalism—recycling, buying green, reducing home energy use, and using money as a form of civic engagement—do not appear to be significantly impacted or inhibited by neoliberal ideology. To use Stern's (2000) gradation of PEBs, these behaviors tend toward private, direct activities, with relatively low levels of sacrifice, and little impact for the environment. However, those that tend to resemble public, institutional, indirect activities with high degrees of sacrifice and impact—decreasing car use, reducing water consumption, paying higher prices and taxes, and taking cuts in standard of living—are significantly impacted, and almost always negative. Rather than conforming to any one spectrum, the impact of neoliberal ideology appears to span across the divisions

developed by Stern (2000), seemingly across its own separate divide. Thus, in consideration of all the analyses presented here, the overarching finding is that when a pro-environmental behavior fits within the framework of neoliberal environmentalism, neoliberal ideology has no impact—positive or negative—on that behavior, but when the behavior is one that challenges a neoliberal institutional framework, neoliberal ideology *does* matter, and its influence is to attenuate, reduce, and decrease the frequency or likelihood of acting to help the environment.

This finding has serious implications: First, it exposes neoliberalism as a hegemonic ideology which plays a detrimental, deterministic role against the institutional, high-impact behaviors most needed for climate mitigation. A neoliberal environmentalism has little ability to accommodate—much less advance—the necessary individual actions required to address the immediate challenges of global warming. Changes to lifestyle, increased governmental regulations, rethinking the use of transportation, and the democratic engagement of environmental problems cannot be rectified by an orientation hinging on growth imperatives, deregulation, consumer freedom of choice, and market fundamentalism. This study ultimately shows that a tendency to blindly follow market forces necessitates a blind eye to the resultant *forcings* it produces. This conclusion is not difficult to draw, for it merely asserts that neoliberalism as an ideology does not accommodate activities that contradict that ideology—the same assertion could be made about nearly any worldview. What makes this finding important though, is that *the activities adversely impacted by neoliberalism are vital to the continued existence of life on this planet*. As multiple scientists and activists across disciplines have shown (IPCC, 2013; Markle, 2013; McKibben, 2010;

Stern, 2000), the use of fossil fuels, the conservation of water, the regulation of production, and the way we socially construct a "standard of living" *must* change to preserve the very chance of living at all. From the evidence presented here, neoliberal thought debilitates such changes, and it must therefore be abandoned in favor of a more holistic orientation that can rectify a burgeoning growth imperative with the imperative natural limits to growth.

Second, neoliberal ideology was not found to significantly *support* any of the behaviors that align with its tenets. In the models of recycling, green consumption, home energy reduction, and financial contribution, neoliberal indicators played no significant role. This underscores the irony of the claim that self-regulation through free enterprise can solve environmental problems, for the evidence here finds no benefit to even the private, low-impact behaviors adherent to neoliberal environmentalism. From this, it can be said that not only is neoliberalism a detrimental determinant to significant environmental activity, it is also not a favorable determinant to the private environmental activities of neoliberal agency. The "superiority of individualized, market-based competition over other modes of organization" is here shown insufficient as a basis for global warming mitigation and adaptation strategies (Mudge, 2008, p. 706).

A third key finding, though not as clear cut, warrants mention. In the cases of driving less often, paying higher prices, and signing a petition for environmental reasons, neoliberal indicators produced both positive and negative coefficients. While further research is needed to replicate and illuminate these results, such numerical contradictions could potentially signal ideological contradictions within neoliberalism itself. As Harvey (2005) has noted, the philosophy of neoliberalism is not entirely coherent, and this effects

a “tension between the theory of neoliberalism and the actual pragmatics of neoliberalization” (p. 21). The willingness to pay higher prices to help the environment appeared to reflect that kind of tension: the behavior is rooted in the free choice of demanding consumers, and executed through private enterprise; but the reason for the behavior is one that does not articulate with the basic assumptions of economic growth, nor a narrow scope of economic utility. Thus, when the calculus of rational assessment is broadened to include things like environmental harm or ethical production in its bottom line, it may be that other elements of the ideology—such as a fixation on growth or human progress—arise to maintain the hegemony of the neoliberal framework. Ultimately, this explanation must be approached with caution until future study can address it further.

Beyond these findings, many important patterns emerged in the data. Across a multiple models, neoliberal indicators appeared to moderate the influence of politics on PEBs, and in some models both were simultaneously significant. This suggests that the two play separately important roles in considering pro-environmental behavior, and that neoliberalism cannot be operationally conflated with Republicanism or the Conservative Right. This helps to contextualize the specific work of Coffey and Joseph (2013) that found political views were determinants of pro-environmental behavior, and it more broadly supports Stephany Mudge’s claim that “neo-liberalism reaches well beyond nationally bound politics and does not mesh neatly with right-left distinctions” (2008, p. 721). As Mudge (2008) cautions and this research reverberates, this common misstep can cause social scientists to inadvertently overlook the neoliberal projects of the left, as well as the pervasiveness and ubiquity of the philosophy across the political landscape.

This study also found substantial support for Ajzen's (1991) Theory of Planned Behavior. Specifically, environmental intention was important in almost all models of PEB. Further, an attitude of general environmental concern consistently emerged as a positive influence, where specific types of concern thought theoretically relevant to the behavior in question did not (e.g. general environmental concern was a significant coefficient for conserving water, while concern about water pollution was insignificant). In the context of the NEP scale (Dunlap et al., 2000; Van Liere & Dunlap, 1981), this aligns with the view of concern for the environment as "organized into a broad and coherent sense" (Xiao & Dunlap, 2007, p. 471), and this view may also explain why the specific concern about climate change only played a significant role in the modeling of willingness to pay higher prices. Alternatively, these examples may instead suggest that individuals with a heightened sense of general concern about environmental danger recognize specific PEBs as beneficial, but that they may not grasp the specific mechanisms through which those behaviors relate to environmental benefits or harms, and their attitudes about those mechanisms are therefore neutral. It is also worth noting that all three constructs from the TPB—subjective norm, perceived behavioral control, and attitude—exhibited significant influence on the behaviors in the directions predicted by Ajzen's (1991) theory, echoing the findings of previous research for the utility of the TPB model (Bamberg & Moser, 2007; Bamberg & Schmidt, 2003; Steg, 2005, Terry et al., 1999).

With respect to demographic controls, political views were sometimes discretely influential and other times moderated by additional factors (notably neoliberal ideology or environmental concern). When controlling for all other variables in the model

(including neoliberal ideology), liberals were still more willing to pay higher prices and taxes for the environment, and they were more likely to sign a petition. This may align with Terry's et al. (1999) findings regarding the importance of self-identity as a catalyst to engage in behaviors that align with the roles of that identity: by already considering oneself "liberal," liberal respondents may have viewed themselves as more supportive of specific pro-environmental behaviors only because these were activities that liberals would be expected to support. What's more, the influence of sex was not found to be significant in this study, except once: males were more likely to sign petitions than females, which contradicts previous literature asserting women are more likely to engage in PEBs (Coffey & Joseph, 2013; Patchen, 2010). Reflecting previous research, however, when education emerged as significant, higher education levels were always associated with higher rates and odds of PEBs (Coffey & Joseph, 2013; Liu & Sibley, 2012; Starr, 2009). As Patchen (2010) notes, income level and age are generally not associated with pro-environmental behavior frequency, and overall this study reflected that trend. However, when age was significant, its impact was surprisingly positive, indicating that older individuals drove less often and recycled more often than their younger counterparts.

A collection of singular results also warrants further investigation. First, neoliberalism explained more variance in water use than the Theory of Planned Behavior, and as much as intention in paying higher taxes. Like Tikir & Lehmann (2011), this beckons an important research question: in which cases, and under what conditions, do worldviews and ideologies usurp rational assessments altogether? This is important because it could further expose that while neoliberal agency imbues the actor with a

means-ends algorithm, the nature of the ideology on which it is based may usurp that algorithm through an underlying cultural-cognitive dissonance. The TNEB model of accepting cuts to standard of living is a prime example: when modeled only with the rational Theory of Planned Behavior, the experiences of environmental problems in everyday life factored into rational choices about standard of living. When neoliberal ideology was entered, the warnings of everyday life disappeared. This shows that the neoliberal ideology on which such an environmentalism is founded has a tendency to undermine the very means-ends appraisal system assumed by a neoliberal agency: indeed, the equation cannot be solved if its only answer contradicts the very symbols of its calculus. This may also shed additional light on why the subjective norm construct in the Theory of Planned Behavior has such empirically low support (Armitage & Conner, 2001): the assessed influence of others in everyday life may be simultaneously overshadowed by background assumptions and overpowered by personal calculations. While the base TPB model addresses the latter, the consideration of institutional forces is often not incorporated, which is an addition of the current study.

Theoretically, this investigation followed the insights of Mouzelis (1995) to pragmatically adapt the conceptual model of the Theory of Planned Behavior with a growing sociological critique of neoliberal ideology, drawing on Martin Patchen's (2010) larger framework of environmentally significant behavior. As such, the Theory of Neoliberal Environmental Behavior combines both neoliberal ideology and neoliberal agency to model the inadequacies of neoliberal environmentalism. With respect to the paradigmatic goal of this endeavor, the results of this study also support bridging the gap between social-psychological models and sociological critiques, incorporating the latter

into the former to enhance empirical investigation and illuminate perspectives in both. However, in relation to existing literature, this study serves neither as a beginning nor an ending to the critique of neoliberalism and its impact on environmental outcomes—rather, it is a triangulation. To the author's knowledge, this is the first investigation which has assessed this relationship through quantitative empirical means at the individual level, and this research appears to substantiate the assertions throughout multiple bodies of literature that neoliberalism may constitute detrimental determinants of environmental action (Antonio, 2013; Klein, 2014; Mudge, 2008). This is not the first time this critique has been levied, but it does appear to be the first time it has been levied in this way. It is certainly hoped that additional critiques will build on its methods and approach.

The generalizability of these results is also worth noting. As a representative sample of the United States population, and with a high response rate for most variables, a good deal of confidence may be applied when generalizing these results within the American context. Accordingly, such representative research should be considered when developing behavior change programs within the United States, and many of the insights regarding specific pro-environmental behaviors above could prove very useful for program managers and activists working to effect pro-environmental behaviors in practice.

That the different PEBs exhibited different collections of significant indicators echoes the assertion in PEB literature that the explanations of these behaviors are influenced in multivariate constellations of sometimes conflicting variables (Patchen 2010; Stern 2000). As Stern (2000) asserts, no one model can account for all pro-environmental behaviors, and while Patchen's (2010) framework comes close, its sheer

size precludes it from total empirical modeling. To be sure, the TNEB is not advanced as exhaustive or exclusive: it does not consider all the important ideological influences on pro-environmental behavior, and it is not the only way to measure the relationship between market fundamentalism and environmental activity. The adaptations of other models (e.g. the VBN model) could significantly corroborate the substantive findings of the current study, and it is important to keep in mind that the map is not the territory, and the model is not the phenomenon. The main purpose of this study was to investigate neoliberalism and environmental activity, not advance a particular mode of that investigation. That said, the TNEB performed well as a heuristic device, and it increased the explanatory power of Ajzen's widely used theory.

Some important limitations within the study should be considered. First, the measurements of pro-environmental behaviors in this endeavor were derived from self-report by respondents, and as such caution should be used in interpreting these results, since these reports may be inaccurate due to social desirability bias, poor assessments of one's actual behavior, or differing interpretations in response-anchor wording (how truly often is "often?"). In addition, a lack of items warranted the use of hierarchical regression in lieu of structural equation modeling, though the latter would have allowed for a more detailed analysis of the predictive capacities of the variables of interest, as well as their potentially mediated relationships. Further, a detailed inquiry into the factor structure of neoliberal ideology was not undertaken here,[20] and careful item development and analysis should be conducted to ensure indicators of neoliberalism as an institutional framework do indeed reflect what they are here used to measure. Finally, because this study was conducted through a secondary data analysis, future research should focus on primary

data collection to more completely operationalize and explicitly measure control, TPB, and neoliberal items, to benefit the empirical investigation of neoliberalism in general as well as the Theory of Neoliberal Environmental Behavior specifically.

By covering multiple pro-environmental behaviors, merging frameworks, and quantitatively assessing the impact of neoliberal ideology, this study provides a wealth of avenues for future research. First, more quantitative studies investigating the relationship between neoliberalism and types of pro-environmental behavior would help strengthen both sociological and social-psychological literature—in critiques of neoliberalism, in more fully understanding pro-environmental behaviors, and incorporating institutional analysis into cognitive modeling. Undoubtedly, this study stresses a need for scale development, dimensionality, and factor analysis for the domain of neoliberalism, in order to facilitate future research. Other studies could engage the substantive findings noted above, especially how neoliberalism, rational calculation, everyday life, and political views intersect to influence environmental action. Two PEBs which were not considered here are the acts of demonstration and civil disobedience for environmental causes, which have been historically difficult to model (Stern, 2000). As neoliberalism minimizes forms of governance and civic participation that deviate from freedom of choice and private exchange, it would be interesting to see its impacts on the explanatory power of models for these kinds of PEBs. However, given the breadth of knowledge about the dangers of neoliberalism, perhaps the most important investigations have nothing to do with continually exposing this relationship, but asking the vital question: how can neoliberal thinking be changed? What can take its place as a mode of interaction, thought, policy, and exchange? How can individuals be engaged to escape the

broken calculus of neoliberal agency? On a higher level of aggregation, how can countries? To be sure, in order to stave off global warming, an immediate global paradigm shift is necessary. In the words of Weber, we do not have the luxury to wait "until the last ton of fossilized coal is burnt;" we must act quickly before the iron cage is surrounded by a barren world outside its gate (Weber, 2001, p. 123). Future social investigations regarding pro-environmental behavior should always orient themselves around this key point.

To be sure, environmental scientists have shown that humans are behaving in ways that cause climate change. It is up to social scientists to understand what causes those behaviors, to provide theories that explain them, and to assist in generating plans that address them. By constituting the empirical marriage of the institutional and the individual in the literatures of PEB and neoliberalism, this study serves to understand such causes through a conceptually pragmatic, sociological lens, and it stands as an invitation to other investigators to do the same. The second best time is now, and there truly is no time like the present.

Endnotes

[1] Though the concept of "ideology" is contentious and used in disparate ways throughout the literature—including by those cited throughout the work—here I use ideology as a patterning of 'ruling ideas' as proposed by Marx and Engels in the *German Ideology*. Specifically, by ideology I mean that "Men [and women] are the producers of their conceptions, ideas, etc…." (in Tucker, 1978, p. 154) and that "The ideas of the ruling class are in every epoch the ruling ideas: i.e., the class which is the ruling *material* force of society, is at the same time its ruling *intellectual* force. The class which has the means of material production at its disposal, has control at the same time over the means of mental production, so that thereby generally speaking, the ideas of those who lack the means of mental production are subject to it." (p. 172). By this definition, neoliberalism is a collection of ruling ideas disseminated by various outlets serving the powerful elite in economic, political, and academic spheres, as discussed by Mudge (2008) and internalized broadly across American society subjected to those outlets.

[2] While Hayak's works were instrumental, they were not solitary. The writings of Ludvig von Mises and Wilhelm Ropke, and the development of ordoliberalism in Germany after the First World War represented important (and fractured) perspectives in the development of neoliberalism as a philosophy. For an analysis of the differences, as well as an overview of Foucault's perspective on the rise of neoliberalism in *The Birth of Biopolitics*, see Gane (2014).

[3] Here I adapt the *cultural cognition* theory as borrowed from cognitive sociology. As Markle (2014) notes, "a key premise of cognitive sociology is that in addition to thinking

as individuals, people think as social beings, from an inter-subjective position as part of a group whose members have developed similar cognitive structures" (p. 247).

[4] While the terms "indicator", "variable", "determinant", and "predictor" are used interchangeably in the literature, I specifically avoid the fourth in this study, so as to not exaggerate the power and generalizability of the quantitative results. Throughout this paper, "indicator" is preferred, and the term "variable" is used predominantly in the methods section for purposes of clarity. The term "determinant" is also used sparingly, so as to not imply the certainty of behavioral outcomes.

[5] The six models are the Theory of Reasoned Action, Theory of Planned Behavior, Theory of Interpersonal Behavior, Norm Activation Model, New Ecological Paradigm, and Value-Belief-Norms Theory. However, to save space, the TRA has been subsumed under the diagram of the TPB in Figure 1. The NEP, being an empirical model of environmental concern but not behavior *per se*, has been omitted from the diagram, as its measurement impacts on PEBs are assumed in the VBN model.

[6] Indeed, by simply asking questions about "why and how much" rational calculation of private environmental activities occur, social scientists miss the crucial ideological frameworks that shape—and ultimately dictate—those questions.

[7] The term "structure" has been specifically avoided in this text—except where quoted or discussed in reference to the work of Mouzelis—to sidestep its problematic and disparate conceptual associations. Instead, the terms "institution" and "institutional framework/system" have been used to replace what I personally view as structure, a replacement I believe benefits the text and avoids unnecessary confusions.

[8] Here, I draw on Bourdieu's conceptualization of *habitus*, though I do so primarily through Mouzelis' interpretation of Bourdieu's work, which I find to more clearly articulate Bourdieu's theoretical intention. For an extensive look at this subject, see Chapter 6 of Mouzelis (1995).

[9] While the use of CAPI is not as desirable as face-to-face interviews, it appears to strike a happy medium between personal contact and computer-assisted self-administered interview (CASI), the latter of which was not used for the 2010 GSS and is prone to response attenuation, as noted by Kim, Kang, Kim, Smith, Son, & Berktold (2010).

[10] It is important to note the difference between the often conflated terms "hierarchical linear regression models" and "hierarchical linear modeling." The former is a type of sequential regression technique which facilitates theoretical modeling by adding indicators to the regression in stages, as used in the current study. The latter is a method of simultaneously assessing impacts on outcome indicators using data at different levels of aggregation (e.g. individual, group, geographic region, country, etc.) and is not pertinent for this research.

[11] Specifically, stepwise regression uses computer algorithms to select the sequence and retention of independent variables based exclusively on their increase in the value of R^2, i.e. the variance of the dependent variable. Since (a) inferential statistical applications of such regressions almost universally rely on sample rather than population data, (b) sampling processes may vary from study to study, and (c) the variance statistic in the dependent variable may not represent the variance parameter in the population, the same indicators may produce different orders or retention patterns for regression results for the *same* population (Lewis, 2007). Therefore, stepwise regressions may be very useful when

attempting to investigate the 'most important' predictors for a specific set of population data, but such regression results could be misleading for inferential studies focused on statistic generalizability, such as the current endeavor.

[12] SEM generally requires that each latent factor have no less than three individual survey items statistically load (inter-correlate) upon it. In the current study, the latent factor structure proposed by the Theory of Planned Behavior and augmented by the Theory of Neoliberal Environmental Behavior would require over 21 items for each specific behavioral outcome, which the GSS does not contain.

[13] Two notes regarding this variable. First, this was the only neoliberal indicator entered as a dichotomous 0/1 predictor. Second, a discrepancy exists between the 2010 GSS data set and ballot/codebook, where the former identifies this variable as "busdeci" while the latter uses "busdecid."

[14] Factor analysis was not considered appropriate for assessing neoliberalism among proxy variables in a secondary data analysis, since its results may have produced an erroneous factor structure for the construct. Specific item development for the construct of neoliberalism, as well as primary data collection, would facilitate factor analysis greatly.

[15] Some research, such as Cordano et al. (2004), uses composite variables for both independent and outcome indicators. However, because neither strong correlations nor multicolinearity necessitated it, the current study did not collapse multiple indicators into scales, to allow the variance of each indicator to contribute to the explanation of PEBs.

[16] Though Wright (1995) suggests that the ideal case-to-item ratio for multivariate logistic regression is 50:1, Hosmer and Lemshow assert that a ratio of 10:1 is a good

benchmark when the model comprises a mixture of continuous and discrete covariates with acceptable skewness (2000, p. 346-347). In the current study, the sample sizes for the two logistic regression analyses were $N = 789$ and $N = 794$, both producing ratios slightly better than 31:1.

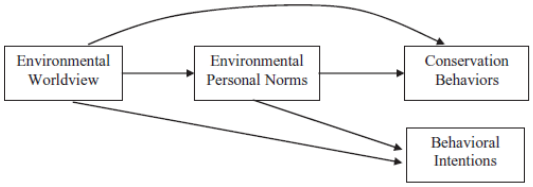
[17] Each of these items includes a modifier like "for environmental reasons."

[18] While the Constant in each regression model is included in the tables for clarity, I have omitted its discussion in the Results section of this paper. This is because the constant in regression analysis refers to the value of the dependent variable when the value of all the independent variables is zero, and its significance indicates whether the y-intercept would differ significantly from zero. Since the models employed here use Likert-type items, it makes little conceptual or methodological sense to assume that the lowest chosen value of intention, concern, behavioral control, or neoliberal belief truly equates to a "zero" amount of intention, belief, or concern. As such, the Constant is more of a mathematical artifact necessary for the regression equation to function, but not a directly interpretable coefficient in this application. This is a common occurrence in regression models that do not use exclusively ratio-level variables.

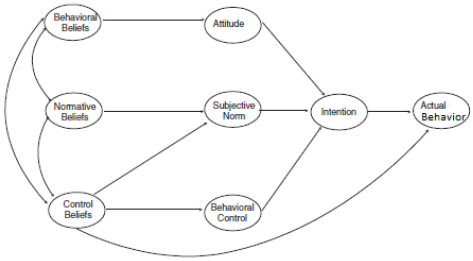
[19] Unfortunately, Coffey and Joseph (2012) do not provide an extensive account of their conceptualization nor operationalization for the construct of political ideology. As such, the current study not so much contradicts their findings as it augments the conceptualization process by way of specificity. Indeed, it is unclear if the measures used in the current study to measure neoliberal ideology overlap in any way with the measure of political ideology in Coffey and Joseph (2012).

[20] The decision not to conduct a factor analysis was intentional. After serious consideration, it was determined that presenting evidence of dimensionality based on proxies from secondary data would be at best inconclusive, and at worst damaging to the literature on neoliberalism. Using exploratory factor analysis *ex post facto* on items not specifically and carefully designed around the theory and literature of neoliberalism could be considered a misuse of the procedure, and could lead others to erroneously build on such a dimensionality in future research. Because this item development would be outside the scope of the current investigation, factor analysis in this study was omitted, as it would only serve to overemphasize the legitimacy of the proxies selected and perpetuate unnecessary methodological fetishism.

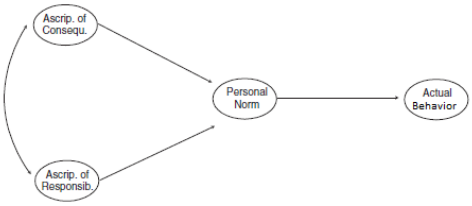
APPENDIX



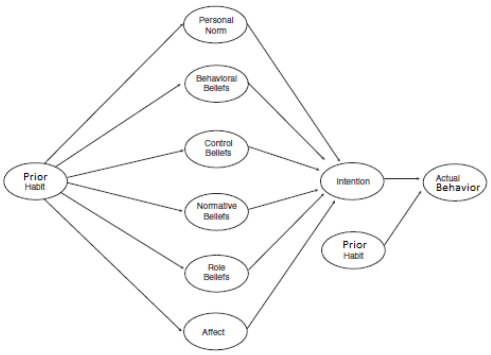
Value-Belief-Norm Theoretical Model, adapted from Scherbaum, Popovich, & Finlinson (2008).



Theory of Planned Behavior (TPB) Model, adapted from Bamberg & Schmidt (2003). Note that this model also encompasses Ajzen's earlier model, the Theory of Reasoned Action (TRA), if the Behavioral Control construct is disregarded.



Norm Activation Theory (NAT) Model, adapted from Bamberg & Schmidt (2003).



Theory of Interpersonal Behavior (TIB) Model, adapteded from Bamburg & Schmidt (2003).

Figure 1. Social-psychological models of pro-environmental behavior.

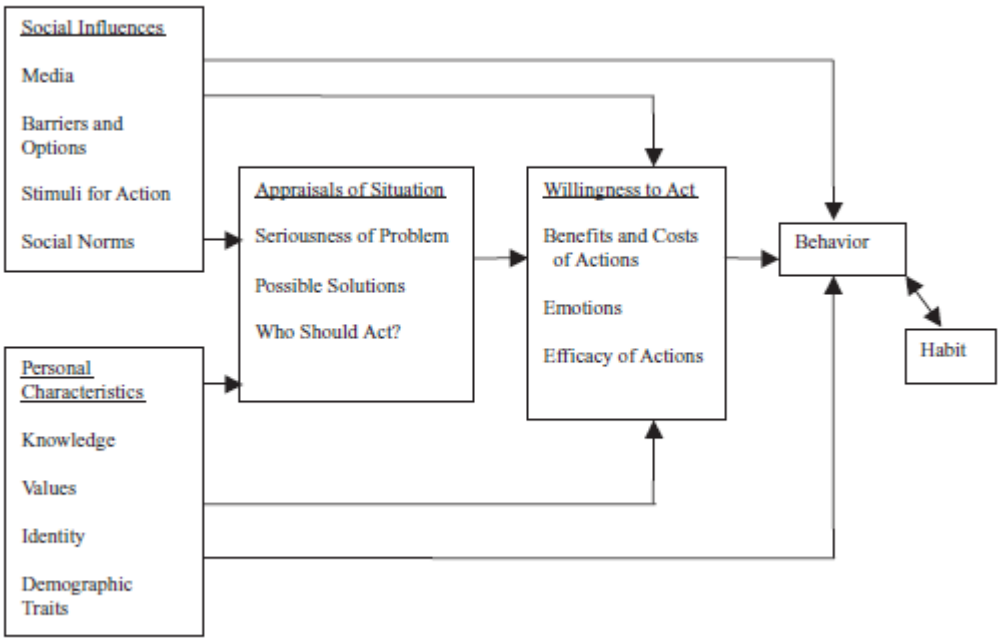


Figure 2. Environmentally significant behavior framework, Patchen (2010).

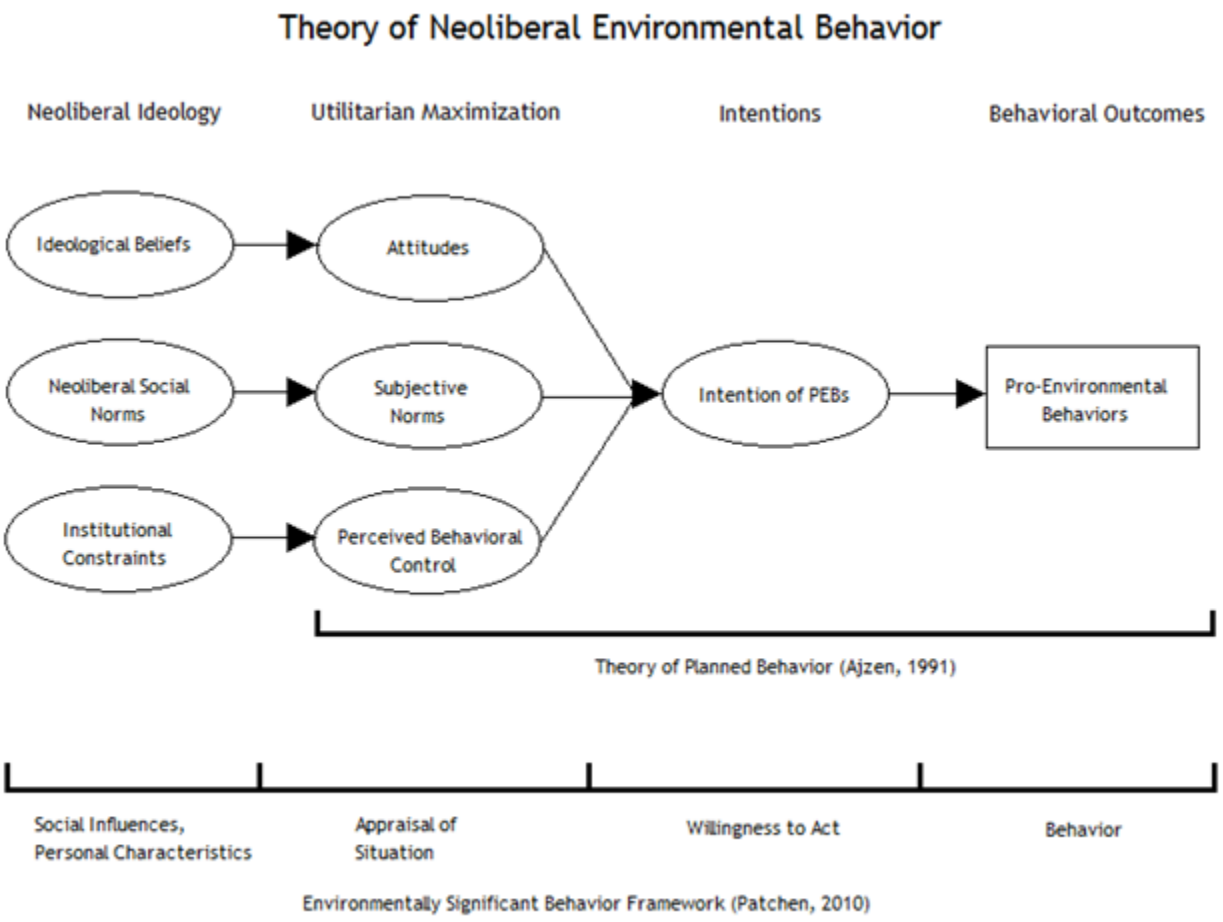


Figure 3. Theory of Neoliberal Environmental Behavior, developed as the empirical model for the present study.

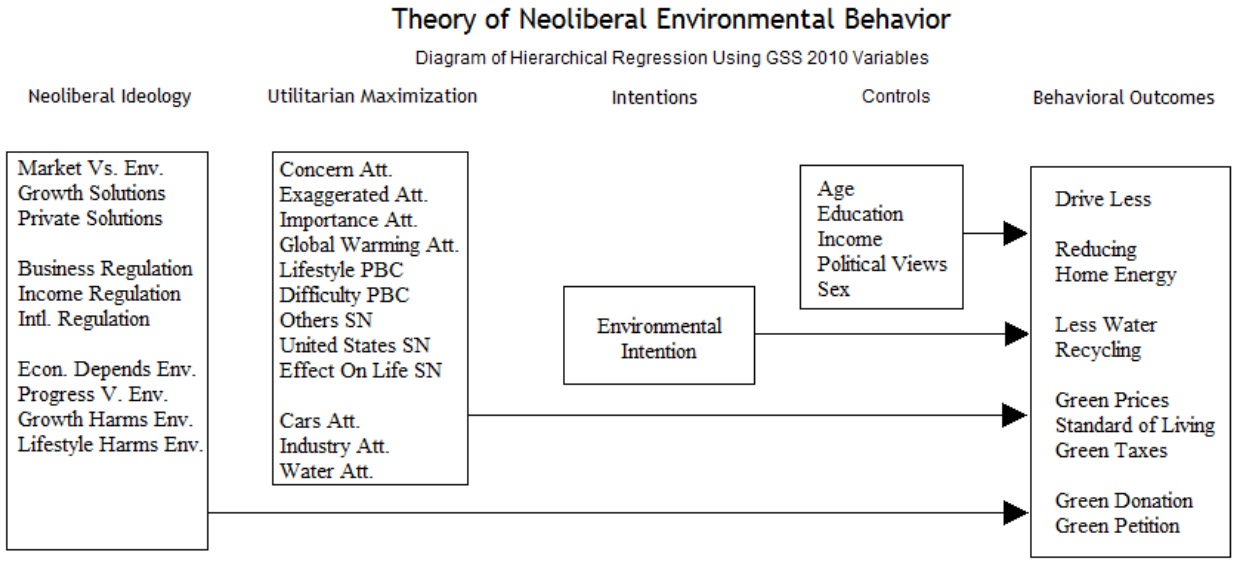


Figure 4. Theory of Neoliberal Environmental Behavior, adapted for empirical assessment using hierarchical regression in the present study.

Table 1

GSS/ISSP Items for Neoliberalism and Environmental Behavior

Variable Name	Item Wording	Scale	Reverse Coded
LINEAR OUTCOME			
drivless	And how often do you cut back on driving a car for environmental reasons?	1. Always, 2. Often, 3. Sometimes, 4. Never	Reverse
grnprice	How willing would you be to pay much higher prices in order to protect the environment?	1. Very willing, 2. fairly willing, 3. neither willing nor unwilling, 4. fairly unwilling, 5. very unwilling	Reverse
grnsol	And how willing would you be to accept cuts in your standard of living in order to protect the environment?	1. Very willing, 2. fairly willing, 3. neither willing nor unwilling, 4. fairly unwilling, 5. very unwilling	Reverse
grntaxes	And how willing would you be to pay much higher taxes in order to protect the environment?	1. Very willing, 2. fairly willing, 3. neither willing nor unwilling, 4. fairly unwilling, 5. very unwilling	Reverse
h20less	And how often do you choose to save or re-use water for environmental reasons?	1. Always, 2. Often, 3. Sometimes, 4. Never	Reverse
nobuygrn	And how often do you avoid buying certain products for environmental reasons?	1. Always, 2. Often, 3. Sometimes, 4. Never	Reverse
recycle	How often do you make a special effort to sort glass or cans or plastic or newspapers and so on for recycling?	1. Always, 2. Often, 3. Sometimes, 4. Never	Reverse
redcehme	How often do you reduce the energy or fuel you use at home for environmental reasons?	1. Always, 2. Often, 3. Sometimes, 4. Never	Reverse
LOGISTIC OUTCOME			
grnmoney	In the last five years, have you given money to an environmental group?	1. Yes I have, 2. No I have not.	Reverse
grnsign	In the last five years, have you signed a petition about an environmental issue?	1. Yes I have, 2. No I have not.	Reverse
BLOCK 1			
age	What is your date of birth?	Curryr - brthyr	
educ	Highest year of school completed.	All	
income06	In which of these groups did your total family income, from all sources, fall last year--2009--before taxes, that is. Just tell me the letter. Total income includes interest or dividents, rent, Social Security, other pensions, alimony or child support, unemployment compensation, public aid (welfare), armed forces or veteran's allotment.	25 cats. Open-last.	a-y -> 0 - 24
polviews	We hear a lot of talk these days about liberals and conservatives. I'm going to show you a seven-point scale on which the political views that people might hold ar arranged from extremely liberal--point 1--to extremely conservative--point 7. Where would you place yourself on this scale?	1. Extremely liberal, 2. liberal, 3. slightly liberal, 4. Moderate, middle of the road, 5. slightly conservative, 6. conservative, 7. extremely conservative	Reverse
sex	Respondent's Sex	1. Male 2. Female	
BLOCK 2			
ihlpgrn	I do what is right for the environment, even when it costs more money or takes more time.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	Reverse
BLOCK 3			

grncon	Generally speaking, how concerned are you about environmental issues? Please tell me what you think, where 1 means you are not at all concerned and 5 means you are very concerned.	1. Not at all concerned 2. 3. 4. 5. Very concerned	
grneffme	Environmental problems have a direct effect on my everyday life.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	Reverse
grnexagg	Many of the claims about environmental threats are exaggerated.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
helpharm	I find it hard to know whether the way I live is helpful or harmful to the environment.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
impgrn	There are more important things to do in life than protect the environment.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
othssame	There is no point in doing what I can for the environment unless others do the same.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
toodifme	It is just too difficult for someone like me to do much about the environment.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
usdoenuf	Some countries are doing more to protect the world environment than other countries are. In general, do you think that America is doing...	1. More than enough 2. about the right amount. 3 Too little.	
carsgen	In general, do you think that air pollution caused by cars is...	1. Extremely dangerous for the environment, 2. very dangerous, 3. somewhat dangerous, 4. not very dangerous, 5. not dangerous at all for the environment	Reverse
indusgen	In general, do you think that air pollution caused by industry is...	1. Extremely dangerous for the environment, 2. very dangerous, 3. somewhat dangerous, 4. not very dangerous, 5. not dangerous at all for the environment	Reverse
tempgen	In general, do you think that a rise in the world's temperature caused by climate change is...	1. Extremely dangerous for the environment, 2. very dangerous, 3. somewhat dangerous, 4. not very dangerous, 5. not dangerous at all for the environment	Reverse
watergen	In general, do you think that pollution of America's rivers, lakes, and streams is...	1. Extremely dangerous for the environment, 2. very dangerous, 3. somewhat dangerous, 4. not very dangerous, 5. not dangerous at all for the environment	Reverse
BLOCK 4			
busdecid	And which one of the following would be closest to your views?	1. Government should let businesses decide for themselves how to protect the environment, even if it means they don't always do the right thing. 2. Government should pass laws to make businesses protect the environment, even if it interferes with businesses' rights to make their own decisions.	Reverse
econgrn	Economic progress in America will slow down unless we look after the environment better.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
goveqinc	It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
grnecon	We worry too much about the future of the environment and not enough about prices and jobs today.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	Reverse
grnintl	For environmental problems, there should be international agreements that America and other countries should be made to follow.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
grnprog	People worry too much about human progress harming the environment.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
grwtharm	Economic growth always harms the environment.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	
grwthelp	In order to protect the environment America needs economic growth.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	Reverse
harmsgrn	Almost everything we do in modern life harms the environment.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	Reverse
polviews	We hear a lot of talk these days about liberals and conservatives. I'm going to show you a seven-point scale on which the political views that people might hold are arranged from extremely	1. Extremely liberal, 2. liberal, 3. slightly liberal, 4. Moderate, middle of the road, 5. slightly conservative, 6. conservative, 7. extremely conservative	Reverse

	liberal--point 1--to extremely conservative--point 7. Where would you place yourself on this scale?		
privent	Private enterprise is the best way to solve America's economic problems.	1. Agree strongly 2. agree 3. neither agree nor disagree 4. disagree. 5. disagree strongly	Reverse

Table 2

Descriptive Statistics and Frequencies for All Variables

Variable Name	Freq.	Valid %	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis	SPSS Coding
Age	-	-	2041	18.00	89.00	47.97	17.68	0.29	-0.76	a_1rec_age
Education	-	-	2039	0.00	20.00	13.46	3.15	-0.43	1.24	a_1rec_educ
Household Income			1805	1.00	25.00	16.37	6.00	-0.72	-0.13	a_1rec_income06
Under $1000	43	2.4								1.00
$1000 to $2999	24	1.3								2.00
$3000 to $3999	17	.9								3.00
$4000 to $4999	8	.4								4.00
$5000 to $5999	19	1.1								5.00
$6000 to $6999	19	1.1								6.00
$7000 to $7999	27	1.5								7.00
$8000 to $9999	37	2.0								8.00
$10000 to $12499	82	4.5								9.00
$12500 to $14999	65	3.6								10.00
$15000 to $17499	72	4.0								11.00
$17500 to $19999	34	1.9								12.00
$20000 to $22499	66	3.7								13.00
$22500 to $24999	78	4.3								14.00
$25000 to $29999	81	4.5								15.00
$30000 to $34999	99	5.5								16.00
$35000 to $39000	89	4.9								17.00
$40000 to $49999	147	8.1								18.00
$50000 to $59999	143	7.9								19.00
$60000 to $74999	174	9.6								20.00
$75000 to $ 89999	129	7.1								21.00
$90000 to $109999	111	6.1								22.00
$110000 to $129999	69	3.8								23.00
$130000 to $149999	57	3.2								24.00
$150000 or Over	115	6.4								25.00
Political Views			1973	0.00	6.00	2.92	1.46	0.07	-0.49	a_1rec_polviews
Extremely Conservative	80	4.1								.00
Conservative	315	16.0								1.00
Slightly Conservative	265	13.4								2.00
Moderate/Middle of the Road	746	37.8								3.00
Slightly Liberal	232	11.8								4.00
Liberal	259	13.1								5.00
Extremely Liberal	76	3.9								6.00
Sex			2044	0.00	1.00	0.56	0.50	-0.26	-1.93	a_1rec_sex
Male	891	43.6								.00
Female	1153	56.4								1.00
Environmental Intention			1385	0.00	4.00	2.38	0.92	-0.51	-0.53	a_2rec_ihlpgrn
Disagree Strongly	26	1.9								.00
Disagree	265	19.1								1.00
Neither Agree Nor Disagree	330	23.8								2.00
Agree	681	49.2								3.00

Agree Strongly	83	6.0								4.00
Cars Attitude			1384	0.00	4.00	2.53	0.89	0.08	-0.38	a_3rec_carsgen
Not dangerous at all for the environment	13	.9								.00
Not very dangerous for the environment	105	7.6								1.00
Somewhat dangerous for the environment	627	45.3								2.00
Very dangerous for the environment	411	29.7								3.00
Extremely dangerous for the environment	228	16.5								4.00
Environmental Concern Att.			1404	0.00	4.00	2.86	1.10	-0.76	-0.08	a_3rec_grncon
Not at all concerned	60	4.3								.00
2	86	6.1								1.00
3	349	24.9								2.00
4	403	28.7								3.00
Very Concerned	506	36.0								4.00
Env. Effects on Life SN			1377	0.00	4.00	2.21	1.01	-0.21	-1.03	a_3rec_grneffme
Disagree Strongly	36	2.6								.00
Disagree	393	28.5								1.00
Neither Agree Nor Disagree	283	20.6								2.00
Agree	577	41.9								3.00
Agree Strongly	88	6.4								4.00
Env. Problems Exaggerated Att.			1343	0.00	4.00	2.12	1.12	-0.13	-1.04	a_3rec_grnexagg
Agree Strongly	85	6.3								.00
Agree	393	29.3								1.00
Neither Agree Nor Disagree	257	19.1								2.00
Disagree	488	36.3								3.00
Disagree Strongly	120	8.9								4.00
Lifestyle PBC			1363	0.00	4.00	2.14	0.99	-0.13	-1.05	a_3rec_helpharm
Agree Strongly	34	2.5								.00
Agree	409	30.0								1.00
Neither Agree Nor Disagree	316	23.2								2.00
Disagree	534	39.2								3.00
Disagree Strongly	70	5.1								4.00
Importance SN			1388	0.00	4.00	2.37	1.01	-0.38	-0.73	a_3rec_impgrn
Agree Strongly	38	2.7								.00
Agree	301	21.7								1.00
Neither Agree Nor Disagree	299	21.5								2.00
Disagree	616	44.4								3.00
Disagree Strongly	134	9.7								4.00
Industry Attitude			1391	0.00	4.00	2.89	0.85	-0.24	-0.62	a_3rec_indusgen
Not dangerous at all for the environment	4	.3								.00
Not very dangerous for the environment	48	3.5								1.00
Somewhat dangerous for the environment	417	30.0								2.00
Very dangerous for the environment	545	39.2								3.00
Extremely dangerous for the environment	377	27.1								4.00
Others Same SN			1399	0.00	4.00	2.43	1.13	-0.53	-0.84	a_3rec_othssame
Agree Strongly	66	4.7								.00

Agree	335	23.9								1.00
Neither Agree Nor Disagree	121	8.6								2.00
Disagree	688	49.2								3.00
Disagree Strongly	189	13.5								4.00
Global Warming Attitude			1325	0.00	4.00	2.45	1.14	-0.31	-0.64	a_3rec_tempgen
Not dangerous at all for the environment	78	5.9								.00
Not very dangerous for the environment	181	13.7								1.00
Somewhat dangerous for the environment	416	31.4								2.00
Very dangerous for the environment	364	27.5								3.00
Extremely dangerous for the environment	286	21.6								4.00
Difficulty PBC			1382	0.00	4.00	2.25	1.12	-0.39	-0.91	a_3rec_toodifme
Agree Strongly	88	6.4								.00
Agree	340	24.6								1.00
Neither Agree Nor Disagree	214	15.5								2.00
Disagree	613	44.4								3.00
Disagree Strongly	127	9.2								4.00
United States SN			1295	0.00	2.00	1.44	0.67	-0.77	-0.52	a_3rec_usdoenuf
more than enough.	129	10.0								.00
about the right amount.	473	36.5								1.00
too little.	693	53.5								2.00
Water Attitude			1389	0.00	4.00	2.96	0.88	-0.50	-0.19	a_3rec_watergen
Not dangerous at all for the environment	10	.7								.00
Not very dangerous for the environment	51	3.7								1.00
Somewhat dangerous for the environment	353	25.4								2.00
Very dangerous for the environment	549	39.5								3.00
Extremely dangerous for the environment	426	30.7								4.00
Business Regulation			1194	0.00	1.00	0.13	0.33	2.25	3.07	a_4rec_busdecid
Government should pass laws to make businesses protect the environment, even if it interferes with businesses' rights to make their own decisions.	1043	87.4								.00
Government should let businesses decide for themselves how to protect the environment, even if it means they don't always do the right thing.	151	12.6								1.00
Economy Depends on Env.			1338	0.00	4.00	1.60	0.99	0.45	-0.61	a_4rec_econgrn
Agree Strongly	122	9.1								.00
Agree	621	46.4								1.00
Neither Agree Nor Disagree	293	21.9								2.00
Disagree	268	20.0								3.00
Disagree Strongly	34	2.5								4.00
Income Regulation			1370	0.00	4.00	2.35	1.23	-0.25	-1.07	a_4rec_goveqinc
Agree Strongly	93	6.8								.00
Agree	322	23.5								1.00
Neither Agree Nor Disagree	244	17.8								2.00

Disagree	432	31.5								3.00
Disagree Strongly	279	20.4								4.00
Market vs. Environment			1395	0.00	4.00	2.04	1.19	0.01	-1.15	a_4rec_grnecon
Disagree Strongly	114	8.2								.00
Disagree	459	32.9								1.00
Neither Agree Nor Disagree	224	16.1								2.00
Agree	447	32.0								3.00
Agree Strongly	151	10.8								4.00
International Regulation			1340	0.00	4.00	1.03	0.89	1.14	1.72	a_4rec_grnintl
Agree Strongly	354	26.4								.00
Agree	711	53.1								1.00
Neither Agree Nor Disagree	184	13.7								2.00
Disagree	58	4.3								3.00
Disagree Strongly	33	2.5								4.00
Growth Harms Environment			1361	0.00	4.00	2.47	0.89	-0.76	-0.07	a_4rec_grwtharm
Agree Strongly	26	1.9								.00
Agree	210	15.4								1.00
Neither Agree Nor Disagree	295	21.7								2.00
Disagree	755	55.5								3.00
Disagree Strongly	75	5.5								4.00
Growth As Env. Solution			1353	0.00	4.00	2.46	0.97	-0.55	-0.51	a_4rec_grwthelp
Disagree Strongly	29	2.1								.00
Disagree	259	19.1								1.00
Neither Agree Nor Disagree	256	18.9								2.00
Agree	682	50.4								3.00
Agree Strongly	127	9.4								4.00
Private Ent. Solutions			1293	0.00	4.00	2.25	1.12	-0.13	-0.85	a_4rec_privent
Disagree Strongly	71	5.5								.00
Disagree	294	22.7								1.00
Neither Agree Nor Disagree	352	27.2								2.00
Agree	391	30.2								3.00
Agree Strongly	185	14.3								4.00
Progress Vs. Environment			1370	0.00	4.00	1.96	1.05	0.05	-1.12	a_4rec_grnprog
Agree Strongly	72	5.3								.00
Agree	506	36.9								1.00
Neither Agree Nor Disagree	262	19.1								2.00
Disagree	467	34.1								3.00
Disagree Strongly	63	4.6								4.00
Lifestyle Harms Environment			1381	0.00	4.00	1.76	1.03	0.26	-1.01	a_4rec_harmsgrn
Agree Strongly	96	7.0								.00
Agree	601	43.5								1.00
Neither Agree Nor Disagree	258	18.7								2.00
Disagree	385	27.9								3.00
Disagree Strongly	41	3.0								4.00
Drive Less			1321	0.00	3.00	0.76	0.87	0.92	-0.05	a_0rec_drivless
Never	637	48.2								.00
Sometimes	427	32.3								1.00
Often	193	14.6								2.00
Always	64	4.8								3.00
Use Less Water			1419	0.00	3.00	0.90	0.96	0.64	-0.76	a_0rec_h2oless
Never	631	44.5								.00
Sometimes	386	27.2								1.00
Often	308	21.7								2.00
Always	94	6.6								3.00
Buy Green Products			1407	0.00	3.00	1.11	0.91	0.38	-0.73	a_0rec_nobuygrn
Never	411	29.2								.00
Sometimes	540	38.4								1.00

Often	351	24.9								2.00
Always	105	7.5								3.00
Recycle			1394	0.00	3.00	1.90	1.08	-0.46	-1.15	a_0rec_recycle
Never	190	13.6								.00
Sometimes	317	22.7								1.00
Often	324	23.2								2.00
Always	563	40.4								3.00
Reduce Home Energy			1417	0.00	3.00	1.29	0.97	0.15	-1.02	a_0rec_redcehme
Never	362	25.5								.00
Sometimes	450	31.8								1.00
Often	440	31.1								2.00
Always	165	11.6								3.00
Pay Higher Prices for Env.			1361	0.00	4.00	2.08	1.22	-0.39	-0.96	a_0rec_grnprice
Very unwilling	209	15.4								.00
Fairly unwilling	222	16.3								1.00
Neither willing nor unwilling	293	21.5								2.00
Fairly willing	527	38.7								3.00
Very willing	110	8.1								4.00
Pay Higher Taxes for Env.			1368	0.00	4.00	1.69	1.28	0.05	-1.26	a_0rec_grntaxes
Very unwilling	343	25.1								.00
Fairly unwilling	283	20.7								1.00
Neither willing nor unwilling	283	20.7								2.00
Fairly willing	377	27.6								3.00
Very willing	82	6.0								4.00
Take Cut in Standard of Living			1374	0.00	4.00	1.74	1.26	-0.03	-1.26	a_0rec_grnsol
Very unwilling	324	23.6								.00
Fairly unwilling	276	20.1								1.00
Neither willing nor unwilling	288	21.0								2.00
Fairly willing	409	29.8								3.00
Very willing	77	5.6								4.00
Green Donation			1415	0.00	1.00	0.18	0.39	1.65	0.71	a_dic_grnmoney
No, I have not.	1157	81.8								.00
Yes I have.	258	18.2								1.00
Green Petition			1403	0.00	1.00	0.17	0.38	1.76	1.11	a_dic_grnsign
No, I have not.	1165	83.0								.00
Yes I have.	238	17.0								1.00

Table 3

Hierarchical Regression Results: Driving Less Often For Environmental Reasons (N = 765)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		*β*	B	SE		*β*	B	SE		*β*	B	SE		*β*
Constant	0.38	0.2			-0.1	0.2			-0.68	0.22	**		-0.66	0.33	*	
Age	0.01	0	*	0.09	0	0		0.05	0	0		0.07	0.01	0	*	0.09
Education	0.01	0.01		0.02	0	0.01		0.01	-0.01	0.01		-0.02	-0.01	0.01		-0.02
Household Income	-0.02	0.01	*	-0.1	-0.01	0.01		-0.08	-0.01	0.01	*	-0.09	-0.01	0.01		-0.06
Sex	0.05	0.06		0.03	0.04	0.06		0.03	-0.01	0.06		-0.01	-0.02	0.06		-0.01
Political Views	0.12	0.02	***	0.19	0.11	0.02	***	0.18	0.04	0.02		0.07	0.04	0.02		0.07

Environmental Intention				0.26	0.03	***	0.27	0.21	0.04	***	0.21	0.2	0.04	***	0.2
Cars Attitude								0.11	0.04	***	0.11	0.1	0.04	*	0.09
GW Attitude								0.05	0.03		0.06	0.04	0.03		0.06
Env. Concern Att.								0.03	0.04		0.03	0.02	0.04		0.02
Env. Effects on Life SN								0.05	0.03		0.06	0.03	0.03		0.04
Env. Problems Exaggerated Att.								0.02	0.03		0.03	0.04	0.04		0.05
Lifestyle PBC								0.05	0.03		0.06	0.06	0.03		0.07
Importance Att.								-0.01	0.03		-0.02	-0.01	0.03		-0.02
Others Same SN								-0.02	0.03		-0.02	-0.01	0.03		-0.01
Difficulty PBC								0.08	0.03	*	0.1	0.1	0.04	**	0.12
United States SN								0.11	0.05	*	0.08	0.11	0.05	*	0.08
Business Regulation												0.08	0.1		0.03
Economy Dep. on Env.												-0.1	0.03	**	-0.12
Income Regulation												-0.03	0.03		-0.04
Market Vs. Env.												-0.02	0.03		-0.03
International Regulation												0.05	0.04		0.05
Progress Vs. Env.												0.09	0.03	**	0.1
Growth Harms Env.												-0.02	0.04		-0.02
Growth As Env. Solution												-0.03	0.03		-0.04
Lifestyle Harms Env.												-0.04	0.03		-0.05
Private Ent. Solutions												0.05	0.03		0.07
Adjusted R^2	0.05			0.11				0.17				0.19			
F (df1, df2)	8.33	(5, 760)	***	17.43	(6, 759)	***		10.74	(16, 749)	***		7.71	(26, 739)		***
ΔR^2	-			0.07				0.07				0.03			
ΔR^2 *F* (df1,df2)	-	-	-	59.73	(5, 759)	***		6.03	(10, 749)	***		2.52	(10, 739)		**

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

Table 4

Hierarchical Regression Results: Reducing Water Use For Environmental Reasons (N = 793)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		β	B	SE		β	B	SE		β	B	SE		β
Constant	1.07	0.21	***		0.57	0.21	**		0.29	0.24			0.26	0.38		
Age	0.00	0.00		0.01	0.00	0.00		-0.03	0.00	0.00		-0.03	0.00	0.00		-0.02
Education	0.00	0.01		-0.01	-0.01	0.01		-0.03	-0.01	0.01		-0.04	-0.01	0.01		-0.02
Household Income	-0.01	0.01		-0.06	-0.01	0.01		-0.05	-0.01	0.01		-0.06	-0.01	0.01		-0.03
Sex	0.06	0.07		0.03	0.06	0.07		0.03	0.03	0.07		0.01	0.02	0.07		0.01
Political Views	0.02	0.02		0.03	0.02	0.02		0.03	-0.02	0.03		-0.03	-0.02	0.03		-0.03
Environmental Intention					0.27	0.04	***	0.26	0.23	0.04	***	0.22	0.22	0.04	***	0.21
Water Attitude									0.05	0.04		0.05	0.05	0.05		0.04
GW Attitude									-0.02	0.04		-0.03	-0.04	0.04		-0.05
Env. Concern Att.									0.08	0.04	*	0.08	0.07	0.04		0.07
Env. Effects on Life SN									0.04	0.04		0.04	0.02	0.04		0.02
Env. Problems Exaggerated Att.									0.04	0.04		0.05	0.07	0.04		0.08
Lifestyle PBC									0.03	0.04		0.03	0.04	0.04		0.04
Importance Att.									-0.02	0.04		-0.02	-0.02	0.04		-0.02
Others Same SN									-0.06	0.04		-0.07	-0.04	0.04		-0.05
Difficulty PBC									0.05	0.04		0.06	0.08	0.04	*	0.09
United States SN									0.05	0.06		0.04	0.06	0.06		0.04
Business Regulation													0.14	0.11		0.05
Economy Dep. on Env.													-0.11	0.04	**	-0.12
Income Regulation													0.02	0.03		0.02
Market Vs. Env.													0.01	0.04		0.01
International Regulation													-0.01	0.04		-0.01
Progress Vs. Env.													0.06	0.04		0.06
Growth Harms Env.													-0.11	0.04	*	-0.10
Growth As Env. Solution													0.02	0.04		0.02
Lifestyle Harms Env.													-0.02	0.04		-0.02
Private Ent. Solutions													0.04	0.03		0.05
Adjusted R^2	0.00				0.07				0.08				0.09			
F (df1, df2)	1.11	(5, 788)			10.22	(6, 787)		***	5.15	(16, 777)		***	4.17	(26, 767)		***
ΔR^2	-				0.07				0.02				0.03			

ΔR^2 *F* (df1,df2)	-	-	-	55.36	(1, 787)	***	2.03	(10, 777)	*	2.45	(10, 767)	**	

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

Table 5

Hierarchical Regression Results: Reducing Home Energy Use For Environment (N = 794)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		*β*	B	SE		*β*	B	SE		*β*	B	SE		*β*
Constant	0.76	0.20	***		0.12	0.20			-0.45	0.23	*		-0.85	0.36	*	
Age	0.01	0.00	**	0.10	0.00	0.00		0.05	0.00	0.00		0.06	0.00	0.00		0.06
Education	0.01	0.01		0.02	0.00	0.01		0.00	0.00	0.01		-0.01	0.00	0.01		0.00
Household Income	0.00	0.01		-0.03	0.00	0.01		-0.01	0.00	0.01		-0.01	0.00	0.01		0.01
Sex	0.12	0.07		0.06	0.12	0.06		0.06	0.08	0.06		0.04	0.07	0.07		0.04
Political Views	0.09	0.02	***	0.14	0.08	0.02	***	0.13	0.02	0.02		0.04	0.03	0.02		0.05
Environmental Intention					0.34	0.03	***	0.32	0.27	0.04	***	0.26	0.27	0.04	***	0.26
Industry Attitude									0.06	0.04		0.05	0.05	0.05		0.05
GW Attitude									0.04	0.03		0.04	0.04	0.04		0.05
Env. Concern Att.									0.12	0.04	**	0.13	0.12	0.04	***	0.13
Env. Effects on Life SN									0.04	0.03		0.04	0.04	0.03		0.04
Env. Problems Exaggerated Att.									0.04	0.04		0.04	0.06	0.04		0.08
Lifestyle PBC									0.03	0.03		0.03	0.03	0.03		0.04
Importance Att.									0.01	0.04		0.01	0.01	0.04		0.02
Others Same SN									0.02	0.03		0.02	0.02	0.03		0.03
Difficulty PBC									-0.01	0.04		-0.01	0.01	0.04		0.01
United States SN									0.03	0.05		0.02	0.05	0.06		0.03
Business Regulation													-0.01	0.10		0.00
Economy Dep. on Env.													-0.06	0.03		-0.06
Income Regulation													0.03	0.03		0.04
Market Vs. Env.													0.03	0.03		0.04
International Regulation													0.04	0.04		0.03

Progress Vs. Env.										0.06	0.03	0.06
Growth Harms Env.										-0.05	0.04	-0.05
Growth As Env. Solution										0.01	0.03	0.01
Lifestyle Harms Env.										0.00	0.03	0.01
Private Ent. Solutions										0.02	0.03	0.02
Adjusted R^2	0.03			0.13			0.17			0.17		
F (df1, df2)	5.53	(5, 789)	***	20.81	(6, 788)	***	11.12	(16, 778)	***	7.33	(26, 768)	***
ΔR^2				0.10			0.05			0.01		
ΔR^2 F (df1,df2)				93.95	(1, 7888)	***	4.72	(10, 778)	***	1.22	(10, 768)	

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

Table 6

Hierarchical Regression Results: Avoid Environmentally Hazardous Products (N = 792)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		β	B	SE		β	B	SE		β	B	SE		β
Constant	0.38	0.19			-0.22	0.19			-0.82	0.21		***	-0.89	0.33		
Age	0.00	0.00		0.04	0.00	0.00		-0.01	0.00	0.00	0.00		0.00	0.00		0.01
Education	0.03	0.01		0.11	0.03	0.01		0.09	0.02	0.01	0.06		0.02	0.01		0.07
Household Income	0.00	0.01		-0.02	0.00	0.01		-0.01	0.00	0.01	-0.01		0.00	0.01		0.00
Sex	0.12	0.06		0.07	0.12	0.06		0.07	0.07	0.06	0.04		0.05	0.06		0.03
Political Views	0.09	0.02	***	0.16	0.09	0.02	***	0.14	0.03	0.02	0.04		0.03	0.02		0.04
Environmental Intention					0.33	0.03	***	0.33	0.24	0.03	0.24	***	0.24	0.03	***	0.25
Industry Attitude									0.05	0.04	0.05		0.05	0.04		0.05
GW Attitude									-0.01	0.03	-0.01		-0.01	0.03		-0.01
Env. Concern Att.									0.12	0.03	0.14	***	0.12	0.03	***	0.14
Env. Effects on Life SN									0.09	0.03	0.11		0.08	0.03		0.10
Env. Problems Exaggerated Att.									0.03	0.03	0.03		0.03	0.03		0.04
Lifestyle PBC									0.05	0.03	0.06		0.05	0.03		0.06
Importance Att.									0.00	0.03	0.00		0.01	0.03		0.01
Others Same SN									-0.02	0.03	-0.02		-0.01	0.03		-0.02
Difficulty PBC									0.06	0.03	0.07		0.07	0.03		0.08

United States SN							0.11	0.05	0.08		0.12	0.05	0.09
Business Regulation											0.03	0.09	0.01
Economy Dep. on Env.											-0.05	0.03	-0.06
Income Regulation											-0.01	0.03	-0.02
Market Vs. Env.											-0.01	0.03	-0.02
International Regulation											0.06	0.04	0.06
Progress Vs. Env.											0.02	0.03	0.03
Growth Harms Env.											-0.03	0.04	-0.02
Growth As Env. Solution											0.03	0.03	0.03
Lifestyle Harms Env.											-0.03	0.03	-0.04
Private Ent. Solutions											0.01	0.03	0.02
Adjusted R^2	0.04			0.15			0.22				0.22		
F (df1, df2)	7.56	(5, 787)	***	23.92	(6, 786)	***	14.81	(16, 776)	***		9.51	(26, 766)	***
ΔR^2				0.11			0.08				0.01		
ΔR^2 F (df1,df2)				100.90	(1, 786)	***	8.05	(10, 776)	***		1.03	(10, 766)	

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

Table 7

Hierarchical Regression Results: Recycling (N = 792)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		β	B	SE		β	B	SE		β	B	SE		β
Constant	0.21	0.22			-0.38	0.22			-1.02	0.25	***		-1.31	0.39	***	
Age	0.01	0.00	***	0.15	0.01	0.00	**	0.11	0.01	0.00	***	0.12	0.01	0.00	***	0.12
Education	0.06	0.01	***	0.16	0.05	0.01	***	0.14	0.04	0.01	***	0.12	0.04	0.01	**	0.12
Household Income	0.02	0.01	*	0.09	0.02	0.01	**	0.11	0.02	0.01	**	0.10	0.02	0.01	**	0.11
Sex	0.04	0.07		0.02	0.03	0.07		0.01	-0.05	0.07		-0.02	-0.04	0.07		-0.02
Political Views	0.09	0.02	***	0.13	0.09	0.02	***	0.12	0.03	0.03		0.04	0.03	0.03		0.05
Environmental Intention					0.31	0.04	***	0.27	0.25	0.04	***	0.21	0.24	0.04	***	0.21
Industry Attitude									0.15	0.05	**	0.12	0.14	0.05	**	0.11
GW Attitude									-0.04	0.04		-0.04	-0.03	0.04		-0.04
Env. Concern Att.									0.10	0.04	*	0.10	0.10	0.04	*	0.10

Env. Effects on Life SN							0.01	0.04		0.01	0.00	0.04		0.00
Env. Problems Exaggerated Att.							0.06	0.04		0.07	0.08	0.04	*	0.09
Lifestyle PBC							0.03	0.04		0.03	0.03	0.04		0.03
Importance Att.							0.02	0.04		0.02	0.03	0.04		0.03
Others Same SN							0.01	0.04		0.01	0.01	0.04		0.01
Difficulty PBC							0.05	0.04		0.05	0.06	0.04		0.06
United States SN							0.05	0.06		0.03	0.06	0.06		0.04
Business Regulation											-0.02	0.11		-0.01
Economy Dep. on Env.											-0.03	0.04		-0.03
Income Regulation											0.01	0.03		0.01
Market Vs. Env.											0.00	0.04		0.00
International Regulation											0.02	0.04		0.01
Progress Vs. Env.											0.07	0.04		0.07
Growth Harms Env.											0.00	0.05		0.00
Growth As Env. Solution											0.01	0.04		0.01
Lifestyle Harms Env.											-0.03	0.04		-0.03
Private Ent. Solutions											0.04	0.03		0.04
Adjusted R^2	0.08			0.15			0.19			0.19				
F (df1, df2)	14.44	(5, 782)	***	24.37	(6, 781)	***	12.77	(16, 771)	***	8.07	(26, 761)		***	
ΔR^2				0.07			0.05			0.01				
ΔR^2 *F* (df1,df2)				67.84	(1, 781)	***	5.05	(10, 771)	***	0.65	(10, 761)			

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

Table 8

Hierarchical Regression Results: Willingness to Pay Higher Prices for Environment (N = 787)

	Block 1				Block 2			Block 3			Block 4			
Variable	B	SE		*β*	B	SE	*β*	B	SE	*β*	B	SE		*β*
Constant	1.03	0.25	***		0.44	0.26		-0.45	0.26		0.98	0.40	*	
Age	0.00	0.00		0.06	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00		0.05

Education	0.02	0.02		0.05	0.01	0.01		0.04	0.01	0.01		0.02	0.01	0.01		0.02
Household Income	0.00	0.01		0.00	0.00	0.01		0.01	0.01	0.01		0.03	0.00	0.01		0.01
Sex	0.05	0.08		0.02	0.05	0.08		0.02	-0.05	0.07		-0.02	0.00	0.08		0.00
Political Views	0.23	0.03	***	0.28	0.22	0.03	***	0.27	0.08	0.03	**	0.09	0.07	0.03	*	0.08
Environmental Intention					0.32	0.04	***	0.24	0.21	0.04	***	0.16	0.21	0.04	***	0.16
GW Attitude									0.13	0.04	**	0.12	0.08	0.04	*	0.08
Env. Concern Att.									0.20	0.04	***	0.18	0.17	0.04	***	0.15
Env. Effects on Life SN									0.06	0.04		0.06	0.02	0.04		0.01
Env. Problems Exaggerated Att.									0.12	0.04	**	0.12	0.09	0.04	*	0.08
Lifestyle PBC									-0.10	0.04	*	-0.08	-0.11	0.04	**	-0.09
Importance Att.									0.06	0.04		0.05	0.02	0.04		0.02
Others Same SN									-0.04	0.04		-0.04	-0.02	0.04		-0.02
Difficulty PBC									0.06	0.04		0.05	0.05	0.04		0.04
United States SN									0.18	0.06	**	0.10	0.13	0.06	*	0.07
Business Regulation													-0.15	0.12		-0.04
Economy Dep. on Env.													-0.02	0.04		-0.01
Income Regulation													-0.03	0.03		-0.03
Market Vs. Env.													-0.11	0.04	**	-0.11
International Regulation													-0.09	0.05		-0.06
Progress Vs. Env.													-0.09	0.04	*	-0.08
Growth Harms Env.													-0.13	0.05	**	-0.10
Growth As Env. Solution													0.00	0.04		0.00
Lifestyle Harms Env.													-0.02	0.04		-0.02
Private Ent. Solutions													0.09	0.04	*	0.08
Adjusted R^2	0.08				0.14				0.28				0.30			
F (df1, df2)	14.59	(5, 782)		***	21.61	(6, 781)		***	20.90	(15, 772)		***	14.62	(25, 762)		***
ΔR^2					0.06				0.15				0.04			
ΔR^2 F (df1,df2)					51.95	(1, 781)		***	17.66	(9, 772)		***	3.99	(10, 762)		***

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

Table 9

Hierarchical Regression Results: Willingness to Pay Higher Taxes for Environment (N = 791)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		*β*	B	SE		*β*	B	SE		*β*	B	SE		*β*
Constant	0.63	0.26	*		0.13	0.27			-0.76	0.28	**		1.38	0.43	**	
Age	0.00	0.00		0.02	0.00	0.00		0.00	0.00	0.00		0.02	0.00	0.00		0.04
Education	0.03	0.02		0.07	0.03	0.02		0.06	0.01	0.02		0.03	0.02	0.02		0.04
Household Income	0.00	0.01		-0.02	0.00	0.01		-0.01	0.00	0.01		-0.01	0.00	0.01		-0.02
Sex	0.08	0.09		0.03	0.08	0.08		0.03	-0.03	0.08		-0.01	-0.06	0.08		-0.02
Political Views	0.25	0.03	***	0.29	0.24	0.03	***	0.29	0.11	0.03	***	0.12	0.07	0.03	*	0.08
Environmental Intention					0.27	0.05	***	0.20	0.15	0.05	**	0.11	0.15	0.05	***	0.11
GW Attitude									0.10	0.04	*	0.09	0.02	0.04		0.02
Env. Concern Att.									0.21	0.05	***	0.18	0.17	0.04	***	0.14
Env. Effects on Life SN									0.06	0.04		0.05	0.01	0.04		0.01
Env. Problems Exaggerated Att.									0.16	0.04	***	0.14	0.10	0.04	*	0.10
Lifestyle PBC									-0.06	0.04		-0.05	-0.07	0.04		-0.05
Importance Att.									0.03	0.04		0.03	-0.01	0.04		-0.01
Others Same SN									0.02	0.04		0.02	0.05	0.04		0.04
Difficulty PBC									0.06	0.04		0.05	0.06	0.04		0.05
United States SN									0.13	0.07		0.07	0.04	0.07		0.02
Business Regulation													-0.09	0.12		-0.02
Economy Dep. on Env.													-0.04	0.04		-0.04
Income Regulation													-0.09	0.04	*	-0.09
Market Vs. Env.													-0.12	0.04	**	-0.11
International Regulation													-0.08	0.05		-0.06
Progress Vs. Env.													-0.09	0.04	*	-0.08
Growth Harms Env.													-0.08	0.05		-0.06
Growth As Env. Solution													-0.07	0.04		-0.06
Lifestyle Harms Env.													-0.08	0.04		-0.07

Private Ent. Solutions										-0.02	0.04	-0.02
Adjusted R^2	0.09			0.13			0.25			0.29		
F (df1, df2)	16.87	(5, 786)	***	20.34	(6, 785)	***	18.58	(15, 776)	***	13.61	(25, 766)	***
ΔR^2				0.04			0.13			0.04		
ΔR^2 *F* (df1,df2)				34.13	(1, 785)	***	15.20	(9, 776)	***	4.79	(10, 766)	***

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

Table 10

Hierarchical Regression Results: Willingness to Sacrifice Standard of Living for Environment (N = 792)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		*β*	B	SE		*β*	B	SE		*β*	B	SE		*β*
Constant	0.68	0.26	*		0.10	0.27			-0.80	0.28	**		0.80	0.43		
Age	0.00	0.00		-0.03	0.00	0.00		-0.06	0.00	0.00		-0.04	0.00	0.00		-0.04
Education	0.04	0.02	*	0.09	0.04	0.02	*	0.08	0.02	0.02		0.05	0.02	0.02		0.04
Household Income	0.01	0.01		0.04	0.01	0.01		0.05	0.01	0.01		0.04	0.00	0.01		0.01
Sex	0.10	0.09		0.04	0.09	0.08		0.04	0.01	0.08		0.00	0.05	0.08		0.02
Political Views	0.18	0.03	***	0.22	0.18	0.03	***	0.21	0.05	0.03		0.06	0.04	0.03		0.05
Environmental Intention					0.31	0.05	***	0.22	0.16	0.05	***	0.12	0.17	0.05	***	0.12
GW Attitude									0.08	0.04		0.07	0.04	0.04		0.04
Env. Concern Att.									0.29	0.05	***	0.24	0.26	0.04	***	0.22
Env. Effects on Life SN									0.11	0.04	**	0.09	0.07	0.04		0.06
Env. Problems Exaggerated Att.									0.05	0.04		0.05	0.01	0.05		0.01
Lifestyle PBC									-0.02	0.04		-0.01	-0.03	0.04		-0.03
Importance Att.									0.01	0.04		0.01	-0.03	0.04		-0.03
Others Same SN									-0.07	0.04		-0.06	-0.05	0.04		-0.04
Difficulty PBC									0.14	0.04	**	0.12	0.12	0.05	**	0.10
United States SN									0.14	0.07	*	0.07	0.08	0.07		0.04
Business Regulation													-0.22	0.13		-0.06
Economy Dep. on Env.													0.03	0.04		0.02
Income Regulation													0.02	0.04		0.02

Market Vs. Env.										-0.09	0.04	*	-0.09
International Regulation										-0.11	0.05	*	-0.08
Progress Vs. Env.										-0.09	0.04	*	-0.08
Growth Harms Env.										-0.10	0.05		-0.07
Growth As Env. Solution										-0.08	0.04		-0.06
Lifestyle Harms Env.										-0.04	0.04		-0.04
Private Ent. Solutions										0.04	0.04		0.03
Adjusted R^2	0.06			0.11			0.24			0.26			
F (df1, df2)	11.24	(5, 787)	***	17.10	(6, 786)	***	17.42	(15, 777)	***	12.39	(25, 767)		***
ΔR^2				0.05			0.14			0.04			
ΔR^2 *F* (df1,df2)				43.36	(1, 786)	***	15.71	(9, 777)	***	3.88	(10, 767)		***

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

Table 11

Logistic Regression Results: Signing A Petition On An Environmental Issue (N = 789)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		*β*	B	SE		*β*	B	SE		*β*	B	SE		*β*
Constant	-5.04	0.60	***	0.01	-5.61	0.64	***	0.00	-6.61	0.73	***	0.00	-5.29	1.11	***	0.01
Age	0.01	0.01		1.01	0.01	0.01		1.01	0.01	0.01		1.01	0.00	0.01		1.00
Education	0.15	0.03	***	1.17	0.15	0.03	***	1.16	0.11	0.04	**	1.12	0.11	0.04	**	1.11
Household Income	0.02	0.02		1.02	0.02	0.02		1.02	0.02	0.02		1.02	0.01	0.02		1.01
Sex	-0.47	0.18	*	0.63	-0.48	0.18	**	0.62	-0.59	0.19	**	0.56	-0.61	0.20	**	0.55
Political Views	0.36	0.06	***	1.43	0.35	0.06	***	1.42	0.26	0.07	***	1.30	0.24	0.08	**	1.27
Environmental Intention					0.30	0.11	**	1.35	0.13	0.12		1.13	0.14	0.12		1.15
GW Attitude									0.04	0.10		1.04	0.02	0.11		1.02
Env. Concern Att.									0.13	0.12		1.14	0.11	0.12		1.12
Env. Effects on Life SN									0.33	0.10	**	1.39	0.32	0.11	**	1.37
Env. Problems Exaggerated Att.									0.04	0.11		1.04	0.00	0.11		1.00
Lifestyle PBC									0.10	0.11		1.11	0.09	0.11		1.09
Importance Att.									-0.18	0.11		0.83	-0.22	0.11		0.81
Others Same SN									0.11	0.11		1.11	0.11	0.11		1.11

Difficulty PBC								0.22	0.12		1.24	0.16	0.12		1.17
United States SN								0.21	0.17		1.23	0.13	0.18		1.14
Business Regulation												-0.11	0.37		0.90
Economy Dep. on Env.												0.03	0.10		1.03
Income Regulation												-0.06	0.09		0.94
Market Vs. Env.												0.00	0.11		1.00
International Regulation												-0.19	0.13		0.83
Progress Vs. Env.												-0.04	0.11		0.96
Growth Harms Env.												0.29	0.13	*	1.34
Growth As Env. Solution												-0.25	0.10	*	0.78
Lifestyle Harms Env.												-0.07	0.10		0.94
Private Ent. Solutions												-0.05	0.09		0.95
Cox & Snell R^2	0.09				0.10			0.14				0.15			
Nagelkerke R^2	0.14				0.15			0.21				0.24			
-2LL	771.58				763.14			726.67				712.85			
% Accuracy Classify	77.3				77.8			78.8				79.6			
Model χ^2	73.38	5.00		***	81.83	6.00	***	118.29	15.00		***	132.12	25.00		***
Block χ^2	-	-	-	-	8.44	1.00	**	36.47	9.00		***	13.83	10.00		

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

Table 12

Logistic Regression Results: Donating Money For An Environmental Issue (N = 794)

	Block 1				Block 2				Block 3				Block 4			
Variable	B	SE		β	B	SE		β	B	SE		β	B	SE		β
Constant	-5.51	0.61	***	0.00	-6.33	0.66	***	0.00	-8.40	0.81	***	0.00	-7.80	1.19	***	0.00
Age	0.00	0.01		1.00	0.00	0.01		1.00	0.00	0.01		1.00	0.00	0.01		1.00
Education	0.15	0.03	***	1.16	0.14	0.04	***	1.15	0.11	0.04	**	1.11	0.10	0.04	*	1.10
Household Income	0.06	0.02	**	1.06	0.06	0.02	**	1.06	0.05	0.02	**	1.06	0.05	0.02	**	1.05
Sex	-0.08	0.18		0.92	-0.10	0.18		0.91	-0.27	0.20		0.77	-0.27	0.20		0.76
Political Views	0.33	0.06	***	1.39	0.32	0.06	***	1.37	0.14	0.07		1.15	0.13	0.08		1.14
Environmental Intention					0.42	0.11	***	1.52	0.18	0.12		1.20	0.20	0.12		1.22

GW Attitude							-0.01	0.11		0.99	-0.01	0.11		0.99
Env. Concern Att.							0.47	0.13	***	1.60	0.47	0.13	***	1.61
Env. Effects on Life SN							0.26	0.11	*	1.30	0.26	0.11	*	1.29
Env. Problems Exaggerated Att.							0.17	0.11		1.19	0.14	0.12		1.16
Lifestyle PBC							0.03	0.11		1.03	0.03	0.11		1.03
Importance Att.							-0.06	0.11		0.94	-0.07	0.11		0.94
Others Same SN							-0.08	0.11		0.92	-0.10	0.11		0.90
Difficulty PBC							0.35	0.12	**	1.42	0.31	0.13	*	1.36
United States SN							0.41	0.19	*	1.50	0.36	0.19		1.43
Business Regulation											0.01	0.39		1.01
Economy Dep. on Env.											-0.06	0.11		0.95
Income Regulation											-0.06	0.09		0.94
Market Vs. Env.											-0.09	0.11		0.92
International Regulation											0.09	0.14		1.09
Progress Vs. Env.											0.00	0.11		1.00
Growth Harms Env.											0.17	0.13		1.18
Growth As Env. Solution											-0.10	0.10		0.90
Lifestyle Harms Env.											0.05	0.10		1.05
Private Ent. Solutions											-0.02	0.09		0.98
Cox & Snell R^2	0.09			0.11			0.18				0.19			
Nagelkerke R^2	0.14			0.17			0.28				0.28			
-2LL	777.89			761.923			694.53				690.16			
% Accuracy Classify	77.5			78.5			80.4				80.6			
Model χ^2	76.98	5.00	***	92.95	6.00	***	160.34	15.00		***	164.71	25.00		***
Block χ^2				15.96	1.00	***	67.39	9.00		***	4.37	10.00		

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

Table 13

Summary of Results: Support for Research Hypotheses by PEBs

PEB	Hypothesis 1: Is neoliberal ideology significant in explaining pro-environmental behavior?	Hypothesis 2: Do neoliberal indicators significantly affect pro-environmental behavior?	Hypothesis 3: Does neoliberalism decrease the frequency or likelihood of pro-environmental behavior?
Driving Less	Yes	Yes	Somewhat
Water Reduction	Yes	Yes	Yes
Home Energy Use	No	No	No
Green Purchasing	No	No	No
Recycling	No	No	No
Higher Prices	Yes	Yes	Yes
Higher Taxes	Yes	Yes	Yes
Standard of Living	Yes	Yes	Yes
Signing Petition	No	Yes	Somewhat
Donating Money	No	No	No

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VITA

Joshua N. King was born in 1985 and grew up in Marshall, Missouri. He earned his Bachelor of Arts in Social Sciences at Webster University in 2008, and he studied Mandarin Chinese at Shanghai International Studies University in Shanghai, China. Prior to attending University of Missouri-Kansas City, Joshua served as an Americorps VISTA, business owner, and private contractor in a variety of nonprofit and for-profit organizations. During that time, he created and oversaw the inaugural MADE In Missouri Business Competition. Joshua has a passion for teaching and research, and has always considered sociology to be his field of orientation. He is also an active musician, and he loves bicycling. He plans to pursue a Ph.D. in Sociology at the University of Kansas, beginning Fall 2015.