A REVIEW OF NUDGES IN POLICY MAKING WITH A FOCUS ON TAXPAYER COMPLIANCE IN THE UNITED STATES

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Abstract

All throughout history, nations have used tactics to influence the perspective and behaviors of their citizens. These range from propaganda and communication strategies, to the implementation of tailored policies aimed at shaping societal norms and actions. One set of tactics that has been used the most in recent decades relies on Behavioral Economic Principles, which apply psychological tools to understand individual economic decision-making. This study will look at the impact of Behavioral Economic Principles in developing and implementing Financial Government Policy in the United States; more specifically, the focus of this study is on analyzing the effect of *Nudging* in Tax Compliance regulation.

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Background of the Problem

Behavioral Economics

Behavioral Economics describes an approach that tries to understand how individuals make decisions, and how these decisions differ from those prescribed by neoclassical economics. Its foundation is rooted in human behavior, consolidating Behavioral Sciences with Economic Principles, and studying why individuals do not always make the most 'rational' or 'calculated' decisions, even after having all the information to do so. In other words, it assumes irrationality in decision-making. According to a study by Wolfgang Pesendorfer, "much of Behavioral Economics builds on experimental evidence in which a new variable that is ignored in standard economic models is shown to 'matter'" (2006). For example, why do people often keep large sums of money in non-interest-bearing checking accounts despite the many benefits of savings accounts or certificates of deposits? The field of Behavioral Economics analyzes the emotional, cultural, psychological, and cognitive factors that influence our day-to-day decisions, hoping to get a better understanding of human behavior and specific circumstances.

Origins of Behavioral Economics

Scholars point to Richard Thaler as the father of Behavioral Economics. His work lies in the gap between economics and psychology, showing ways in which individuals part away from rationality. Thaler began studying Behavioral Economics in 1980, stemming from the work of two Israeli psychologists, Amos Tversky and David Kahneman, who analyzed economic uncertainty and risk. Nonetheless, according to Thaler, key concepts within the discipline can be traced back to Adam Smith's ideas in the 1700s. Smith argued that individuals are overconfident in their decisions and demonstrated how "the economic behavior of individuals could be influenced by their desires" (Asrah, N.; Camerer, C.; Loewenstein, G. 2005).

Thaler's work has challenged the standard economist model, first developing the concept of "Endowment Effect" to explain how individuals treat additions to their 'endowments'

differently than their subtractions. In other words, “subjects value a good more if it is part of their endowment than if it is not” (Pesendorfer, W. 2006). For example, studies show that when individuals are asked how much compensation they would demand if they were asked to switch from their current cell phone provider to another, a majority would demand significantly higher compensation than the one they would be willing to pay to switch if they did not have their original cell phone provider. Throughout the following years, Richard Thaler continued to develop concepts that disrupted the classical economic approach to decision making, opening a new door of possibilities for Behavioral Economics[1].

Behavioral Economics vs Classical Economics

Understanding how Behavioral Economics differs from Classical Economics is crucial for the purpose of this dissertation. Researchers Derek Reed, Christopher Niileksela, and Brent Kaplan developed a study on Behavioral Analysts in Practice, where they concluded that traditional economics believe “humans exhibit behavior commensurate with a *homo economicus* profile (the “economic human”). As *homo economicus,* individuals are assumed to be completely aware of the costs and benefits associated with all possible actions” (2013). Therefore, they will make decisions that fully maximize their gains. However, behavioral economists assume the opposite: “individuals are susceptible to temptations and tend to make poor and rash decisions, even though it is clear there are better options that will improve long-term outcomes” (Reed, D.; Niileksela, C.; Kaplan, B. 2013). This study also provides a simple yet insightful example, which is the fact that undergraduate students will rather scroll on their phones during a lecture rather than paying attention, fully knowing the loss in knowledge and potential detriment to the chance of performing well in the class.

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[1] Before his book *Nudge: Improving Decisions on Health, Wealth, and Happiness,* Richard Thaler also published several books on Behavioral Finance and Paradoxes and Anomalies of Economic Life. He is also the recipient of the Nobel Memorial Prize in Economic Sciences for his contribution to the field of Behavioral Economics. His work can be found in The University of Chicago Booth School of Business,

Diving deeper into the differences between these two schools of thought, there are certain experimental findings in Behavioral Economics that indicate limitations within classical economic theories. More specifically, we will analyze: (1) the failures of expected utility theory, (2) hyperbolic discounting, and (3) social preferences.

The Expected Utility Theory

The expected utility theory argues that “the frequency with which a pool of subjects choose lottery *p* over *q* does not change when both lotteries are mixed with some common lottery *r*” (Pesendorfer, W. 2006). Nevertheless, this theory stems on the assumption that behavior does not conform to its predictions. Tversky and Kahneman (1979) also argued this theory, attesting that “when analyzing choice under uncertainty, it is not enough to know the lotteries an agent is choosing over. Rather, we must know more about the subject’s situation at the time he makes his choice” (Pesendorfer, W. 2006). That way, the frequency of those choices might change if we account for a *new variable* that matters.

Hyperbolic Discounting

Standard decision making assumes that individuals make decisions based on the overall outcome of the situation, regardless of when the outcome will occur. “Whether the agent chooses consumption in the initial period or sequentially has no effect on the choice if the budget constraint is the same in both cases” (Pesendorfer, W. 2006). The Hyperbolic Discounting theory challenges this classical view, suggesting that individuals tend to discount the value of an outcome the more time it passes. In other words, individuals tend to choose immediate gratification over long term benefits, even if the latter has a greater satisfaction.

Social Preferences

Classic Economics also stems from the idea that individuals make decisions entirely on their own, without outside factors influencing said choices. Nonetheless, a study made in 1982 by Werner Guth, Rolf Schmittberger, and Bernd Schwarze evaluates individuals in their decision making by pairing up participants and presenting them with an offer, to which they can accept or decline. However, a rejection would leave both players with zero payout. The results were that "responders routinely reject small offers and therefore do not maximize their selfish monetary payoff" (Pesendorfer, W. 2006). However, when researchers conducted a second study where participants' utility depended on their own and their opponent's monetary payoffs, the results drastically changed: "players not only care about the material outcomes of their opponents but also about their opponent's character" (Pesendorfer, W. 2006). This means that participants do care about their opponent's outcomes, discrediting the standard theory of decision-making.

Behavioral Economics: Nudges

What are Nudges?

According to Richard Thaler and Cass Sunstein, nudges are "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (2008). For this strategy to work, the intervention must be easy to avoid, cheap, and not mandated. Thaler and Sunstein also add that nudges "alter the behavior of Humans [i.e., individuals not complying with the requirements of neoclassical rationality] even though they would be ignored by Econs [i.e., neoclassical rational agents]" (Thaler, R. & Sunstein, C. 2008). For example, placing a product in a grocery store at eye level to increase accessibility might boost consumer's desire to purchase it.

Nudges can come in different forms. According to Kathleen Thomas, shifting defaults are the most common, where the decision-maker chooses an outcome that does not fall under the status quo; an example of this is sending text messages to students to remind them to pay for

financial aid, making the student more susceptible to do so. Other nudges may provide incentives for completing a task, like “cash rewards or “wellness points” one might earn for achieving health goals” (2021).

Perspectives on Nudging

Throughout the years, economists have studied the effectiveness of nudges in their ability to produce long term behavior. Some critiques allude that the definition must be expanded to address certain gaps and queries. When breaking down the definition by Thaler and Sunstein, we know four main points: (1) nudges do not forbid any options, (2) they do not significantly change their economic incentives, (3) they should be cheap and easy to avoid, and (4) they would significantly alter the behavior of humans even though it would be ignored by Econs (Thaler, R. & Sunstein, C. 2008). However, these points may be ambiguous in some aspects, making it difficult to distinguish a nudge with other tactics, like marketing incentives or standard interventions.

Analyzing the first point, we understand that nudges do not forbid any options. This means that the decision maker must have all available choices before determining an outcome. Nevertheless, it does not clarify if by expanding a choice it still qualifies as a nudge. In fact “experimental evidence shows that a decision maker can be influenced by the addition of options in the choice set, specifically, by the addition of dominated options or ‘decoys’” (Congiu, L. & Moscati, I. 2021). A study by Kivetz et. al (2009) experimented with a group of individuals by presenting them with different annual subscriptions to a journal. There were three options: an online subscription for $59, a print subscription for $125, and an online and print subscription for $125. The second alternative is considered a ‘decoy’, as it offers less than the third for the same price, making the participants more receptive to choosing the third option. They found that the “final distribution of the subjects’ selections changed significantly depending on whether the decoy was present or not. More precisely, the share of experimental subjects that chose the

third, most expensive option was higher when the decoy was present and lower when it was removed" (Congiu, L. & Moscati, I. 2021). Therefore, decoys *can* significantly alter a consumer's choice, making it a form of nudge.

Furthermore, the second point explains that nudges do not significantly change their economic incentives, meaning they should not manipulate financial rewards or penalties to influence individuals to make a particular decision. Economists like Pelle Guldborg Hansen suggested that "this wording does not consider other relevant forms of incentives, such as time, social actions, or physical threats" (2017). An example Hansen gives is that threatening to administer electric shock to influence a certain conduct does not change an individual's economic incentives, "but regarding it as a nudge would be implausible" (Congiu, L. & Moscati, I. 2021).

Regarding point three of the definition, it says nudges should be cheap and easily avoided, never forcing the consumer to comply with it. In other words, the argument suggests that the decision maker has strong enough preferences that will not be influenced by nudges, or that they always go through a cognitive deliberation process. Oktay Sürücü, a mathematician and the author of *The Asymmetric Dominance Effect,* argues that "for instance, [if] the decoy effect disappears, or is severely reduced, when the decision maker has a strong preference for either nondominated option compared to when the decision maker is indifferent between the two" (2019). Two other scholars, Alexia Gaudeul and Paolo Crosetto, also challenge this point by noting that "the decoy effect disappears when the decision maker is given proper time and incentives to revise his choice, implying that the effect of this nudge may not survive cognitive deliberation" (2019). So in order to make this argument effective, two conditions must be true: transparency and capacity to trigger deliberation (Congiu, L. & Moscati, I. 2021).

The last point is crucial because, like previously mentioned, it differentiates nudges from a marketing campaign or standard interventions. "However, this criterion may not be met in cases where both rationality and bounded rationality are targeted simultaneously" (Congiu, L. &

Moscati, I. 2021). What this statement argues is that one nudge might affect people who make rational decisions *and* limited decisions altogether differently. Tatiana Homonoff, a New York University Economics Professor, developed an example with the five-cent tax on disposable shopping bags where both cases happened. This tax is an effort to reduce plastic consumption and air pollution by charging five cents per disposable bag.

Her findings concluded that the tax almost halves the demand for bags, but if policymakers were to reframe this tax as an incentive (i.e. a five cent bonus for using reusable bags), it would not lead to significant changes. This is due to the principle of loss aversion, where losses are seen as 'more costly' than gains. Another phenomenon happens in this scenario: the salience effect, where certain features of a decision stand more prominently, hence influencing the behavior of consumers. In this case, "the effectiveness of this tax may also be due to its "salience", since it is applied to a good that is not the true object of the purchasing activity but is rather instrumental to it and demanded separately" (Homonoff, T. 2018). This may even be more amplified by the fact that shopping bags were previously free. Therefore, this tax effort "reduces their demand by acting simultaneously on a rational channel (cost modification) and on bounded-rationality channels (loss aversion, salience effect)" (Homonoff, T. 2018). So it is difficult to determine whether this policy is considered a nudge or standard policy because while it would not be ignored by Econs, it does not just rely on modifying the cost to influence behavior.

Redefining Nudging

As a consequence, the original definition of nudges has been modified to improve these differences of opinions. Two relevant authors have developed comprehensive approaches to nudges in the past decade: Pelle Hansen and Cass Sunstein. On one hand, Hansen argues that "a nudge is … any attempt at influencing people's judgment, choice or behavior in a predictable way, which works by making use of [people's] boundaries, biases, routines and habits as

integral parts of such attempts" (Hansen, P. 2017) . With this definition, he is tackling two of the points mentioned before. First, by acknowledging rationality failures nudges may include adding options to the choice set; and secondly, by acknowledging that if an intervention takes advantage of situations where individuals do not make rational decisions, it can still be considered a nudge. Interestingly for Hansen, "criterion (2) turns the five-cent tax into a nudge because, even though it relies on rational drivers (cost modification), it also relies on cognitive biases and boundaries (loss aversion and salience)" (Congiu, L. & Moscati, I. 2021).

On the other hand, Sunstein, who was one of the economists that coined the term *nudge* along with Thaler, took a different approach by emphasizing the idea that nudges should preserve the individual's liberty and autonomy. Sunstein describes nudges as "private or public initiatives that steer people in a particular direction but that also *allow them to go their own way*" (Sunstein, C. 2017). Scholars still believe this definition tackles the "broad" sense of nudges as opposed to Hansen's "narrow" approach. However, Sunstein's definition does allow the separation of libertarian-paternalism, which is "the idea that it is both possible and legitimate for private and public institutions to affect behavior while also respecting freedom of choice" (Gane, N. 2021). In other words, it finds a middle ground between two extremes: one one hand, hard paternalism "impinges on individual freedom of choice, while, on the other, raw libertarianism assumes that individual consumers are rational creatures that are able to act in their own interests" (Gane, N. 2021). Thaler and Sunstein's work argue that libertarianism and paternalism are "far more attractive together than alone" (Thaler, R. & Sunstein, C. 2008). They suggest that a form of "soft paternalism" should be implemented to improve the choices made by individuals without forcing them to act against their will.

Scholars have critiqued this concept over the years, arguing that any form of paternalism, regardless how soft it is, is still a method of coercion that limits individual freedom. Thaler and Sunstein consider that "libertarian paternalists want to make it easy for people to go their own way; they do not want to burden those who want to exercise their freedom" (2008).

Moreover, they add that this approach should not be judged by the experts who create the nudges, but by the individuals who receive these nudges. Overall, both authors support the argument that humans are not “Econs”, and that libertarian and paternalism “can be combined in order to correct deficiencies that [...] are inherent in both” (Thaler, R. & Sunstein, C. 2008).

Types of Nudges

So far, we have studied the definition of nudges, highlighting the key aspects that comprise this concept. Nevertheless, it is important to clarify who should actually benefit from the nudge. Congiu and Moscati provide two types of nudges in their research paper: pro-self nudges and pro-social nudges. Pro-self nudges are aimed at benefiting the decision maker. Hagman et. al defines it as nudges that “help individuals steer away from irrational behavior… which decreases their long-term well being” (2015). The example shown before about placing products at eye level is a type of pro-self nudge, as private companies or governments can use this to promote consumer’s health. Pro-social nudges are made for the common good, aimed at influencing the behavior of individuals to increase society welfare. For example, presenting individuals with the possibility of becoming organ donors when they renew their driver’s license makes the choice more easily accessible and likely to happen, contributing to the overall benefit of society.

Policy Making in the United States

Policymaking refers to a deliberate and goal-oriented set of actions undertaken by the government to address specific problems or issues within a country. These policies are typically grounded in legislation, although they may be influenced or implemented by various actors beyond legislators. The multifaceted aspect of policymaking, is that some scholars argue that it is both “an activity (to use the best methods to generate the optimal policy tools to solve a

defined problem) and an outcome (the selection and impact of the tool will be determined by the government)" (Cariney, P., 2021). Because of this, assessing whether policy design utilizes Behavioral Economics in their practices can be difficult to measure.

Nudges in Policy Making

Governments have a long history of analyzing human behavior to influence how citizens act. From putting recycling bins in public places, to offering free or discounted public transportation, governments can implement policies and reforms to achieve goals in a way that benefits those around them. However, in the past decades, these tactics have been incorporated even more into policymaking, applying psychological and behavioral principles to their practices. "In the United States, the 2008 publication of *Nudge* and the subsequent move of one of its authors, Cass Sunstein, into an influential position in the White House in 2009 gave a major boost to embedding behavioral approaches into policy" (Halpern, D. & Sanders, M. 2016). Sunstein was able to solve regulatory issues by the use of behavioral economics and executive orders.

For instance, the Obama administration managed to regulate greenhouse gas emissions and set fuel economy standards through the Environmental Protection Agency (EPA) without congressional approval. He did this by incorporating Behavioral Economic Principles in four steps. First, EPA highlighted successful examples of other facilities and countries who had effectively implemented cleaner technologies, making the use of Social Norms as a nudge to influence behavior. Secondly, the Agency incorporated Default Options like giving flexibility to states in how they achieved their emission reduction goals (Office of the Press Secretary, 2012). Moreover, EPA implemented an Information Provision as a nudge to promote decision making among state and power plants. They provided tools like emission tracking systems, best practice guidelines, and comprehensive information to stakeholders (Office of the Press Secretary, 2012). Lastly, it used Behavioral Insights in Regulatory Design. By framing these

objectives as desirable and socially achievable rather than burdensome regulatory requirements, it encouraged positive action and compliance.

The United States government has dedicated significant resources to develop institutions and “nudge units” that can tackle these challenges through behavioral interventions. The Social and Behavioral Sciences Team was established in September of 2015, also under President Obama’s administration, as an agency that “translated findings and methods from the social and behavioral sciences into improvements in federal policies and programs for the benefit of the American people” (Social and Behavioral Sciences Team, n.d.). The agency stopped operating in January of 2017, and the work was continued by the General Services Administration’s Office of Evaluation Sciences.

Successful Nudging: APPLES

Attempts to bring behavioral economic principles to the world of policy have not always been successful. Because of this, Halpern & Sanders advise governments to follow a protocol known as *APPLES,* which stands for: Administrative Support, Political Support, People, Location, Experimentation, and Scholarship. *Administrative Support* refers to having a “senior level buy-in inside the system” (Halpern, D. & Sanders, M. 2016). By obtaining backing and endorsement from decision makers who hold influential positions, changes are more likely to happen, as it provides leverage and credibility. Halpern and Sanders want us to think of *Political Support* as “how the approach fits with the political narrative and instincts of the governments concerned” (2016). *People* refer to the creation of a team with the right skills and expertise to develop behavioral economic tactics. Governments should also choose a *Location* that is closely connected to the people you work with and embrace empirical methods by *Experimenting* new approaches. Lastly, policymakers should focus on *Scholarship*; in other words, “know the behavioral literature and details of the challenges you will face” (Halpern, D. & Sanders, M. 2016).

Taxation Through Behavioral Insights

As we delve into the application of nudges in United States policy making, one of the fields that has been most prominent in these applications is taxation. From simplifying the application process of the Earned Income Tax Credit form, to developing a Tax Withholding Program that provides personalized recommendations based on individual financial circumstances, the U.S. administration has created several proposals to influence citizens' decisions to comply with taxing regulation. Before we analyze the use of nudges in this field of policy, it is key to understand the tax system in the United States.

The taxation system in the United States is progressive. In other words, "the percentage of income an individual (or household) pays in taxes tends to increase with increasing income" (Roach, B. 2010). Individuals with higher incomes also tend to pay a higher rate of taxes. For example, a person who earns an income of $200,000 might pay a 32% tax rate compared to another one who makes $60,000 and pays a 22% tax rate.

Scholars favor this taxation system due to a number of reasons. First, it helps reduce income inequality; by taxing more to those who earn a higher income, the government can utilize this to fund social programs and services that benefit all citizens. Therefore, the taxation system works as a "transfer mechanism", allowing greater distribution of economic resources (Roach, B. 2010). Additionally, there is a benefit tied to effective demand and economic activity. If the government were to implement a $100 tax cut, low income households generally respond differently than higher income ones. For low income families, the $100 can be an opportunity to spend it on needed goods and services, injecting $100 into the economy. For high income families, this tax cut might not make a difference, not adding to the overall demand and market economy. "In economic terms, we say that the marginal propensity to consume tends to decrease as income increases" (Roach, B. 2010).

A progressive tax system reflects the idea that higher income individuals should contribute a larger portion due to their greater financial capacity. "The ability-to-pay principle

recognizes that a flat (or regressive) tax rate would impose a larger burden, in terms of foregone necessities, on low-income households as compared to high-income households" (Roach, B. 2010). It is important to differentiate the various types of taxes imposed in the United States. First, we will look at a brief history of how the progressive tax system got introduced to the United States. Then we will analyze the Federal Income Tax, followed by taxation at a State and Local level.

History of the U.S. Tax System

For the first 150 years of U.S. history, taxes were directed only at individuals. The Constitution prohibited "direct" taxation by the federal government, and instead they relied on indirect taxes, like tariffs and excise taxes. These two elements generated the most income at the time. In the 1800s, "custom duties comprise about 84% of government receipts [and] in 1900 over 60% of internal revenue collections came from alcohol excise taxes with another 20% from tobacco excise taxes" (U.S. Census Bureau, 1949). It is also important to note that government taxation and expenditures today is significantly higher than before. Statistics by the U.S. Census Bureau states that in 2010, "government expenditures and investment at all levels comprised about 20% of total economic output". Contrarily, in the 1800s, "government expenditures were responsible for only about 2% of national output". Thus, the role of the government has become more significant, so has the overall trend of rising taxation.

The biggest changes in taxation happened during the Civil War between 1863 and 1866. During this time, government revenue collections increased and the first national income tax was instituted. "The income tax rates were low by modern standards− a maximum rate of 10% along with generous exemptions meant that only about 10% of households were subject to any income tax" (Roach, B. 2010). This small change generated over 20% in federal revenues, but it expired after 1872.

The tax system we know today is attributed to the members of the Populist Movement, who wished to modernize the system during the late 1800s. They believed that excises and tariffs were regressive, and wanted to go back to the income tax of 1863 as a way to introduce the progressive tax system. “They saw it as a response to excessive monopoly profits and the concentration of wealth and power. In other words, the tax was not envisioned as a means to generate significant additional public revenue but as a vehicle of public justice” (Roach, B. 2010). This movement received a lot of support, and in 1894 a federal income tax, with an exemption of $4,000, was introduced. Nonetheless, the Supreme Court ruled it as unconstitutional in 1895, and it was not until 1913 that the 16th Amendment was ratified, creating the legal basis for a federal income tax (Roach, B. 2010).

Even though the introduction of the federal income tax served as a big step into a progressive tax system, in the first few years only 2% of the population was taxed, and their rates varied from 1% to 7%. However, as World War I was approaching, the government was aware that it needed higher revenues to finance the war efforts. From 1915 to 1917, “the top marginal rate increased from 7% to 67%” (Internal Revenue Service, 2002), and corporate and estate taxes also became significant revenue collection tools. Subsequent to the conclusion of World War I, the nation faced the onset of the Great Depression, and federal income taxes were raised again. However, despite the economic turmoil generated by this crisis, during the Great Depression a series of social insurance programs were introduced, supporting Americans through this economic hardship. “Rather than funding Social Security programs through increases of income, or other, taxes, the funding mechanism was a separate tax, split equally between employers and employees” (Roach, B. 2010).

World War II created yet another emergency that required additional revenues. At the time, President Franklin Roosevelt decided to raise income from corporations and high-income households. He said in a speech “in this time of grave national danger, when all excess income should go to win the war, no American citizen ought to have a net income, after he has paid his

taxes, of more than $25,000" (Brownlee, 2004). Nevertheless, Roosevelt did not manage to raise enough congressional support to enact most of these reforms. As a result, not only higher federal income taxes were implemented, but also the amount of households taxed, meaning income tax began to reach the middle class for the first time."The taxable income subject to the highest marginal rate dropped from $5 million in 1941 down to $200,000 in 1942. Also, the top marginal tax rate reached a record high of 94% in 1944" (Roach, B. 2010).

Modifications to the tax framework almost did not change from the end of World War II to the 1980s. The Social Security tax expanded to reach more Americans, Medicare and Medicaid programs were implemented in the 1960s, the initial tax rate of 2% had increased to 6.13%, and the national expenditure grew from less than 18% of GDP in 1946 to over 22% by mid 1970s (Roach, B. 2010). When Ronald Raegan assumed office in 1980, one of his biggest projects was the creation of The Economic Recovery Tax Act of 1981 (ERTA), which implemented the largest tax cut in American history. "The theory was that tax cuts could actually produce an *increase* in federal revenues and address the growing federal budget deficit as well. ERTA phased in a reduction in the top tax rate from 70% to 50%, enacted several corporate tax cuts, and indexed many tax parameters to inflation" (Roach, B. 2010). In the following years, Raegan continued to push for tax reforms, introducing the Tax Reform Act of 1986 that reduced the top income tax rates further, and is considered by many economists "the most comprehensive revision of the tax code since the 1950s" (Petska,T. & Strudler, M. 1999).

This period is an important era for U.S. tax history, allowing federal revenue collections to increase at the same rate as national output. Individual and corporate taxes became more progressive, while social insurance taxes became more regressive. Nevertheless, some scholars might point out that the Raegan administration failed to control the federal deficit. So when President Bush took over office, his campaign promised "no new taxes" while trying to reduce deficits, and President Clinton was known for creating the 36% and 39.6% individual tax brackets (Roach, B. 2010).

The most recent significant tax legislation is considered to be the 2001 $1.35 trillion tax code passed during the Bush administration. “The major provisions of this act include lowering individual income tax rates across-the-board, scheduling repeal of the estate tax in 2010, and increasing the amount employees can contribute under various programs for retirement purposes” (Tax Policy Center, n.d.). Another appealing aspect of this legislation was that most of the provisions were “back-loaded”, meaning they would not be introduced until later in the future. After this bill, a smaller tax cut was passed in 2009 through the American Recovery and Reinvestment Act that expanded tax credits per worker and for college tuition (Roach, B. 2010).

Since 2010, prominent laws have been passed continuing to focus on tax cuts, job creation, and tax reliefs. The Patient Protection and Affordable Care Act of 2010 was a big milestone, as it established: individual excise taxes, modification of gross income definitions, individual premium assistance credits, and cost-sharing subsidies (Tax Policy Center, n.d.). The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act was also enacted during this year, extending the 2001 tax cuts through 2012. However, it was not until the American Taxpayer Relief Act of 2012 that these tax cuts were permanently extended. This legislation also permanently extended certain 2003 tax cuts, extended 2009 tax cuts to 2017, provided permanent Alternative Minimum Tax (AMT) relief, and allowed a 20 percent rate of return for taxpayers in the top bracket (Tax Policy Center, n.d.).

President Obama passed what is known today as PATH, Protecting Americans from Tax Hikes Act of 2015, which protects Americans against tax fraud and identity theft. Since then, two more pieces of legislation have passed: the Tax Cuts and Jobs Act of 2017, which lowers income tax rates until 2025, and the Bipartisan Budget Act of 2018, that “retroactively extended a variety of expired tax provisions through 2018, including tax credits for energy efficient and renewable energy investments, the deduction for qualified tuition [...], and empowerment zone tax incentives” (Tax Policy Center, n.d.). It is important to mention that even though the Inflation Reduction Act is not directly tied to tax reform, it “changed a wide range of tax laws and

provided funds to improve our services and technology to make tax filing faster and easier" (Internal Revenue Service, 2022).

Federal Income Tax

The Federal Income Tax was established with the ratification of the 16th Amendment in 1913. It is levied on "wages and salaries, as well as income from many other sources including interest, dividends, capital gains, self-employment income, alimony, and prizes" (Roach, B. 2010). Nevertheless, the amount that a person owes is not based on total income. Instead, taxpayers are allowed to subtract some expenses that are considered "non-taxable", like meal subsidies, student loan interest, and allowable moving expenses. This results in the Adjusted Gross Income (AGI), however, this is still not the amount an individual owes in taxes.

Taxable income is AGI minus deductions and exemptions. Deductions are claims to tax liability, and can be standard, meaning a fixed amount deducted from taxation, or itemized. To itemize a reduction, "the tax filer adds up certain expenses made during the year including state taxes, real estate taxes, mortgage interest, gifts to charity, and major medical expenses" (Roach, B. 2010). Exemptions are calculated based on the number of tax filers and dependents. For example, a single tax filer with no dependent children can only claim one exemption, while a married couple with no children can claim two. An individual then must pay taxes depending on the amount of taxable income they generate for the year.

State & Local Tax

Like the federal government, states can also use taxes to raise revenue and fund public expenditures. Even though these taxes are similar to government ones, there are still important differences worth mentioning. As of 2024, there are forty-three states that levy individual income taxes, and forty-one tax wage and salary income (Yushkov, A. 2024). These range from 1.82% in Alaska to 9.56% in Louisiana. "Among these taxing wages, 12 have a single-rate tax

structure, with one rate applying to all taxable income. Conversely, 29 states and the District of Columbia levy graduated-rate income taxes, with the number of brackets varying widely by state" (Yushkov, A. 2024).

In addition, localities can charge separate sales tax, but they are typically lower than state taxes. According to Roach, sales taxes tend to be regressive, because "low-income households tend to spend a larger share of their income on taxable items than high-income households" (2010). He explains that with expenses like gasoline, something that makes up a smaller portion of total spending as income rises, an increase of state taxes on this item impacts low-income families more than high-income ones. While states and localities use taxes similarly to the federal government, variations in tax structures and rates can underscore the nuanced impacts on individuals and households.

Nudges in Taxes

The standard model of tax compliance, or evasion, made by Allingham-Sandmo in 1972 states that "taxpayers weigh the certain consequences of compliance against the uncertain benefits of tax evasion and choose the option that gives them the greatest expected income (or utility)" (Alm, J. et al. 2023). In a sense, taxpayers comply with tax regulations because they fear the consequences of violating the law. Understanding how this model works will give us insight into the nudges introduced by the government to increase compliance.

The first evidence of this theory was proved through a study by Slemrod et al., where they discovered that "sending a letter to taxpayers threatening "close examination" of their tax returns leads to a minor but statistically significant increase in reported income among low- and middle-income taxpayers relative to a control group that did not receive any letter" (2001). Another study by Kleven et al. investigated the impact of sending letters announcing either an audit or a 50% chance of an audit to one group and not sending any letters to another group. The study found that "the audit probability has a positive impact on reported income; that is,

taxpayers who anticipated a 100 percent probability of audit reported higher income than those who expected a 50 percent probability of an audit, and both groups reported more income [...] than those who did not receive a letter" (2011). Meiselman, an economist and professor, also found that "messages that increase the perceived probability of punishment have a positive effect on filing compliance of delinquent taxpayers" (2018). Overall, there is strong evidence that increasing punishment of fines and consequences enhances tax compliance.

In this paper, we will adopt a qualitative approach to assess the effectiveness of nudges in increasing taxpayer compliance. We will do so by analyzing the *Taxpayer Relief Act of 1997,* one of the largest tax reduction acts in United States history since the 1980s. This comprehensive analysis will seek to answer the following questions:

1. How did the nudges in the legislative framework impact taxpayer compliance?
2. What specific nudging strategies were implemented within the proposed legislation?
3. What are the potential limitations or barriers of employing nudges in tax compliance, and how can these be reduced?
4. What lessons can be drawn from the application of nudges in this particular legislation that can be developed in future tax policies?

Taxpayer Relief Act of 1997

Like we previously mentioned during the history of the taxing system in the United States, the *Taxpayer Relief Act* was one of the many legislations passed throughout the years to increase income tax compliance. In the context of this particular bill, colloquially known as TRA-97, by the late 1990s, the U.S. economy grew steadily with GDP rates increasing 4% each year. Unemployment rates were also low during this time, between 4% and 5%, and the stock market experienced a historic bull run, contributing to individual wealth accumulation. Nevertheless, almost all revenue taxing came from high-income households. Because of this, President Clinton introduced a large bill that would offer "substantial tax relief for parents,

college students, investors, homeowners, small business people, and retirees" (Uradu, L. 2023) while still raising revenues for office spending. We will now analyze in detail the provisions in this legislation.

Education Credits

This act established "the legal basis for education savings accounts, which allow parents to save for future college expenses with tax-free gains and withdrawals for future educational purposes" (Uradu, L. 2023). This incentive increased college enrollment and reduced financial burden for families. The act also created the Hope Tax Credit, also known as the American Opportunity Tax Credit, "which provides tax credits up to $2,500 each year per eligible student"; and the Lifetime Learning Credit, "which lets parents and students lower their tax liability by up to $2,000 to help offset higher education expenses" (Uradu, L. 2023). The other education incentives included "the creation of education IRAs, limited deductibility of interest paid on student loans, penalty-free withdrawals from retirement IRAs to pay for education, and tax-favored treatment of state tuition programs" (Congressional Budget Office, 2000).

Capital Gains Tax

Capital gains taxes were lowered as a result of this legislation in a number of ways. First, the "top marginal long-term capital gains rate fell from 28% to 20%, and the 15% bracket was lowered to 10%" (Uradu, L. 2023). Secondly, it exempted from taxation any capital gains "on the sale of a personal residence up to $500,000 for married couples filing jointly and $250,000 for single individuals" (Uradu, L. 2023). Even though this provision was set to reduce revenues by $21 billion in 10 years, it was expected to raise revenues by encouraging Americans to sell capital assets in the following years.

Roth IRA Expansion

TRA-97 made two prominent changes in tax treatment: (1) "raising the income limits below which people can deduct contributions to IRAs" (Congressional Budget Office, 2000), and (2) creating the Roth Individual Retirement Account. This variation on the IRA "allows taxpayers to pay into a retirement account using after-tax dollars but withdraw the money after retirement with no additional taxes owed on the contributions or the profits earned on them" (Uradu, L. 2023). In other words, the money individuals put in their account is the money they already paid taxes on, so they will not have to pay taxes again. In addition, individuals will not have to pay taxes when they take the money out of their Roth IRA.

Tax Reduction for Corporations & Small Businesses

Another important change in this legislation is the tax relief from the Alternative Minimum Tax (AMT) which, like we previously mentioned, is designed to prevent high-income individuals or corporations from avoiding paying taxes. "Businesses can calculate depreciation for purposes of the AMT using the same asset lifetimes they use for purposes of the regular corporate income tax, although they must still use the AMT's slower depreciation schedule" (Congressional Budget Office, 2000). It also allows farmers to use the method of accounting for their finances, and exempt the AMT for corporations who make less than $5 million a year.

Increases in Government Revenues

Considering the vast majority of tax cuts implemented in this legislation, policymakers may wonder how the government is able to raise funds despite the missing revenue from these transactions. The answer to that is extending existing excise taxes in areas like airport and airway taxes, tobacco taxes, and the federal unemployment tax. For airport and airway, the main element was increasing the percentage cost of air passenger tickets to 10%. "In 2002, the tax rate will fall to 7.5 percent of the purchase price of the ticket, with an additional tax of $3 for

each segment of a domestic flight" (Congressional Budget Office, 2000). This excise alone managed to raise $33 billion in the provisions generated through 2002, which is $4 billion more than the previous years.

Subsequently, tobacco taxes were raised from 10 cents to 15 from 2000 to 2002, generating a revenue of $17 billion through 2007 (Congressional Budget Office, 2000). As for the federal unemployment tax, before this bill was passed, this tax imposed a "0.8 percent tax on the first $7,000 of wages paid to each employee covered by the federal unemployment insurance program" (Congressional Budget Office, 2000). This tax includes a 0.2 surtax that was expiring in 1998. TRA-97 extended this surtax so the additional revenues can be retained.

1997 Tax Nudging Insights

With a comprehensive analysis of the Taxpayer Relief Act in place, we can examine the role of nudges within the legislative context. President Clinton's Act strategically incorporated Behavioral Economic Principles to influence taxpayer compliance in a series of steps. For the Education section, the administration enacted campaigns to enhance awareness and understanding of tax obligations like HOPE and lifetime learning credits, which are "designed to enable and encourage more people to attend college and continuing-education programs" (Congressional Budget Office, 2000). This strategy not only increases awareness by providing information, but *nudges* taxpayers by offering them tangible financial benefits. The Act also reduced Capital Gains Tax as a way of encouraging investment of long-term assets. "Compared with previous savings in IRAs, any new savings is more likely to be for retirement purposes, and both existing and new savings are more likely to be withdrawn after shorter holding periods" (Congressional Budget Office, 2000).

Moreover, TRA-97 expanded Roth IRA options, offering tax benefits for retirement savings. By leveraging the concept of delayed gratification, this provision allows taxpayers to contribute after-tax dollars and withdraw funds tax-free at retirement. Lastly, the Act provides tax

reductions for corporations and small businesses, incentivizing economic growth and entrepreneurship. Nevertheless, an analysis by Andrew Lyon, a professor and economist from Princeton University, argued that because TRA-97 exempts small businesses from the Alternative Minimum Tax, it could lead to misallocation of investments. “On one hand, the exemption [...] potentially improves the overall allocation of capital in the economy and encourages increased capital formation. On the other hand, it might cause overinvestment of resources in small businesses, diverting resources away from possibly more productive uses in larger firms and discouraging small business from expanding” (1998).

Potential Limitations & Lessons Learned

The Taxpayer Relief Act of 1997 implemented a number of nudging strategies to ensure effective compliance of said policy. Initiatives such as the Education Credits and reductions in Capital Gains Tax aimed to incentivize desired behaviors, while other provisions might have been more challenging to successfully execute. Factors like behavioral biases, complexity in eligibility criteria, limited awareness, and personal economic circumstances can impede the efficacy of nudges. To address these obstacles, policy makers should consider the contextual nuances of taxpayers when developing legislation, and tailor their efforts accordingly.

President Clinton’s Act provided valuable insights for developing future tax policies, stressing the importance of simplicity and clarity in interventions, the value of tailored and personalized approaches to account for behavioral biases and external factors, and the need for targeting messaging.

Conclusion

According to Brian Galle, “nudges depend on humans’ psychological foibles [so] they can easily translate into sharply varying social welfare implications for their widespread usage” (2014). Throughout this study, we have analyzed the origins of Behavioral Economic Principles,

reviewed the History of the U.S. Tax System, and assessed the Effectiveness of Nudges by examining the Taxpayer Relief Act of 1997. While it is certain that nudges have proven successful in the field of taxpayer compliance, their impact may vary depending on contextual factors and, most importantly, individual decision-making. A critical consideration when using nudges lies in comprehensively understanding why individuals act the way they do− the underlying motivations that drive human behavior. Only then, will we understand the complex dynamics of nudging and optimize their utility in tax compliance efforts.

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