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Using Incentives in Behavioral Economics: A Meta-Analysis Evaluating How Financial vs. Social Nudges Change Consumer Behavior

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Abstract:
The paradigm of behavioural economics has brought about a revolution in terms of our understanding of the nature of consumer decisions. Classical economics assumes that consumers are rational individuals whose behavior is determined by price stimuli. However, reality shows us that consumer behavior is heavily determined by such non-economic factors as psychology and social norms. The current research will conduct a meta-analysis of scientific literature in behavioural economics, investigating which of two approaches is more efficient: using financial incentives and social nudges to impact consumer behavior. This paper aims at identifying under which conditions financial incentives outweigh social behavior or vice versa. The analysis of existing evidence shows that monetary incentives lead to significant initial results and relatively weak sustainability after removing the incentive. On the contrary, social nudges lead to weaker initial behavioural response and greater persistence. Cultural norms, socio-economic status, cognitive load, and other context variables determine the effectiveness of different kinds of behavioural policy. Thus, combining both types of incentives can be seen as the most efficient way of influencing consumer behavior.

Keywords: Behavioural economics, nudges, incentives, consumer behavior, social norms, financial incentives, meta-analysis, public policy

1. Introduction

Studying consumer behavior has been one of the key areas of economic analysis from the time when modern economic theory began. Neoclassical economic analysis defines humans as rational beings whose decisions maximize their satisfaction under stable preferences, complete information, and optimization. In such a framework, any decisions made by the consumer follow logical considerations of cost–benefit analysis, and thus respond rationally to different incentives of varying prices and income. Although this helped in developing many theories and recommendations for government actions, empirical data started showing systematic differences between theories and reality.

In real life, people often show patterns that are at odds with the concept of rationality. They delay their actions even when knowing about future disadvantages, value short-term gains more than long-term ones, copy their peers' decisions, and make different decisions regarding the same choices due to a difference in framing. Financial decisions, health-related choices, actions on behalf of environmental concerns, and online decisions are based not on rational considerations, but on cognitive and emotional biases. Behavioral economics was formed out of recognition of these flaws in the field through interdisciplinary approach incorporating psychology, cognitive sciences, and decision theories. Important contributions made by Kahneman, Tversky, Thaler, among other scholars, proved that human behavior is affected by bounded rationality, use of heuristics, and inherent cognitive biases. Notions of

loss aversion, mental accounting, present bias, and status quo effect indicated that humans tend to apply psychological short cuts in their information processing. Such findings completely revolutionized economic science because they showed that instead of rational agents, constrained and psychologically realistic individuals drive the economic processes. One of the most important notions developed in behavioral economics is the idea of nudging – a tool that affects people's choices in a way that does not restrict the individuals' freedom. Nudging means restructuring decision environments, or choice architecture, to encourage certain decisions. The mechanism is based on the premise that the decision environments have a strong effect on people's behavior. For example, such decisions as automatic enrollment in pension savings scheme, communication about social norms aimed at energy savings, and improved disclosure of information affect consumer decisions. There is an ever-growing use of behavioral interventions by governments, private firms, and international organizations to solve difficult problems in society that include but are not limited to poor savings habits, poor consumption choices, taxes, the environment, and usage of digital platforms.

This trend towards using behavioral interventions in policy formulation has also led to increased experimentation among policy makers. This includes the use of behavioral insight units by public sector organizations as well as the integration of behavioral design principles in marketing approaches and product interfaces adopted by private firms. Although there is widespread adoption of these intervention techniques, there continues to be considerable disagreement between researchers and policymakers about the effectiveness of one type of intervention against another. This debate focuses on whether behavior can be shaped better using monetary or social stimuli. Financial incentive programs work through classical economic processes where incentives directly modify the expected costs and gains for certain actions. Financial reward, discounts, sanctions, and subsidies are able to elicit quick response through aligning the incentives for action with the desired result. However, financial incentives might be limited to eliciting temporary responses, crowding out intrinsic motivation, and being expensive to maintain over extended periods. Social nudges work indirectly and can elicit behavioral response based on triggering a cognitive or social mechanism like peer effect, descriptive norm, reciprocity, or moral reasoning. The lack of any consensus regarding the relative success of both types of behavioral intervention strategies reveals an interesting dilemma in the field of behavioral economics. The current body of research on behavioral change strategies is characterized by the variety of settings under consideration – energy saving, health-related behavior, donation, consumer behavior, etc. Furthermore, various methods are applied and different indicators are used to evaluate their efficacy. The issues mentioned above can be resolved by conducting meta-analysis of all the available empirical evidence regarding the impact of financial incentives and social nudges on consumer behavior. The research is expected to provide a comprehensive review of existing behavioral intervention approaches by analyzing results obtained from experiments and quasi-experiments conducted prior to 2019.

More specifically, the following research questions are raised:

- Which of the intervention tools (financial incentives or social nudges) elicit more immediate behavioural effects?
- What types of behavioural interventions demonstrate sustainable behavioural impact?
- When do financial incentives work best?

2. Theoretical Foundations of Incentives in Behavioural Economics

2.1 Financial Incentives

Financial incentives represent one of the oldest and most popular ways of changing behaviors in economics. Financial incentives are based on neoclassical economic theory, which presupposes systematic responses of people to price, income, and reward variations. According to the theory of

financial incentives, consumers act like rational agents who adjust their behavior according to the change of economic outcomes.

Financial incentive is one of the basic principles of classical economic models since they imply behavior change in response to financial stimuli, including subsidies, tax refunds, bonuses, discounts, penalties, and performance-based incentives. In addition, financial incentives refer to an economic channel, which can be easily quantified and has long been used in public policies, corporate activities, and regulation. The theoretical underpinning of financial incentives can be seen in expected utility theory, according to which people choose between alternative outcomes by evaluating them in terms of net benefit or economic value.

There are three main ways of behavior influence by financial incentives:

- direct maximizing of utility by choosing a course of action with greater benefits and fewer losses,
- changing opportunity cost of alternative actions, and
- risk compensation.

Indeed, empirical evidence from several fields indicates that monetary rewards have high responsiveness to behavior over short periods of time. Savings increase when the government or employer makes matching contributions; energy usage falls when time- and/or dynamic-pricing policies are implemented; and technological adoption occurs faster when the subsidy lowers the entry cost. Therefore, monetary incentives are a dependable tool for policymakers to effect immediate behavioral change. On the other hand, while financial incentives are quite effective in influencing behavior, behavioral economics presents both theoretical and practical considerations related to such measures. Academics inspired by Becker's framework and subsequent behavioral studies believe that financial incentives might be limited because they assume stable preferences and instrumental reasonings. According to behavioral economics literature, monetary incentives have the potential to decrease people's intrinsic motivations, especially in cases where individuals regard pro-social behavior as being part of the business world. For instance, the use of monetary incentives to encourage socially desirable acts – such as philanthropy, conservation of the environment, and volunteering – may undermine an individual's intrinsic motivations since the behavior would then be considered a transaction and not an ethical obligation. Thus, although financial incentives continue to be potent policy tools, behavioral economics stresses that their effectiveness hinges on context, such as framing, perception of fairness, cultural traditions, and the relationship between external and internal motivations.

2.2 Social Nudges and Behavioral Interventions

Unlike financial incentives, social nudges work mainly through psychological and sociological channels, not economic benefits. The theoretical underpinnings of nudging derive from social psychology, cognitive science, institutional economics, and decision theory, mirroring the cross-disciplinary development of behavioral economics.

The notion of nudging became famous after the book “Nudge: Improving Decisions about Health, Wealth, and Happiness” by Richard Thaler and Cass Sunstein, which coined the term “choice architecture”—the engineering of decision contexts that shape behaviors without infringing on personal freedoms. Unlike financial incentives, which seek to modify economic motivations, nudges seek to manipulate the presentation of alternatives, framing of information, and ease of particular choices. Social nudges include:

- Default rule designs, which make individuals automatically participate in schemes like retirement savings plans;

- Social norms messages, which provide information regarding the behavior of other people or neighbors;
- Peer feedback mechanisms that help individuals alter their behavior based on relative performance;
- Commitment devices that help individuals tie themselves to their future aspirations;
- Frame and salience manipulations that help emphasize certain elements of the decision at hand.

Research suggests that slight manipulations in the environment can result in significant behavioral effects. For example, automatic enrollment in pension savings plans is found to increase participation levels regardless of any financial benefits offered. In addition, campaigns aimed at promoting energy conservation based on neighborhood consumption norms have proved successful.
Behavioral decision research identifies several biases exploited by social nudges. These biases include:

- The status quo bias that pushes individuals to choose default rules without making an active decision;
- The loss aversion principle, under which individuals tend to weigh losses more heavily than gains;
- Social conformity, which forces individuals to conform to the expected behavior.

As opposed to using financial incentives to alter the payoff, social nudges frequently affect the process of making decisions itself through the use of attention, perception, and habitual behavior to create a behavioral pattern which will endure even after the cessation of such measures. Such a difference has made researchers propose that, contrary to financial incentives, social nudges can lead to long-lasting behavioral changes in areas that are connected with self-control, social responsibility, or identity-driven decision making. It should be noted that there are numerous limitations associated with the application of social nudges in consumer behavior. In particular, there are issues with context-dependency, cultural differences, and individual heterogeneity. Furthermore, it is unclear to what extent such incentives can be used without infringing upon ethical aspects related to transparency, autonomy, or persuasion and manipulation. This explains why the current perspective in behavioral economics suggests that these two approaches complement each other to some extent when influencing consumer decisions. It is crucial that these theories provide a theoretical background for the comparison of the mentioned incentives.

3. Methodological Approach: A Meta-Analytic Perspective

This paper employs a qualitative meta-analytical methodology for the systematic integration of empirical evidence on behavioral influences on consumer choice behavior. In other words, the research does not seek to conduct any novel experiment but rather synthesizes evidence from the existing literature produced before and around 2020 in terms of laboratory studies, randomized control trials, practical behavioral policies, and international comparisons of behaviors.
The meta-analysis has become one of the key methodologies employed by behavioral economics in recent years. It is important since most of the experiments in behavioral economics tend to focus on specific populations or specific behavioral topics. Meta-analysis helps to aggregate data and draw conclusions that can be generalized and thus be useful for policymakers. The meta-analytic framework used in this paper is based on evidence integration methods advocated by researchers such as John A. List.
The body of literature considered in this meta-analysis includes the following types of studies:

- Laboratory experiments, which allow exploring cognitive biases and the process of decision-making;
- Interventions conducted in the field, which reveal the behavioral response in market environments;
- Policy experiments conducted within large governmental behavioral projects;
- Behavioral research conducted in multiple countries.

In order to maintain clarity of concepts, interventions can be grouped into two broad types of analysis:

The financial incentives that change economic motivations based on either rewards or punishments; and,
The social or behavioral stimuli that affect decision-making based on changing psychological or social environments of decision-making.
Four primary outcomes measured in terms of these interventions include the following four core variables:

- Behavioral adoption rates, which refer to the immediate effects of interventions;
- The persistence of behaviors, which reflect sustainability;
- Cost-effectiveness, which measures efficiency compared to cost of implementation; and,
- Scalability, which measures feasibility among large populations.

It must be noted that the current paper does not aim to calculate any aggregated statistical coefficient. On the contrary, the goal of this paper is to find consistent trends that appear in empirical evidence in repeated fashion. Qualitative synthesis seems more adequate than quantitative calculations within the context of behavioral economics, because of the diversity of experiments, measures, and policy environments in this field.

4. Long-Term Psychological Impact

Financial incentives carry a lot of potential in creating sustained psychological impacts. For example, in education sectors, scholarships and educational grants usually help in building a sustainable feeling of importance in acquiring further education, leading to increased motivation. Financial incentives can also be applied in healthcare sectors through the use of medical insurance schemes with monetary incentives aimed at encouraging good health practices and sustaining overall wellbeing. This demonstrates the power of financial incentives in creating sustained psychological impacts that will affect behavior in the future. One important characteristic of financial incentives is their variability in size and time. Incentive sizes are very essential in ensuring efficiency since bigger incentives are stronger than smaller ones. Also, financial incentives are flexible because they apply and implement in different contexts.

4.1 Motivation Crowding and Behavior Inversion

Despite demonstrating excellent results at first glance, however, motivational crowding, which consists in the detrimental effect of external rewards on intrinsic motivation, is always brought up as an issue within the behavioral science body of research. The research by Bruno S. Frey, in particular, shows the ways in which individuals may interpret socially positive behaviors as jobs due to monetary motivation.
Thus, it can be observed that certain tendencies persist:

- The recycling rate decreases with the removal of financial motivators;
- Health-related behavior, including exercising or medication taking, loses its consistency with the disappearance of reward-based motivation; and
- Productivity levels may reduce following the removal of bonus schemes.

As follows from all of the above, perhaps, money may be a good fit for single occurrences and activities requiring activation, but certainly not for transforming one's whole lifestyle.

4.2 Distributional and Cultural Impacts

Reactions to monetary inducements vary widely based on the particular social and economic environment prevailing in that community. Behaviorist theory predicts that there would be stronger reactions among poor social strata due to higher marginal utility associated with their income. Empirical evidence supports the theoretical prediction by suggesting that modest inducements create a substantial effect on poor populations while rich people tend to be less responsive to monetary incentive schemes. Also, cultural research indicates that monetary inducement does not always carry greater weight than

behavioristic measures. In collectivist societies, where community identity is strong, people may react to social appeals rather than economic incentives. Therefore, institutional trust and cultural expectations affect the performance of financial incentives, thus requiring careful consideration when designing policies. Norm-based interventions work on the principle of reputation and identity alignment rather than on material rewards. The desire to conform with the behavior that is believed to be typical for the community may be driven by an unconscious fear of exclusion. Experiments conducted by the Behavioural Insights team show that even small cues of social norms may result in behavioral change.
Informal community discussions also reflect this phenomenon:

"People imitate other people... Social proof helps to comply."

Despite the informal nature of these claims, they coincide with experimental results demonstrating strong impact of descriptive norms on decision-making across cultures and policy areas.

4.3 Default Effect and Choice Architecture

One of the strongest ways to shape people's decisions is related to the use of defaults. Research done by Richard Thaler and Cass Sunstein shows that auto-enrollment policies significantly boost participation in various saving programs, insurance schemes, and donation programs.

Default effect works via a few psychological effects:

- Decrease of decision-making complexity;
- Inertia and status quo bias utilization;
- Defaults as implicit recommendation of the trusted institution.

Due to their effectiveness and low cost, defaults help to achieve high levels of adoptions at minimum costs.

4.4 Behavioural Persistence

Another significant benefit associated with social nudging is its persistence. Since nudging involves changing behavioral and social norms, the behavioral modifications can often be sustained long after the intervention has been terminated. Some examples of behavioral persistence include:

- reduced energy use at home;
- higher involvement in saving money for retirement;
- the sustenance of healthy consumption habits.

Unlike monetary incentive schemes, social nudges foster the adoption of internalized behavioral norms. This is because repeated social nudging leads to behaviors being transformed into habits over time.

5. Application of Policy

5.1 Public Policy and Governance

Governments now commonly form behavioral insight units where behavioral science is used for taxation, public health care, environmental policy, and administrative procedures. Behavioral governance, influenced by innovative policies developed at Behavior Insight Teams, relies on low-cost measures able to enhance results without resort to costly regulation.

The main policy considerations include:

- combining subsidies with appeals to social norms;
- creating automatic default mechanisms;
- framing policy around collective responsibility and identification.

In contrast to command-and-control regulations, behavioral tools enable efficient policy enforcement with less regulation and spending.

5.2 Consumer Markets and Business Strategy

Firms use behavioral approaches to formulate marketing strategies and design products. Firms implement various incentives and choice architectures in order to shape consumers' decision-making process while ensuring their freedom.

Possible implementations involve:

- loyalty and rewards;
- mechanisms that encourage continuation such as gamification;
- use of social proof through reviews and ratings;
- subscription defaults.

In this way, private sector can benefit from behavioral insights.

5.3 Sustainability and Behavior

The application of behavioral economics in matters related to climate and sustainability is increasingly becoming significant. Environmental issues demand widespread behavioral modifications that are beyond the scope of price instruments alone. From research into energy conservation programs, it becomes evident that the use of peer comparison communication produces results that are similar to those produced by prices yet at considerably reduced economic and political costs. The incorporation of both carbon-pricing measures and behavioral incentives increases acceptance and compliance and ensures a sustainable commitment to environmental issues. In this regard, behavioral incentives are a vital part of contemporary environmental policy.

From this discussion, it becomes clear that both methodologically and empirically, the relationship between financial incentives and social nudges in consumer behavior can be comprehensively explored.

6. Conclusion

First, behavioural economics re-defines consumer behavior as it proves that the economic behavior can no longer be studied through the prism of price and the method of optimization. The traditional paradigm is based on the emphasis put on the concept of incentive which refers to monetary factors influencing utility maximization. Yet, the current knowledge base suggests that human beings have economic, psychological and environmental motivation at the same time. In terms of the consumer behavior, the behavior is the result of interplay between economic incentives and mental activity but it is not the result of rational behavior. Drawing upon the results obtained during the meta-analysis in this paper, one can state that there is a clear tendency derived from experiments, policy measures, and studies conducted abroad before 2020. Economic incentives remain powerful motivators for behavioral changes among consumers as they create conditions for overcoming inertia, make decisions easier, and involve people into the process. They are rather simple and, therefore, effective when it comes to short-term intervention. Social nudges are more efficient in sustaining the behavior change over time. By affecting social norms, social identities, habits, and social pressures, social nudging involves the internal motivation of individuals instead of external rewards. Research on the behavioral policy model by Richard Thaler has shown that through designing an appropriate choice architecture involving default rules, norms, and commitments, behavioral change can be attained effectively without infringing upon the freedom of the individual. The major lesson to be drawn from this discussion is that financial rewards and social nudges must never be viewed as alternatives for behavioral policy making. Instead, they can best serve as complements in developing an effective behavioral policy framework. Whereas financial rewards may aid in getting people into a certain behavior, nudging helps sustain such behavior by aligning them with social norms and social identity. These implications are evident in various spheres of economic policymaking. In public policymaking, the need is emerging for governments to acknowledge that regulatory processes will involve more than finance-related expertise; it will require

behavioral science knowledge as well. This type of regulation is relatively inexpensive when used to increase tax compliance, improve health conditions, promote sustainability, and enhance civic participation. The increasing adoption of behavioral policies globally marks an important step towards evidence-based governance, where policymakers are no longer basing their approaches on assumptions regarding perfection in humans, but on real knowledge. Additionally, the use of behavioral incentives by businesses can enable them to succeed even further in their engagements with consumers. As businesses increasingly rely on complicated marketing and internet technologies to connect with customers, they apply insights from behavioral science to affect customers' behaviors without constraining their free will. Behavioral economics can assist businesses to promote healthy consumption behavior and enhance customer loyalty. Overall, it is apparent that the applications of behavioral economics in the future will expand even further, as we identify increasingly urgent social challenges, ranging from managing climate change to ensuring health and economic inclusion. In reality, however, the future of economic policymaking consists of recognizing the fact that true governance is much more than a matter of altering price levels; true governance is a matter of understanding the way that people actually think, decide, and behave. Through the integration of behavioral economics into our study of economics, we will be able to close this divide.

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