



POLICY BRIEF

Enforcement, Nudges, and Their Combination to Curb USE of Plastic Bags in Islamabad

INTRODUCTION

To help policymakers respond more effectively to the challenge posed by plastic bags, a team of researchers from COMSATS University Islamabad and SDPI tested how different types of interventions related to enforcement and informational nudges affect the use of plastic bags in Islamabad. The result shows that a multidimensional policy response is needed to address this challenge. The study's findings underscore that while enforcement is crucial, its effectiveness is significantly enhanced when combined with informational and religious nudges. By adopting a comprehensive strategy that includes strict enforcement, value-based communication, and targeted support for businesses, policymakers can achieve a more substantial and lasting reduction in SUP usage. This approach addresses the immediate environmental concerns and fosters a culture of sustainability and environmental stewardship within the community.

BACKGROUND

The pervasive use of single-use plastic bags (SUPBs) poses a significant environmental challenge worldwide, with annual production estimates ranging from 0.5 to 1 trillion bags. Despite their convenience, SUPBs contribute substantially to environmental degradation, including landscape and water pollution and urban flooding due to clogged drainage systems. The problem is particularly acute in developing regions where regulatory frameworks are often ineffective. Islamabad, Pakistan's capital city, exemplifies this issue, as previous measures like bans have been transient and largely ineffective. This study seeks to explore innovative policy interventions to more effectively influence compliance with SUPB regulations. Specifically, it assesses the impact of regulatory enforcement combined with nudge-based strategies—both informational and religious nudges—to leverage cognitive biases and social norms for promoting pro-environmental behavior.

APPROACH

We conducted a cluster randomized control trial to test effectiveness of different interventions. The interventions included enforcement by environmental authorities, informational nudges, religious nudges, and a combination of these strategies. The study utilized a randomized control trial to evaluate strategies for reducing single-use plastic bag (SUPB) usage in Islamabad. Eighteen markets—11 urban and 7 rural—were randomly selected to represent the city's commercial diversity, with 15 to 30 retail shops chosen per market based on size. Around 400 retail shops participated in the study. Three intervention groups were established: control (no intervention), enforcement (Pak-EPA visits), and nudges (informational and religious), with nudges implemented before enforcement to isolate their effects. Data collection occurred in two phases shortly after each intervention, supported by baseline data from February to March 2023. Control markets served as benchmarks for comparison. SUPB usage was measured through direct observation of customers not provided with plastic bags, allowing for a comparison of usage before and after interventions to assess the effectiveness of each strategy.

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IMPLEMENTATION OF INTERVENTIONS

INFORMATIONAL NUDGE

The informational nudges in this study focus on educating the public about the adverse effects of using single-use plastic bags and promoting alternatives. These are designed to anchor the legal imperative against plastic bag usage and encourage compliance through behavioral change. Further informational nudges go into specific health risks associated with the improper use of plastic bags. One such nudge targets the dangers of using plastic bags to handle hot food, which can release toxic substances harmful to human health. This holistic approach aims to educate the public on the multiple dimensions of the issue, enhancing the urgency and relevance of the nudge.

گرم کھانا پلاسٹک میں ڈالنے سے زہریلا ہو جاتا ہے۔



Plastic Bags
Are Banned



Please Bring
Your Bag



RELIGIOUS NUDGES

Religious nudges combine scriptural teachings with environmental advocacy to engage the public on a moral and spiritual level. Quranic Verse to Encourage the Public to Avert Plastic Bags to Reduce Plastic Waste," begins with a powerful invocation from the Quran, Surah Al-Baqarah: Verse 222, which states, "Most surely Allah loves those people who refrain from evil and keep themselves pure and clean" suggesting that eschewing plastic bags aligns with the Islamic values of purity and cleanliness. The verse effectively positions the act of avoiding plastic as a



fulfillment of religious duty towards maintaining personal and environmental sanctity. The integration of Quranic wisdom and environmental science is further exemplified by Surah Qasas: Verse 77, "Do not seek to spread corruption in the land, for Allah certainly does not like the corruptors." This verse, when juxtaposed with data on the toxicity of plastic bags, underscores the message that cleanliness and environmental preservation are not mere

choices but essential religious and moral obligations.

The figure below deepens this discourse by highlighting the consequences of environmental negligence. Titled "Religious Nudge: Combining Quranic Verse with Scientific Evidence to Encourage the Public to Avert Plastic Bags to Reduce Health Risks," it references Surah Ar-Rum: Verse 41, "Corruption has spread on land and sea as a result of what people's hands have done so that Allah may cause them to taste the consequences of some of their deeds and perhaps they might return to the Right Path." This verse is presented alongside evidence of the health



hazards associated with plastic bag usage, illustrating a direct link between disregarding environmental well-being and experiencing collective repercussions, which may manifest as natural calamities.

بیشک اللہ تعالیٰ برائی سے باز رہنے اور پاکیزگی کا اہتمام کرنے والوں کو محبوب رکھتا ہے۔ (القرآن، سورۃ البقرۃ: 222)

اور زمین میں فساد برپا کرنے کی کوشش نہ کر،

اللہ مفسدوں کو پسند نہیں کرتا۔

(سورۃ القصص: 77)

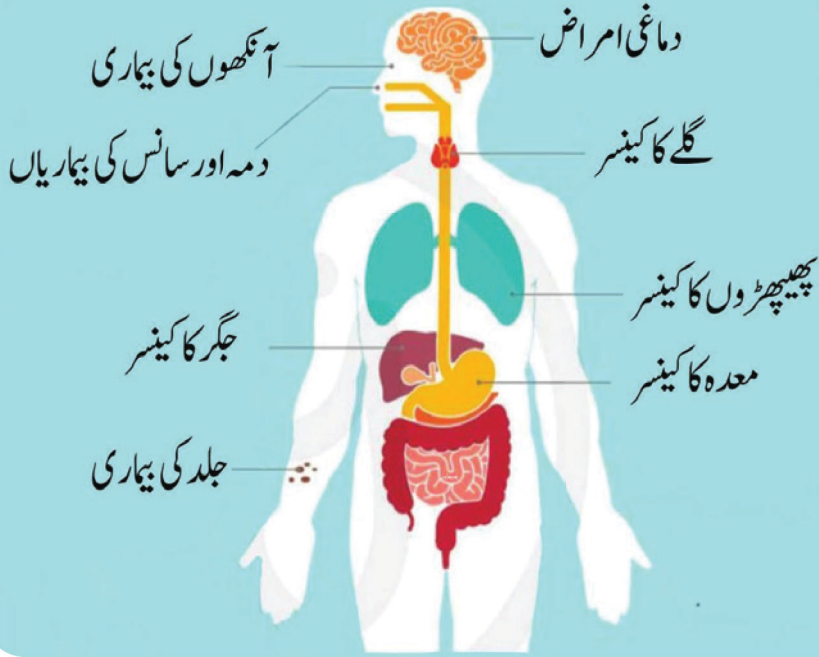
USE REUSABLE
BAGS

SAVE ENVIRONMENT



لوگوں کے اعمال کے سبب خشکی اور پانی میں فساد برپا ہو گیا ہے تاکہ مزا چکھائے انکوان کے اعمال کا شاید کے وہ باز آجائیں (سورۃ روم)

انسانی جسم پر پلاسٹک کے اثرات



نوٹ: پلاسٹک بیگ زمین میں فاسد مادے اور زہریلی گیسیں پیدا کرتے ہیں۔

ENFORCEMENT INTERVENTION

For effective enforcement of the interventions, the Pak-EPA established HAS several Implementation Teams as per the Pakistan Environmental Protection Act of 1997. These teams were tasked with overseeing selected

treatment markets for their inspections and enforcement. The enforcement actions were planned for January and February 2024, aligning with the study's data collection periods.

RESULTS

The findings indicated that enforcement alone led to a significant reduction of 4.48 percentage points in SUPB usage, demonstrating its impact on curbing plastic bag consumption. When enforcement was combined with informational and religious nudges, the reduction increased slightly to 4.77 percentage points, suggesting that a multidimensional approach enhances policy effectiveness.

Informational and religious nudges without enforcement also yielded positive results. The combined informational and religious nudges led to a 2.65 percentage point decrease in plastic bag use highlighting the potential of value-based communication in influencing behavior. Religious nudges alone resulted in a modest reduction of 1.17 percentage points indicating their limited but notable impact.

Business type significantly influenced the effectiveness of interventions. Grocery stores showed an unexpected increase in SUPB usage by 0.66 percentage points, possibly due to their reliance on plastic bags for packing multiple items and economic constraints in adopting costlier alternatives. In contrast, cloth and medicine stores, and hotels/restaurants exhibited substantial reductions of 2.51 and 2.63 percentage points respectively, likely due to easier adoption of reusable bags and heightened awareness of environmental and health concerns.

Other factors affecting SUPB consumption included the availability of plastic bag substitutes, business registration status, and geographical location. Urban businesses reported a significant reduction in SUPB usage, while rural areas saw less impact, underscoring the role of infrastructure and accessibility in policy implementation.

POLICY OPTIONS

Based on the analysis, the following policy options emerge:

OPTION 1: ENFORCEMENT ONLY

- Pros: Demonstrated significant reduction in SUPB usage; straightforward implementation through existing regulatory bodies.
- Cons: Resource-intensive due to the need for continuous monitoring; face compliance issues in areas with limited enforcement capacity.

OPTION 2: NUDGES ONLY (INFORMATIONAL AND RELIGIOUS)

- Pros: Cost-effective; leverages cultural and religious values and is less intrusive.
- Cons: Lower impact compared to enforcement; effectiveness may diminish over time without reinforcement.

OPTION 3: COMBINED ENFORCEMENT AND NUDGES

- Pros: Maximizes reduction in SUPB usage; addresses both behavioral and regulatory aspects; sustainable over the long term.
- Cons: Requires coordination between agencies; initial setup may be complex.

OPTION 4: TARGETED INTERVENTIONS FOR SPECIFIC BUSINESS TYPES

- Pros: Addresses unique challenges of businesses like grocery stores; potential for customized solutions.
- Cons: May require additional resources for tailored programs; complexity in managing multiple strategies.

POLICY RECOMMENDATIONS

ADOPT A COMBINED APPROACH OF ENFORCEMENT AND NUDGES

- Implement strict enforcement measures while simultaneously deploying informational and religious nudges to maximize the reduction in SUPB usage.
- Coordinate efforts between environmental authorities and community leaders to reinforce the message.

DEVELOP TARGETED SUPPORT FOR GROCERY STORES

- Provide subsidies or incentives for grocery stores to adopt affordable alternatives to plastic bags.
- Facilitate access to cost-effective, sustainable packaging solutions suitable for groceries.

ENHANCE ACCESSIBILITY OF ALTERNATIVES

- Invest in the production and distribution of reusable or biodegradable bags, especially in rural areas.
- Encourage local businesses to stock and promote sustainable bag options.

LEVERAGE RELIGIOUS AND CULTURAL CHANNELS

- Engage religious leaders to disseminate messages about environmental stewardship rooted in religious teachings.
- Incorporate environmental education into community programs and religious gatherings.

IMPLICATIONS AND IMPACT

Implementing these recommendations is expected to lead to a substantial reduction in SUPB consumption. The combined approach addresses both the enforcement gap and the behavioral aspects influencing SUPB usage. By involving community and religious leaders, the policy leverages existing social structures to promote sustainable practices. However, challenges may include resource allocation for enforcement, potential resistance from businesses due to economic constraints and the need for ongoing engagement to maintain the effectiveness of nudges. Tailoring interventions to specific business types may require an additional effort but is likely to yield better compliance and sustained behavioral change.