



Assessing Public Perception Of Green Taxes: A Step Towards A Circular Economy And Sustainable Practices In Bangalore

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ABSTRACT: This study explores public perception and awareness of green taxes as a motivator for developing a sustainable circular economy in Bangalore. Green taxes are considered to act as a discourager for pollution and motivator for environmental-friendly behavior, thus playing a very important role in transforming consumer and production patterns. The study was based on the responses of 101 participants by using a structured questionnaire. It collected demographics, knowledge of green taxes, attitudes, and perceptions in regard to their efficiency towards sustainability. It showed levels of awareness and support ranging from respondent to respondent concerning green taxes. They were more skeptical of their long-run economic impact but recognized they reduced pollution. It used chi-square tests and ANOVA to test how the effect of green tax awareness may be associated with consumers' behavior, decision to buy, and perception of the long-term environment. There is a gap in public knowledge and effectiveness in reaching existing channels, which suggest ways to which policymakers may benefit in driving the sustainability consumption through circular economies, with regard to using green taxes as drivers of consumption in the pursuit of environmental concerns.

KEYWORDS

Circular Economy, Environmental Benefits, Green Taxes, Public Perception, Sustainable Practices

I. INTRODUCTION

The increasing concern over the environment in the world includes global climatic change, air pollution, and depletion of natural resources. The challenge to bring an appropriate solution regarding the progress of sustainable development remains a great issue for governments and policymakers. Sustainable development relates to just management between economic growth, environmental protection, and social well-being, such that it meets the needs of the present generation without compromising the future (World Commission on Environment and Development, 1987). Green taxes are now among the principal policy instruments aimed at reducing environmental damage through internalization of external costs of pollution and resource use.

Green taxes, which are otherwise known as environmental or eco-taxes, are those levied on goods, services, or activities having negative externalities such as carbon emissions, waste generation, and water pollution. This is likely to bring a change in the environmental practices of reducing carbon footprint and gradually shifting towards sustainable consumption and production patterns (Mahapatra, 2013). Here, the logic is that increasing the cost of those activities which are harmful to the environment, green taxes would be able to bring out a behavioural change to reduce the level of pollution and of better quality of the environment (Nobanee & Ullah, 2023).

II. REVIEW OF LITERATURE

1. **Emília Huttmanová and Radoslav Mikča (2024):** This paper examines the use of environmental taxes in European countries as tools for transitioning to a green economy, aligned with the EU's medium- and long-term sustainability goals. It evaluates these instruments and analyses similarities in their application across nations. The study highlights the importance of effective implementation and deeper understanding of environmental taxes to support the Sustainable Development Goals under the 2030 Agenda.
2. **Mahima Giridhar (2024):** This study investigates the mindsets and understanding of Millennials and Generation Z regarding environmental taxation, specifically their knowledge and perceptions of green taxes. Utilizing a mixed-methods approach, including qualitative research and quantitative questionnaires, this study aims to assess how well-informed these groups are about the concept of green taxes, their views on the effectiveness of such measures in promoting environmental sustainability, and the factors influencing their support or opposition to these policies. By illuminating the perspectives of these younger generations, the study intends to provide valuable insights for policymakers and environmental advocates seeking to enhance the acceptance and implementation of green taxation policies to address current environmental challenges.
3. **Han Yan, Md. Qamruzzaman, and Sylvia Kor (2023)** The paper analyse the impact of green investment, fiscal policy, environmental taxes, energy prices, and natural resource rents on clean energy consumption in Cambodia (1990–2021). The study highlights how fiscal policies and environmental taxes drive renewable energy adoption by encouraging investment and internalizing pollution costs. It also explores how oil price fluctuations and resource rents influence renewable

energy use. These findings offer valuable insights for fostering sustainable energy practices and achieving economic resilience amid global challenges.

4. **Siregar, I. N. L., & Rahman, A. (2024):** This study examines the role of green taxes in promoting a green economy by integrating environmental concerns into economic policies. It analyses their design, implementation, and sectoral impacts, supported by case studies from countries with successful green tax strategies. Through a literature review, the study highlights green taxes as catalysts for sustainable economic growth, emphasizing their potential to balance development with environmental preservation.
5. **Yang Shen (2022):** examines the impact of environmental taxes on industrial green transformation in China (2004–2020) using the SBM-GML index, two-way fixed effects model, and instrumental variable method. The study finds that generalized environmental taxes positively influence green transformation, with robust results. Key mechanisms include credit governance, producer service concentration, and co-agglomeration with manufacturing, with credit governance playing a critical role in reducing pollution, promoting green investments, and improving production processes.
6. **Wang and Zhu (2022):** analyse the impact of China's environmental tax (2016–2020) on heavily polluting industries using a double-difference technique. The study finds that environmental taxes significantly improve economic performance and technological innovation in these sectors, despite challenges like financial strain from green upgrades and regional tax disparities. The paper suggests tailoring taxes to local contexts, enhancing enforcement through advanced technologies, and strengthening regulations to optimize their impact on sustainability.
7. **Zihan Hu (2019):** reviews the impact of green taxation on pollution control and total factor productivity (TFP), focusing on its effects on enterprises. The study highlights debates on its economic growth impact and suggests policies like appropriate tax intensity, industry-specific rates, and flexible green taxes to balance environmental and economic goals. The findings emphasize the need for well-designed green taxes to encourage innovation and improve resource efficiency. Such measures can align environmental protection with sustainable economic development.

III. OBJECTIVES

1. To study the awareness about the concept and implementation of green taxes.
2. To assess the effectiveness of various communication channels in disseminating information about green taxes.
3. To analyse perception on the long-term environmental and economic impacts of green taxes.
4. To suggest improvements in current green tax policies based on public feedback and perception.

IV. DATA COLLECTION

Primary Data:

- With a structured questionnaire, 101 respondents in Bengaluru Urban highlighted their perceptions, awareness, and opinions about green taxes.

Secondary Data:

- Published articles, journals, and government reports were consulted to understand the various green taxation policies and its role in sustainability initiatives.

V. DATA ANALYSIS

The following data gives an insight into the distribution of respondents across different demographic categories such as age, gender, education, occupation and income level.

Frequency Table			
Particulars		Frequency	Percent
Gender	Male	50	50.5
	Female	51	49.5
	Total	101	100
Age	Below 25	22	21.8
	25-34	20	19.8
	35-44	21	20.8
	45-54	21	20.8
	55 Above	17	16.8
	Total	101	100
Education Level	High school	10	9.9
	Undergraduate	61	60.4
	Postgraduate	30	29.7

	Total	101	100
Occupation	Student	24	23.8
	Employed	44	43.6
	Self-employed	22	21.8
	Retired	11	10.9
	Total	101	100
Income Level	Below 3 Lakh	27	26.7
	3 lakhs to 5 lakhs	19	18.8
	5 lakhs to 10 Lakhs	20	19.8
	Above 10 Lakhs	35	34.7
	Total	101	100

Interpretation: Gender: The sample is balanced in terms of gender, with males being 50.5% and females 49.5%. This means that the perception and opinion analysis on green taxes will be gender-neutral.

Age: Respondents are mainly young and middle-aged, with 21.8% aged below 25 years, 19.8% aged between 25–34, 20.8% between 35–44 years, and another 20.8% between 45–54 years. The remaining 16.8% are above 55. This diversity captures opinions from a wide age spectrum that reflects intergenerational views.

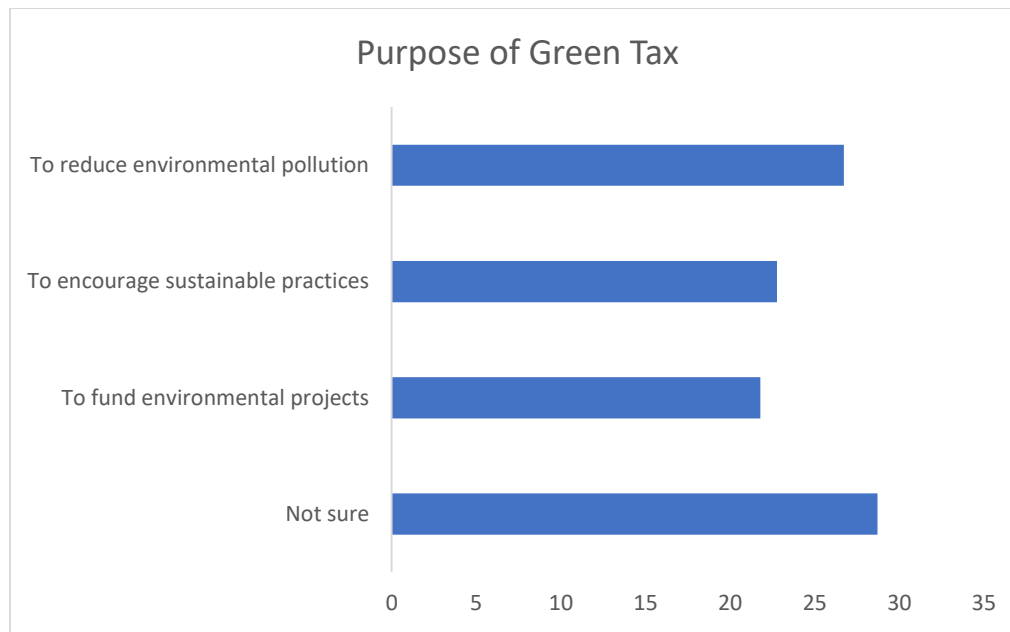
Education Level: Most of the respondents are well-educated: 60.4 percent hold an undergraduate degree and 29.7 percent, a postgraduate qualification. Only 9.9 percent have a high school education, which is biased towards higher educational attainment among the sample.

Occupation: Students comprise 23.8%, employed respondents 43.6%, self-employed 21.8%, and retirees 10.9%. Such occupational representation would then include insight into the opinions of both economically active and inactive groups.

Income Group: The income groups of the respondents vary. The maximum group (34.7%) is above ₹10 lakhs per annum. Then, 26.7% are below ₹3 lakhs. Then, there are those in the range of ₹3–5 lakhs (18.8%) and ₹5–10 lakhs (19.8%). So, this income group diversity is sure to encompass various economic classes within the study.

Frequency of Purpose of Green Tax

Purpose of Green Tax	Count	% of Total
To reduce environmental pollution	27	26.73
To encourage sustainable practices	23	22.77
To fund environmental projects	22	21.78
Not sure	29	28.71



Interpretation: Mixed views are realized concerning the purpose of green taxes based on the perceptions of the respondents. The most common view was that they were put in place to reduce environmental pollution, a notion held by 27 respondents, or 26.73 percent. A close number had the view that it is primarily to promote sustainable practices, held by 23 respondents, or 22.77 percent. Next to this was the source of funding for environmental projects, held by 22 respondents, or 21.78 percent. Interestingly, a huge proportion of 29 respondents (28.71%) do not know at what specific purpose the green taxes aim for. This shows a gap in awareness and understanding. This means that there is a necessity to communicate and educate people better on the reasons why it is implemented to enhance their knowledge and support.

Descriptives Influence of Awareness and perception on behaviour

	N	Mean	SD	Minimum	Maximum
Energy Consumption Awareness	101	3.29	1.1	1	5
Carbon Footprint Awareness	101	2.9	1.01	1	5
Influence on Purchase	101	3.12	1	1	5
Support for Sustainable Business	101	2.53	0.795	1	5

Interpretation: Awareness and perception factors vary in terms of their strength of influence over sustainable behaviors. The respondents had a moderate level of knowledge about energy consumption with an average score of 3.29 (SD = 1.1), which indicated a fair level of understanding of usage and the effects of energy use on the environment. Carbon footprint scores were a little low with an average of 2.9 (SD = 1.01), indicating that there is a need to enlighten the citizens more on their carbon emission levels. Influence on purchasing decisions: $M = 3.12$, $SD = 1$: There is a moderate effect of awareness on consumer choices for green products. The score of supporting sustainable businesses was rather low with $M = 2.53$, $SD = 0.795$, showing that the difference between being aware of eco-friendly practices and being active in support of it was huge. This means that awareness exists but does not necessarily translate into sustainable consumer behavior or strong advocacy for green businesses.

Descriptives on Long-term Environmental and Economic Impacts

	N	Mean	SD	Minimum	Maximum
Long-term Environmental Benefits	101	2.16	0.977	1	5
Economic Impact	101	2.1	1.05	1	5
Economic Growth necessity	101	2.07	1	1	5
Cost-Benefit Perspective	101	2.2	1.14	1	5
Cleaner Environment	101	1.92	1.17	1	5

Interpretation: Generally, the results reflect a rather low perception of long-term environmental and economic benefits from green taxes. The average score for long-term environmental benefits is 2.16 (SD = 0.977), which reflects modest belief in the positive impact that green taxes have on the environment. The perceived economic impact is also low at 2.1 (SD = 1.05), reflecting skepticism about the economic benefits. The necessity for economic growth was rated by the respondents at 2.07 (SD = 1), with mixed views regarding the role of green taxes in stimulating growth. The score for the cost-benefit perspective is 2.2 (SD = 1.14), which shows uncertainty about the costs of implementing green taxes and their benefits. The lowest score was for the cleaner environment, which had a mean of 1.92 and SD = 1.17; this indicates that respondents lack confidence in the ability of green taxes to significantly impact environmental quality. Overall, there is a general lack of strong positive perception regarding long-term benefits of green taxes among the respondents.

Descriptives on Effectiveness of Communication Channels

	N	Mean	SD	Minimum	Maximum
Campaigns & Media Influence	101	3.23	1.11	1	5
Printed Materials Effectiveness	101	3.62	1.07	1	5
NGO & Social Media Influence	101	3.35	1	1	5

Interpretation: The analysis results show that respondents generally perceive the printed materials as the best communication channel for raising awareness concerning green taxes, with an average score of 3.62 (SD = 1.07). The mean score for NGO influence and social media influence stands at 3.35 (SD = 1), which is moderate effectiveness. Campaigns and media influence scored a mean of 3.23, SD = 1.11, which indicates that, although respondents are aware of the traditional media and public campaigns, they may not be as effective as printed materials or NGO activities. Generally, respondents think that several channels are somewhat effective, and their preferred source of education would be printed materials.

Descriptives on Perception of the Effectiveness of Green Taxes

	N	Mean	SD	Minimum	Maximum
Pollution Reduction Effectiveness	101	3.02	1.14	1	5
Promotion of Renewable Energy Sustainability Tool	101	2.29	0.739	1	4
Implementation Effectiveness	101	3.79	1.2	1	5
Increase Green Tax	101	1.96	1.22	1	5

Interpretation: This knowledge indicates that respondents are modestly convinced that green taxes lower pollution; the means of this category have a result of 3.02, $SD = 1.14$. The score perceived in raising renewable sources, however is below modest, having a mean result of 2.29 with $SD = 0.739$. Low on the perception of green taxes as a sustainability tool was received, with a mean score being at 1.99 and $SD = 1.14$. On the other hand, the effectiveness of its implementation is rated higher that is at 3.79 ($SD = 1.2$), depicting belief in the effectiveness of green tax implementation process. Low support to increase the rate of green taxes, at 1.96 with $SD = 1.22$, implies reluctance or resistance to higher tax hikes by the respondents.

VI. HYPOTHESIS TESTING

Influence of Information Sources on Awareness and Perception of Green Taxes

- **H0:** There is no significant influence of information sources on green tax awareness and perception.
- **H1:** Sources of information about green taxes significantly influence awareness and perception.

One-Way ANOVA (Welch's)

	F	df1	df2	p
Awareness and perception on behaviour	0.0346	2	39.9	0.966

Interpretation: The hypothesis tries to deduce whether information sources on green taxes significantly affect public perception and awareness. This could be done through a one-way ANOVA Welch's test. In the current case, the resulting value obtained was that of the F-statistic which equals 0.0346 and the p-value stands at 0.966. Since the p-value is significantly much greater than the conventional significance level of 0.05, the null hypothesis cannot be rejected. This means that the information sources such as friends and social media, and also government campaigns have no effect on making the respondent more aware or perceive green taxes. The outcome result means that among the information sources, none has better influence than the others in explaining the green taxes to the public. And therefore, much sterner communication measures should be implemented in order to enhance public awareness.

Public Perception on Long-term Environmental Benefits of Green Taxes

- **H1:** Public perception supports the idea that the long-term environmental benefits accruing from green taxes are truly large.
- **H0:** Public perception does not support the belief that green taxes will result in significant long-term environmental benefits.

One-Way ANOVA (Welch's)

	F	df1	df2	p
Long-term Environmental and Economic Impacts	35.8	4	10.4	< .001

Interpretation: The hypothesis to be tested is that public perception will find out that green taxes bring about big environmental gains over the long run. Welch's one-way ANOVA F-statistic is 35.8, and its p-value is smaller than 0.001. Since the p-value is smaller than the selected level of significance of 0.05, the null hypothesis can be rejected. This outcome indicates that the public opinion has been largely in support of the perception that green taxes will bring sustainable environmental benefits. The study results argue that a large population perceives green taxes to be potent in attaining environmental sustainability over a considerable period.

VII. FINDINGS

- **Awareness Levels:** Public awareness about green taxes remains limited, with many respondents unaware of their purpose and benefits. Knowledge of green taxes is generally higher among individuals with greater access to educational or informational resources.
- **Behavioural Influence:** Green tax awareness has a moderate level of influence on green behaviours in terms of energy reduction and eco-friendly purchasing behavior.
- **Communication Effectiveness:** Informal sources including social media and word of mouth are a much more effective way to communicate compared with government initiatives that have low reach and impact.

VIII. CONCLUSION

This study underlines the transformational power of environmental taxes in pursuing sustainability, especially in urban environments. Findings indicate some challenges, such as the lack of public awareness and skepticism towards long-term gains, but also communication strategies that could improve people's understanding and acceptance of green taxes. Effective implementation of green taxes promotes consumer behavior, cleaner production, and ecologically friendly innovation.

The study points to the need for designing equitable, transparent, and region-specific green tax policies that could maximize their environmental and economic impact. The tangible benefits of these taxes, together with robust public engagement and clear allocation of revenues, can foster greater trust and compliance among stakeholders. With these gaps addressed, policymakers can position green taxes as a cornerstone for driving sustainable development and ensuring a balanced approach to economic growth and environmental conservation.

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