

# International Journal of Management and Organizational Research

---

## Examining the rationality of free riding: A multifaceted analysis

Arshiya Mahajan <sup>1\*</sup>, Aman <sup>2</sup>

<sup>1-2</sup> Student, Department of Economics, Panjab University, Chandigarh, 160014, India

\* Corresponding Author: Arshiya Mahajan

---

### Article Info

ISSN (online): 2583-6641

Volume: 02

Issue: 04

July-August 2023

Received: 15-07-2023;

Accepted: 13-08-2023

Page No: 26-31

### Abstract

Free riding, characterized by individuals benefiting from shared resources without contributing equitably, presents a pervasive challenge across diverse domains. This paper leverages insights from game theory to analyze strategic interactions and decision-making within scenarios involving shared resources. It employs classic games such as The Prisoner's Dilemma and The Tragedy of the Commons as illustrative examples, offering deeper insights into the rational choices individuals make when deciding whether to cooperate or free ride. Furthermore, the paper incorporates perspectives from behavioral economics and seminal economic theories, including public goods theory, the tragedy of the commons, game theory, principal-agent theory, and market failure with externalities. Through rigorous examination and analysis, our aim is to contribute to the growing body of knowledge surrounding free riding and its implications for economic decision-making and societal well-being.

DOI: <https://doi.org/10.54660/IJMOR.2023.2.4.26-31>

**Keywords:** Free-riding, Economics, Game Theory, Behavioural Economics, Rationalization

---

### Introduction

Free riding, in its essence, refers to the act of individuals benefiting from a shared resource, service, or public good without incurring the commensurate costs or making a fair contribution. In economic terms, it challenges the conventional assumptions of self-interested rational actors who seek to maximize their utility. Instead, it introduces a perplexing paradox where individuals may prioritize their immediate self-interest over the long-term collective good. The free rider problem is that the efficient production of important collective goods by free agents is jeopardized by the incentive each agent has not to pay for it: if the supply of the good is inadequate, one's own action of paying will not make it adequate; if the supply is adequate, one can receive it without paying <sup>[1]</sup>.

In the intricate web of economic behavior and decision-making, the phenomenon of free-riding has emerged as a subject of significant intrigue and concern. The rationality of free riding, a term deeply ingrained in the lexicon of economics, continues to captivate the interest of scholars, policymakers, and practitioners alike. Within the realm of economics, the concept of free riding represents a paradoxical dilemma. At its core, free riding manifests when individuals benefit from a public good or resource without contributing proportionately to its provision. This notion, first popularized by Garrett Hardin's seminal work on the "Tragedy of the Commons" in 1968, stands as a formidable challenge to the traditional assumptions of rational economic behavior <sup>[2]</sup>.

The issue of free riding and the principles of collective action have a long history of recognition in various contexts over the course of millennia. A noteworthy early acknowledgement of this concept can be traced back to Glaucon in Plato's Republic (Book 2, 360b-c) <sup>[3]</sup>. He astutely highlights the rationale behind his argument against adhering to the law, especially when there is an opportunity to evade punishment for transgressions. Interestingly, newcomers to Plato's writings often find it surprising that Socrates, despite his wisdom, seemingly fails to grasp this logic. Socrates, however, steadfastly asserts that obeying the law is in our best interest, irrespective of the presence or absence of sanctions as incentives.

Another pivotal and constructive instance of the logic of collective action is found in Adam Smith's concept of the "invisible hand." Smith posits that each producer primarily seeks their individual gain, and in doing so, they are, as in many other instances,

unknowingly directed by an invisible force to advance an objective that was not originally their intention. Remarkably, this unintended consequence often benefits society more effectively than when individuals consciously intend to serve the common good. Smith's explanation, found in his work "An Inquiry into the Nature and Causes of the Wealth of Nations" ([1776] 1976, Book 4, Chapter 2, p. 456), serves as a foundational and beneficial illustration of the principle of collective action<sup>[4]</sup>.

In this study, we formulate two central hypotheses to guide our exploration of free riding and its rationalization. First, we posit that established economic theories, notably public goods theory and game theory, hold the potential to offer valuable insights into the complex rationalization of free riding. These theoretical frameworks, renowned for their analytical depth, can provide a foundation for understanding the underlying motivations and behaviors that drive individuals to engage in free riding. Additionally, our second hypothesis underscores the practical significance of this research endeavor. We contend that by gaining a nuanced understanding of the various factors influencing free-riding behavior, effective policies and interventions can be designed to address this phenomenon. Recognizing the intricate interplay of incentives, social norms, trust, and other determinants, we seek to pave the way for informed and targeted strategies that promote cooperation and discourage free riding. These hypotheses serve as the theoretical framework for our investigation, guiding our efforts to dissect the multifaceted dimensions of free riding and contribute to the field's growing body of knowledge.

### Literature Review

The following literature review of the concept of free riding provides an overview of the key theories, empirical studies, and insights related to free riding and its rationalization.

One of the seminal contributions to the understanding of free riding comes from the realm of economic theory. Public goods theory, often attributed to Samuelson (1954), explores the challenges associated with the provision of non-excludable goods. This theory posits that individuals have a tendency to free ride, as they can benefit from public goods without incurring the full cost of their provision. Game theory, another influential framework, provides a strategic perspective on free-riding, examining how individuals make decisions in interactive situations. The classic "Prisoner's Dilemma" is emblematic of such scenarios, where rational actors may choose to free-ride to maximize their own utility, leading to suboptimal outcomes for the group.

The recognition of the free rider problem and the logic of collective action can be traced back to historical and philosophical sources. In Plato's Republic (360b–c), Glaucon articulates the rationalization behind disobedience to laws when the likelihood of escaping sanctions is high, a notion that has striking parallels with contemporary discussions on free riding. Adam Smith's concept of the "invisible hand" ([1776] 1976) adds a layer of economic insight by suggesting that individual pursuit of self-interest can unintentionally promote collective welfare, countering the free rider problem through market forces.

The field of behavioral economics has enriched the understanding of free riding by incorporating insights from psychology and cognitive science. Prospect theory, developed by Kahneman and Tversky (1979), highlights the role of loss aversion and framing effects in individuals'

decision-making, shedding light on why people might engage in free riding even when it goes against their long-term interests. Additionally, experiments in behavioral economics have revealed the influence of social norms, fairness concerns, and reciprocity in free-riding scenarios.

In a significant contribution to the discourse on free-riding, Kwon-Sik Kim and Seong-ho Jeong presented their paper, "Free Riding without Dead Weight Losses," in 2019. This study challenges the traditional assumption within the economic theory that free-riding on public goods inevitably leads to deadweight losses. The authors introduce a theoretical framework rooted in Bowen's model, which reveals that under certain conditions, free riding can occur without incurring these deadweight losses. Through an insightful consumer surplus analysis, the paper not only formulates the conditions for such exceptional cases but also demonstrates the possibility of policy choices that harmonize both efficiency and equity in the provision of public goods. Furthermore, a substantial body of research has utilized the public goods game framework, particularly within the field of economics. As articulated by Fischbacher *et al.*, experiments involving public goods have revealed that a significant number of individuals contribute more to the common good than previously assumed under the pure self-interest hypothesis. However, it is noteworthy that instances of free-riding persist under specific conditions, primarily attributable to other-regarding preferences. These conditions encompass scenarios like failed attempts at altruism, and the acquisition of knowledge regarding the incentives for free riding, among others. Nielsen *et al.*, through their investigations using the public goods game, have illustrated that individuals who engage in free riding often invest substantial time contemplating whether to violate the social norm of conditional cooperation, a phenomenon often referred to as "second thinking." Furthermore, Ellingsen *et al.* have argued that in the context of a contractual game involving the supply of public goods, collective ownership yields more efficient outcomes compared to individual asset ownership. This efficiency is attributed to the negotiation processes facilitated by collective ownership structures.

### Economic Theories of Free Riding

The phenomenon of free riding, characterized by individuals benefiting from shared resources without contributing proportionately, has been a focal point within economic theory. Several prominent economic theories have been instrumental in shedding light on the various facets of free-riding behavior. In order to fully comprehend the free-rider problem, one must examine its underlying mechanisms, the motivations behind it, and the creative solutions developed to lessen its negative effects. The goal of this research project is to offer a nuanced analysis of the free-rider problem by examining the justifications for free-riding behaviour as well as the various theoretical and practical solutions that have been put forth to deal with it.

First, we look at the *Public Goods Theory*. Public goods theory, pioneered by Paul A. Samuelson in the mid-20th century, offers a foundational framework for understanding free riding. It delineates between public goods, which are non-excludable and non-rivalrous, and private goods. Public goods theory purports to show why goods with the rigorously defined characteristics of publicness cannot be produced efficiently by the private sector of the economy, creating a market failure that implies a role for the government in the

production of those goods for which the market fails. [5] This theory emphasizes the tension between individual incentives and the collective provision of public goods, exploring the conditions under which free-riding is likely to occur.

*Secondly, we have the Tragedy of the Commons.* The tragedy of the commons refers to a situation in which individuals with access to a public resource (also called a common) act in their own interest and, in doing so, ultimately deplete the resource. This economic theory was first conceptualized in 1833 by British writer William Forster Lloyd. In 1968, the term "tragedy of the commons" was used for the first time by Garret Hardin in Science Magazine. [6] Hardin's narrative underscores how rational actors, each pursuing their self-interest, can deplete shared resources, ultimately leading to their ruin. This theory highlights the importance of governance and resource management in mitigating the tragedy of free riding.

Additionally, *Game Theory and Free Riding* is also an economic concept. Game theory offers a sophisticated toolkit for analyzing strategic interactions, making it invaluable in the study of free riding. Classic games like The Prisoner's Dilemma and The Tragedy of the Commons have become iconic illustrations of free-riding dilemmas. Game theory enables the exploration of the rational choices made by individuals when deciding whether to cooperate or free-ride in scenarios involving shared resources. Moreover, *Principal-agent theory*, often applied in the context of agency relationships and contracts, also has relevance to the study of free riding. It examines how principals (those delegating tasks or resources) can incentivize agents (those tasked with carrying out actions) to act in the principal's best interest. In scenarios involving free-riding, this theory explores the challenges of aligning the interests of principals and agents to ensure cooperative behavior.

Furthermore, *Market failure theory* underscores the role of externalities in contributing to free-riding problems. When individuals or firms do not bear the full costs or receive the full benefits of their actions, externalities emerge. Negative externalities, such as pollution, can result in free riding as individuals may not consider the societal costs of their actions. This perspective highlights the need for regulatory interventions and policy measures to address free-riding caused by externalities.

### Rationalization of Free Riding

Cooperation frequently emerges as a cornerstone for development, prosperity, and survival within the intricate tapestry of human societies. The ability to collaborate towards shared objectives has been pivotal in achieving societal goals, from small communities to large corporations. Nevertheless, the free-rider problem continues to persist in the intricate dynamics of collaboration. Through this exploration, we will delve into the economic underpinnings of the free-rider problem, drawing from game theory, behavioral economics, and public choice theory to shed light on why rational individuals may opt for free-riding over cooperation.

"Everyone wants something for nothing" [7]. Although not always precisely accurate, this adage often reflects how individuals aim to minimize their expenses while maximizing the benefits they receive. Concerning collective goods and services, a poignant issue arises regarding the consequences stemming from free-riding behavior. Consider, for instance, essential public amenities such as street lighting or public

television broadcasts. Public television broadcasts remain accessible to all, irrespective of whether viewers have met their financial obligations through appropriate fees. Essentially, with such goods, the repercussions of free-riding are notably less burdensome for those who conscientiously fulfill their financial or contributory responsibilities. Similarly, regardless of the number of pedestrians traversing a well-lit street or the extent to which individuals contribute through tax payments allocated for electricity provision and maintenance, the illumination provided remains unaffected. In the context of public transport, the challenge of mitigating free-riding behavior is particularly pronounced, especially when there is no effective ticket control system at stations. Public transport systems, such as subways, inherently face difficulties in excluding individuals from utilizing their services when there are no stringent mechanisms for fare collection and verification. In locations like London and New York, where the subway system is extensive, the issue of free-riding has persisted, posing a complex problem for transportation authorities and city officials for years. It represents a multifaceted challenge with implications for both the financial sustainability of the subway system and the equitable distribution of transportation services. For instance, the NYPD issued 77,685 non-criminal summonses on the subway, with nearly 10,000 related to fare evasion. [8] Fare evasion, estimated to cost the city \$285 million in 2022, has been on the rise, with approximately 400,000 out of 3.4 million daily riders not paying the fare on an average weekday. Before the pandemic, evasion rates ranged from 3% to 6% of daily ridership. The Metropolitan Transit Authority intends to implement new technology at twenty additional subway stations by the end of 2023, along with other preventive measures. [9] However, the focus here is not solely on the free-riding problem but on a micro-level examination of consumer behavior. For many, the benefits of free-riding outweigh the potential costs or risks associated with contributing or cooperating.

Public goods can be used by individuals without depleting their availability to others because they are non-excludable and non-rivalrous. For instance, someone essentially engages in free-riding when they benefit from clean air or a well-maintained public park without directly contributing to their upkeep. This behavior is rational because there is no personal cost to the individual, and it doesn't diminish the availability of the public good due to their non-contribution.

The "tragedy of the commons" represents a classic example of free-riding behavior. In situations where a shared resource, such as a communal pasture, is accessible to all, individuals may be inclined to overuse or exploit the resource to maximize their own gains. This overuse can lead to resource depletion, but it may still be rational for individuals to do so because they seek to secure their share before others.

If we look at it from the perspective of game theory:

**Table 1**

A, B	Paying for pasture	Not Paying for pasture
Paying for pasture	3,3	1,5
Not Paying for pasture	5,1	1,1

In the above matrix, it becomes apparent that when one consumer, whether A or B, chooses not to cooperate and pay for the public good, while the other acts as a diligent citizen

and pays, the free rider reaps the maximum benefit. This makes it the most rational choice for the consumer when compared to scenarios where both cooperate in payments or neither do so. However, it's crucial to acknowledge that while free-riding may be perceived as rational in these situations, it can have adverse consequences for the sustainability of public goods, collaborative efforts, and shared resources. Societies often implement mechanisms, such as incentives, regulations, and social norms, to encourage cooperation and discourage excessive free-riding, aiming to achieve more equitable and sustainable outcomes. From the rider's perspective, free-riding appears advantageous because it maximizes utility without necessitating payment or additional effort. However, this assumption might be construed as supporting the notion that everyone should adopt a free-riding stance.<sup>[10]</sup>

Three justifications are commonly offered to condemn free riding as unethical behavior. Firstly, free riders are seen as undermining the cohesion of a group. A society cannot be comprised solely of individuals exclusively pursuing self-interest, as such a system would lack stability and could regress into a state akin to Hobbes' notion of the "nasty, brutish, and short" state of nature. As Hirshleifer posits, the paradox lies in the fact that when everyone exclusively pursues their self-interest, everyone ultimately loses, yet there is no guarantee that one's restraint will be reciprocated by others. The essence of the free rider dilemma lies in the necessity for individuals to bear personal costs to secure collective benefits (Hirshleifer, 1980: 562).

If the majority within a particular society continues to collectively uphold the belief that contributing and cooperating are more advantageous than free riding, they will persist in contributing and cooperating. However, should the ranks of free riders grow, the group may establish new norms to curtail their numbers. Nevertheless, there exists a risk that an increase in the number of free riders may compel other members of the group to prioritize individual gains, operating under the assumption that cooperation and coordination are no longer tenable within that society. This implies that, ultimately, everyone suffers adverse consequences.

Immoralizing the actions of free riders can also be overly harsh. Identifying free riders within the general public is a cumbersome, though not impossible task. A rational person always strives to maximize their satisfaction, even if it means resorting to methods that are widely frowned upon by society. It is natural for individuals to desire the enjoyment of public goods without the obligation to contribute. However, the negative consequences of free riding must be considered as they hold their place in the balance of undermining this goodwill on a micro level.

Due to the detrimental effects of free riding, free riders are often disciplined. Furthermore, their choices often lead to resentment. People who do contribute feel they are being cheated on because they need to contribute more to maintain the same quality of a good. Although it seems it's not fair to be a free rider, we all are sometimes tempted to be one.

### **Behavioral Economics and Free Riding**

The intersection of behavioral economics and the study of free-riding has brought forth a rich and insightful perspective on the rationalization and mitigation of free-rider behavior. This branch of economics explores the cognitive processes and biases that influence individuals' decisions within the context of collective action and resource sharing.

Prospect theory, developed by Daniel Kahneman and Amos Tversky, has played a pivotal role in our comprehension of how individuals perceive gains and losses, a fundamental aspect of free-riding behavior. According to this theory, individuals often demonstrate loss aversion, giving greater weight to potential losses than equivalent gains. In the context of free riding, this propensity for loss aversion can lead individuals to prioritize short-term personal benefits over long-term collective gains, thereby contributing to the prevalence of free rider behavior. Understanding these cognitive biases is essential for formulating strategies to mitigate free riding. While some researchers have raised questions about the robustness or even the existence of loss aversion (Gal & Rucker, 2018), other scholars have highlighted that while loss aversion may have its moderators, claims of its demise are, in Mark Twain's fashion, 'greatly exaggerated' (Mrkva *et al.*, 2020)<sup>[11]</sup>.

Behavioral economics has identified a spectrum of cognitive biases that can significantly influence free riding. These biases encompass present bias, where individuals tend to prioritize immediate rewards over future gains, and confirmation bias, which can lead individuals to selectively seek information that justifies their free-riding decisions. Anchoring and framing effects also play a role, in influencing how individuals perceive the costs and benefits of cooperation versus free riding. The study by Zain UI Abideen, Zeeshan Ahmed, Huan Qiu, and Yiwei Zhao in the context of the Pakistani equity market highlights the profound impact of behavioral biases on decision-making processes. Their research reveals that behavioral biases closely associate with market anomalies, exerting significant influence on investment decision-making. Furthermore, it underscores the mediating roles of market anomalies in the relationship between behavioral biases and investment decisions. Notably, financial literacy emerges as a crucial moderator, influencing the association between behavioral biases and market anomalies, and subsequently shaping investment decisions. Although their study acknowledges some limitations and complexities regarding causality effects between variables, it contributes to a deeper understanding of behavioral finance theories, such as prospect theory, and provides insights into addressing stock market inefficiencies and fostering optimal decision-making for investors. This research underscores the importance of recognizing and addressing behavioral biases, especially within the context of financial markets, to enhance individual decision-making and overall market stability<sup>[12]</sup>.

One of the most influential concepts within the discipline, popularized by Richard Thaler and Cass Sunstein, is 'nudging.' Nudging involves subtle interventions designed to guide individuals toward making choices that align with collective interests while preserving their freedom. Drawing from the conclusions of a related study conducted by Kerstin Weimer, Richard Ahlström, and Francisco Esteves, it is evident that the effectiveness of nudging can vary based on the context and the specific behaviors targeted.

In Weimer *et al.*'s research, the aim was to investigate the impact of nudging on promoting the consumption of organic fruits and vegetables in a grocery store setting. The study results indicated that nudging alone did not produce significant effects, suggesting that consumers often opt for organic products when prices are competitive or only slightly higher than conventional alternatives. This underscores the pervasive influence of price as a key determinant in consumer

choices, even in contexts involving ethical or sustainable decisions. The findings from Weimer *et al.*'s study raise essential considerations when applying nudging to reduce free riding, particularly in scenarios where financial factors strongly influence behavior. In such cases, it becomes crucial to explore additional strategies and measures to complement nudging interventions. One approach may involve the comprehensive utilization of various nudging tools to amplify their collective impact. Furthermore, collecting psychological data from participants to better understand their attitudes and preferences concerning collective actions and resource sharing can inform more tailored nudging strategies. These insights underscore the importance of adapting nudging techniques to specific environments, acknowledging the varying levels of control within these contexts, and considering competing factors that influence decision-making. In the pursuit of reducing free-riding and encouraging cooperation, integrating nudging with other strategies, grounded in an understanding of individual motivations and context-specific barriers, can enhance the effectiveness of interventions and ultimately promote more equitable resource allocation and collective action<sup>[13]</sup>.

The synthesis of behavioral economics and the study of free riding provides a holistic perspective on the rationality and motivations behind free rider behavior. It enables us to comprehend why individuals may choose free riding despite collective interests and offers actionable strategies, both at the macro and micro levels, to align individual incentives with the broader goals of cooperation and equitable resource distribution.

### Strategic Approaches and Recommendations

Addressing the challenge of free riding requires a multifaceted approach that encompasses government interventions, market-based solutions, educational efforts, and a close examination of successful policy implementations. By synthesizing these strategies, we can develop a comprehensive framework for mitigating free-rider behavior and promoting cooperative actions.

**Government Interventions to Mitigate Free Riding:** Government interventions play a pivotal role in curbing free riding, particularly in contexts where public goods are at stake. Policymakers wield a diverse array of tools to incentivize collective contributions and ensure the efficient allocation of resources. Among these tools are taxation, subsidies, and regulatory frameworks that can effectively deter free-rider behavior. One notably effective approach is the implementation of opt-out systems, wherein individuals are automatically enrolled in contributing to public goods unless they actively opt-out. This approach has demonstrated its effectiveness in numerous cases by reducing the prevalence of free riding and ensuring that individuals participate in the funding of public goods. Furthermore, governments can employ a range of incentives, such as tax credits or grants, to encourage private sector involvement in the provision of public goods. By incentivizing businesses and organizations to actively engage in the funding and delivery of public services, these measures diminish the likelihood of underfunding or the inefficient allocation of resources.

One of the primary mechanisms employed by governments is taxation to fund public goods or services. These taxes are structured to ensure that individuals or businesses contribute proportionately based on their ability to pay, thereby

diminishing the incentive to free ride. Additionally, governments can provide subsidies or financial incentives to encourage contributions to public goods or services, encompassing areas like clean energy, public transportation, or education. Regulations also serve as a vital tool, mandating participation or contributions to public goods. For example, environmental regulations may require companies to reduce pollution, benefitting the public at large but imposing a cost on the company. Moreover, the establishment of Public-Private Partnerships (PPPs) plays a crucial role in this regard. Through PPPs, governments can collaborate with private entities to provide public goods or services, effectively sharing the associated costs and risks. This collaborative approach significantly reduces the likelihood of free-riding within the provision of essential resources and services.

**Seed Donors:** Drawing from the research conducted by George Georgiadis, the article 'A Clever Strategy to Combat Free Riding' was presented by the Kellogg School of Management at Northwestern University. The article delves into an innovative approach for addressing free riding, a phenomenon where individuals benefit from shared resources without contributing equitably. This strategy centres on the utilization of 'seed donors' to initiate collective efforts. Seed donors, whether individuals or organizations make substantial initial contributions, signalling their commitment and inspiring others to join in. This method harnesses psychological factors like social proof and reciprocity, motivating additional participants to contribute and, in turn, mitigating free rider behavior<sup>[14]</sup>.

The article draws on insights from a study conducted by researchers at the Kellogg School of Management. Their findings demonstrate that strategically positioning seed donors can significantly boost contributions from others. For instance, in a public radio fundraising campaign, mentioning a substantial donation before soliciting further contributions resulted in a noteworthy increase in donations. Moreover, the key takeaway is that effectively addressing free riding necessitates not only appealing to individuals' rational self-interest but also tapping into psychological mechanisms that foster cooperation. Seed donors play a pivotal role in this process, cultivating a sense of collective responsibility and inspiring others to partake, ultimately leading to more successful collective endeavors.

**Market-Based Solutions:** Market-based solutions offer innovative ways to address free-riding, especially when market failures and externalities are at the core of the problem. Tradable permits, cap-and-trade systems, and carbon pricing mechanisms are examples of market-based approaches that internalize external costs and incentivize cooperation. These solutions harness market forces to align individual incentives with collective goals, reducing the negative impacts of free-riding on resource allocation.

The synergy of these approaches enables us to develop tailored strategies that address free riding in diverse scenarios, ranging from environmental conservation to public goods provision and collective decision-making. As we continue to grapple with the challenges posed by free riding, this multifaceted approach equips us with the tools needed to promote cooperation, equitable resource allocation, and the pursuit of common objectives.

### Conclusion

The issue of differentiating between what is immoral and what is rational in the context of free riding presents a

complex challenge that requires a multidisciplinary approach. Insights from psychology and philosophy must be integrated into economic principles to provide a comprehensive answer to this question.

Throughout our examination of various scenarios, free riding has generally been subject to moral censure, with a notable exception being when it's viewed as morally praiseworthy to "expose a fellow free rider" – essentially engaging in free riding when aware that a co-player has already done so. Interestingly, failing to contribute to the common good often elicits even greater moral disapproval than complete abstention from supporting the public good. This prevailing trend in moral judgments aligns with the increasing condemnation hypothesis, suggesting that the degree of condemnation directed at a free rider intensifies as the extent of their co-players' contribution to the public good becomes more substantial.

Furthermore, even impartial observers can be emotionally affected by instances of free-riding, experiencing emotions like anger, disgust, or irritation. These emotional reactions might be rooted in situations that appear especially unequal or unjust to those not directly involved. However, it's essential to acknowledge that this emotional perspective, while influential, doesn't always align perfectly with reason. In two-player games, many moves have nuanced implications, and the morality of a free rider may vary depending on their impact.

The motivations behind individuals adhering to moral principles aren't always transparent. Some may feign moral conduct while pursuing their self-interest, posing a challenge in classifying behavior as immoral: is it the act of free riding or pretending to uphold moral standards? In situations involving public goods, categorizing all free riders as universally immoral becomes problematic, particularly when their impact is limited, and society chooses to tolerate their behavior.

So we now know that the complex landscape of free riding is marked by moral ambiguity and emotional reactions, making it challenging to establish clear-cut judgments. Differentiating between the rational and the immoral often hinges on context, intentions, and societal tolerance. As we navigate this multifaceted issue, it is essential to consider the broader implications for societal cooperation, collective well-being, and the delicate balance between individual self-interest and communal responsibility.

## References

- Hardin Russell, Garrett Cullity. The Free Rider Problem (Stanford Encyclopedia of Philosophy). Encyclopedia of Philosophy, 21 May 2003, <https://plato.stanford.edu/entries/free-rider/>. Accessed 2 September 2023.
- Schor Juliet B, Steven P Vallas. The Sharing Economy: Rhetoric and Reality. *Annual Review of Sociology*, 2021, <https://www.annualreviews.org/doi/10.1146/annurev-soc-082620-031411>. Accessed 01 09 2023.
- Plato. Republic. Translated by G.M.A. Grube, Hackett Publishing Company, 1974.
- Smith, Adam. An Inquiry into the Nature and Causes of the Wealth of Nations. University of Chicago Press, 1976.
- Holcombe RG. Public Goods Theory and Public Policy. In: Narveson, J., Dimock, S. (eds) Liberalism. Springer, Dordrecht, 2000. [https://doi.org/10.1007/978-94-015-9440-0\\_8](https://doi.org/10.1007/978-94-015-9440-0_8)
- Spiliakos, Alexandra. "Tragedy of the Commons: Examples & Solutions | HBS Online." *HBS Online*, 6 February 2019, <https://online.hbs.edu/blog/post/tragedy-of-the-commons-impact-on-sustainability-issues>. Accessed 2 September 2023.
- Albanese, Robert, and David D. van Fleet. Rational Behavior in Groups: The Free-Riding Tendency. - YouTube, 2 October 2022, <https://www.jstor.org/stable/257966?seq=2>. Accessed 2 September 2023.
- Maslin Sarah. A Free-Riding Tortoise (and Other Violations) as Subway Delays Mount (Published 2017). *The New York Times*, 2 June 2017, <https://www.nytimes.com/2017/06/02/nyregion/subway-rules-of-conduct.html>. Accessed 2 September 2023.
- Quinlan Keely. NYC using AI to track subway fare evasion, report claims. *StateScoop*, 24 July 2023, <https://statescoop.com/nyc-ai-subway-fare-evasion/>. Accessed 2 September 2023.
- Adanali, Adanali. (PDF) Are Free Riders Rational or Immoral- Proceedings | Yurdagul Kilinc Academia.edu, 2018. [https://www.academia.edu/38616673/Are\\_Free\\_Riders\\_Rational\\_or\\_Immoral\\_Proceedings](https://www.academia.edu/38616673/Are_Free_Riders_Rational_or_Immoral_Proceedings). Accessed 2 September 2023.
- Loss aversion. *BehavioralEconomics.com*, 20 February 2023, <https://www.behavioraleconomics.com/resources/mini-encyclopedia-of-be/loss-aversion/>. Accessed 2 September 2023.
- Abideen Zain UI, *et al.* Do Behavioral Biases Affect Investors' Investment Decision Making? Evidence from the Pakistani Equity Market. *MDPI*, 2023, <https://www.mdpi.com/2227-9091/11/6/109>. Accessed 2 September 2023.
- Weimer Kerstin, *et al.* The Effect of Nudging in Promoting the Consumption of Organic Fruits and Vegetables. *NCBI*, 2022, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9021786/>. Accessed 2 September 2023.
- A Clever Strategy to Combat Free Riding. *Kellogg Insight*, 1 August 2016, <https://insight.kellogg.northwestern.edu/article/a-clever-strategy-to-combat-freeriding>. Accessed 2 September 2023.