Page 1982 - 1993 **DOI:** *https://doij.org/10.10000/IJLMH.1110121*

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 8 | Issue 3

2025

Justice Beyond the Veil: Revisiting Brock's Game Theoretic Account of Social Justice and Its Contemporary Significance

ABHISHEK SHARMA[1]

ABSTRACT

Horace W. Brock's 1979 essay, "A Game Theoretic Account of Social Justice," offers a profound reinterpretation of distributive justice by integrating two foundational norms: allocation by need and allocation by contribution. This review re-examines Brock's work in the context of contemporary ethical and policy challenges. We explore how his bifurcated model, using game-theoretic tools like the Nash Bargaining Solution and the Shapley Value, can be adapted to address modern dilemmas in economic inequality, climate justice, algorithmic decision-making, and participatory governance. By bridging philosophical rigor with mathematical precision, Brock's theory continues to offer a valuable lens for conceptualizing justice in our globalized, data-driven society.

Keywords: *Distributive Justice, Game Theory and Ethics, Nash Bargaining Solution, Shapley Value, Algorithmic Fairnes.*

I. INTRODUCTION

In 1979, Horace W. Brock proposed a game-theoretic framework for distributive justice that diverged from conventional moral philosophy by grounding ethical principles in cooperative game theory. His essay, "A Game Theoretic Account of Social Justice," advances a dual-norm theory that operationalizes the ideals of "to each according to his needs" and "to each according to his contribution."[2] Brock's approach was pioneering in that it sought to dispense with metaphysical constructs like Rawls's "veil of ignorance,"[3] replacing them with measurable, game-theoretic structures that offer both normative clarity and functional applicability. More than four decades later, the relevance of Brock's theory has only increased. The 21st century presents new challenges—economic inequality, digital governance, environmental degradation, and global pandemics—that demand fresh ethical insights. This review evaluates the continuing value of Brock's framework, assessing its applicability in today's context while critiquing its limitations and suggesting ways it can be

[1] Author is a Research Scholar at Faculty of Law, Banaras Hindu University, Varanasi, U.P., India.
[2] Horace W Brock, 'A Game Theoretic Account of Social Justice' (1979) 11 *Theory and Decision* 239.
[3] John Rawls, *A Theory of Justice* (Harvard University Press 1971).

 [ISSN 2581-5369]

integrated with or augmented by contemporary theories.

II. Overview of Brock's Theory

Brock's theory is grounded in the insight that justice requires different normative principles depending on the context. He distinguishes between two types of environments[4]:

I. **Manna environments**, where goods are unearned or passively received—such as natural resources, inherited wealth, or emergency relief—represent contexts where no individual has a justified claim to exclusive ownership based on effort or merit. In such cases, ethical distribution should be guided by relative need rather than contribution. For example, when a government receives international aid after a natural disaster, the ethical imperative is to allocate this aid to the most vulnerable populations first. Brock's classification of these environments supports the application of needs-based justice in areas where entitlement through labor or investment is irrelevant.

II. **Non-manna environments**, where individuals contribute to the production of social goods—such as labor markets, entrepreneurial ventures, or collaborative research—are situations in which people generate value through skill, effort, or innovation. In these settings, it becomes ethically appropriate to allocate resources based on relative contributions. For instance, in a professional setting, promotions and salaries are typically determined by performance metrics, effort, and achievements. Brock argues that in such contexts, distributive justice demands meritocratic fairness, which the Shapley Value is designed to capture by quantifying each individual's marginal contribution to the collective outcome.[5]

He models justice as a two-stage cooperative game:

a) **Stage I (Gc)**: It is the **first stage of Brock's two-stage model for distributive justice**, called **Gc (constitutional game)**. In this stage, individuals collectively decide on the fundamental rules of their society (like a constitution), but do so in a context where **no one has yet made any contributions**—akin to everyone starting from scratch.[6] Brock suggests that this situation should be resolved using the **Nash Bargaining Solution**[7], a mathematical method for finding fair outcomes in cooperative scenarios. Here, fairness means allocating benefits based on **relative need**—because, in this foundational

[4] Horace W Brock, 'A Game Theoretic Account of Social Justice' (1979) 11 *Theory and Decision* 239. However, The distinction between manna and non-manna environments was apparently intro-duced by Robert Nozick
[5] Robert Nozick, *Anarchy, State and Utopia* (Basic Books 1974).
[6] Horace W Brock, 'A Game Theoretic Account of Social Justice' (1979) 11 *Theory and Decision* 239.
[7] John F Nash, 'The Bargaining Problem' (1950) 18(2) *Econometrica* 155.

 [ISSN 2581-5369]

setting, **no one deserves more based on merit** since no merit has yet been demonstrated.

b) **Stage II (Gc)**: In Brock's framework, **Stage II (Gc)** represents the real-world phase where people pursue their life plans after a fair constitution has been established. In this stage, individuals contribute differently to the social and economic fabric—through labor, creativity, or innovation. Brock proposes using the **Shapley Value**[8], a game-theoretic solution, to fairly allocate resources based on each person's **marginal contribution** to the total output. The Shapley Value ensures that no one is rewarded more or less than their actual impact warrants, making it an ideal tool for implementing **contribution-based justice** in competitive, productive environments like workplaces, research projects, or public administration.

This bifurcation allows Brock to reconcile egalitarian and meritocratic principles, treating each as conditionally appropriate rather than mutually exclusive.

To illustrate, consider a real-world application of Stage I (Gc): when a society debates the design of a national healthcare system, citizens—regardless of their productivity or wealth—deliberate on fair rules. Here, resource allocation is based on relative medical need, not earnings. This process mirrors a "manna" context where no individual has a prior claim to the resources. Stage II (Gc), on the other hand, reflects daily life under the agreed constitution. For instance, in a labor market, individuals contribute differently to economic output based on skill and effort. Using the Shapley Value ensures that resource allocation (such as income or recognition) corresponds proportionally to individual contributions. This dual-structured model helps institutionalize justice that evolves from a shared foundation of fairness and then adapts to reward personal agency and effort.

III. CORE CONTRIBUTIONS AND INNOVATIONS

Brock introduces several innovations:

I. **Dual-norm coherence**: Instead of privileging one distributive norm, he creates a conditional structure where both needs and contributions are normatively valid in their respective domains. This structure has influenced contemporary policy discussions on hybrid welfare systems that integrate basic income (need-based) with performance incentives (contribution-based).

[8] Lloyd S Shapley, 'A Value for n-Person Games' in Harold W Kuhn and Albert W Tucker (eds), *Contributions to the Theory of Games II* (Princeton University Press 1953).

II. **Operational impartiality**: Brock defines ethical impartiality not as ignorance of one's identity but as exclusive focus on morally relevant data (needs or contributions), discarding arbitrary attributes. This has potential application in algorithmic fairness models, where decision-making systems are designed to exclude bias-prone data such as race or gender while focusing on relevant contextual inputs.[9]

III. **Conceptual vs. operational utility comparisons**: Though interpersonal utility comparisons exist conceptually, his model avoids requiring them at the operational level—a major advantage in applied ethics. This distinction is valuable in public health or education funding models, where subjective well-being is hard to compare, but decision-making still needs principled foundations.

IV. **Contractarian realism**: His model is compatible with contractarian ethics, achieving full distributive justice through rational agreement in a game setting. This aspect aligns with deliberative democratic theory and has influenced models of participatory governance, such as citizen assemblies, that strive for consensus-based foundational rule-making.[10]

IV. CONTEMPORARY SIGNIFICANCE

Brock's theory is highly adaptable to modern ethical and policy contexts:

A. Algorithmic Decision-Making

As AI and automated systems increasingly mediate access to welfare, credit, and employment, fairness in algorithmic decision-making becomes critical. Brock's emphasis on context-specific norms aligns with current efforts to design algorithms that respect both 'need-based fairness' (e.g., prioritizing vulnerable users) and 'merit-based fairness' (e.g., scoring systems based on effort or input).[11] For example, in predictive policing tools, a needs-based approach might focus on deploying resources to underserved communities with higher vulnerability to crime, while a contribution-based approach might emphasize past behavior or cooperation with law enforcement. Similarly, in credit scoring systems, need-based models may incorporate socioeconomic hardship adjustments to facilitate financial inclusion, while contribution-based metrics might emphasize timely repayment and financial responsibility.[12]

[9] John C Harsanyi, *Rational Behavior and Bargaining Equilibrium in Games and Social Situations* (Cambridge University Press 1977)
[10] Gerald Gaus, *The Order of Public Reason* (Cambridge University Press 2010).
[11] Hutan Ashrafian, 'Engineering a Social Contract: Rawlsian Distributive Justice through Algorithmic Game Theory and Artificial Intelligence' (2023) 3 *AI Ethics* 1447 https://doi.org/10.1007/s43681-022-00253-6.
[12] Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (St Martin's Press 2018).

 [ISSN 2581-5369]

By offering a bifocal lens on fairness, Brock's framework helps developers and policymakers recognize when each principle is normatively appropriate, avoiding one-size-fits-all solutions that risk perpetuating bias or injustice.

B. Economic Inequality and Redistribution

The distinction between manna and non-manna environments mirrors debates on wealth redistribution. Inherited wealth or natural resources (manna) justifiably invoke need-based justice, while earned income may fall under contribution-based ethics. Brock's model supports nuanced taxation or welfare policies that differentiate between passive and active income sources.[13] For example, while a wealth tax might target unearned inheritance or capital gains (passive income), income tax brackets and work-based welfare programs could address earned wages and labor-intensive entrepreneurship (active income). Some contemporary theorists, like Thomas Piketty[14], argue that progressive redistribution should focus more heavily on capital rather than labor, supporting the idea that Brock's distinction is policy-relevant. On the other hand, critics from libertarian perspectives might challenge this, insisting that all income, regardless of source, reflects some form of value creation deserving equal respect. Thus, Brock's framework enters directly into these debates by offering a formal justification for nuanced differentiation. income sources.

C. Global Climate Justice

In climate negotiations, developed countries (major polluters) are held responsible for mitigation (contribution principle), while developing nations argue for aid based on vulnerability (needs principle).[15] Brock's two-stage framework mirrors this duality, justifying differential responsibilities and entitlements.

Brock's **Stage I** (manna/needs-based) and **Stage II** (non-manna/contribution-based) principles map directly onto climate negotiations. For example, **small island nations like the Maldives** are highly vulnerable to rising sea levels despite contributing little to global emissions. In a Stage I context, their claims to international aid and adaptive infrastructure are justified by **need**, aligning with Brock's manna-based justice. Conversely, **high-emitting countries like the United States or China**, whose industrial activities have contributed significantly to climate change, fall under Stage II. Their ethical obligation to fund mitigation efforts or compensate others reflects **contribution-based responsibility**. This is mirrored in

[13] Horace W Brock, 'A Game Theoretic Account of Social Justice' (1979) 11 *Theory and Decision* 239.
[14] Thomas Piketty, *Capital in the Twenty-First Century* (Harvard University Press 2014).
[15] UNFCCC, *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention* (2010).

 [ISSN 2581-5369]

mechanisms like the **UN Green Climate Fund**, which allocates resources by combining vulnerability and historical responsibility—essentially operationalizing Brock's dual norms. Thus, his model helps clarify why climate justice requires differentiated obligations rather than equal burdens.

D. Participatory Governance

Brock's constitutional stage resembles deliberative democratic practices, such as citizen assemblies and participatory budgeting. His model supports inclusive policy-making where the foundational rules (constitution) are set through equitable, needs-based negotiation, while subsequent actions reflect individual contributions. In his model, the foundational rules or the "constitution" are established through equitable, needs-based negotiation among all stakeholders, ensuring that the process is inclusive and fair. This stage reflects how diverse groups come together to discuss and agree on the basic principles that will govern their collective actions, much like a citizen assembly drafting community guidelines or a participatory budgeting process setting the rules for allocating resources.[16] Once these foundational rules are set, subsequent decisions and actions are guided by individual contributions within the agreed framework. This approach balances collective fairness with personal input, fostering inclusive policy-making where everyone's voice is respected and the governance process remains transparent and just.

V. CRITICAL EVALUATION

Strengths:

I. Provides a mathematically robust foundation for distributive ethics. Brock's use of the Nash Bargaining Solution and the Shapley Value allows for rigorous, replicable evaluations of fairness in resource allocation. For example, in labor negotiations, applying the Shapley Value can ensure that workers are compensated in proportion to their actual contribution to productivity, thereby institutionalizing fairness.

II. Avoids metaphysical constructs while preserving normative weight. Unlike Rawls's "veil of ignorance," which is philosophically abstract and difficult to implement in real-world scenarios, Brock's model relies on observable, context-sensitive data—like quantifiable needs or measurable contributions. For instance, in allocating humanitarian aid, relying on direct measures of need (e.g., health or displacement metrics) makes Brock's approach more practical and actionable.

[16] Archon Fung, 'Varieties of Participation in Complex Governance' (2006) 66(S1) *Public Administration Review* 66.

III. Flexible across diverse domains, from law to economics to digital ethics. Brock's framework is adaptable to various fields: in algorithmic fairness, it can inform how automated systems weigh user inputs; in climate policy, it can shape responsibility-sharing models; and in public finance, it can guide redistributive tax strategies. This multi-domain relevance increases its utility for interdisciplinary policy-making.

Limitations:

a) Assumes rational agents and utility functions, which may not hold in real-world conditions influenced by bias, coercion, or ignorance. For example, behavioral economics has shown that individuals frequently act irrationally due to cognitive biases like loss aversion or framing effects. In social welfare programs, individuals may fail to make optimal decisions even when incentives are well-designed, thereby weakening the predictive power of rational agent models.

b) Offers limited tools for addressing historical injustices or systemic oppression. Brock's framework primarily focuses on fair distribution in the present or future but does not adequately address past wrongs. For instance, indigenous land dispossession or racial slavery in the United States created wealth disparities that persist today. Justice in these contexts often demands reparative or transformative policies, which go beyond the forward-looking distributive logic of game-theoretic fairness.

c) The reliance on cooperative game solutions may be ill-suited to adversarial political environments. In many political systems, stakeholders act strategically to maximize power rather than cooperate for mutual gain. For example, climate change negotiations often suffer from strategic defection, where countries make commitments they do not fulfill. Brock's cooperative model may be idealistic in such settings where trust, enforcement, or goodwill is lacking.

VI. TOWARD A CONTEMPORARY ETHICAL TOOLKIT

Brock's dual-norm framework offers a robust foundation, but integrating it with newer ethical paradigms can enhance its relevance and responsiveness to contemporary challenges. Below are three key augmentations:

A. apability Approach (Sen, Nussbaum)

While Brock's model relies on measurable metrics like needs and marginal contributions—essentially utility-based or outcome-driven indicators—the **Capability Approach** adds a critical dimension: **what people are actually able to do and be**. Developed by Amartya

Sen[17] and Martha Nussbaum[18], this framework focuses on **agency, choice, and opportunity** rather than just material outcomes.

I. **Integration with Brock**: Brock's "manna" and "non-manna" environments can be enriched by evaluating not only the distribution of resources but also how these resources translate into genuine freedoms. For instance, in a needs-based allocation (Stage I), one must also assess whether individuals have the capability to convert those resources into valuable life outcomes. In contribution-based settings (Stage II), fair allocation should consider barriers to participation, such as access to education or healthcare, which directly affect one's ability to contribute.

II. **Application**: In labor markets, someone may appear to "contribute less" under the Shapley Value framework, but this might reflect structural disadvantages (e.g., disability, caregiving burdens) rather than lack of effort or talent. The Capability Approach encourages corrective interventions that level the playing field ex ante—something Brock's model doesn't fully account for in its original form.

B. Intersectional Justice

Brock's impartiality principle emphasizes morally relevant criteria like needs and contributions, but **intersectionality**—a framework rooted in critical theory and pioneered by Kimberlé Crenshaw—reveals how **multiple, overlapping systems of oppression** (race, gender, class, ability, etc.) can systematically distort both[19].

I. **Integration with Brock**: Intersectionality exposes how individuals with comparable needs or contributions may still be treated unequally due to social stigmas, institutional discrimination, or cumulative disadvantage. Brock's game-theoretic impartiality, which assumes clean evaluative categories, can be refined to accommodate **structural injustice** as a modifier in both stages of his game.

II. **Application**: In public health or algorithmic fairness, models based purely on needs or input metrics can inadvertently replicate discrimination unless they account for **social context and identity-based vulnerabilities**. Integrating intersectional justice into Brock's Stage I ensures foundational rules are designed with explicit awareness of these layered inequalities.

[17] Amartya Sen, *Development as Freedom* (Oxford University Press 1999).
[18] Martha C Nussbaum, *Frontiers of Justice: Disability, Nationality, Species Membership* (Harvard University Press 2006).
[19] Kimberlé Crenshaw, 'Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color' (1991) 43(6) *Stanford Law Review* 1241.

 [ISSN 2581-5369]

C. Behavioral Game Theory

Traditional game theory, including Brock's cooperative framework, assumes rational agents maximizing utility. However, **Behavioral Game Theory**—informed by cognitive psychology and experimental economics—demonstrates that human decisions often deviate from rationality due to **biases, heuristics, and emotions**.[20]

I. **Integration with Brock**: Behavioral refinements can update both the **bargaining logic in Stage I** and the **contribution evaluations in Stage II**. For instance, Nash Bargaining assumes equal negotiating competence and foresight, but behavioral evidence shows that people frequently misperceive fairness, succumb to anchoring effects, or exhibit bounded rationality.[21]

II. **Application**: In participatory governance, citizens may accept unjust constitutional rules due to information asymmetries or status quo bias. Likewise, in cooperative settings like climate accords or digital platforms, stakeholders may act out of mistrust or short-termism rather than rational cooperation. Modifying Brock's model to include these **predictable irrationalities** improves its descriptive accuracy and normative robustness.

D. Toward Pluralistic Precision

By hybridizing Brock's model with these contemporary lenses, we gain a more **nuanced ethical toolkit** capable of addressing the complexities of justice in pluralistic societies. The Capability Approach introduces **freedom and agency**, Intersectional Justice embeds **contextual equity**, and Behavioral Game Theory brings **empirical realism**. These additions do not replace Brock's contributions but rather **complete them**, allowing for a justice model that is mathematically sound, normatively rich, and socially sensitive.

VII. Conclusion

Horace W. Brock's game-theoretic account of justice offers a compelling bridge between ethical ideals and operational frameworks. Its dual-norm model, grounded in both relative needs and contributions, remains highly relevant in addressing today's multifaceted justice dilemmas. By framing distributive justice as the product of rational, cooperative interaction, Brock moves ethical theory closer to practical policy-making. Yet, as the challenges of the 21st century evolve, so too must our ethical tools. The future of justice may well lie in

[20] Richard H Thaler and Cass R Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (Yale University Press 2008).
[21] Colin F Camerer, *Behavioral Game Theory: Experiments in Strategic Interaction* (Princeton University Press 2003).

 [ISSN 2581-5369]

refining and expanding models like Brock's to encompass not only fairness in distribution but also fairness in recognition, participation, and power. This necessitates integrating complementary ethical paradigms that account for structural disadvantage (intersectionality), capability deprivation (Sen-Nussbaum), and behavioral biases (behavioral game theory). In doing so, we move toward a more pluralistic and empirically grounded conception of justice—one that remains faithful to the logical rigor of game theory while accommodating the lived realities of diverse populations. A contemporary ethical toolkit built on this hybridized foundation can offer policymakers, scholars, and practitioners a richer, more actionable framework for justice in complex societies.

*****

 [ISSN 2581-5369]

VIII. REFERENCES

1. Hutan Ashrafian, 'Engineering a Social Contract: Rawlsian Distributive Justice through Algorithmic Game Theory and Artificial Intelligence' (2023) 3 *AI Ethics* 1447 https://doi.org/10.1007/s43681-022-00253-6.
2. Horace W Brock, 'A Game Theoretic Account of Social Justice' (1979) 11 *Theory and Decision* 239.
3. Colin F Camerer, *Behavioral Game Theory: Experiments in Strategic Interaction* (Princeton University Press 2003).
4. Ta-Nehisi Coates, 'The Case for Reparations' *The Atlantic* (June 2014) https://www.theatlantic.com/magazine/archive/2014/06/the-case-for-reparations/361631/.
5. Kimberlé Crenshaw, 'Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color' (1991) 43(6) *Stanford Law Review* 1241.
6. Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (St Martin's Press 2018).
7. Archon Fung, 'Varieties of Participation in Complex Governance' (2006) 66(S1) *Public Administration Review* 66.
8. Gerald Gaus, *The Order of Public Reason* (Cambridge University Press 2010).
9. John C Harsanyi, *Rational Behavior and Bargaining Equilibrium in Games and Social Situations* (Cambridge University Press 1977).
10. Daniel Kahneman, *Thinking, Fast and Slow* (Farrar, Straus and Giroux 2011).
11. John F Nash, 'The Bargaining Problem' (1950) 18(2) *Econometrica* 155.
12. Robert Nozick, *Anarchy, State and Utopia* (Basic Books 1974).
13. Martha C Nussbaum, *Frontiers of Justice: Disability, Nationality, Species Membership* (Harvard University Press 2006).
14. Thomas Piketty, *Capital in the Twenty-First Century* (Harvard University Press 2014).
15. John Rawls, *A Theory of Justice* (Harvard University Press 1971).
16. Amartya Sen, *Development as Freedom* (Oxford University Press 1999).
17. Lloyd S Shapley, 'A Value for n-Person Games' in Harold W Kuhn and Albert W Tucker (eds), *Contributions to the Theory of Games II* (Princeton University Press 1953).

 [ISSN 2581-5369]

18. A John Simmons, 'Ideal and Nonideal Theory' (2010) 38(1) *Philosophy and Public Affairs* 5.

19. Richard H Thaler and Cass R Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (Yale University Press 2008).

20. UNFCCC, *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention* (2010).

*****

 [ISSN 2581-5369]