THE PUBLIC GOOD GAME

Contribute to the group.
Keep money for yourself.

Classic experimental research
Marwell · Ames · Isaac · Walker · Andreoni

Research tradition
Voluntary contribution mechanism

Core question
When does private incentive conflict with collective benefit?

> Would you put some of your own money into a shared pot if everyone—including people who contribute nothing—could benefit?

A clear guide to the rules, free-riding benchmark, classic behavioral patterns, and ways to think like an experimental researcher.

01 / THE IDEA

Why do public goods create a dilemma?

A public good is typically non-excludable and non-rival: people can benefit even if they do not personally contribute, and one person’s benefit does not substantially reduce another’s.

Examples include street lighting, flood protection, clean air, and a shared group fund in a laboratory. Financing these goods can be difficult because each person may prefer that others pay while they enjoy the benefit.

The Public Good Game recreates this tension with monetary incentives. Participants decide how much of their private endowment to contribute to a group account. The account generates a benefit for the whole group, including contributors and free-riders.

PRIVATE ACCOUNT	GROUP ACCOUNT
A participant keeps any amount they do not contribute.	Contributions are pooled, multiplied or otherwise transformed, then shared.

> The central tension: what is individually attractive may be collectively inefficient.

02 / EXPERIMENTAL DESIGN

How a standard version works

Here is one illustrative setup: four participants, each endowed with 20 tokens. The public account is multiplied by 1.6 and the resulting total is divided equally. Researchers use many variants.

01 Form a group of four.
Participants make choices simultaneously and usually anonymously.

02 Give each participant 20 tokens.
Each person chooses how many to keep and how many to contribute.

03 Pool the contributions.
For this example, the group total is multiplied by 1.6.

04 Divide the public-account return equally.
Each of the four participants receives one-fourth of the multiplied pool.

05 Calculate individual earnings.
Private tokens kept plus the participant’s equal share of the group return.

> This specific multiplier and group size are an example to teach the mechanism—not a claim that every classic study used these exact parameters.

03 / A WORKED EXAMPLE

Three people contribute; one free-rides

Suppose the four group members contribute 10, 10, 10, and 0 tokens. The total contribution is 30. The multiplier makes the public account worth 48 tokens, and each person receives 12 tokens from it.

PARTICIPANT	CONTRIBUTION	KEPT PRIVATELY	PUBLIC RETURN	FINAL PAYOFF
A	10	10	12	22
B	10	10	12	22
C	10	10	12	22
D	0	20	12	32

PAYOFF FORMULA

Individual payoff = tokens kept privately + (multiplier × total group contribution ÷ number of group members).

> The free-rider receives the same public return as everyone else, while keeping the full private endowment. Yet if everyone contributes nothing, the group account produces no return.

What does self-interest predict?

In this illustrative setup, one contributed token creates 1.6 tokens in the group pool. Since the pool is shared among four people, the contributor personally receives 0.4 tokens back.

A participant who contributes one token gives up one token privately but receives only 0.4 tokens in personal public return. Their own payoff falls by 0.6 tokens. If they care only about their own payoff, contributing nothing is optimal.

However, each contributed token creates 1.6 tokens of total group benefit. Because 1.6 is greater than 1, contributing raises the group’s total payoff even though it lowers the contributor’s individual payoff in this setup.

> Individual benchmark: contribute zero.
> Group-efficient choice: contribute the full endowment, given the example’s multiplier and assumptions.

This is the public-good dilemma: private incentives point toward free-riding, while the group can do better when members contribute.

What do experiments commonly reveal?

Across public-good experiments, participants often contribute positive amounts at the beginning, but contribution patterns depend on group composition, incentives, communication, and repetition.

RECURRING PATTERN	SUMMARY	WHAT IT MAY MEAN	CAUTION
Positive initial contributions	Many participants contribute something rather than choosing zero.	Social preferences, norms, or conditional cooperation may matter.	Not everyone contributes; distributions vary.
Contributions often decline over repeated rounds	In many repeated voluntary-contribution games, average contribution falls over time.	Participants may respond to others' low contributions or learn to free-ride.	Not universal; design and feedback matter.
Conditional cooperation	Some participants contribute more when they believe others contribute more.	Choices may depend on expectations about the group.	Beliefs and actions can be jointly determined.
Communication can help cooperation	Pre-play discussion often raises contributions in many setups.	Promises, coordination, and social norms can support cooperation.	Communication conditions differ.
Sanctioning can alter behavior	Punishment options can deter free-riding in some designs.	Participants may incur costs to enforce cooperation.	Punishment has costs; effects vary.

> These are broad patterns from a research literature—not fixed numerical laws. Always specify the exact game, round structure, feedback, and incentive parameters.

What can change contributions?

ANONYMITY & IDENTIFICATION	FEEDBACK & EXPECTATIONS
Do participants know who contributed? Is the group stable across rounds?	Do participants observe the group total, each person’s choice, or only outcomes?

COMMUNICATION	SANCTIONS
Can members discuss plans or make promises before contributing?	Can members reward contributors or penalize free-riders, and at what cost?

Each change can affect more than one channel. For instance, communication may change beliefs, create shared expectations, or make social norms salient. A strong experiment changes one feature at a time where possible and states which mechanism it aims to identify.

> Avoid calling every contribution “altruism.” Contributions may reflect conditional cooperation, beliefs, reciprocity, norms, or strategic considerations.

Do not memorize the contribution average.

01 What is the social optimum?

Derive the condition under which one contributed token creates more total group benefit than its private cost.

02 What does a contribution measure?

Could a participant contribute because they are generous, because they expect others to contribute, or because they want to avoid disapproval?

03 Why do contributions decline?

Is it learning, belief updating, conditional cooperation, end-game reasoning, or frustration with free-riders? What data distinguish these stories?

04 What treatment would test a mechanism?

Could you manipulate information about others' contributions, allow communication, or introduce costly punishment while holding the payoff structure fixed?

> Research sequence: observe a pattern → formulate competing explanations → derive predictions → design a treatment that separates them.

THE TAKEAWAY

The Public Good Game studies how people finance a shared benefit when each person can keep resources privately. Its benchmark explains the incentive to free-ride; observed contributions help researchers investigate cooperation, expectations, and institutions.

CLASSIC REFERENCES

Marwell, G., & Ames, R. E. (1979). "Experiments on the Provision of Public Goods. I. Resources, Interest, Group Size, and the Free-Rider Problem." American Journal of Sociology, 84(6), 1335–1360.

Isaac, R. M., & Walker, J. M. (1988). "Group Size Effects in Public Goods Provision: The Voluntary Contributions Mechanism." Quarterly Journal of Economics, 103(1), 179–199.

Andreoni, J. (1995). "Cooperation in Public-Goods Experiments: Kindness or Confusion?" American Economic Review, 85(4), 891–904.

Parameters in the worked example are illustrative; classic studies vary in group size, multiplier, endowment, repetition, and information.