

Breaking Up: Experimental insights into international economic (dis)integration

Gabriele Camera
Chapman University & University of Bologna

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In collaboration with:
L. Hohl and R. Weder (University of Basel)

ROADMAP

1. Context
2. Design
3. Results

Details, statistical tests, references: in the paper (preliminary)

RESEARCH QUESTION

Theory: countries overall benefit from economic integration & trade.

- Current tendencies, such as Brexit, seem at odds with this insight.
- What pushes individuals to limit or scale back economic integration?

This study: theory + experiment to investigate three behavioral frictions.

THREE BEHAVIORAL FRICTIONS

Economic integration:

1. Unlikely to grant equality of opportunity (in fact, some may lose).

⇒ Decision-making may be distorted for reasons ignored by standard theories.

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2. Weakens contractual environment, fosters short-sighted conduct (Rodrick 2000).

⇒ Size of prospective gains may influence willingness to cooperate.

THREE BEHAVIORAL FRICTIONS

Economic integration:

1. Unlikely to grant equality of opportunity (in fact, some may lose).
2. Weakens contractual environment, fosters short-sighted conduct (Rodrick 2000).
3. Expands “marketplace” to heterogeneous, unfamiliar dimensions.

⇒ Must develop new norms of conduct, abandon/alter established ones.

WHY LABORATORY STUDIES?

A useful, complementary approach because the researcher can

- *construct* economies with desired features & complexity
- *minimize* confounding factors & spillover effects
- *observe* variables that are unobservable in the field
- *measure* how shocks or policy changes affect endogenous variables
- *perform* counterfactual tests
- *isolate* the principle at work
- *establish* causal links

EXPERIMENTAL DESIGN: OVERVIEW

24 players of 3 types $i = 1, 2, 3$ (1/2 producers and 1/2 consumers)

● 8 of type $i = 1$

Disadvantaged

● 8 of type $i = 2$

Middle

● 8 of type $i = 3$

Advantaged

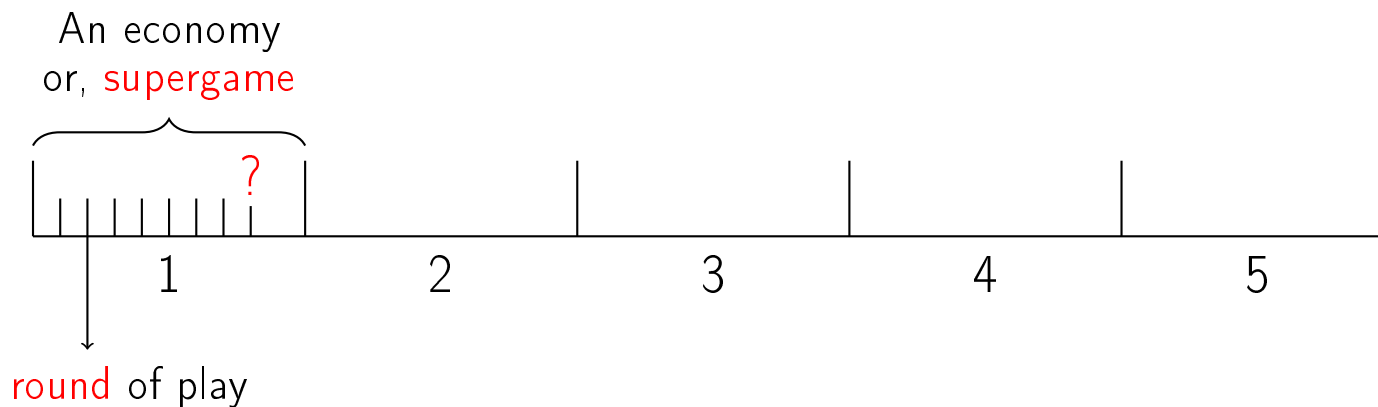
- Roles alternate: producer, consumer, producer, consumer, ...
- Economy has many bilateral anonymous meetings (producer + consumer).
- Scale, composition & profitability of economy is endogenous.
- Profit-generation must rely on implicit contracts.

A PRODUCER MEETS CONSUMER i

	Producer's choice	
	D	C
Producer's payoff:	6	0
Consumer's payoff:	3	$9 + 2i + a$

- D is individually rational in one-shot play
- C is socially efficient: surplus of $2i + a$ points (1 pt = \$0.18)
- **Inequality of opportunity**: prospective payoffs are unequal

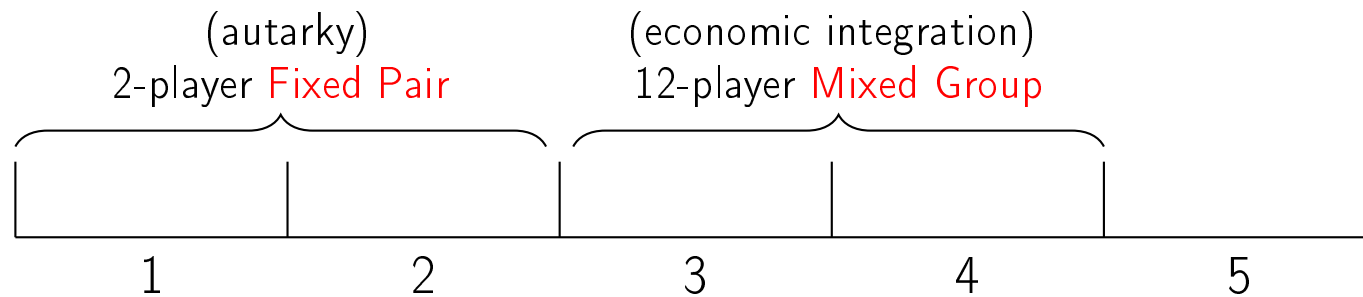
IN A SESSION: PARTICIPATE IN 5 SEPARATE ECONOMIES (SUPERGAMES)



- An economy = 18 rounds, then continuation probability $\beta = 0.75$
Deterministic role alternation (*Turnpike*) gives us multiple equilibria.
- No two players can meet in more than one economy (re-grouping).

Subjects informed & incentivized quiz before experiment

STEP 1: GAIN EXPERIENCE WITH TWO KINDS OF ECONOMIES

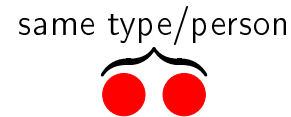


- Everyone simultaneously experiences the same kind of interaction.
- Every economy starts and ends simultaneously for all players.
- 8 sessions, 4 with reversed order of experience.

What is the difference between these two modes of interaction?

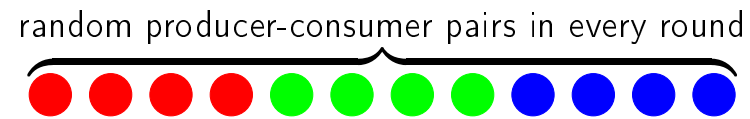
THE TWO KINDS OF ECONOMIES

Fixed Pair:



Easy to establish norms but $a = 0$.

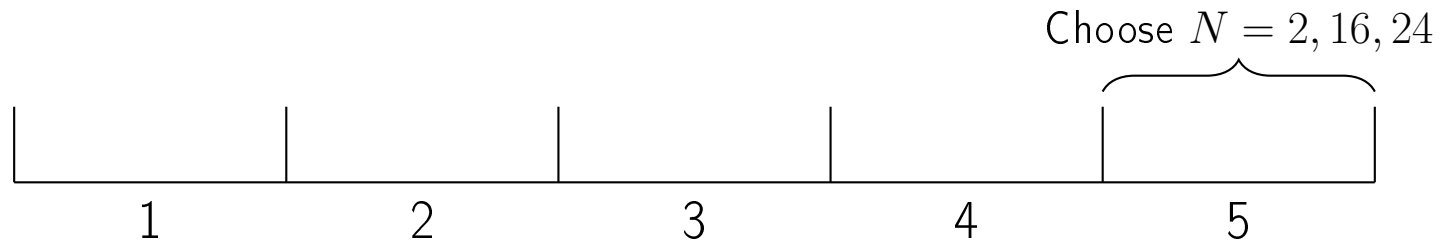
Mixed Group:



Harder to establish norms but $a = 3$.

Take-away: Mixed groups are **potentially** the most profitable.

STEP 2: ENDOGENOUS ECONOMIC ORGANIZATION



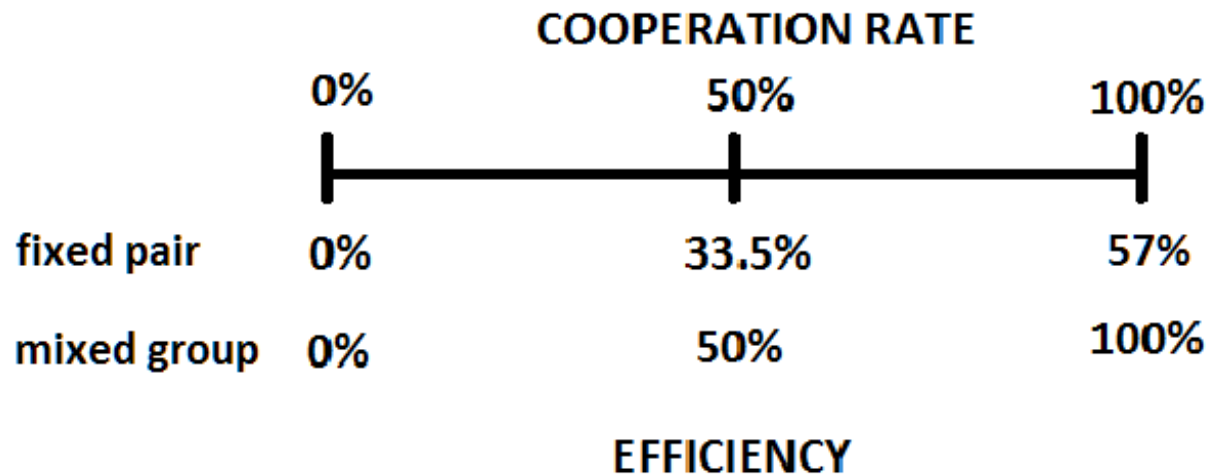
Provisionally form a **24-player group**. Then, individually choose:

- **Stay** $\rightarrow N = 24$ (economic integration)
- **Exclude** one type $\rightarrow N = 16 +$ rest in Fixed Pairs (scale back integration)
- **Leave** \rightarrow Fixed Pairs + rest in $N = 16$ (autarky)

One type i selected at random; its **majority choice** determines outcome.

THE OPERATING PRINCIPLE IN THE EXPERIMENT

To attain highest payoffs must avoid fixed pairs & develop a norm of cooperation.



Take-away: economic integration scales interaction up, but can improve welfare.

INPUT SCREEN FOR SOMEONE WHO IS BLUE

Your ID: 19 Your color: **BLUE** Block: 3 Period: 4

YOUR ID & COLOR

This period you are a **PRODUCER**

Your match is random
(you are in a mixed group of 12)

The color of your match is unknown

PAYOFF TABLE

POSSIBLE OUTCOMES	EARNINGS
Y	You get 6 points Other gets 3 points
Z	You get 0 points Other gets between 14 and 18 points

YOUR CHOICES

Please make a choice:

- Y
 Z

Submit

Results of previous periods in this block

Period	Your role	Color of match	Outcome	Your earnings	Same outcome in all pairs?
3	CONSUMER	GREEN	Y	3	no
2	PRODUCER	unknown	Y	6	no
1	CONSUMER	RED	Y	3	no

PAST OUTCOMES IN THE BLOCK

THREE MAIN CONDITIONS

Mean-preserving spread of *potential benefit from integration* a .

	Player type $i = 1, 2, 3$						Payoff Gap
	a	a		$9 + 2i + a$	$9 + 2i + a$		
BASELINE	3	3	3	14	16	18	4
NO-GAP	5	3	1	16	16	16	0
WIDE-GAP	1	3	5	12	16	20	8

Removes inequality

Raises inequality

TWO ADDITIONAL CONDITIONS

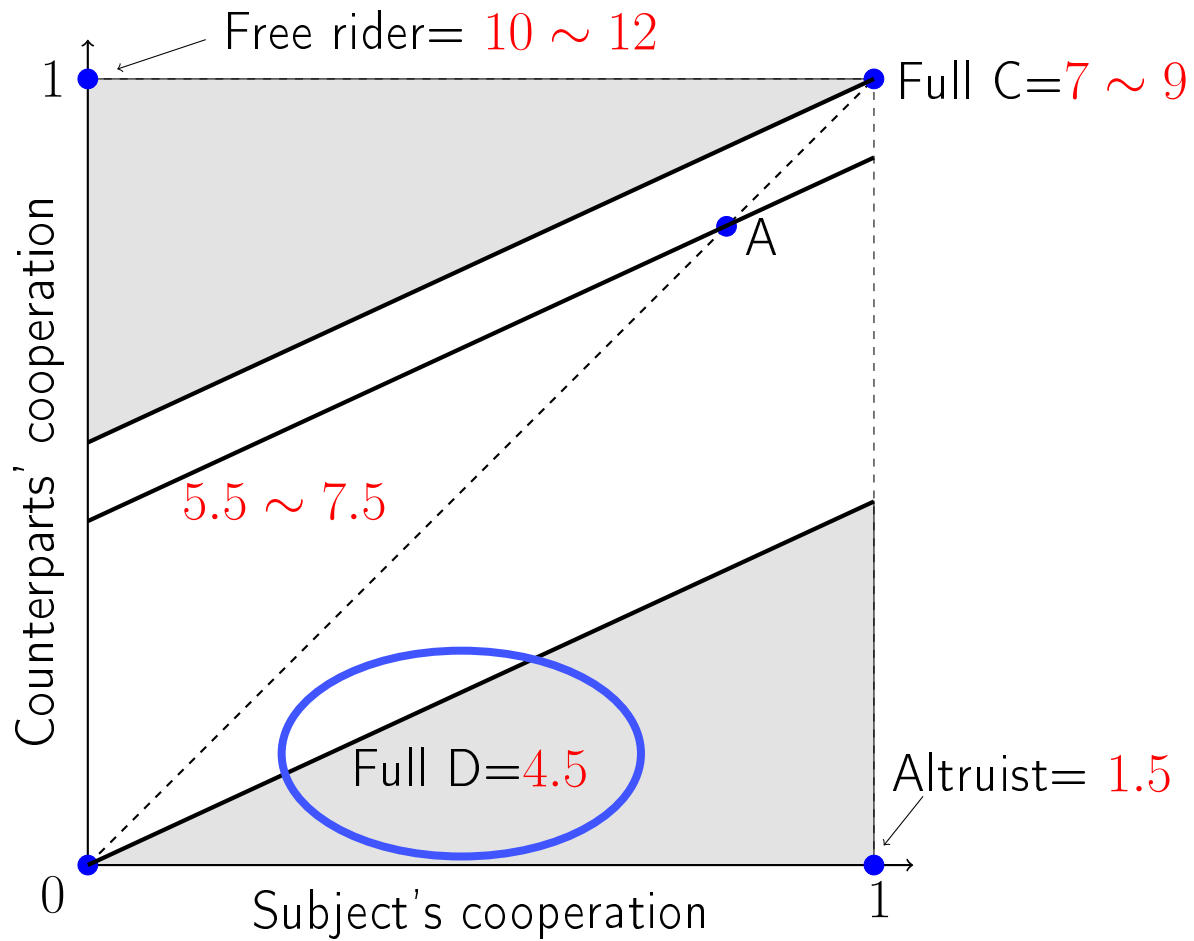
- Put more money on the table: benefit a jumps by 75%
- Introduce coordination institution: free-form, pre-play communication.

	Player type $i = 1, 2, 3$						
	a			$9 + 2i + a$			Payoff Gap
HIGH	5	5	5	16	18	20	4
CHAT	3	3	3	14	16	18	4

Run at ESI, 8 sessions/treat. (4 in Chat), 864 undergrads, 2/17-3/19, 44% males

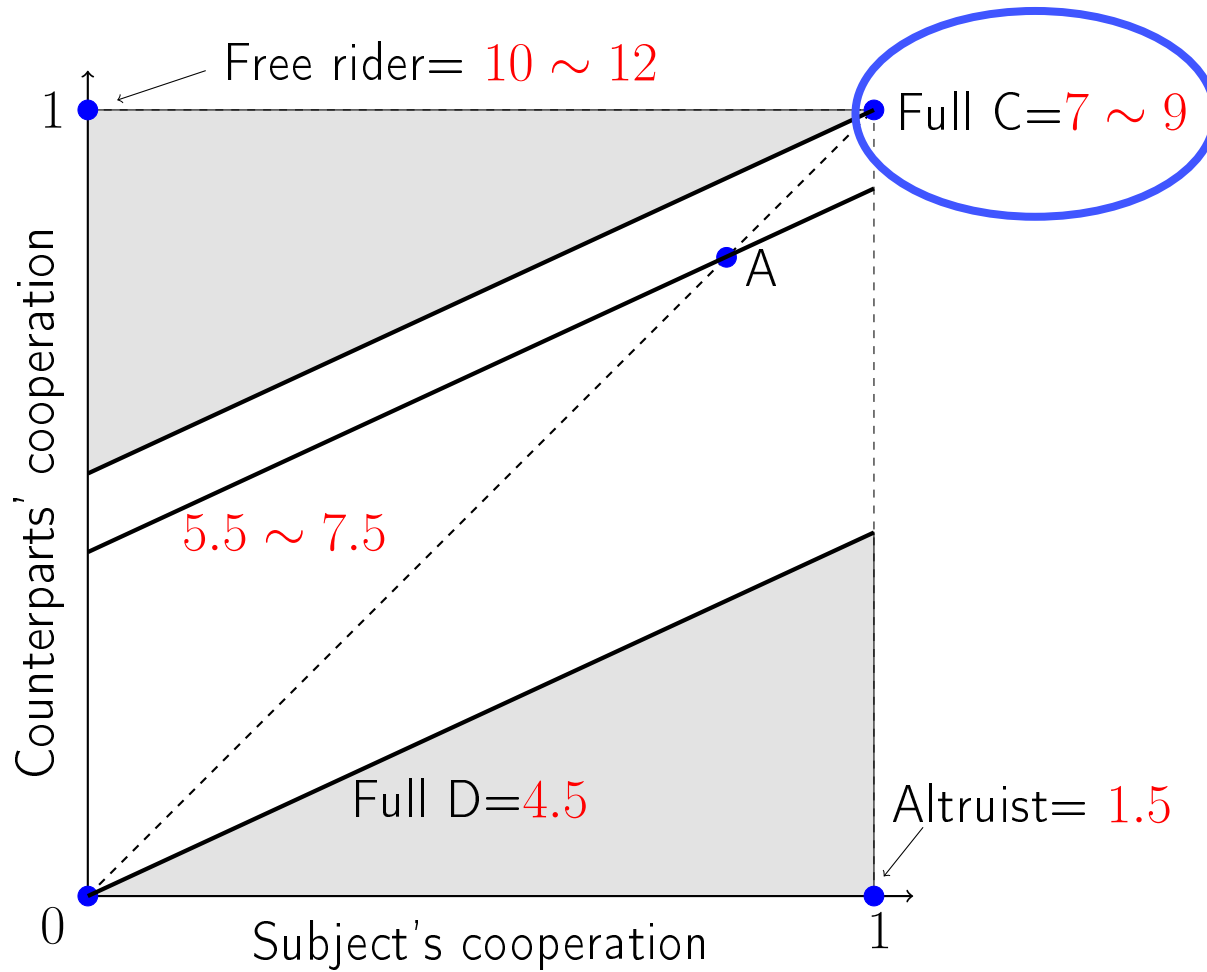
THEORETICAL CONSIDERATIONS

PROFITS: POINTS EARNED IN AVERAGE ROUND



- A multiplicity of symmetric Pareto-ranked equilibria lies along the 45⁰ line. (Asymmetries can considerably skew payoffs.)

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“REPEATED” GAME: A SOCIAL DILEMMA

Players confront two issues

- *Coordination*: multiple Pareto-ranked outcomes including the efficient one.
- *Opportunism*: short-run temptation to secure an immediate gain.

If monitoring not perfect, temptation to choose D & hide in the crowd.

- Remove temptation by basing future actions on past conduct using “grim play.”
- Idea: dynamic incentives to behave via community enforcement—not personal.

THEORETICAL CONSIDERATION #1

The equilibrium set includes the efficient & inefficient outcomes in all economies.

Remarks:

- Inequality of opportunity \Rightarrow **Disadvantaged** are relevant constraint.

- Efficient play supports **economic inequality** as an eq'm phenomenon.

THEORETICAL CONSIDERATION #2

Reshuffling prospective gains does not alter the equilibrium set.

Main treatments do not:

- reveal future intentions, past conduct, allow discrimination.
- alter strategy set or modify the power structure in the game.

EXPLORATION GUIDED BY SOME HYPOTHESES

Theory: payoff-maximizing players should cooperate & choose mixed groups.

Experiments: size and distribution of prospective gains matter; scale matters too.

H1: Cooperation does not decline when prospective earnings increase.

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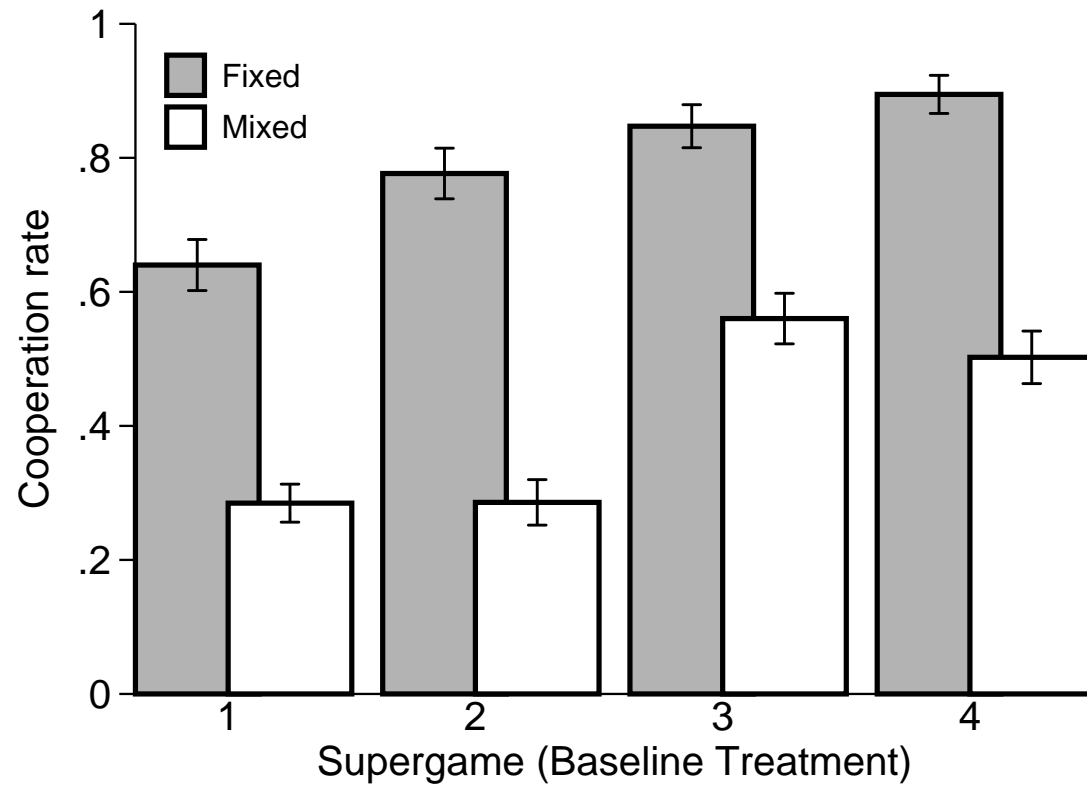
H3: Frequency of economic integration is unaffected by treatments.

RESULTS: BASELINE

OUTCOMES IN SUPERGAMES 1-4

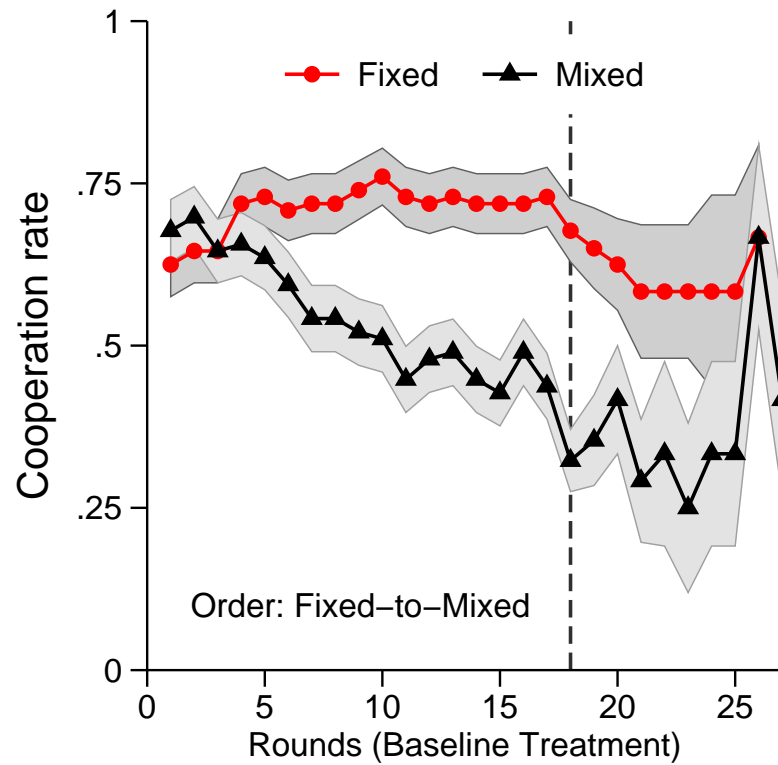
RESULT 1: COOPERATION

Cooperation was lower in mixed groups as compared to fixed pairs.



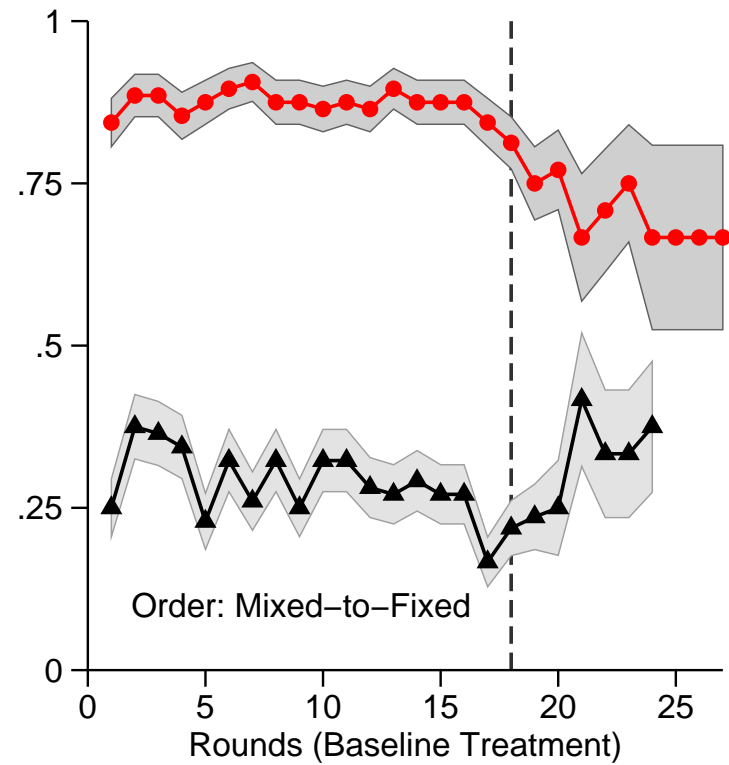
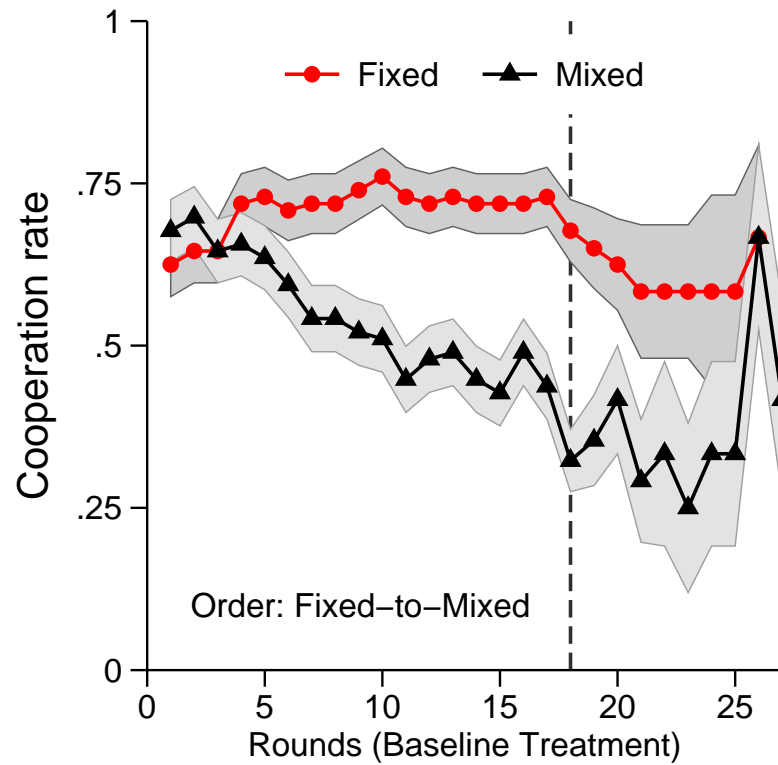
RESULT 2: STABILITY

Cooperation was stable in fixed pairs, and unstable in mixed groups..



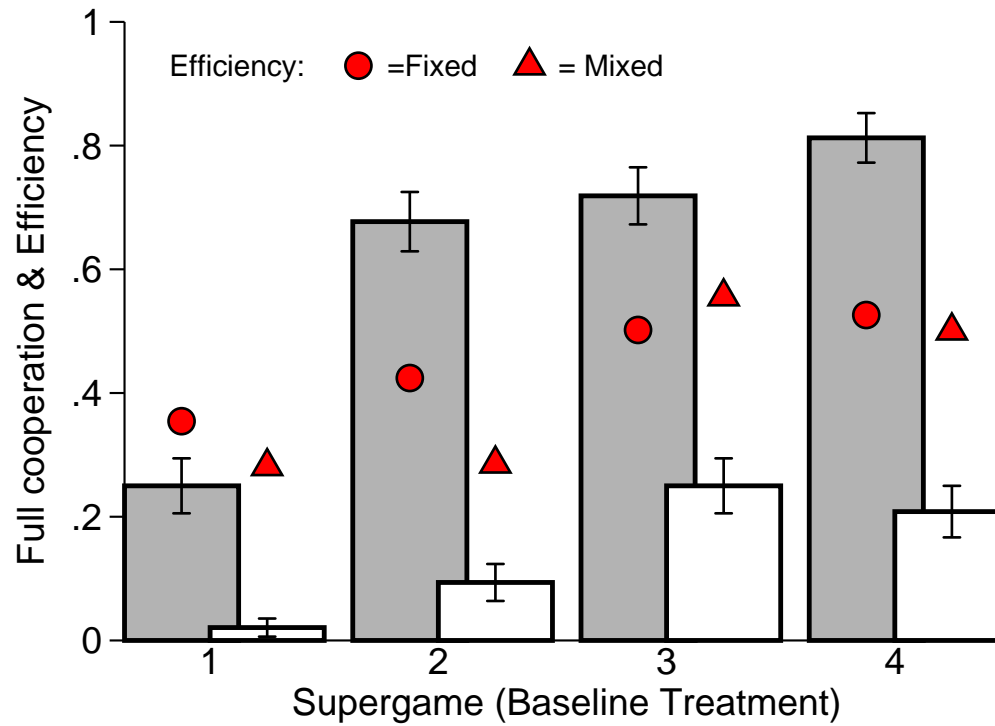
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RESULT 3: REALIZED EFFICIENCY

Mixed groups did not attain greater efficiency than fixed pairs.



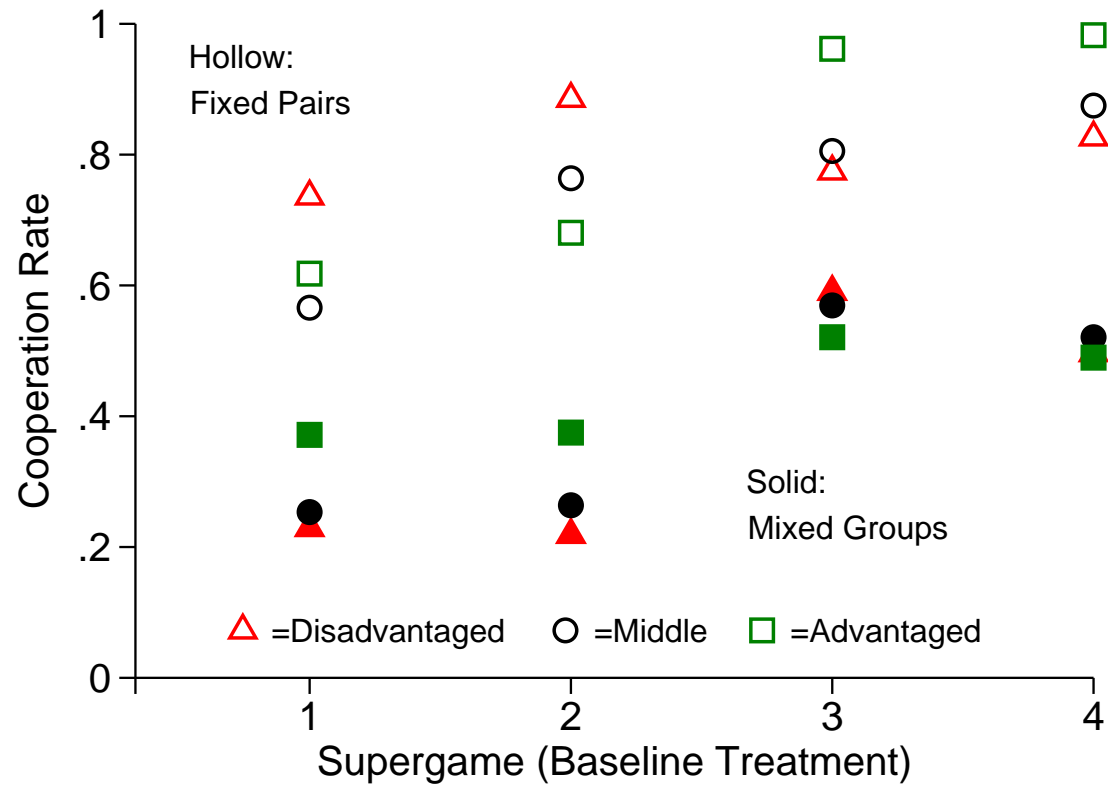
TAKE-AWAY

Gains from economic integration not easily exploited, even if potentially large.

Is this due to systematic differences in conduct across types?

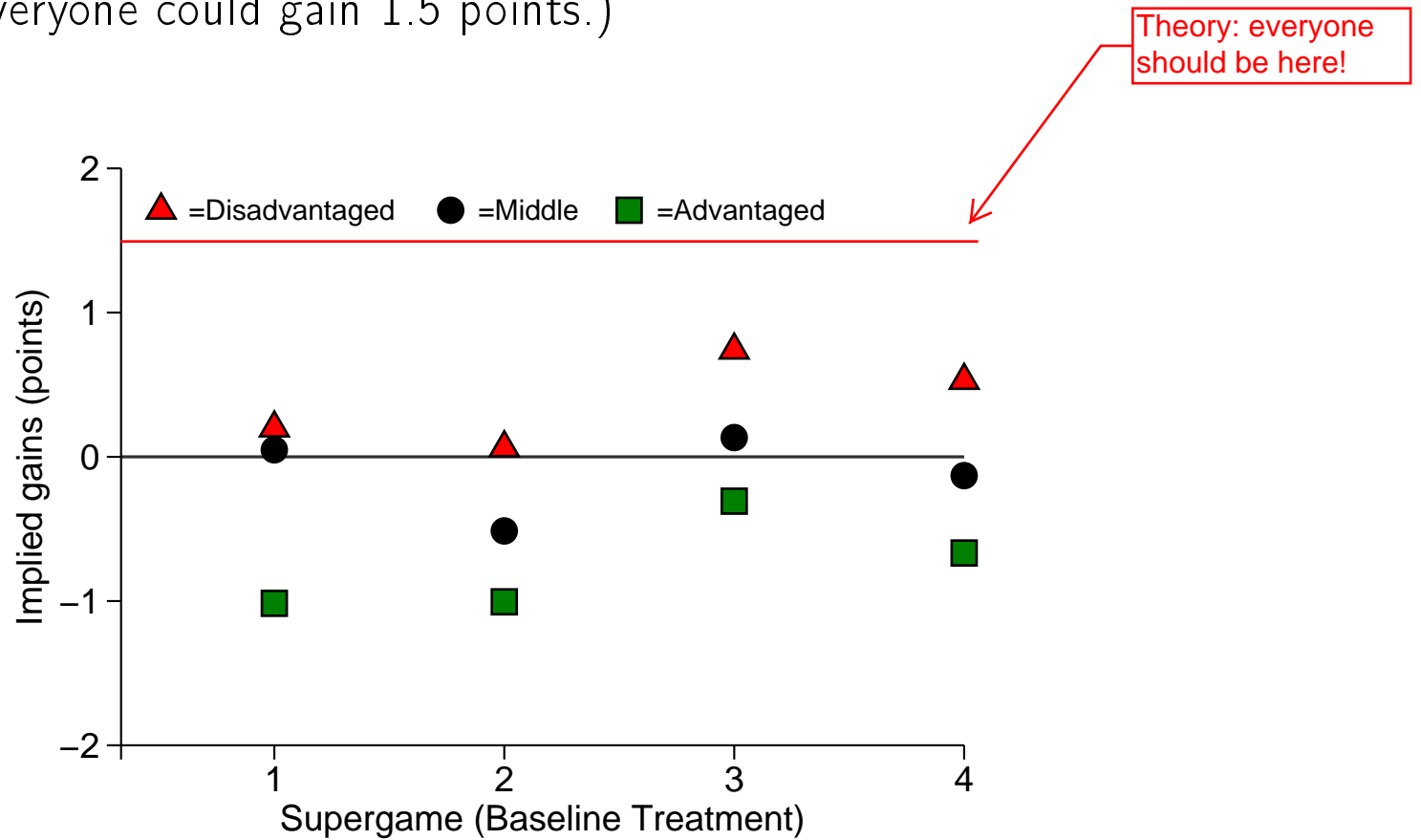
RESULT 4: THE IMPACT OF PROSPECTIVE GAINS

There was nonsystematic association between cooperation and prospective payoffs.



IMPLIED GAINS FROM ECONOMIC INTEGRATION

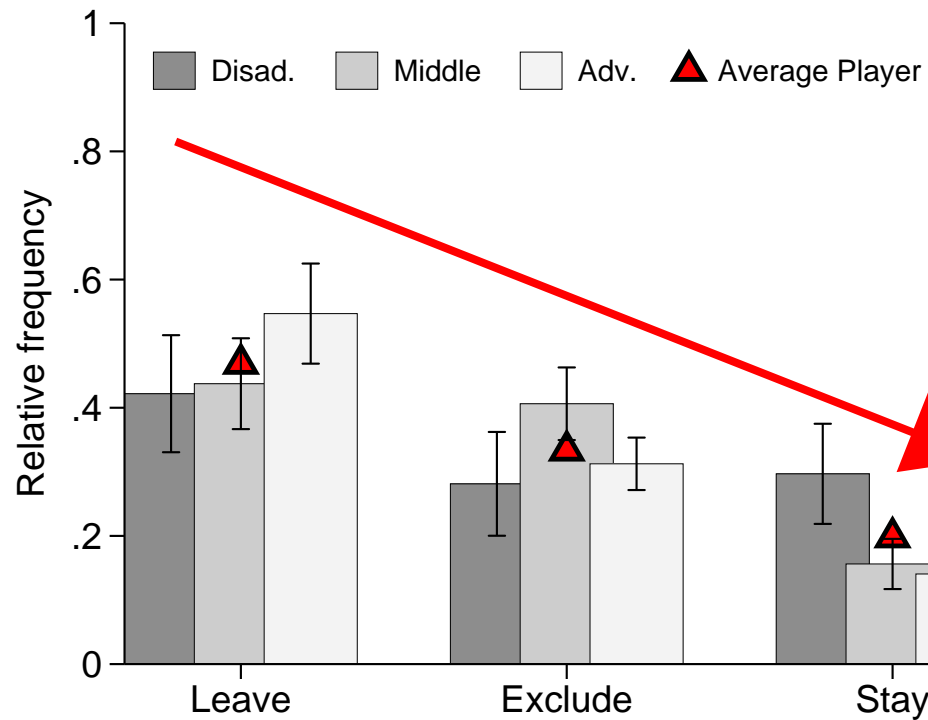
In the experiment, economic integration created winners and losers.
(Theoretically: everyone could gain 1.5 points.)



ENDOGENOUS ECONOMIC ORGANIZATION IN THE LAST SUPERGAME

RESULT 5: GROUP CHOICES

“Leave” was the most preferred and “Stay” the least preferred group configuration.



Experience explains variation in group choices, not prospective gains.

TAKE-AWAY

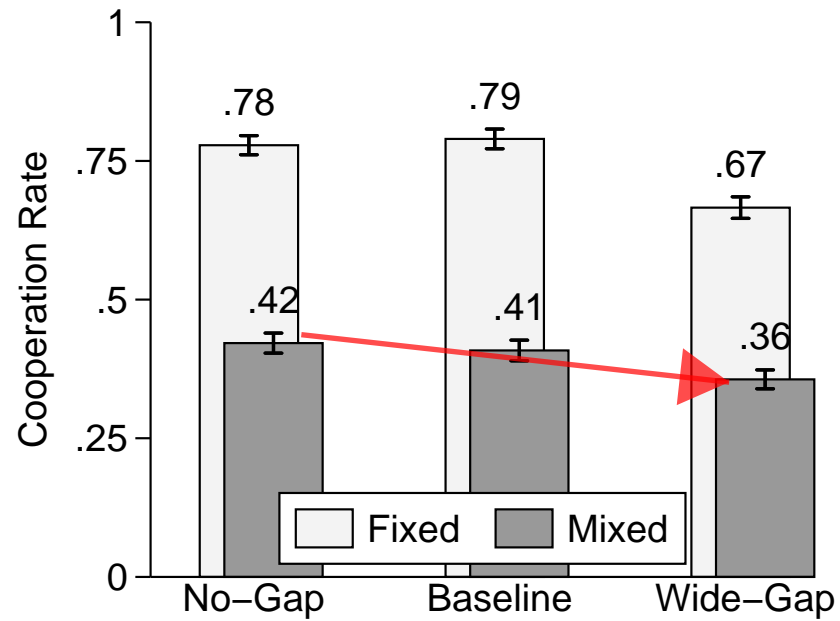
Choice of economic organization reflected realized gains, not theoretical prospects.

But here size of prospective gains from integration was identical across players.

So, let's reshuffle prospective gains, while keeping constant their total size.

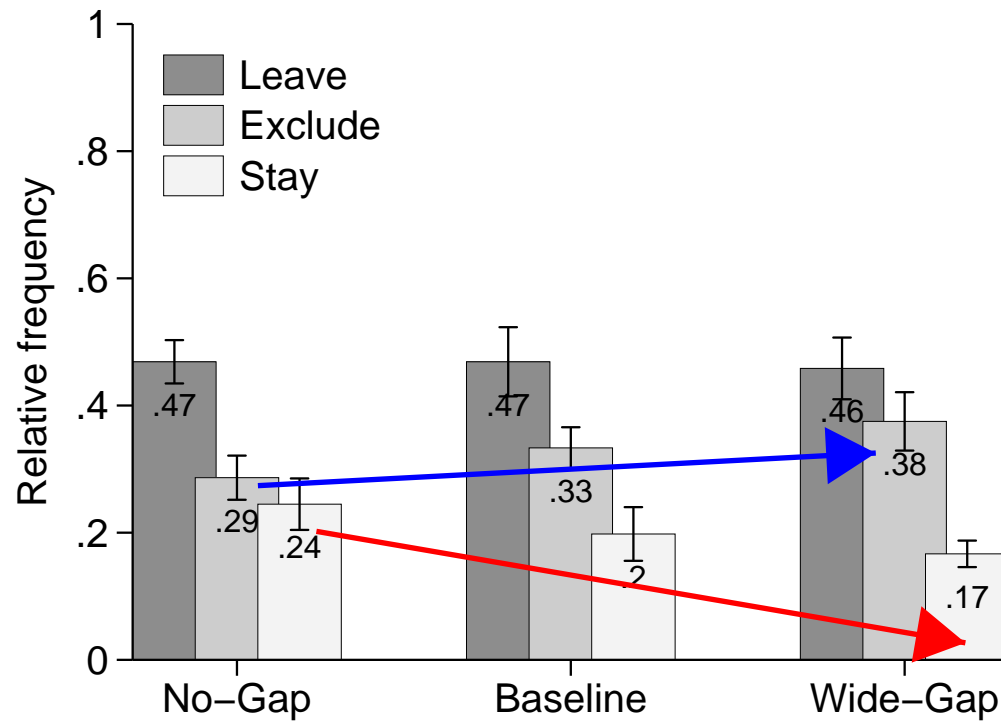
RESULT 6: COOPERATION VS. INEQUALITY OF OPPORTUNITY

Cooperation declined when integration widened gaps in prospective payoffs.
(No effect when it eliminated them.)



RESULT 7: GROUP CHOICES VS. INEQUALITY OF OPPORTUNITY

“Leave” is unaffected. Shift from “exclude” to “stay” and vice-versa.



TAKE-AWAY

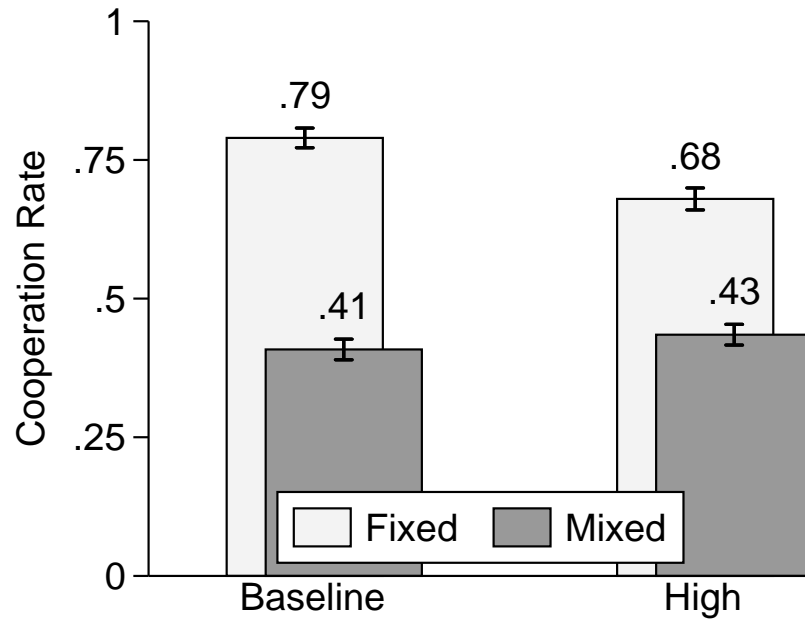
Cohesiveness increased when gaps eliminated instead of widened:

- Scaling back integration least frequent when it removed inequality of opportunity.
- But drawing power of small groups was unaffected.

What if integration gains were so large to likely create just winners?
(without altering gaps in prospective payoffs)

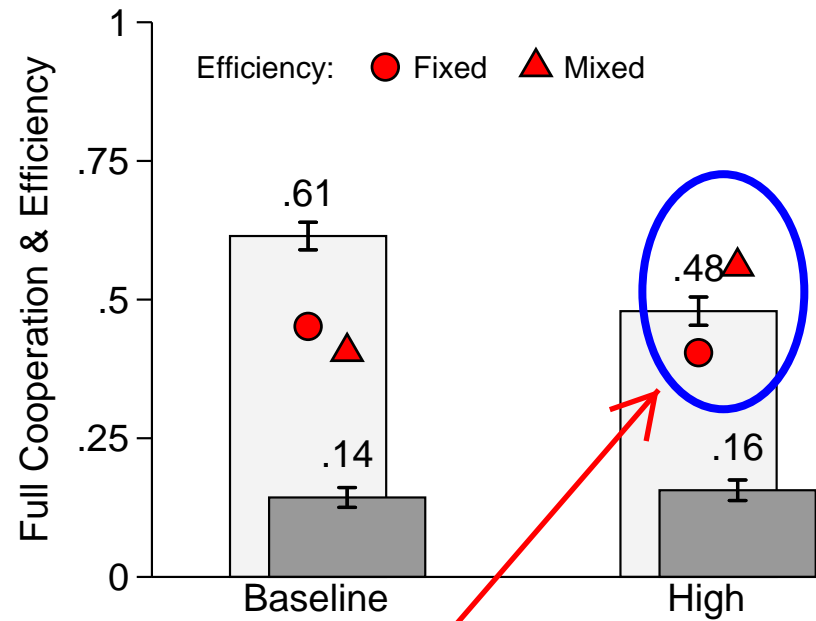
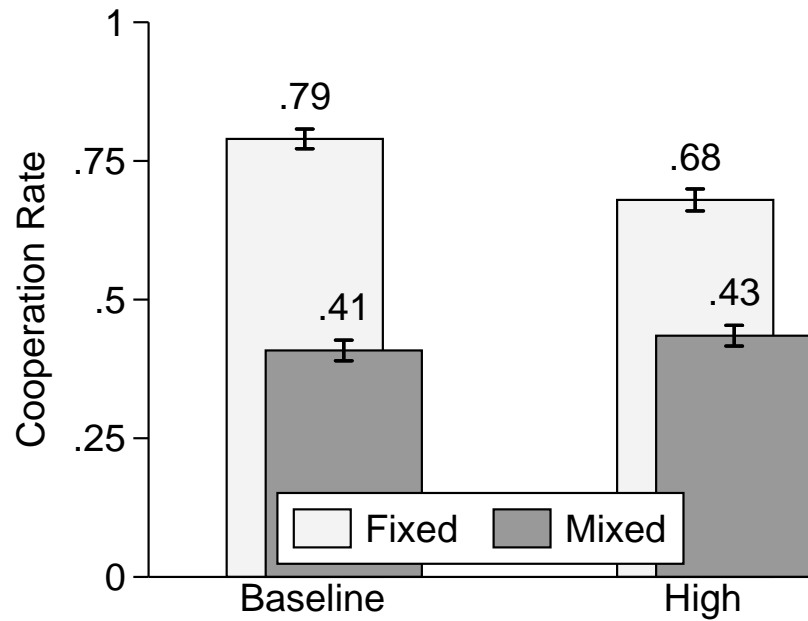
RESULT 8: COOPERATION—BASELINE VS. HIGH

A 2/3 increment in prospective gains did not increase cooperation.
(In fact, it declined it in fixed pairs.)



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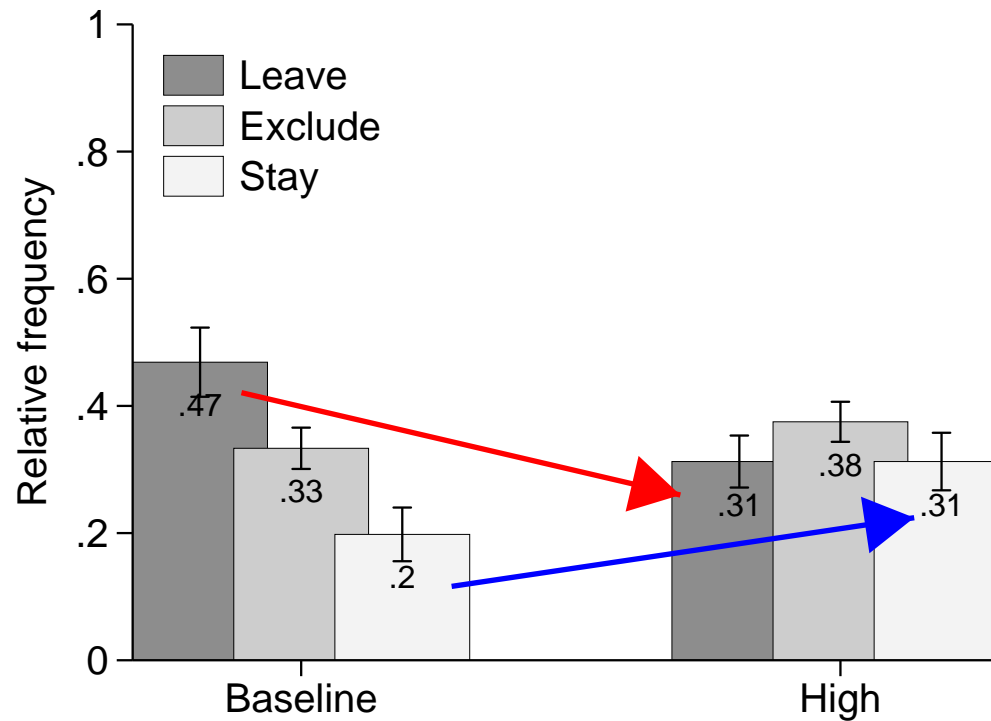
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So now mixed groups are more attractive on average

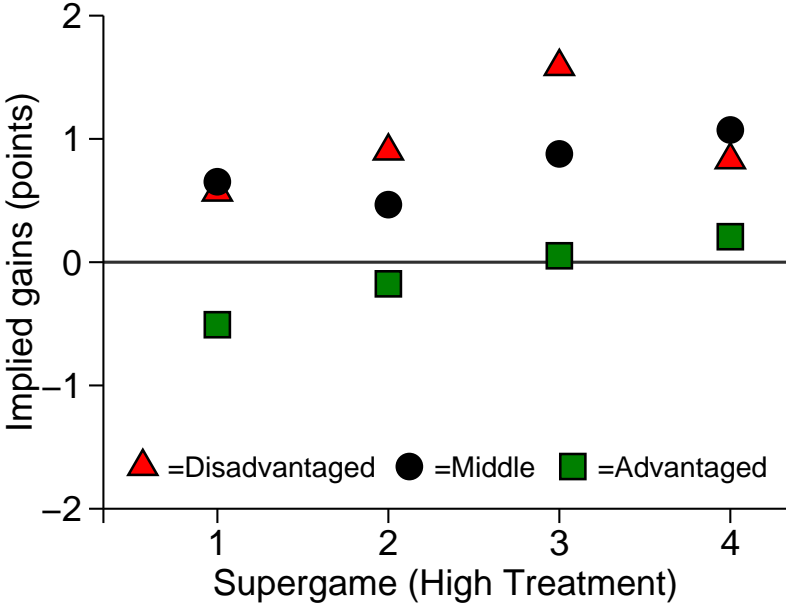
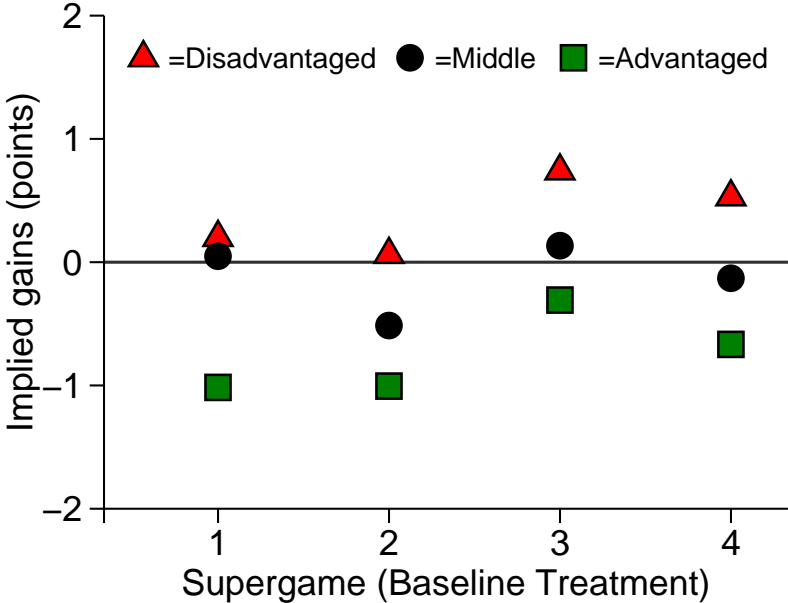
RESULT 9: GROUP CHOICES—BASELINE VS. HIGH

A 2/3 increment in prospective gains raised freq. of “stay,” lowered that of “leave.”
(Realized payoffs explain variation. Still, integration is not the preferred choice.)



IMPLIED GAINS FROM ECONOMIC INTEGRATION—HIGH TREATMENT

Economic integration created mostly winners.
(Theoretically: everyone could gain 2.5 points.)



WHAT HAVE WE LEARNED?

LESSON 1

Efficient trading norms did not easily scale up b/c trust did not easily scale up.

Implication:

- integration does not *automatically* deliver the gains promised by eq'm theory.

LESSON 2

Cooperative attitudes did not improve with *prospective* benefits' size.

Implication:

- need well-functioning institutions to build trust, mitigate centrifugal forces.

LESSON 3

Inequality of opportunity influenced attitudes toward integration.

Implication:

- cohesiveness likely shaped by perceived distribution of potential gains.