

Lecture 24

Experimental Games

Ingroup and Outgroup Effects

Measuring Culture with the Ultimatum Game

- 1.) Two anonymous players divide a sum of *real* money.
(1000 TZ shillings, or **ONE day's wage**)
- 2.) First player (the “Proposer”) proposes a division.
- 3.) If the offer is accepted by the “Responder,” players get proposed shares.
- 4.) If offer rejected, both get nothing.

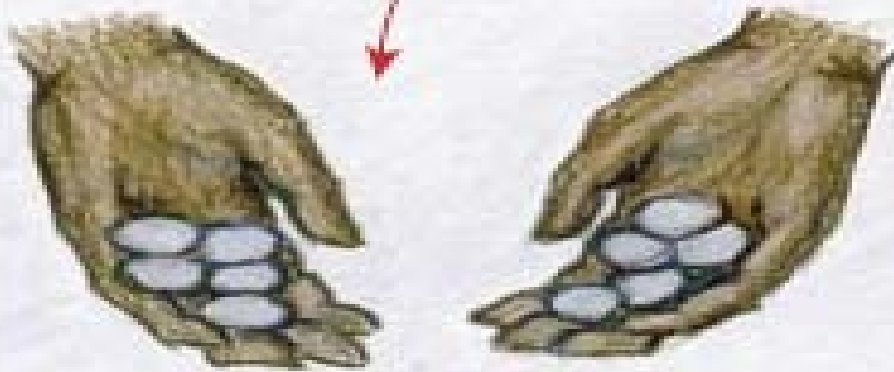


proposer starts with x amount of money



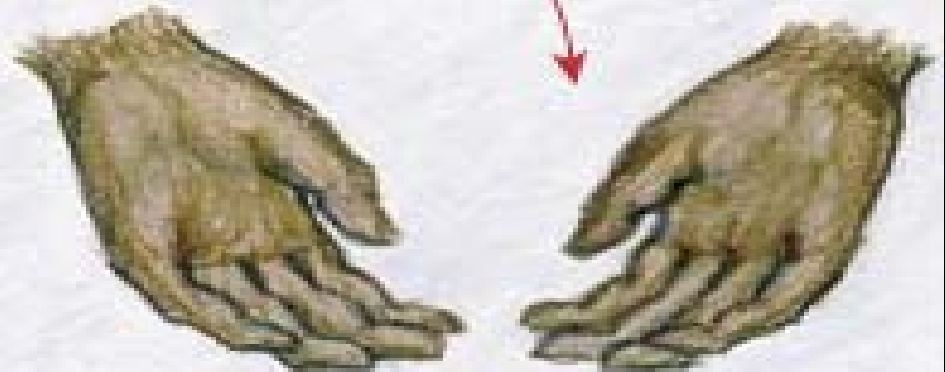
proposer offers e amount of money to responder

If responder accepts.



proposer gets $(x-e)$ and responder gets e

If responder rejects



both get nothing

Predictions from Rational Choice Theory

- Player 2 (respondent) should accept **any** offer since something is better than nothing.
- So, player 1 will make smallest possible offer.

Never happens, anywhere.

Robust results from Western university students (e.g., U.S., Japan, Europe)

- Mean offer = 40% – 50%
- Offers < 20% usually rejected
- **Large stakes** (e.g., 1000\$) \Rightarrow 50:50 offers
- What happens in other societies with different cultural rules?

Cross-cultural Project

- Ultimatum Game
- 12 Researchers
- 1039 subjects in 12 countries
- 7 local or regional comparisons
- 3 hunter-gatherers, 6 horticulturalists, 4 transhumant/nomadic herders, 4 small-scale, sedentary farmers

Cross-Cultural Experimental Economics Project





Machiguenga of Peru

- independent families
- cash cropping
- slash & burn
- foraging

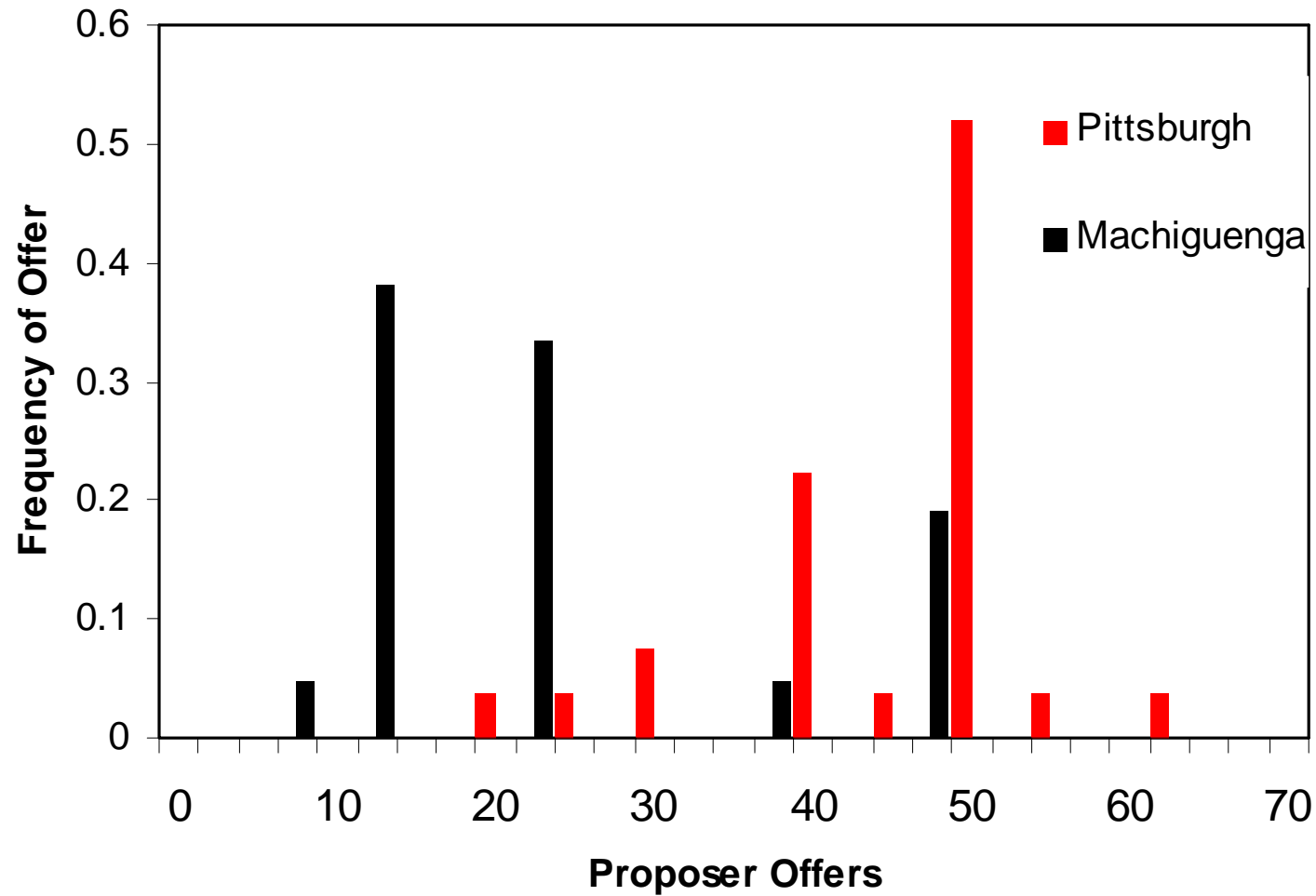




Machiguenga

Camisea, southeastern Peru, 1996

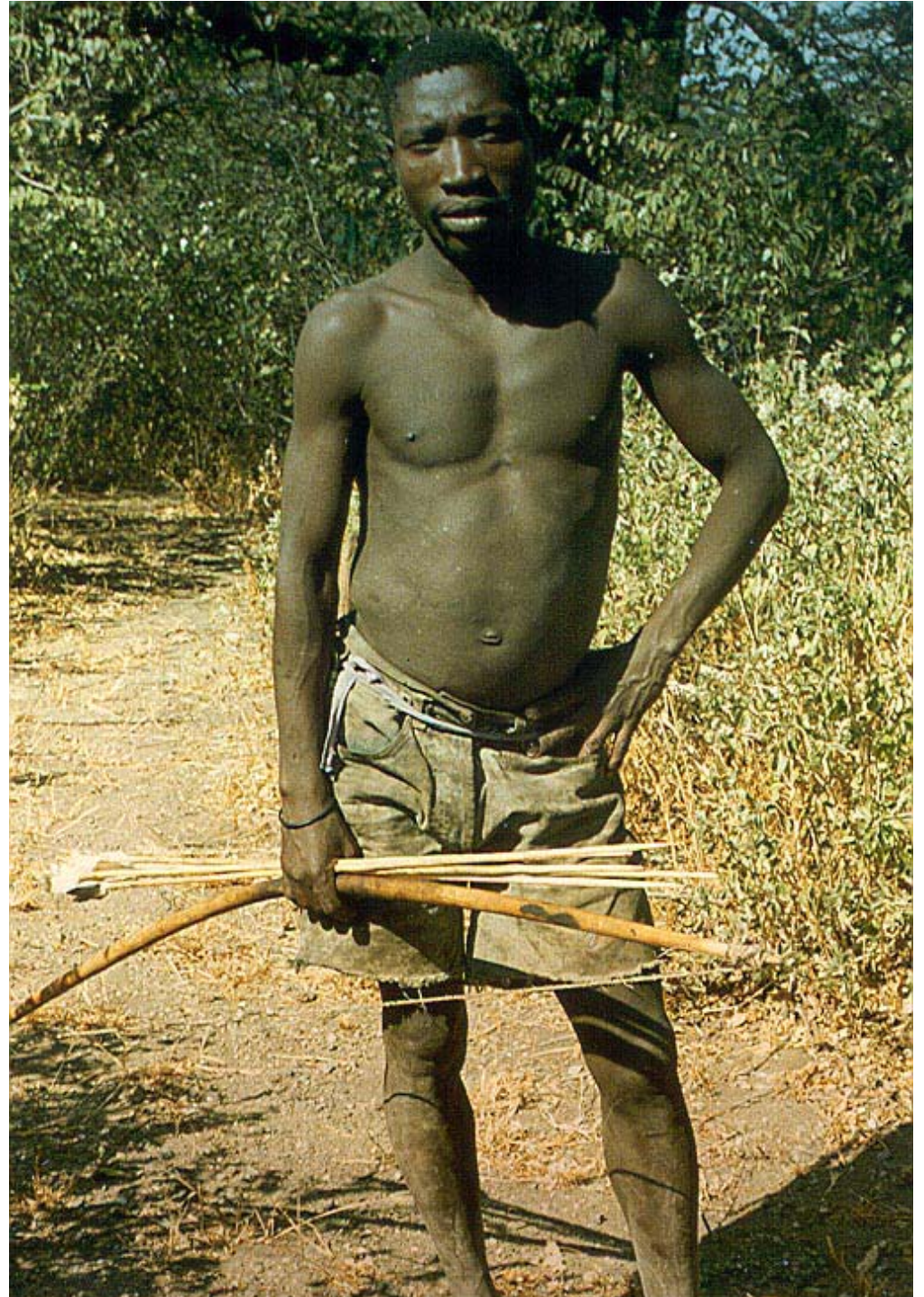
Machiguenga Ultimatum Game Results



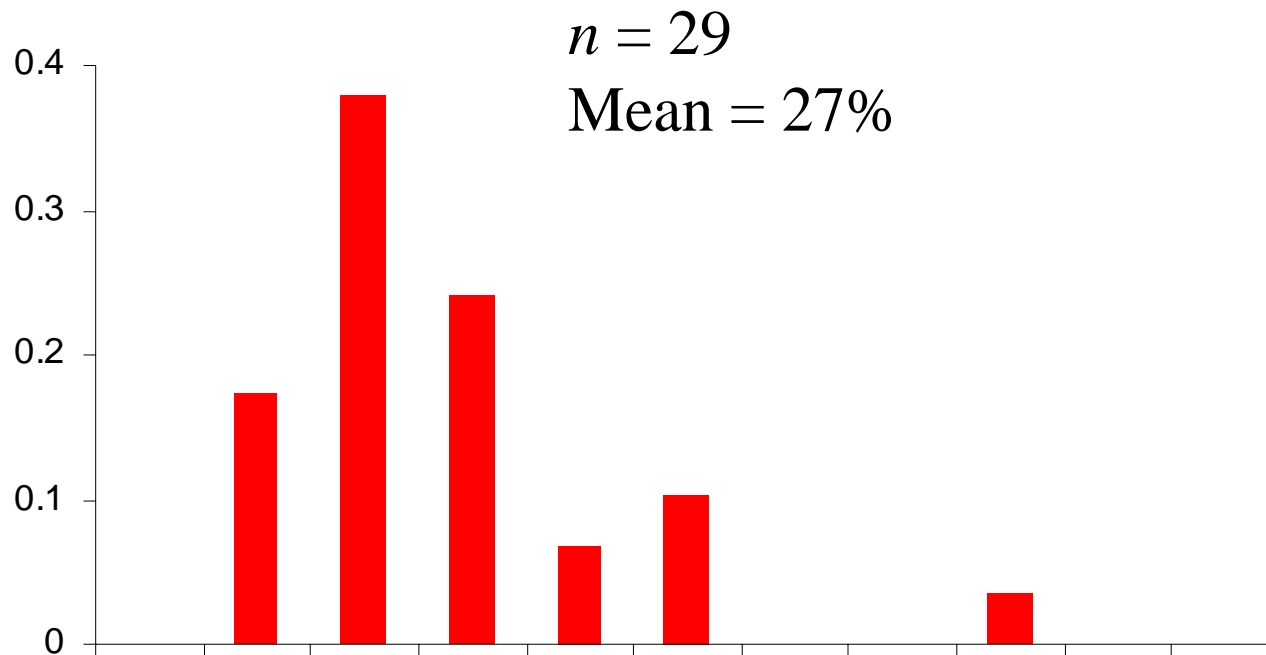
1 rejection among Machiguenga

Hadza

- Hunter-gatherers
- Egalitarian
- No central political system
- Bands: 20–30 people



Hadza Ultimatum Game offers



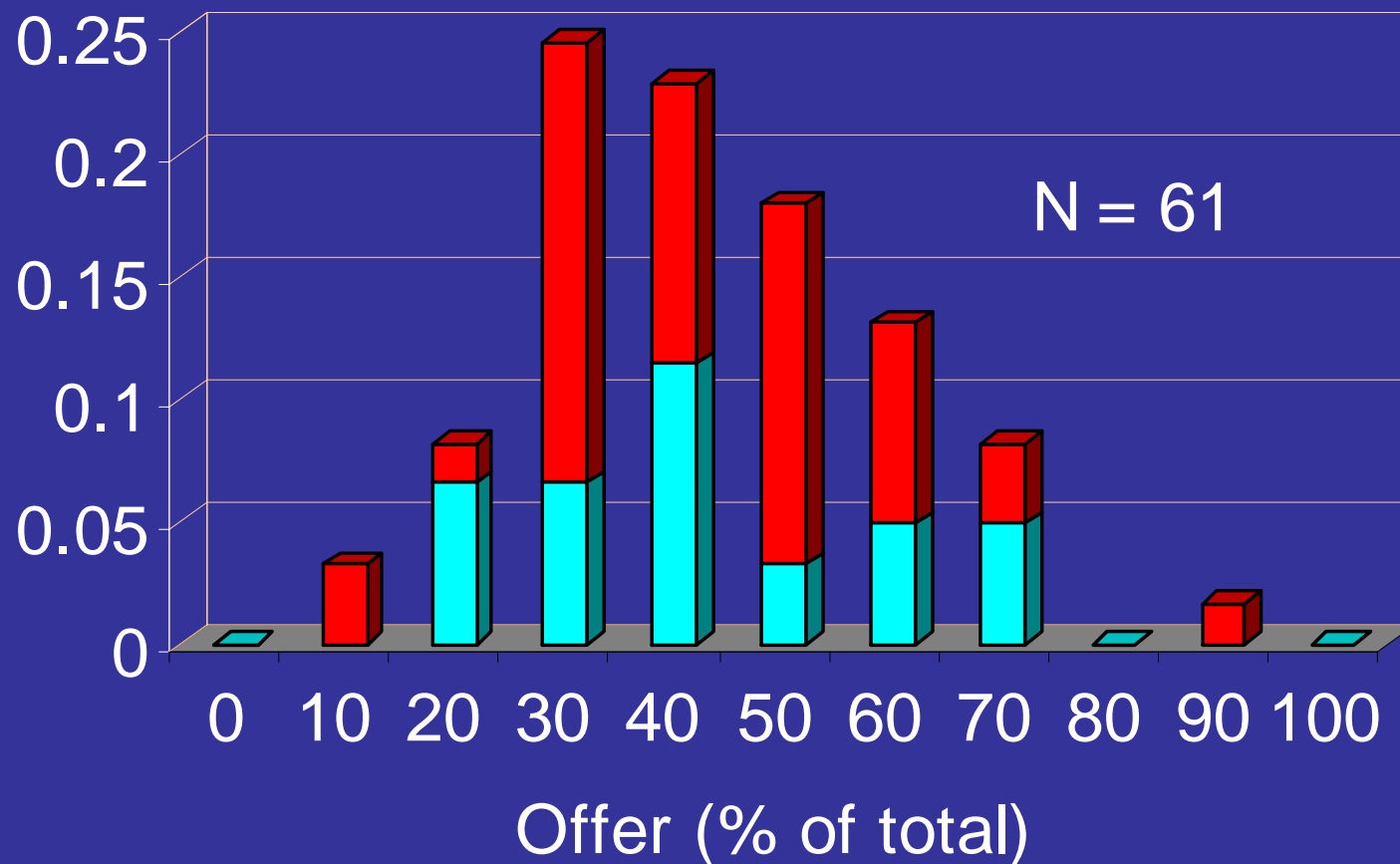
Like the Machiguenga

- Forager-horticulturalists: sago palms, manioc & pigs
- Culture of gift-giving and obligation



The Au and Gnau
of Papua New Guinea

Au and Gnau UG Offers and Rejections (PNG)



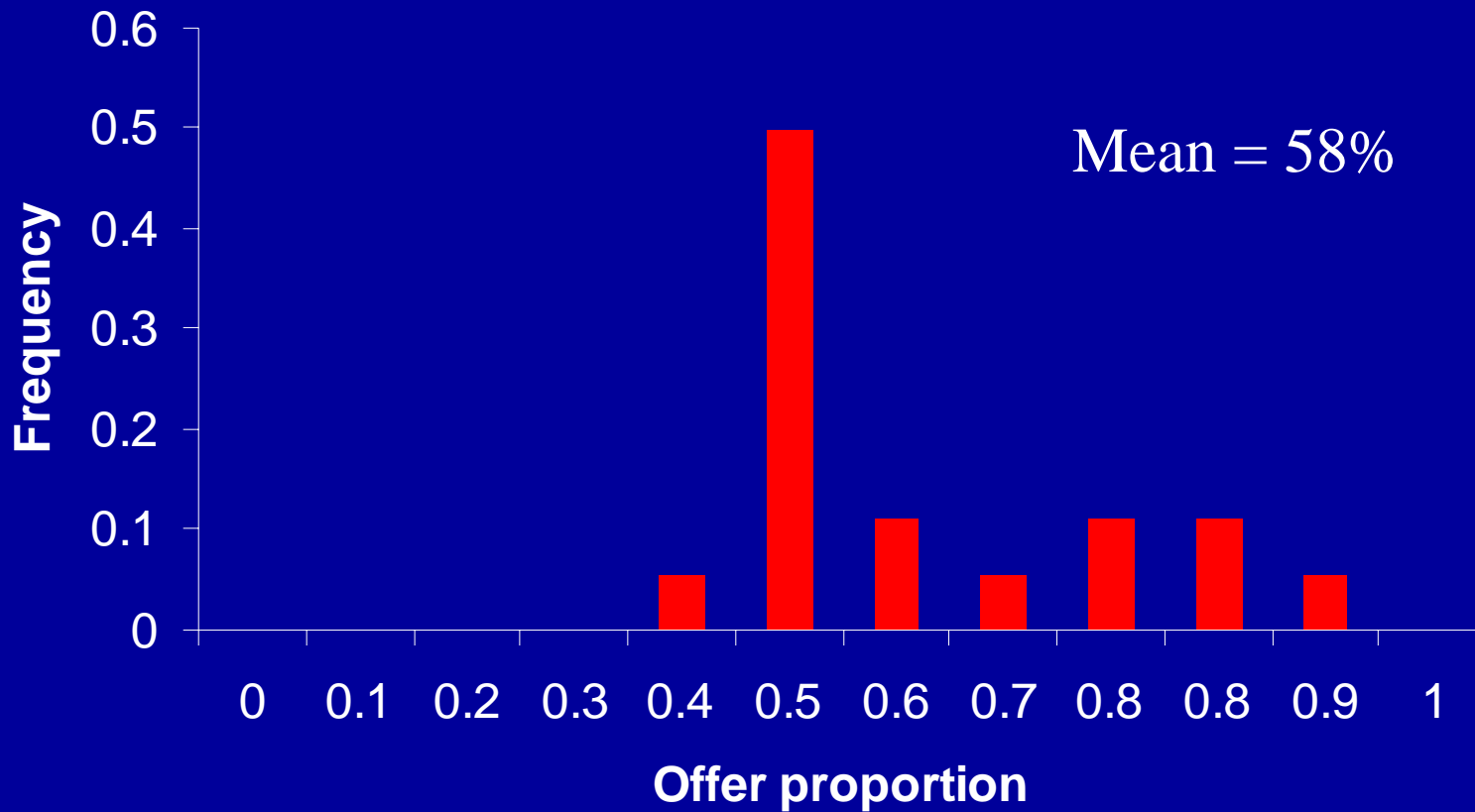
Hyper-fair offers make PNG unique. Makes sense if you 'know' New Guinea

Lamalera



- Cooperative whale hunters
- Trade for agricultural goods

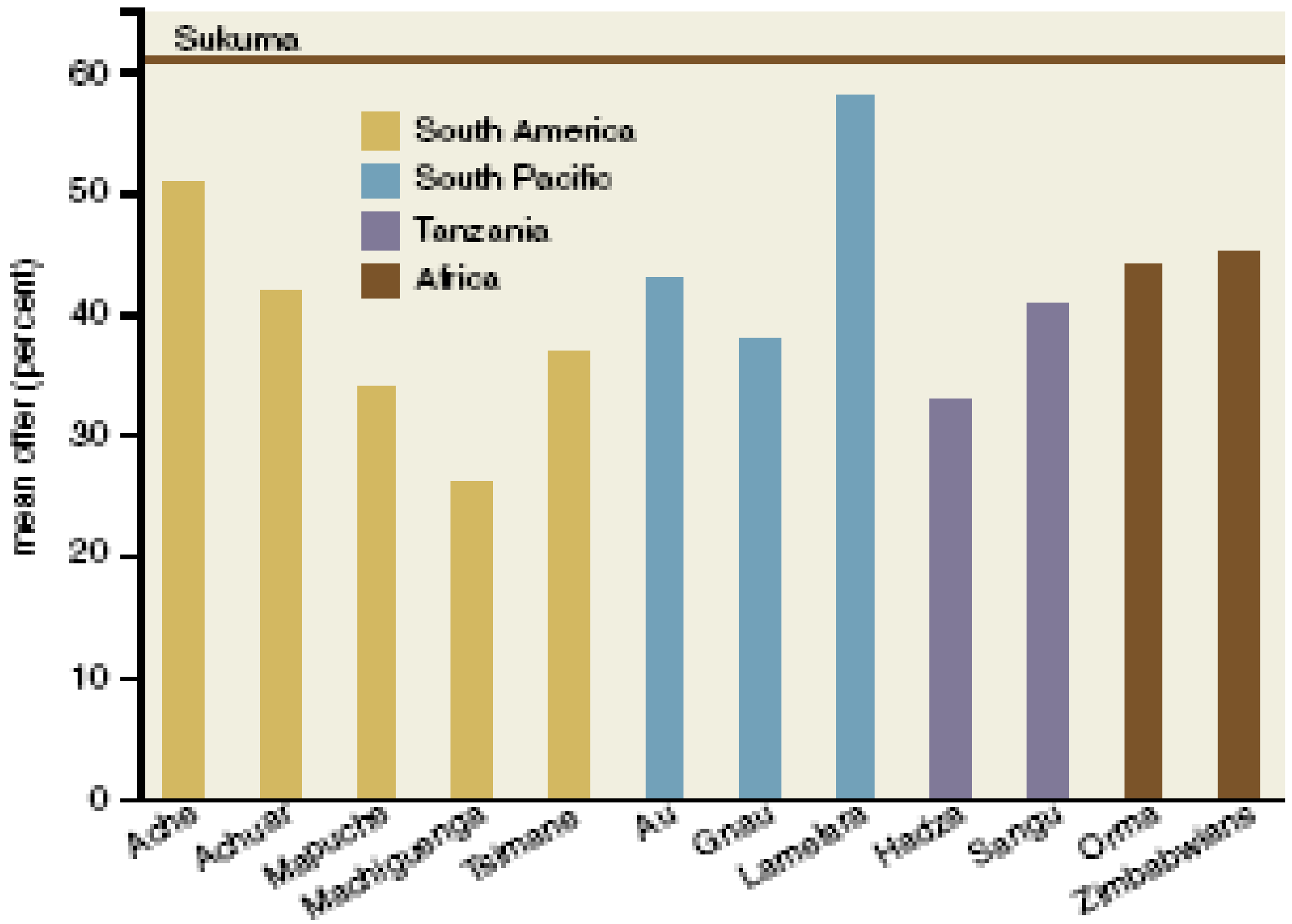
Lamalera UG results



]Group	Country	Mean Offer	Modes (% of sample)	Rejection Rate	Rejections 20% of pot
Machiguenga	Peru	0.26	0.15/0.25 (72%)	1/21	1/10
Hadza (Small Camp)	Tanzania	0.27	0.20 (38%)	8/29	5/16
Tsimané	Bolivia	0.37	0.5/0.3/0.25 (65%)	0/70	0/5
Quichua	Ecuador	0.27	0.25 (47%)	2/13	1/2
Hadza (all camps)	Tanzania	0.33	0.20/0.50 (47%)	13/55	9/21
Torguud	Mongolia	0.35	0.25 (30%)	1/20	0/1
Khazax	Mongolia	0.36	0.25		
Mapuche	Chile	0.34	0.50/0.33 (46%)	2/30	2/10
Au	PNG	0.43	0.3 (33%)	8/30	1/1
Gnau	PNG	0.38	0.4 (32%)	10/25	3/6
Hadza (Big Camp)	Tanzania	0.40	0.50 (28%)	5/26	4/5
Sangu (farmers)	Tanzania	0.41	0.50 (35%)	5/20	1/1
Unresettled	Zimbabwe	0.41	0.50 (56%)	3/31	2/5
Achuar	Ecuador	0.42	0.50 (36%)	0/16	0/1
Sangu (herders)	Tanzania	0.42	0.50 (40%)	1/20	1/1
Orma	Kenya	0.44	0.50 (54%)	2/56	0/0
Resettled	Zimbabwe	0.45	0.50 (70%)	12/86	4/7
Ache	Paraguay	0.51	0.50/0.40 (75%)	0/5	0/8
Lamelara	Indonesia	0.58	0.50 (63%)	0/2	0.37

Do individual-level Variables Explain the Variation?

- **Age, Sex and Relative Wealth do not explain any of the variation in proposers or responder behavior (few exceptions).**



Hypotheses for UG among Sukuma and Pimbwe

Magnitude of Cooperation: Due to culture history, Sukuma (in contrast to Pimbwe) will be more prosocial in UG.

Scope of Cooperation: Sukuma will make similar offers to Sukuma players living both *within* and *outside* of their local village. Pimbwe will offer lower amounts when playing with Pimbwe individuals *outside* of their local village (their social institutions encourage sharing within villages rather than between).

1.) Institutional Scope Hypothesis

Sukuma will make similar offers to Sukuma players living both *within* and *outside* of their local village.

Pimbwe will offer lower amounts when playing with Pimbwe individuals *outside* of their local village (their social institutions encourage sharing within villages rather than between).

Treatments

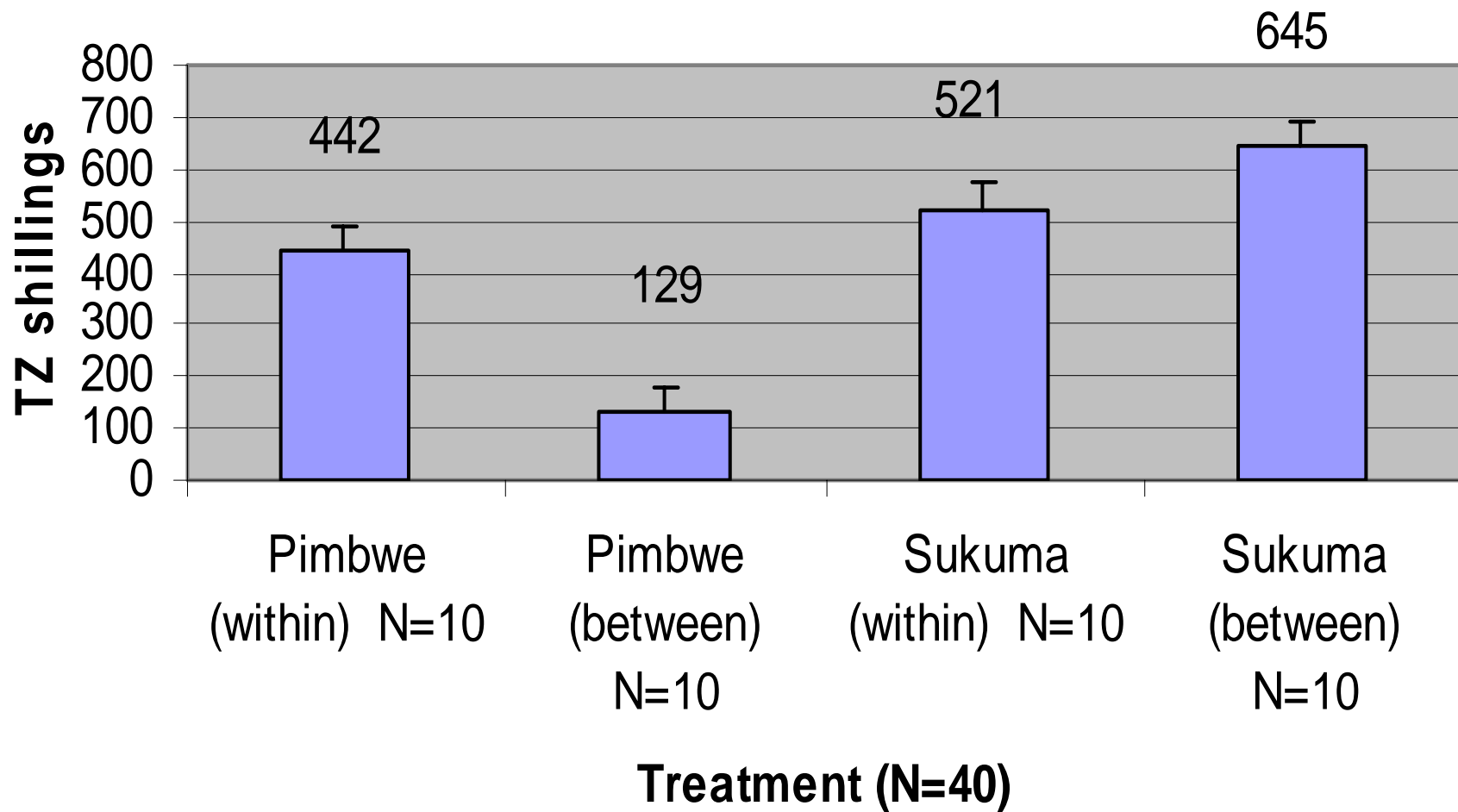
“...you must divide the money with one anonymous (**Pimbwe/Sukuma**) player (**within this village / from Kahama**)

- **Pimbwe** within this village
- **Pimbwe** from Kahama
- **Sukuma** within this village.
- **Sukuma** from Kahama

NOTE: Kahama is 10 km away

Results: Institutional Scope

Mean offers



2.) Magnitude Hypothesis

Sukuma will share *larger* portions of money with their ethnic members than the Pimbwe.

Results: Magnitude Hypothesis

Sukuma offered *more* than half of the money to another Sukuma, and the Pimbwe substantially less

	Pimbwe	Sukuma
Mean offer for <i>within-group</i> treatments	430 shillings	620 shillings

3.) Micro/Macro Hypothesis

Individuals' ethnic affiliation, used as a proxy for institutional rules, will have a larger effect on UG offers than will individual economic and demographic characteristics

Results: Micro/Macro Hypothesis

	F value	Prob. > F	
Ethnicity/treatment	12.38	>0.0001	**
Education	4.76	0.034	**
Bags of Maize	5.85	0.019	**
Age	.28	0.5978	

How much is offer size reduced by each variable?

Seventy kilo bag of maize (**4** shilling decrease)

Any education (**143** shilling decrease)

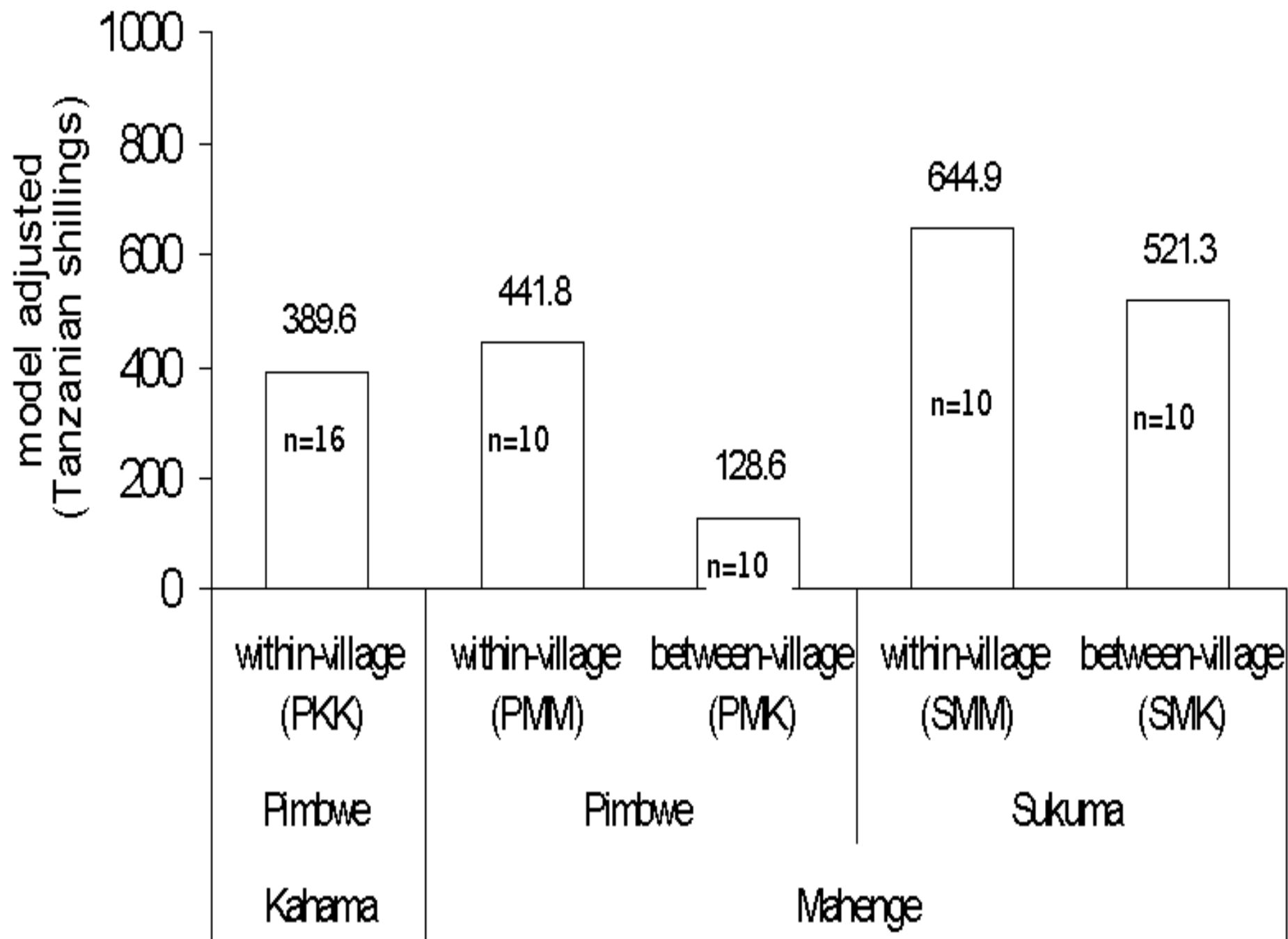
Being Pimbwe (**263** shilling decrease)

Summary of Results

- Institutional Scope Hypothesis: **Supported**
- Magnitude Hypothesis: **Supported**
- Micro/macro Hypothesis: **Partially Supported**

Conclusions

- Ethnographic and historical data about social institutions was used to successfully predict how individuals from two ethnic groups would play a version of UG.
- Experimental games are a useful methodology to test a variety of hypotheses about human behavior.
- Likely that studies should give **explicit** attention to social institutions.



TREATMENTS				OFFER AND REJECTION DATA			
Ethni				#			
Village	C group	Treatment	N	Mean	Mode	Sd. Dev	Rejection/total players
Mahenge	Pimbwe	within-village (PMM)	10	430	500	125	4/10
		between-village (PMK)	10	150	150	158	0/10
	Sukuma	within-village (SMM)	10	610	900	228	0/10
		between-village (SMK)	10	520	500	103	1/10
Kahama	Pimbwe	within-village (PKK)	16	406	500/300	153	8/16