It's not that simple. Household efficiency and female demand for agency in the Philippines

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Motivation

▶ **Opening the "black-box"** of the household has been an important research agenda over the past decades, both theoretically and empirically.

▶ Two main types of intra-household models: those assuming **Pareto efficiency** (unitary & collective) and **non-cooperative** models that do not.

▶ The Pareto efficiency assumption has been **challenged** by empirical (Udry 1996, Duflo & Udry 2004, Robinson 2012) and experimental papers (Kebede et al. 2014, Mani 2011, Castilla 2015, Cochard 2016).

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- **Couples characteristics** found in many developing countries may undermine efficiency (Baland & Ziparo 2018).
    - Extended households
    - Large power differences
    - Social norms regarding stability and commitment

Motivation

- This paper uses experimental data from the **Philippines**
- **Institutional context** should imply a high level of efficiency
  - Mostly nuclear families
  - Divorce is illegal, reducing the value of the outside option
  - Decision-making power is shared between spouses, who work together in agriculture and other commercial ventures
- Women are generally **in charge of finances**
  - Husbands make monetary transactions and are expected to turn over all their earnings
  - Wife provides him a daily allowance to spend on his vices
  - *Because a Filipino man's relationship to economic assets is typically direct, while a woman's is typically 'indirect and mediated through her husband', (married) Filipino women are more constrained in their managerial role than they might seem.* (Eder 2006)

Motivation

▶ We play standard **dictator and trust games** with couples and find a **high level of inefficiency**.

▶ **Women** are particularly **inefficient** compared to men. They leave 56% of the money on the table compared to 37% for men.

▶ Even at the **individual level**, decisions are not efficient.

Motivation

- We play standard **dictator and trust games** with couples and find a **high level of inefficiency**.
- **Women** are particularly **inefficient** compared to men. They leave 56% of the money on the table compared to 37% for men.
- Even at the **individual level**, decisions are not efficient.
- We argue that even though women are in charge of the money, they are not free to use as they wish the money entrusted by their husbands.
- This inefficiency may therefore reveal a preference for money **without strings attached** (*utang na loob*)

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Related literature

Part of the growing literature on **intra-household lab experiments** (reviewed by Munro 2017)

- ▶ Information sharing, collaborative decision making and women empowerment do not necessarily correlated with efficiency (Hoel 2015, Lowes 2020, Hoel et al. 2021)
- ▶ Elicitation of "exchange rates" between spouses and WTP to control household resources (Zou et al. 2021)
- ▶ When playing with their spouse, Trust Game participants send more than with strangers but remain far from efficiency (Castilla 2015, Nasir & Parshad 2018)

In a related paper from a similar setting, Ashraf (2009) shows that

- ▶ Those not in charge of the money tend to hide money from their spouse or divert resources for their own consumption.
- ▶ They have a positive willingness to pay to hide income.

Data

▶ Data collected from **215 couples** in a remote rural area of the Philippines between April-June 2018

▶ Part of a research project on corn cultivation ⇒ all respondents are involved in agriculture and have cultivated corn over the past 10 years.

▶ Data gathering **process**:
  ▶ Lab-in-the-field experiment
  ▶ Household questionnaire
  ▶ Individual questionnaire on intra-household bargaining
  ▶ Revisited a subset of 187 individuals (among whom 84 couples) in August 2018 to play a second round of games, with anonymous partner

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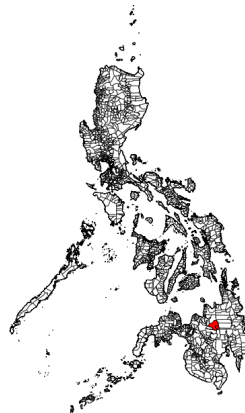
Experimental design

- ▶ Between 2 and 10 couples per session
- ▶ Husbands and wives separated, **no communication**
- ▶ **Within-subject** design: every participants played each role of each game
- ▶ Games **order varied** between sessions
- ▶ **Privacy** was ensured by giving each participant a makeshift "voting booth".
- ▶ **Incentive compatibility**: Respondents received a gift certificate based on the outcome of one game

Experimental design

- ▶ Measure of intra-household efficiency: **Dictator Game with Multiplier**
  - ▶ Initial endowment = 200 PHP (10 x 20 PHP), around 1 day of agricultural labor
  - ▶ Has the opportunity to send α to spouse (Player 2)
  - ▶ The amount sent is multiplied by 3 before reaching the spouse
  - ▶ Asymmetric variation of the Public Goods Game
  - ▶ In practice, respondents had to transfer fake banknotes from one envelope to another

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- Challenge of intra-household lab experiment: **undoing problem** (Munro 2017)
  - Decision in the lab is part of repeated interactions between spouses
  - Possibility to (partially) offset lab decisions by subsequent behavior, unobserved by the experimenter

Experimental design

- Two **additional games** with the same endowment (200PHP)
- **Trust Game** (Berg et al. 1995) to elicitate possible ex-post transfers
  - **Player 1**
    - Same as DGM, sends share α of the endowment to Player 2
    - Amount sent is multiplied by 3 by the experimenter
  - **Player 2**
    - Decides how much to send back from the received amount
    - Use of strategy method: declares how much to send for 4 different amounts: 150, 300, 450 and 600 PHP
    - Decided for practical reasons and in order to protect the privacy of the answers

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    - ▶ Decided for practical reasons and in order to protect the privacy of the answers
- ▶ **Dictator Game** used as a benchmark measure of altruism and/or proxy for the sharing rule between spouses

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Descriptive statistics

Table 1: Individual characteristics and responses

Variable	N	Male Mean/SD	Female Mean/SD
Age	215	43.623 (12.323)	39.591 (12.435)
Education	215	5.051 (3.086)	6.005 (3.472)
Indigenous	215	0.544 (0.499)	0.577 (0.495)
No trust FIN	212	0.075 (0.265)	0.250 (0.434)
Reported joint decision share	212	0.490 (0.332)	0.518 (0.348)
Decision share (self)	212	0.302 (0.248)	0.223 (0.238)
Decision share (spouse)	212	0.208 (0.208)	0.260 (0.232)
Years of marriage	215	20.465 (12.841)	
Matrilocality	215	0.358 (0.481)	
HH owns land	215	0.767 (0.423)	
Wife owns land	215	0.214 (0.411)	

Descriptive statistics

Figure 1: CDF of endowment share sent to spouse
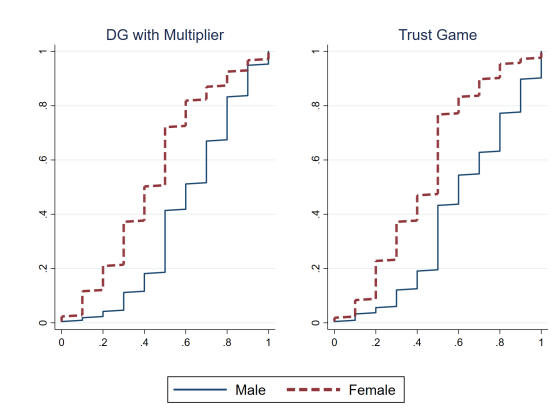
▶ Only 4.2% (6.5%) of respondents sent the entire endowment in DGM (TG)

Descriptive statistics

Table 2: Endowment share sent

Variable	N	(1) Male Mean/SE	N	(2) Female Mean/SE	T-test Difference (1)-(2)
Dictator Game	215	0.647 (0.015)	215	0.414 (0.014)	0.233***
Dictator Game with Multiplier	215	0.627 (0.015)	215	0.447 (0.016)	0.179***
Trust Game - Player 1	215	0.632 (0.016)	215	0.440 (0.015)	0.192***
Trust Game - Player 2	215	0.582 (0.016)	215	0.382 (0.012)	0.199***

▶ Large level of inefficiency, especially from women

▶ No "multiplier effect", no "return effect"

▶ Appears to be a strong sharing norm

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Sharing norm

Figure 2: Wife's payoff share from Trust Game
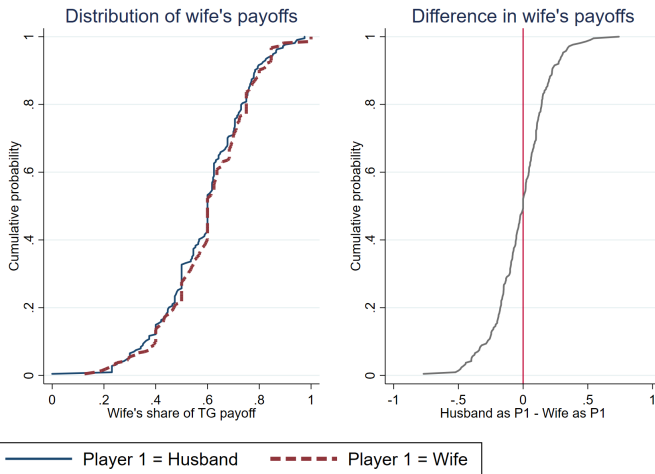
Results

- Evidence of a **strong sharing norm** between spouses, both in the amount sent and in the final distribution of payoffs
- This should induce a high level of efficiency since both spouses seem to agree on how to split the final pot
- Still, decisions are **very inefficient**, particularly women's
- Look at the **determinants** of players' behavior with OLS regression

$$Y_{ij} = \alpha + \beta_1 * female_i + \beta_2 * trust_{ij} + \beta_3 * dec_{ij} + \gamma X_{ij} + \epsilon_{ij}$$

- $i = 0$ for men, 1 for women
- X_{ij} composed of age, education and ethnicity of each spouse, land ownership, remoteness, years of marriage and scenario fixed effects.
- ϵ_{ij} clustered at the household level

Dictator Game with Multiplier

Table 3: Endowment share sent to spouse in DGM

	(1)	(2)	(3)	(4)
VARIABLES				
Female	-0.158***	-0.177***	-0.157***	-0.154***
	(0.023)	(0.023)	(0.024)	(0.037)
No trust FIN	-0.102***		-0.104***	-0.115***
	(0.027)		(0.027)	(0.036)
Decision share (self)		-0.045	-0.029	-0.026
		(0.049)	(0.049)	(0.083)
Decision share (spouse)		-0.048	-0.064	-0.064
		(0.050)	(0.050)	(0.068)
Observations	424	424	424	420
R-squared	0.154	0.135	0.158	0.550
Clustering	Household	Household	Household	Game session * Gender
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Standard errors clustered at the household level. Control variables include age, education and ethnicity of each spouse, land ownership, remoteness, years of marriage and scenario fixed effects.

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Dictator Game

Table 4: Endowment share sent to spouse in DG

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.235***	-0.235***	-0.237***	-0.245***
	(0.021)	(0.021)	(0.022)	(0.029)
No trust FIN	0.008		0.009	0.026
	(0.027)		(0.028)	(0.034)
Decision share (self)		0.003	0.002	-0.053
		(0.043)	(0.043)	(0.064)
Decision share (spouse)		0.024	0.025	0.008
		(0.045)	(0.045)	(0.072)
Observations	424	424	424	420
R-squared	0.229	0.230	0.230	0.627
Clustering	Household	Household	Household	Game session * Gender
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Standard errors clustered at the household level. Control variables include age, education and ethnicity of each spouse, land ownership, remoteness, years of marriage and scenario fixed effects.

Similar results with Trust Game

Trust

How do players respond to their spouse's return strategy?

Table 5: Share sent in TG and spouse's return strategy

	(1)	(2)	(3)
VARIABLES			
Female	-0.197***	-0.216***	-0.222***
	(0.029)	(0.032)	(0.032)
No trust FIN	-0.073***	-0.075***	0.014
	(0.028)	(0.028)	(0.067)
Spouse's TG return		0.096*	0.133**
		(0.057)	(0.065)
Spouse's TG return * No trust			-0.166
			(0.106)
Observations	424	424	424
R-squared	0.182	0.188	0.192
Clustering	Household	Household	Household
Controls	YES	YES	YES
HH FE	NO	NO	NO

Trust
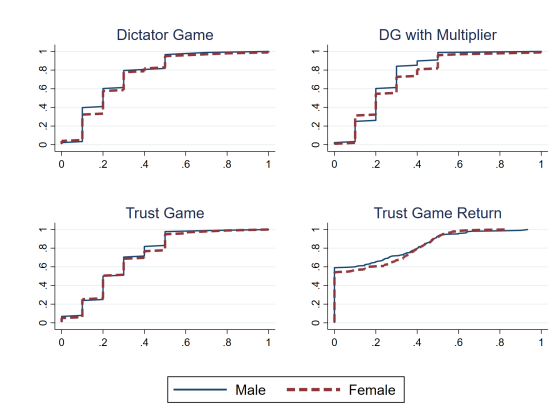
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Also, given that most respondents trust their spouse and the size of the coefficients, trust can only explain a small portion of inefficiency

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Gender differences

Figure 3: Endowment share sent to stranger

Gender differences are **specific to intra-household setting** and not due to general differences between men and women

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Individual efficiency

▶ Maybe players simply want to maximize their **individual payoffs**, taking into account their spouse's response
▶ Using the return strategy, we can compute the amount sent that **maximizes the payoffs** and compare this with the actual outcome.
  ▶ On average, men lose 18% of their maximum payoff
  ▶ Women lose 27% of their maximum payoff

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  - ▶ On average, men lose 18% of their maximum payoff
  - ▶ Women lose 27% of their maximum payoff

Table 6: Individually optimal amounts

	Husbands	Wives
Lower amount optimal	31.10%	10.75%
Sent amount optimal	34.93%	14.49%
Higher amount optimal	33.97%	74.77%

Regression table

Demand for agency

- With a multiplier of 3 and husbands sending back 58% on average, **wives forego 1.74 dollars** whenever they keep 1 dollar
- This may imply that receiving 1 dollar from my spouse is not equivalent to earning it directly, as it comes with "strings attached".

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▶ This inefficiency might therefore reflect a **demand for agency**, as defined by Donald et al. (2020)
  1. Goal setting
  2. Perceived control and ability to initiate action toward goals ("sense of agency")
  3. Acting on goals

Demand for agency

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- This inefficiency might therefore reflect a **demand for agency**, as defined by Donald et al. (2020)
  1. Goal setting
  2. Perceived control and ability to initiate action toward goals ("sense of agency")
  3. Acting on goals
- Measures of female empowerment used by economists typically focus on the last dimension.
- This **narrow definition** can however lead to a biased view of the actual level of female empowerment.

Real-life measure of inefficiency

▶ At the end of the session, respondents received their payoff in the form of a **gift voucher** to redeem in shop run by the experiment team.
▶ Some respondents received one voucher per **couple**, while others received **individual** vouchers

Table 7: Voucher spending patterns

		(1) Individual		(2) Couple	T-test Difference
Variable	N	Mean/SE	N	Mean/SE	(1)-(2)
Female item share	106	0.075 (0.010)	105	0.047 (0.007)	0.028**
Male item share	106	0.111 (0.021)	105	0.129 (0.017)	-0.018
Household item share	106	0.862 (0.031)	105	0.797 (0.020)	0.065*
Amount spent on female item	106	31.132 (4.148)	105	26.952 (3.736)	4.180
Amount spent on male item	106	43.585 (8.254)	105	79.810 (10.658)	-36.225***
Amount spent on household item	106	354.245 (12.805)	105	463.810 (12.976)	-109.564***
Coupon value	106	419.434 (10.929)	105	586.857 (9.682)	-167.423***

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Conclusion

- ▶ We played standard **Dictator and Trust Games** with married couples in the Philippines
- ▶ Evidence of a strong gender differences, consistent with a **sharing norm** between spouses
- ▶ However, this sharing norm does not lead to **efficient outcomes**, with large amounts of money left on the table
- ▶ Gender differences are specific to intra-household setting and disappear when the partner is anonymous
- ▶ Lack of trust or pure selfishness cannot fully explain our results
- ▶ Results are consistent with a preference for money **without "strings attached"** and a demand for agency from women

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THANK YOU!

Trust Game

Table 8: Endownment share sent to spouse in TG

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.181***	-0.197***	-0.182***	-0.180***
	(0.022)	(0.022)	(0.022)	(0.033)
No trust FIN	-0.079***		-0.079***	-0.095**
	(0.028)		(0.027)	(0.037)
Decision share (self)		-0.086*	-0.074*	-0.040
		(0.045)	(0.045)	(0.052)
Decision share (spouse)		-0.073	-0.085	-0.026
		(0.053)	(0.053)	(0.074)
Observations	424	424	424	420
R-squared	0.164	0.163	0.176	0.626
Clustering	Household	Household	Household	Game session * Gender
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Standard errors clustered at the household level. Control variables include age, education and ethnicity of each spouse, land ownership, remoteness, years of marriage and scenario fixed effects.

Trust Game Return

Table 9: Share of money received sent back to spouse

VARIABLES	(1)	(2)	(3)	(4)
Female	-0.191***	-0.198***	-0.191***	-0.188***
	(0.019)	(0.020)	(0.020)	(0.024)
No trust FIN	-0.037		-0.038	-0.055
	(0.027)		(0.028)	(0.044)
Decision share (self)		-0.030	-0.025	-0.016
		(0.042)	(0.043)	(0.057)
Decision share (spouse)		-0.041	-0.047	-0.063
		(0.044)	(0.044)	(0.059)
Observations	424	424	424	420
R-squared	0.180	0.179	0.183	0.657
Clustering	Household	Household	Household	Game session * Gender
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

Standard errors clustered at the household level. Control variables include age, education and ethnicity of each spouse, land ownership, remoteness, years of marriage and scenario fixed effects.

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Individual efficiency

Table 10: Share of maximum payoff foregone

VARIABLES	(1)	(2)	(3)	(4)
Female	0.079***	0.079***	0.067***	0.066***
	(0.019)	(0.019)	(0.020)	(0.022)
No trust FIN	0.052**		0.062**	0.062
	(0.025)		(0.025)	(0.039)
Decision share (self)		-0.053	-0.062	-0.080
		(0.039)	(0.039)	(0.049)
Decision share (spouse)		0.094**	0.104***	0.054
		(0.040)	(0.039)	(0.059)
Observations	422	422	422	416
R-squared	0.059	0.064	0.077	0.550
Clustering	Household	Household	Household	Game session * Gender
Controls	YES	YES	YES	YES
HH FE	NO	NO	NO	YES

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