Fairness, trust and economics

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• Before I get to the substance of today’s topic, I would like to start with an overview of my research

• I use experiments with human participants to understand decision-making in an economic context

• Participants come in to a “laboratory” where they take part in an “economic game” which is designed to simulate a real-life problem
  
  – Either through computers or more simply on pen-and-paper
• Increasingly we are also undertaking “field” experiments using non-students or specialized groups as our experimental participants

• They are paid in money on the basis of the decisions that they make

• In particular, my research focuses on situations that involve strategic decision making, where what happens to one person’s monetary payoffs is determined jointly by her actions and the actions of other participants

• We typically rely on the tools of game theory to study decision making in such contexts
• This type of work overlaps with research in other disciplines, particularly social psychology

• But with some crucial differences in the methods adopted

• Economic experiments are often derived from theoretical models of behaviour

• Economists emphasize *extrinsic incentives* and typically pay the participants; the amounts they earn depend on the decisions they make during the experiment

• Economists do not use deception
Why worry about trust and fairness in economics?

• A major strand of my research looks at how social norms and norm-driven behaviour – such as preferences for fairness, generosity, trust and reciprocity – impact upon a variety of economic transactions

• There are at least two reasons to consider the role of such emotional dispositions
Why worry about trust and fairness in economics?

• First, we are *social* animals and routinely rely on such normative judgments in our day to day lives.

• In the very first lecture in today’s series Roger Booth talked about empathy and cooperation.

• Notions of trust, reciprocity and fairness are closely inter-twined with concepts of empathy.

• Indeed one could say that the latter can be subsumed under the broad label of empathy.
Why worry about trust and fairness in economics?

• There is no reason to believe that such dispositions do not carry over to economic transactions

• But current economic models allow limited scope for such sentiments to play a role

• May partly be due to the problems of quantifying such things
Why worry about trust and fairness in economics?

- Second, a maintained assumption in much of economics and game theory, especially in the context of strategic decision making, is that of self-regarding behaviour.

- Yet there is now ample evidence that other-regarding behaviour is a factor in many economic transactions.

- And lead to outcomes that may be different from those predicted by economic theory.
Why worry about trust and fairness in economics?

• Economic experiments – whether in the “lab” or in the “field” are particularly well suited to study these issues.

• This is due in large part because of the fact that when we talk about issues like trust and fairness.

• We are trying to understand deep-seated preferences or beliefs which are difficult - if not impossible - to study using data generated by naturally occurring phenomena.
Caveats

• This is an academic lecture and so there will be charts and graphs

• But don’t worry, I will explain everything in detail

• But please feel free to ask if something is not clear

• Finally, please shut off your cell phones or put them on silent mode
Naked self-promotion

- Experiments in Economics: Playing Fair with Money


- Grew out of a set of five lectures that I did for the CEC in 2007

- BIG THANKS to Libby Passau for putting that together
• The Bishop’s Candlesticks

• An instructive taxicab ride in Atlanta
• If you reflect on it for a moment you will realize that in a variety of contexts you either repose trust on someone or repay someone’s trust or both
  – Maybe when you give out money or your credit card information to an anonymous seller on trademe hoping he will send you the trinket you ordered and it will really be as good as the one in the picture!

• But the problem is: how do we measure trust?

• In the mid-1990s, Joyce Berg, John Dickhaut and Kevin McCabe at the University of Minnesota came up with an elegant game to study trust
Two players

Sender

Have $10.00
Send $X?

Receiver

Have $10.00

Gets $3X

Send anything Back?

*Returns are NOT tripled!*
Two players

Receiver

Have $10.00

Get $3X

Game ends immediately after my decision. Why should I send anything back? Better to keep it all.
The receiver really has no incentive to send anything back. Therefore it would be silly to send any money since I will lose whatever amount I send. I should just hang on to my $10.00.
Two players

Sender

Have $10.00

But wait, suppose I trust the receiver and send him $10.00

Receiver

Have $10.00

Gets $30.00

Sends me back $18.00

End up with $18.00

Ends up with $22.00

WIN WIN!

WIN WIN WIN!
The Trust Game

- Amount sent by the sender can be used as a measure of the sender’s trust.

- Proportion of money returned by the receiver can be used as a measure of the receiver’s trustworthiness.

  - Cannot use absolute amounts since different receivers get different amounts.
The role of beliefs

- In research carried out with Lata Gangadharan (University of Melbourne) we find

- **Strong positive correlation** between amount sent by sender and amount expected back from the receiver
  - Those who expect to end up with more than they send, on average send $6 of their $10.

- We elicit free-form responses and then analyze the content of those responses to identify motives behind transfers
Majority of responses exhibit recognition of the role of trust but with three distinct types

- **Trusting**: (n = 55)
- Subject #1 (kept $0, sent $10)
  - “I want the $10 but we could both make more if we work together and split the $30 and make $15 each. This is a total risk because it would be tempting for the other person to keep the $30. I am hoping that an obvious gesture of generosity will get me some money back, $10 at least”. (n = 55).
Types of responses

- **Suspicious:** (n = 17)
- Subject #19 (kept all $10)
  
  - Because everyone wants to maximize his/her utility, so they want to keep the $10 with them (safely) since they are dealing with an anonymous person, so there is a possibility that he/she will lose some money, that he/she offered to the other person. But that person won’t send you back the money, rather he/she will keep the money for themselves. Keep in mind that the chance is I will get 3X more than I offered to he/she, if he/she is willing to do it. However in general people are not willing to do it with a stranger. So I choose to keep the $10 with me.” (n = 17)
- **Fair-minded:** (n = 28)
- Subject #13 (kept $8, sent $2)
  - “I am expecting some returns from what I have given out. And besides, I would just feel bad if the opposite receives nothing.”

- Subject #12 (kept $9, sent $1)
  - “In this game I am not really losing anything. All that’s happening is a gain – someone is gaining more than another. I don’t mind sharing some gain/giving some money away. Hence I thought I will give away $1 where I don’t lose much, but my partner in the other room gains more”. (n = 28)
### Types of responses

**Initial endowment = AU $10.00**

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<th>Trusting</th>
<th>Suspicious</th>
<th>Fair-minded</th>
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<tbody>
<tr>
<td><strong>Mean amount sent</strong></td>
<td>$6.20</td>
<td>$0.36</td>
<td>$3.07</td>
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<tr>
<td><strong>Modal amount sent</strong></td>
<td><strong>$10.00</strong> (18/55)</td>
<td><strong>$0.00</strong> (15/17)</td>
<td><strong>$2.00</strong> (11/28)</td>
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Is it trust or altruism?

- We also compare behaviour in a **dictator game** and a **trust game** with 100 participants.

- In the dictator game proposers decide how much out of $10 to keep and how much to send to a receiver.

- Establishes benchmark level of generosity.

- Additional transfers in the trust game must be motivated by trust.
Amounts sent in both games

<table>
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<tr>
<th></th>
<th>Dictator Game</th>
<th>Trust Game</th>
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<tr>
<td>Average % sent</td>
<td>13.5</td>
<td>43</td>
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Amount Sent
Implications of trust and trustworthiness for economics
• A common-place and fundamental issue in economics is what is called an agency problem.

• An agency problem arises in many, if not most, employment relationships.
  - an owner hiring a manager to run a business
  - a landowner hiring a worker to work the land
  - the state or national government hiring a director to run a state-run enterprise.
• The crux of the problem is similar in all these cases.

• the goals of the owner and the worker are often not aligned in the sense that the worker may have very different aims and objectives than the owner does.

• The owner might want to maximize profit while the worker wants to minimize the effort that he needs to put in to meet the target
Faced with agency problems like this, economists believe that providing the right incentives (carrots and sticks) to employees is fundamental to organizational success.

- wages, salaries, performance based bonuses, commissions and the possibility of promotions
- rebukes, bad reports (making later promotions more difficult), fines, penalties, demotions and of course, termination.
Agency problems

• This in turn leads to the following dictum:

• employment relationships must be governed by *incentive compatible contracts* that clearly specify the *extrinsic incentives* involving the *rewards* of performing well and the *punishments* for performing poorly.

• While extrinsic incentives are important, there is mounting evidence now that economists may be over-emphasizing the necessity
Laboratory labour contracts

• We look at contracting for labour in the laboratory to understand the efficacy of extrinsic incentives vis-a-vis intrinsic ones

• Repeated game between an employer and an employee with random re-matching of participants between rounds

• Two types of contract

1. A trust contract;

2. An incentive contract that emphasizes the presence of extrinsic incentives
Trust contract

- The employer offers a fixed wage to the worker and asks for a certain amount of effort in return.

- The worker can take the wage and decide how much effort he wishes to put in; under no compulsion to put in the amount of effort requested.

- The employer has no opportunity to penalise the worker in any way and cannot retaliate against the worker in a future round.

- Thus the effort desired by the firm of the worker is more in the nature of a request (or moral suasion).
Incentive contract

• Employer offers a wage to the worker and asks for a desired level of effort as before

• *but* in addition the firm can choose to monitor the worker and if found shirking the worker can be penalised with a fine payable to the employer

• Monitoring is *costly* and also *imperfect* in the sense that there is a one-third chance that the worker is caught shirking and two-thirds chance that shirking will go undetected.

• By suitably choosing the values of wage, the fine and the probability of found shirking the employer can guarantee the worker will put in more than the minimum effort.
Findings

1. On average, in the trust-based contracts firms offer higher wages and ask for higher effort from the workers compared to the incentive contract.

2. Second, the effort level put in by the workers under an incentive contract is lower than those put in by the workers in the trust contract.

3. This finding is driven by the fact that even with explicit fines for non-compliance a number of workers shirk given that the monitoring technology is imperfect and does not catch shirking with one-hundred percent accuracy.
Actual effort levels under trust and incentive contracts
Further implications

- “Gift exchange” between employers and employees
- Employers pay more than market wage while employees respond with greater than minimal effort level
- Sometimes called “efficiency wage” theory

George Akerlof (UC Berkeley)

2001 Nobel laureate in economics
Further implications

- Fehr, along with his colleagues, have carried out an extensive set of experiments

- Showing that indeed when firms pay a higher than required wage

- Workers respond with higher effort levels

Ernst Fehr
(University of Zurich)
Does this really work in real life?

- The answer seems to be, at least, a qualified “Yes”

- John List and Uri Gneezy’s “field” study
  - Updating library catalogue
  - Raising money for a charitable cause

- Impact of organisational practices on employee turnover in a sample of high-technology start-ups in California’s Silicon Valley
  - Stanford Project on Emerging Companies (SPEC); James Baron, Michael Hannan and Diane Burton
Does this really work in real life?

• Compare between companies that rely on

• “autocratic/bureaucratic” model that primarily rely on explicit rewards and punishment

• “commitment” model that puts greater emphasis on mutual trust and reciprocity

• After five years, the latter model performs much better on two key metrics: (1) lower employee turn-over and (2) higher revenue growth
Does this really work in real life?

Der Wiener Deewan
Hörlgasse, Vienna

Eat-as-you-want, pay-as-you-wish

Development over Time

Costumers

Revenue

Average Payment per Costumer
A counter-intuitive outcome

• Many of you would be aware that during recessions companies prefer to lay off workers rather than cut wages.

• This reluctance to cut wages comes not from the workers or unions but from the management.

• *Even though in the face of pervasive unemployment it is often possible to hire workers at lower wages*.

• This is a consequence of such gift exchange.
• Truman Bewley (Yale):

- *main reason for avoiding pay-cuts is that such pay-cuts hurt morale.*

- *One component of morale is “trust in an implicit exchange with the firm and with other employees”.*

- *Managers are concerned with morale because of its impact on labour turnover, recruitment of new employees and productivity....*
• Truman Bewley (Yale):

- The morale of existing employees is hurt by pay cuts because of an insult effect

- Workers are used to receiving regular pay increases as a reward for good work and loyalty and so interpret a pay cut as an affront and a breach of implicit reciprocity

- Resistance to wage reduction and the need for internal pay equity stem from ideas of fairness that usually refer to some reference wage, (which) ... is the previous wage.
The Grameen Bank Experience in Bangladesh

- The Grameen bank makes small loans to the rural poor without requiring any collateral.
- Borrowers belong to a “solidarity group” typically consisting of five members.
- One member of the group receives a loan and must re-pay it before another member can receive a loan.
- The system essentially relies on two principles: (1) *peer monitoring*; and (2) *mutual trust and reciprocity* between the bank and the borrowers on the one hand and between the group members on the other hand.
Does trust have macro-economic payoff?

- Trust reduces transactions costs

- Contracts that may not be enforceable might be undertaken in the presence of mutual trust and reciprocity – leading to increases in efficiency

- Knack and Keefer (1997) find that trust and norms of civic cooperation are associated with stronger economic performance and higher economic growth

- This effect is more pronounced for poorer countries including those in Africa
A different kind of trust
Cooperation in a social dilemma
Private Account

Group project

Private Account
A social dilemma game

• Here is the key point

• Any amount that is contributed to the public account

• is **Doubled**

• and *re-distributed equally among all four*
Suppose everyone puts $5.00 into the group project.

Doubled to $40.00

Redistributed equally gives everyone $10.00
A social dilemma game

• From society’s point of view the best outcome is for each player to invest all $5 into the group project

• A total of $20 which gets doubled to $40

• Each player gets back $10; 100% return on investment
A social dilemma game

• But self-regarding behaviour suggests otherwise

• Suppose I contribute $1 to the group project; and suppose no one else puts in anything...

• $1 gets doubled to $2

• Redistributed equally: $0.50 for each member

• I lose $0.50 while the others, who have not contributed anything, gain $0.50
A social dilemma game

- Rational self-interest suggests that an individual player has *no* incentive to contribute

- *Economists refer to this as “free-riding”*
• Sharing a tent with a man who was crazy wasn’t easy but Nately didn’t care. He was crazy, too, and had gone every free day to work on the officers’ club that Yossarian had not helped build.

• Actually, there were many officers’ clubs that Yossarian had not helped build, but he was the proudest of the one on Pianosa. It was a sturdy and complex monument to his powers of determination. Yossarian never went there to help until it was finished; then he went there often, so pleased was he with the large, fine, rambling shingled building. It was truly a splendid structure, and Yossarian throbbed with a mighty sense of accomplishment each time he gazed at it and reflected that none of the work that had gone into it was his.
A social dilemma game

- But if everyone thinks like that, no one will contribute as everyone tries to free-ride!

- Economists suggest that the inevitable outcome of this process is zero contribution!
“Suppose we let you pick your missions and fly milk runs,” Major Major said. “That way you can fly the four missions and not run any risks.”

“I don’t want to fly milk runs. I don’t want to be in the war any more.”

“Would you like to see our country lose?” Major Major asked.

“We won’t lose. We’ve got more men, more money and more material. There are ten million people in uniform who can replace me. Some people are getting killed and a lot more are making money and having fun. Let somebody else get killed.”

“But suppose everybody on our side felt that way.”

“Then I’d certainly be a damned fool to feel any other way. Wouldn’t I?”
Problems of cooperation

- Voluntary contributions of money and/or effort to charitable causes
- Cooperative hunting and warfare
- Exploitation of common pool resources
- Clean environment
- Teamwork in organizations
- Collective action
- Voting
Problems of cooperation

- Public goods (non-rival and non-excludable)
  - National Defense
  - Highways
  - Public Parks, schools and hospitals
- Economists typically suggest that given the inherent incentive to free ride such goods cannot be provided on the basis of voluntary contributions
- **Must be financed in other ways such as tax revenue**
The role of beliefs and conditional cooperation

• Contrary to the prediction based on self-interest, you get considerable cooperation

• It turns out that the motivation behind cooperation is far more nuanced than (unconditional) altruism

• People are conditional cooperators who are willing to contribute as long as their peers contribute as well

• Beliefs regarding the actions of fellow group members play a crucial role
The role of beliefs and conditional cooperation

- Players are asked to choose
  - An *unconditional contribution*
  - A *conditional contribution*, i.e., for *every given average contribution of the other members* they decide how much to contribute.
The role of beliefs and conditional cooperation

- After this players play the actual game
- Some are free to choose any contribution regardless of what they said they would choose
- **But**, some others, picked randomly, have to contribute what they said they would contribute based on others’ contributions
  - This means...
Free riding

45 degree line

Average tokens contributed to the public account by the other group members

Chaudhuri and Paichayontvijit (2006)
Hump-shaped

Free riding

45 degree line

**Participant's own contribution (in tokens)**

**Average tokens contributed to the public account by the other group members**

_Chaudhuri and Paichayontvijit (2006)_
Chaudhuri and Paichayontvijit (2006)
Hump-shaped cooperation

Strong Conditional cooperation

Free riding

Weak conditional cooperation

45 degree line

Average tokens contributed to the public account by the other group members

Chaudhuri and Paichayontvijit (2006)
Concluding remarks

• Social norms and norm driven behaviour as embodied, for instance in notions of trust and reciprocity are intrinsic to many economic transactions

• Can influence the way we approach diverse economic problems such as writing contracts between parties, making voluntary contributions to charity or providing micro-credit to small entrepreneurs.


