Running Economic Lab Experiments in the Caribbean

Notes from the Field
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Motivation

- Development economists are interested in the decisions that household and individuals make and how these subsequently affect outcomes
- Traditional empirical instruments for analyzing these issues – surveys, time series data, etc
- Many social and psychological motivations that are hard to capture using these techniques
- Behavioral economics tries to incorporate insights from psychology into modeling and testing economic theories
- Economic experiments are tools which can be used

Motivation

- Non-standard motivations that are important in developing countries
  - Trust and reciprocity
  - Altruism and fairness
  - Social norms
  - Cooperation and coordination
- Examples
  - Group lending, social collateral and social capital
  - Provision and use of community resources
  - Contracts negotiations and enforcements

Motivation

- Risk and ambiguity
  - Individuals face decisions and environments that involve uncertainty and have unknown outcomes: migration and employment decisions, portfolio choices, weather shocks
- Time Preference
  - Individuals face decisions involving tradeoffs among costs and benefits occurring at different points times: delayed gratification – savings decisions, lifestyle choices
- These attitudes affect decision-making in day to day life in various settings
- May matter more for the poor
  - Income cannot act as a buffer
  - Limited access to credit

What is an economic lab experiment

- In an economic experiment participants make decisions in a controlled environment and are paid according to the results of their decisions. All aspects of the experiment setting is set by the experimenter.
  - The rules – the choices available to participant, when decisions are made and what the consequences of these decisions will be
  - Participants' payoffs – a function of the decisions and actions they take.
  - Information that is available to subjects
- Not meant to replicate reality but capture salient features that apply to hypothesis being tested.

Purpose of running an economic experiment

- Test economic theories and models for decision making in a controlled environment
- Look for behavioural regularities to suggest new theories
- Suggest policy recommendations by testing new policies and refining existing ones

Time Preference

- ‘The preference for immediate utility [satisfaction or happiness one gets through consuming a good] over delayed utility’(Frederick *et al.,* 2002)
- A low rate of time preference indicates patience, self-control and lower discounting of the future while a high rate of time preference indicates an emphasis on the present and heavy discounting of the future
- The degree to which individuals are willing (or not) to wait for future utility, when waiting increases the utility can affect economic behaviour and outcomes e.g. savings decisions, lifestyle choices, etc.

Measuring Time Preference

- Individuals chose from a binary choice list between a fixed early payoff and a later payoff that increased along the list starting with the earlier payoff

Row	amount today			OR		amount in 3 weeks	
[1]	$26.00	today	◯	or	◯	$26.00	in 3 weeks
[2]	$26.00	today	◯	or	◯	$27.00	in 3 weeks
[3]	$26.00	today	◯	or	◯	$28.00	in 3 weeks
[4]	$26.00	today	◯	or	◯	$29.00	in 3 weeks
[5]	$26.00	today	◯	or	◯	$30.00	in 3 weeks

The point at which an individual switches from choosing the earlier payment to choosing the later payment is an indication of impatience, the earlier the switch the more patient the individual

Risk Preference

- Every day we make choices that implicitly have risks e.g. crossing the street, driving to work, investment and employment decisions
- In developing countries, these choices include decisions about farm management, migration, adaptation strategies, crop insurance etc.
- Our attitude towards risks affects our decisions and hence our outcomes in the short run and in the long run

Measuring Risk Preference

- In a typical experiment subjects are asked to make choices between lotteries that have differing risk

	Left Lottery					Right Lottery	
Row	5 Chances In 10	5 Chances In 10		OR		5 Chances In 10	5 Chances In 10
[1]	$26	$26	◯	or	◯	$22	$32
[2]	$22	$32	◯	or	◯	$18	$38
[3]	$18	$38	◯	or	◯	$14	$44
[4]	$14	$44	◯	or	◯	$10	$50
[5]	$10	$50	◯	or	◯	$6	$56

The more left lotteries chosen, the more risk averse the individual

Ambiguity Preferences

- Attitude towards risk considers choices in which the likelihood of possible outcomes are known to individuals
- Ambiguity refers to choices in which the likelihood of possible outcomes are uncertain
- Ambiguity aversion refers to a preference for known risks over unknown risks and can affect the willingness to try new things and the choices we make

Measuring Ambiguity Preference

- In a typical experiment subjects are asked to make choices between lotteries, one with known probabilities and one with unknown probabilities

	Left Lottery					Right Lottery	
Row	5 Chances In 10	5 Chances In 10	Cost	OR	Cost	? Chances In 10	? Chances In 10
[1]	$26	$26	$1 ◯	or ◯	$0	$26	$26
[2]	$22	$32	$1 ◯	or ◯	$0	$22	$32
[3]	$18	$38	$1 ◯	or ◯	$0	$18	$38
[4]	$14	$44	$1 ◯	or ◯	$0	$14	$44
[5]	$10	$50	$1 ◯	or ◯	$0	$10	$50

The more left lotteries chosen, the more ambiguity averse the individual

Field Work in the Caribbean

CARICOM Food Security Program (IDRC/DFATD Funded)

- To improve food and nutrition security in CARICOM populations through an integrated 'From Farm to Fork' model
- Interventions along all links in the chain – production, post-harvest, consumption, etc.
- Key aspects
  - Nutrition and food choices (St. Kitts)
  - Technology adoption by farmers (Guyana)

General Experimental Setup

St. Kitts

- Subject Pool
  - Parents and caregivers of primary school children
  - 85 participants
- Sessions
  - 10 sessions
  - 2 to 18 participants
- Subjects compensation
  - Show up fee: $20EC ($8CAD)
  - Decisions in experiment: $31.50EC ($12.6CAD)

Guyana

- Subject Pool
  - Small farmers from 4 villages in rural Guyana
  - 136 participants
- Sessions
  - 6 sessions
  - 20 to 24 participants
- Subjects compensation
  - Show up fee: $1500GY ($7.50CAD)
  - Decisions in experiment: 1500GY ($7.50CAD)

St. Kitts

Context

- High rates of obesity and overweight in CARICOM
- Individuals who are more future-oriented (patient) are more likely to make choices consistent with positive health consequence e.g. exercise, don't smoke, etc.

Aim

- To explore some of the behavioral determinants of individuals' food choices by analyzing the relationship between preferences, consumption decisions and health outcomes

Experiment Design

- Subjects completed
  - Four experimental tasks
  - A food frequency questionnaire (FFQ) and a food choice questionnaire (FCQ) for themselves and the child
  - Short exit survey – demographics, health, weight, height
- Experimental Tasks
  - 2 instruments to measure time preference
  - Instrument to measure risk preference
  - Instrument to measure ambiguity preference

Guyana

Context

- Rates of adoption of new agricultural technology is low in developing countries including Guyana
- Attitudes towards risk and uncertainty, learning by doing and learning from others have been found in other studies to affect the level of technology adoption

Aim

- To explore the relationship between learning from others (social learning) and technology adoption by reframing technology adoption as the provision of a public good

Experiment Design

- Subjects completed
  - Four experimental tasks
  - Short exit survey – demographics, farm characteristics, hypothetical risk and ambiguity
- Experimental Tasks
  - Choose between a gamble of two outcomes with known probability (6 $HIGH chips and 6 $LOW) and a gamble of the same two outcomes with unknown probability – ambiguity (? $HIGH chips and ? $LOW chips)
  - Sequentially, with a treatment administered between each decision: public good information, communication, revelation of outcomes

Planning Economic Experiments

- Design the experiment
  - Define research question and hypotheses
  - Define experiment manipulations/treatments
  - Structure payoffs as a function of decisions
  - Design instrument (paper based in most field experiments)
- Instructions
  - Framing of the tasks - neutral to avoid priming or bias
  - Repetition and use of examples - subjects can get confused
  - Not overly long - subjects can get bored
- Subject Pool
  - Identify target population and draw appropriate sample
  - Possibly informed by research question and hypothesis

Organisation before going to the Field

- Ethics approval – REB
- Identify local partners
- Preparation and printing of documents
  - Consent forms and instructions
  - Instruments and exit surveys
  - Recruitment script and training manuals
  - Session logs and signup sheets
  - Posters
- Purchasing of materials and supplies

Implementing Economic Experiments

- Hire local field staff as early as possible
  - Field Supervisor

    Identify and organize locations for the sessions, hire and/or train field assistants, supervise recruitment, pre-test instruments and survey

  - Field Assistants

    Recruitment of participants, assist in the execution of the experiment, administer exit survey

Recruitment

- Aim is to ensure maximum attendance
- Recruitment Script
  - Date, place and time
  - Basic information about topic of experiment
  - What participants will be doing
  - How participants will be compensated
- Strategy
  - Door to door, telephone, letters, word of mouth
- Recruiter Training
  - Overview of experiment, roles and responsibilities, recruitment script, tips and strategies, protocol for dealing with questions, non-responses


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Implementing Economic Experiments

- Set-up of the location
  - Chairs and tables setup in required formation, private payment area, area for administering of exit survey
- Registration of participants
  - Assign participants ID for the session
  - Pay show-up fee
- Running of the sessions
  - Introduction
  - Informed Consent
  - Explain tasks – demonstrate using posters with examples
  - Explain payment mechanism – use volunteers to ensure participants understand


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Implementing Economic Experiments

- Payment to participants
  - Showup fee to cover transportation and opportunity costs and paid immediately to build trust in incentivized part of the experiment
  - If payments are made in cash
    - Depending on payoffs need for large amounts of smaller denominations
    - Case or bag that doesn't attract attention
    - Safety is key
  - Other payment options
    - Checks – post dated checks in the case of time preference
- Pay participants privately

Other considerations

- Be prepared for things to go wrong
  - Recruited participants don’t show up
  - Small sample size
  - Planned payment methods no longer available
  - Distractions during sessions

Conclusions

- Economic experiments provide an additional tool to explore the decision-making process of individuals
- Ability to capture social and behavioural motivations difficult to measure using conventional empirical methodology
- Useful in the developing countries in a number of context that can inform policy
- My fieldwork explores how time preferences and attitude towards uncertainty affect decision making in the Caribbean


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