Labour Behaviour, Basic Income and Social Influence: A Simulation Experiment

Sandra Gonzalez-Bailon, University of Oxford
Jose A. Noguera, Universitat Autònoma de Barcelona
Jurgen De Wispelaere, Université de Montréal
Jordi Tena-Sánchez, Universitat Autònoma de Barcelona
Unconditional benefits: Basic Income

- Unconditional benefits
- Basic Income: a cash benefit paid to all citizens on an individual basis irrespective of their income, work record, and disposition to work.
Basic Income and Social Dilemmas

• The provision of a BI can be theorised as a collective action problem

    (Most) individuals are better off with the provision of public good, but fall in the trap of selfish rationality – everybody prefers others to make the effort, nobody makes the effort, and the public good is not provided

• The policy relevant question is how to solve this dilemma
Theoretical Approaches to CA

Olson’s approach (Olson 1965)
- Private vs public interests
- Selective incentives
- Interaction in small groups
- Reputation

The sociological approach (Macy 1991, Gould 1993)
- The efficacy question and fairness norms
- Sequential decisions
- Heterogeneity of motivations
- Social influence
Why an Agent-Based Model?

- sequential decisions
- heterogeneity of motivations
- social influence
- a counterfactual use of ABM
Intrinsic Inclination to Work

Modelled as a parameter

0  
free-riders  
(or surfers)

→

1  
suckers
Intrinsic Inclination to Work

Modelled as a parameter

0 free-riders (or surfers)

1 suckers

learners
Features of the Simulated Labour Market

<table>
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<tr>
<th>Fixed Parameters</th>
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<tr>
<td>a) Number of agents (1000)</td>
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<tr>
<td>b) Minimum salary (5 units/hr)</td>
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<tr>
<td>c) Exponential distribution of salaries (around 20% of agents fall below minimum salary)</td>
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<td>d) Max. hrs. work/week (80)</td>
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<td>e) Subsistence level (200 units)</td>
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<td>f) Intrinsic inclination to work (0 for free-riders, 1 for suckers, and in between for learners)</td>
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Features of the Simulated Labour Market

<table>
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<tr>
<th>Manipulated Parameters</th>
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<tr>
<td>• Population composition</td>
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<tr>
<td>How many free-riders, suckers and learners?</td>
</tr>
<tr>
<td>• Strength of social influence</td>
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<td>None, moderate or full?</td>
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Features of the Simulated Labour Market

<table>
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<th>Outcome Variables</th>
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<tr>
<td>• Total number of hours contributed to the labour market</td>
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<td>• Amount of BI received by agents</td>
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The Dynamics of the Model

Random salary allocation

Redistribution of collected taxes as BI

Agents calculate number of working hours needed to reach subsistence level

Tax applied to salaries

Agents decide how many of the remaining hours they want to work
If All Agents are Learners…

With full social influence (gamma = 1), agents work about 25% more and receive a BI about 20% higher.
If 20% Are Free-Riders and 5% Suckers…

Social influence still has a (slight) positive influence on number of hours contributed, but overall agents work now about 22% less and receive a BI about 23% lower.
Social influence has now the opposite effect: free-riders make learners work about 50% less; agents receive a BI about 44% lower.
If All Agents are Free-Riders…

Social influence does not make a difference. Agents only work what is necessary to reach the subsistence level. They adjust their behaviour to fund a BI that allows them to work the minimum hours. This BI is about 43% of what learners received in conditions of full social influence.
The Impact of Free-Riders (full social influence)

The first 10% increase of free-riders in the population implies a 17% decrease in number of worked hours – the influence of free-riders decreases with their relative number because they still have to reach subsistence levels!
The Impact of Suckers (full social influence)

The first 10% increase of suckers in the population implies a 30% increase in number of worked hours. The ceiling of their influence is determined by the parameter specifying the maximum hours agents can work per week (80).
The Importance of Making BI Amount Conditional on Working Behaviour

If the amount of BI is independent of working behaviour (exogenous and equal to subsistence level), agents work about 23% less time with full social influence and about 7% less without influence
Conclusions

- How much a BI might impact on labour behaviour depends on our assumptions on

  (a) The stability of people’s preferences (fixed or interdependent)
  (b) Their relative weight in the population

- If we assume agents heterogeneous in their predisposition to work, and susceptible to be influenced by others (as in the form of the proportionality norm), **introducing a BI does not necessarily imply working less**
Conclusions

• Even when all agents are free-riders, the model stabilises with a ‘partial BI’ – agents adapt their behaviour to maximise the unconditional benefits whilst minimising number of hours worked.

• Similar results apply when agents manage global knowledge or when the other other rules of social influence are introduced.
Debate

• How far can we take experiments like this?

• Can we calibrate it empirically?
  - Can we determine the right population composition (in terms of predispositions to work) using empirical data?

• How do exercises like this contribute to the theoretical debate on the feasibility of social policy reforms?