Working Under a Basic Income

A Game Theory Approach to the Crazy-Lazy Challenge

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Basic Income

- BI: An income paid by a political community to all its members on an individual basis, without means test or work requirement (Van Parijs)
  - It should be the maximum sustainable level

- We assume a (reasonable) scenario where the level of the BI is determined endogenously on the basis of the performance of a given economic system. In particular…
  - It is funded with taxes
  - BI is variable while tax rates are fixed

BI and labour incentives

- Monetary benefits are usually accused of generating parasitism, idleness, dependence on public provision, exploitation of the industrious by the lazy, etc.
- Since BI is unconditional, the problem (if it exists) would be especially serious
- There is much normative discussion about the fairness of a BI that allows people to live out of the labour market…
  - Elster's warning about the exploitation of workers by the idle, John Rawls' Malibu surfers…Van Parijs' Crazy & Lazy parable
- …but little or no examination of the factual and social-theoretical assumptions of these criticisms

Our purpose

- However, we are not interested in empirical arguments (as for example ‘a massive labour market clearing would never happen in the real world’…)

- We are mainly interested in a *conceptual* argument:
  - The critics implicitly chose some specific assumptions on the strategic nature of the situation in the labour market under a BI, and discard others, so their criticisms are biased and rely on unrealized and unjustified theoretical options.
  - Our aim is to systematically explore the labour market interaction dynamics that agents would potentially face under a BI.
  - But of course, some theoretical scenarios are more plausible empirically than others.

Why game theory?

- GT is a particularly a good instrument for our purpose:
  - The value of GT models is mainly conceptual since they throw light on the structure of social interactions.
  - The implications of that structure may not be immediately visible without the aid of game theory.

A collective action problem

- Enjoying a sustainable BI (of an acceptable level) is an *impure public good*
  - Non-excludability: An individual cannot be prevented from consuming the good – **Yes** (everybody gets the BI)
  - Non-rivalry: Several individuals can consume the same good without diminishing its value – **Partially** (every new beneficiary - if a net recipient – reduces the quantity for the others)
- So, maintaining a sustainable BI constitutes a collective action problem
  - A rational individual could enjoy the good without cooperating to produce it (without working)
  - However, it is a peculiar public good since there are strong selective incentives, mainly salary

Model

- Main model assumptions
  - Agents have 2 possible strategies: to work (W) and not to work (NW)
  - Games have N players (ego and the others), utility is ordinal and movements are simultaneous
  - Labour market is in equilibrium and there is no involuntary unemployment
  - There can be individuals who do not need to work to survive
  - Individuals try to maximize 1) their preferences on work/leisure and 2) their income
- So, the more individuals who are net contributors/recipients, the more/less hours of work, and the higher/lower the monetary amount of BI
- This captures in an idealized way the scenario of potential exploitation among equally-able and equally-opportunity-endowed workers
  - The proposed models are arguably very simple (they do not take into account iterated games, mixed strategies or evolutionary strategies)…
  - …but they capture all the basic strategic scenarios which are relevant for the problem. That is, they exhaust the possible strategic situations a given agent may have in mind when deciding how much to work under a BI.

Kinds of agents
Unconditional crazy (UC)

Scenarios		Utility
Ego	**Others**	
W	W	4
W	NW	3
NW	W	2
NW	NW	1

- Strong disposition to work
- They have a dominant strategy W: They want to work independently of the number of *free-riders*, the level of tax rates, etc.
- They prefer W/NW to NW/W because they want to work
- Their last preference corresponds to the scenario where nobody works and therefore get no income at all (or BI)
- This disposition could be based on a wide range of motivations: *autotelic* motivation to work, desire to earn a higher income, etc.
  - *A priori* any worker could have this disposition, but it is probably more common in certain professions (artists, scientists, athletes, etc.)

Kinds of agents
Conditional crazy (CC)

Scenarios		Utility
Ego	**Others**	
W	W	4
NW	W	3
NW	NW	2
W	NW	1

- They are ready to work, but do not want to work when a certain level of *free-riders* is reached
  - They do not have a dominant strategy.
- They have an assurance game preference ordering.
- This preference ordering can correspond to individuals who do not need to work to survive (the rich, young people living with their parents, etc.) but want to work (due to an *autotelic* motivation, desire to earn a higher income, etc.)
  - But, they will leave their job when costs are higher than benefits

Kinds of agents
Conditional lazy (CL)

Scenarios		Utility
Ego	**Others**	
NW	W	4
W	W	3
W	NW	2
NW	NW	1

- No disposition to work but no dominant strategy NW either
  - They do not like working, but need income to survive (for this reason NW/NW is their last preference).
  - BI would give them a real opportunity to leave the job market.
- Chicken game preference ordering
- This agent captures the kind of individual that critics have in mind when they warn about the risk of a massive labour market clearing.

Kinds of agents
Unconditional lazy (UL)

Scenarios		Utility
Ego	**Others**	
NW	W	4
NW	NW	3
W	W	2
W	NW	1

- No disposition to work and no need to work to survive
  - This preference ordering can correspond to the rich, young people living with their parents, criminals, etc.
- They have an *altruist dilemma* preference ordering, with a dominant strategy NW.
  - So, they will not work under any circumstances.

Strategic interactions in a labour market under BI symmetric games

- All the games have equilibriums, and all the equilibriums are optimal with the only exception of one of the 2 equilibriums in the CC vs. CC.
- As said, some of the interactions are classical collective action games (CC vs. CC assurance game, CL vs. CL chicken game, UL vs. UL altruist dilemma).
- NONE of these games is a prisoner's dilemma, which is the paradigm of free-riding as a dominant strategy, and the implicitly assumed scenario in the criticisms against BI.

UC vs UC

	W	**NW**
W	**4,4**	3,2
NW	2,3	1,1

CC vs CC

	W	**NW**
W	**4,4**	1,3
NW	3,1	**2,2**

CL vs CL

	W	**NW**
W	3,3	**2,4**
NW	**4,2**	1,1

UL vs UL

	W	**NW**
W	2,2	1,4
NW	4,1	**3,3**

Strategic interactions in a labour market under BI asymmetric games

UC vs CC

	W	NW
W	**4,4**	3,3
NW	2,1	1,2

UC vs CL

	W	NW
W	4,3	**3,4**
NW	2,2	1,1

UC vs UL

	W	NW
W	4,2	**3,4**
NW	2,1	1,3

CC vs CL

	W	NW
W	4,3	1,4
NW	3,2	2,1

CC vs UL

	W	NW
W	4,2	1,4
NW	3,1	**2,3**

CL vs UL

	W	NW
W	3,2	**2,4**
NW	4,1	1,3

Strategic interactions in a labour market under BI
Main results

- Scenarios where there are only crazy agents:
  - The equilibrium is W/W…
    - This equilibrium coincides with the players' first preference
    - BI is provided at the highest level
    - There is no parasitism or massive labour market clearing
  - …with the exemption of CC vs CC where there are 2 equilibriums, W/W and NW/NW (suboptimal)
    - However, in this case this scenario is very implausible and it seems reasonable to expect W/W to be the equilibrium.
- Crazy vs. lazy
  - UC vs. lazy (of both types)
    - Only UC works.
    - BI is supplied (but not at the highest level).
    - Equilibrium is optimal (in fact, both kinds of agents live as they wish).
  - CC vs. UL: Equilibrium NW/NW: Massive labour market clearing
  - CC vs. CL: No equilibrium (undetermined game). Impossible to predict what will happen.

Strategic interactions in a labour market under BI
Main results

- Scenarios where everybody is lazy
  - In principle, very implausible scenarios, but…they are the kind of scenarios that critics implicitly assume.
  - Obviously, in a world where everybody is UL, nobody works.
  - In the other 2 scenarios (the two most plausible ones) there are still agents who work.
    - BI is supplied (but not at the highest level).
    - CL vs. CL: Chicken game (we cannot predict *who* will work but *somebody* will work).
    - CL vs. UL: Only CL would work and they would be exploited by UL.
  - Again, notice that NONE of these interactions is a prisoner dilemma, which is the critics' most frequently assumed framework

Some implications for the BI debates

- There is no massive fall in the labour supply in the most plausible scenarios.
  - All available empirical data seem to imply that free-riders are no more than a slight minority, and some of them should still work out of need if BI falls under subsistence level.
- Social interaction matters
  - Traditionally, the debate about the "surfer effect" that BI could produce has been set out in terms of parametric decisions, failing to take interaction into account.
  - Our models show that even very simple strategic interaction processes can dramatically modify the predictions derived from those approaches.
- If, as it seems reasonable, BI is funded to a large extension by those in the highest income deciles, then it seems that the best option would be to determine BI endogenously on the basis of the performance of the economic system (for example, indexing it to GDP or similar).
- Strong dispositions to work are very important to sustain an acceptable level of labour supply in the presence of BI.
  - Paradoxically, the "work ethic" can be a serious difficulty to introduce BI.
- Limitations of this kind of analysis:
  - Results do not have a simple interpretation and are difficult to implement
  - Contextual factors may have a large influence on the result of the implementation of a BI scheme