

Non-taking up as a normative behaviour

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Abstract. A part of the population could benefit from rights, in particular from social rights, but does not take advantage of them. This non-taking up behaviour is described and analysed using the normative multi-agent systems framework. The application of this approach gives an insight into the various components of this complex behaviour: the autonomy of the agents, their cognitive activity and the progressive construction of effective social rights.

1 INTRODUCTION

The notion of "Non-Taking Up" describes the behaviour of people who have some rights to social benefits or to public utilities but do not use them. Non-Taking Up reveals the distance between abstract and effective rights. This question is the object of numerous works which try to explain or to measure this phenomenon².

Some examples of Non-Taking Up in different fields can indicate the type of problems we aim at.

The Mexican antipoverty program Progres (the Education, Health and Nutrition Program) began operating in 1997 in poor rural areas and has expanded to urban areas, [1]. It conditions monetary transfers to children's school attendance and regular health clinic visits of its beneficiaries families. From 1997 to 2003, three millions of households incorporated this Program. About 3 to 4 percent of the targeted families fail to take up the benefits. But, above all, 40 percent of children who are eligible for the education grants choose not to receive them.

In Greece and in Spain, non-take up of mean-tested retirement benefits is rather extensive [2]. According to different statistical estimates it seems that the non-taking up is higher the less automatic the claiming process is. For these benefits, non-taking up reaches 8 to 40 or even 60 percent in terms of the potential beneficiaries or of the potential expenditure. As a whole, 150,000 persons in Greece and 850,000 persons in Spain, of intended beneficiaries, fail to benefit from these programs.

'Standard Housing Benefit', a mean-tested social security payment, was intended to subsidise UK low income families, [3]. In 1981, about four millions of UK families received this benefit and two millions were entitled to claim this benefit and did not do so.

The examples are on mean tested benefits but the non-taking up behaviour is observed in many fields : minimum income guarantee, unemployment benefits, access to health care, recourse to justice, use of public and social services, [4,5,6,7,8].

The importance of non-taking up can be considered as revealing the inefficiency of social policy. Rates of non-taking up (non-taking up population/ eligible population) are often used as quantitative indicators. But these rates are not so easy to estimate and they oversimplify the individual and social processes at work [9]³.

Non-taking up cannot be viewed as the simple result of a binary choice of an isolated agent : taking/non-taking. The proper way to understanding non-taking up is to develop a comprehensive analysis of an agent who has some autonomy under social and institutional determinants and finally takes advantage or not of a social right or of a social benefit.

Many reasons can explain why potential rights are not used. Some public policies do not rightly appraise the populations affected and their needs. Beneficiaries may not receive enough information. Citizens, due to their past experience may decide of not using public utilities. Claiming to some social benefits or rights and appearing as beneficiaries can take a social meaning and produce a stigma which has a dissuasive effect.

As a first description of the processes leading to non-taking up, we propose the following diagram. The cognitive activity of agents and their social attributes in terms of representation of rights and of social membership lead to a progressive emergence of social right from an abstract goal to an effective right.

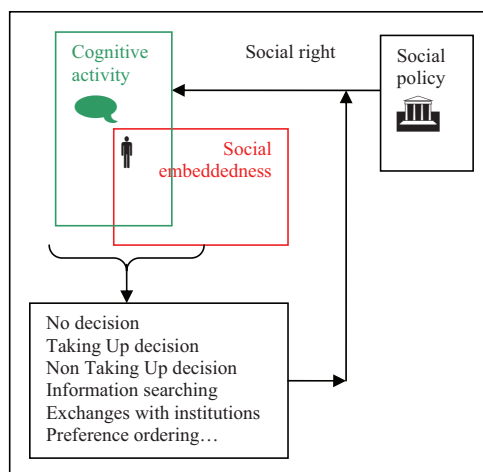


Figure 1. Individual behaviour and social rights : an overall process

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² See, among others, [1], [2] and [3] for a discussion and a presentation of the notion of non-taking up. Extensive bibliographies are available at <http://odenore.msh-alpes.fr/biblio.html> and <http://www.exnota.org/bibliography.php>

³ The study of Regina T. Riphahn [9] is applied to the German social assistance program.

This paper extends works realized by the *Observatoire du Non Recours* (ODENORE) during the past five years⁴, and develops the analysis of the non-taking up process in terms of normative multi-agent systems.

The paper is organized as follows. First we characterize the non-taking up behaviours as appearing from empirical studies and observations applied to social policy. Next, in Section 3, we integrate this conceptual analysis in the normative multi-agent framework and we initiate an analysis of non-taking up in terms of normative positions. Section 4 presents our conclusions and provides directions for future work.

2 NON-TAKING UP BEHAVIOURS

Non-taking up arises from alternative causes that involve various types of behaviour, Table 1. This list is based on the research of EXNOTA and ODENORE aiming at a common definition of non-taking up, and on the synthesis they proposed of empirical studies [5,6,7].

Alternative causes of non-taking-up	Types of behaviour
<i>Individual Decisions</i>	
Demands for other forms of services (associative, private), conflict with social group membership, stigma,	Refusal of social assistance
Memory of past failure, negative learning	Individual learning on social policy
Negative utility, choice based on preference	Basic rationality
<i>Institutional Failures</i>	
Inefficient information, social policy failure	Unsatisfied demand
Inaccuracy of targeting population	Unsatisfied need

Table 1. Types of behaviour consistent with non-taking up

Even simplified, this list of types of non-taking up behaviours indicates that it can be consistent with very different situations, leading to an individual decision or to a lack of decision. At a first stage one may admit this distinction between "active" and "passive" non-taking up, with an active non-taking up thought as

a deliberate choice of exit from social services, and a passive non-taking up mainly due to institutions in large.

Meanwhile, our analysis of social rights as processes leads to reconsider this distinction. The distinction between "active" and "passive" non-taking up could mislead us in masking that social rights always imply actions from beneficiaries in most cases, to be effective. The very close tie between social rights over benefits and actions from the beneficiary is for us the main interest of referring to the normative positions approach to analyse the non-taking up behaviour (Section 3).

The non-taking up process, as briefly indicated in the Figure 1, must be more precisely defined. 'Rights to social benefits' become a reality depending on individual and social processes. Rights to social benefits do include rules which can be described as in expert systems, for instance :

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If [(income < max level)
    and (min level < age < max level)
    and (residence in a given locality)...]
Then [(Social benefit = monthly amount "x")
    and (during "y" months)...]
    
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But rights to social benefits need two other components to be defined: the information given to the population and the social meaning of the rule in terms of the social structure.

The information component of social rights is easy to understand. A potential beneficiary needs information to know what are his/her rights. This information must exist, be given, and must be clearly understandable. Above all, the realization of social rights implies lengthened exchanges of information between social institutions and beneficiaries: on the content of the social measures, on the situation of the beneficiary, with an alternation of the roles of supply and demand.

Social rights get their meaning with social embeddedness of the beneficiaries. Some social benefits may appear neutral for the social system if they do not create additional segmentation or discrimination. If they do discriminate populations, policies involve conflicts for the beneficiaries between the activation of these rights and their relationship to the social groups to which they belong. The conflict is all the more keen as their social group is deeply rooted in economic and social structures built in the long term.

The individual behaviour depends on the whole components of the social rights. So it cannot be a rational choice only based on monetary arguments. Individuals proceed to a complex cognitive activity. It includes a personal learning based on past experience, a calculus of utility, but it also takes an account of social implications of taking up social benefits. Many different situations can then be observed, from overuse of the available social rights to a refusal of any social benefit.

The cognitive activity of target populations aims at understanding the public supply and at building the terms of different answers to this supply. The 'activation' of social policies we can observe during the recent years, complexifies the public supply and enforces the possibility of non-taking up. It consists not only of adding more conditions for enjoying a social right (for instance, with mean-tested benefits), but also in fixing obligations of action (for instance, taking courses or receiving medical care). Alternatives opened to the individual and the requirements for public utilities affect this process. This whole cognitive activity puts the representations and the individual subjectivity into the foreground of the social policy efficiency. The autonomy of individuals and their ability to reason is

⁴ This observatory is first based on the results of exploratory research on the non-taking up of state services. It is a part of PACTE, laboratory at the Institute of Political Studies of Grenoble. Odenore is localised at the Maison des Sciences de l'Homme Alpes. As head of the European thematic network EXNOTA (Exit from and non-take-up of public services) created in 2003 with the support of the 5th Research and Technological Development Framework Programme of the European Union, ODENORE leads a multidisciplinary research team working on non-taking up, integrating politics, sociology and law. Philippe Warin (Director of Research CNRS, PACTE/CERAT) is the Scientific Director of the Team.

progressively built from their past experience and from mutual interactions.

'Cognitive activity' does not mean a hyper rationality. Individuals can base their representation and their behaviour on routine, imitation, without clear knowledge, due to public supply or to their own difficulties.

The whole process develops with a time dimension. Past experience and individual learning are important elements of the process. But the construction of the demand is also progressive and needs exchanges between individuals and institutions to declare for a demand, giving the necessary information, fitting the benefit to the individual case...

In addition to the social policy institutions and to the eligible population, some agents can contribute to the process of realization of social rights. A third party such as mutual aid associations can positively activate the process. Here, we do not treat of this point.

The observations describe a large diversity of the forms of non-taking up and rather than simply opposing taking up and non-taking up, we have to specify behaviour according to multiple criteria: duration, intensity, adding or not to other refusals, compensated or not by alternative supplies.

Here, our attempt to use the normative multi-agent systems for a better understanding of non-taking up does not aim at proposing a complete analysis of the complexity of the questions we have pointed. Our main aim is to demonstrate that this approach is relevant, the analysis having to be specified for definite cases of social rights or benefits.

3 NON-TAKING UP AND NORMATIVE MULTI-AGENT SYSTEMS

Autonomy of agents with regard to social policy is the key feature of non-taking up. It is also the central question for the normative multi-agent systems. We first consider how the general framework produced for multi-agents systems and norms, is adapted for analysing non-taking up. Then we apply more specifically the concept of normative position.

3.1 Non-taking up and autonomy of normative agents

The analysis of social rights in terms of normative multi-agent systems implies a slight conceptual shifting. Norms are generally treated as constraints on the human autonomy, necessary to overcome problems of coordination. But social rights are rather a mean of extending the capacity of agents and of increasing their capacities. Then, non-taking up can be seen as a refusal or the non-achievement of this opportunity.

For standard economists, a non-taking up behaviour could be only explained by costs associated with the use of social rights. It could be the consequence of the preference ordering of the eligible agent, or, as in the new institutional economics, of public failure in the supply of services. But in any case, non-taking up would be based on monetary terms⁵.

It seems that the treatment of the norms in agent-based systems can make way to a more satisfactory analysis of the non-taking up question. Here, we will use the framework proposed by Fabiola López y López, Michael Luck, and Mark d'Inverno, [11], coming from SMART.

The main object of this framework is not to describe how norms are created, but to clarify for different types of norms what are the processes that explain the normative behaviour of agents. Rightly, the authors emphasize that this process cannot be reduced to a simple accounting of gains and losses by each agent.

Within the SMART framework, norms are defined in a general way. They have three main components: prescriptiveness (how an agent has to behave), sociality (an agent among other agents), social pressure (restraints on the individual behaviours), [11]. Their main social function is to specify patterns of behaviour through normative goals directed to addressee agents.

Taking up a benefit can be identified with a behaviour of instancing a norm, which means for an agent that the norm is adopted and internalised by him. It implies for this agent changing his/her pattern of goals. As for norm acceptance [12], this choice is based on autonomous decisions which induce normative goals of agents. The distinction between external and internal sides of the norms [13] is relevant, with the visible display of the social policy and its internal representation and belief by the agents.

Normative agents are able to act on norms and to reason about them. The addressee agents must be members of the system but do not know or adopt every norm, like eligible people for social rights or benefits. They are free to adopt some norms, then to comply with some of them, and to reject others. For our own concern, of the different concepts of the SMART agent framework, one is of particular interest, sets of capabilities which indicate what agents are able to perform.

The multiplicity of norms (with particular cases of interlocking) may involve internal conflict for agents for deciding which norms they have to comply with, [14]. Then, autonomous reasoning permits agents to choose between contradictory objectives. What is important here is that constraints do not directly affect actions but the patterns of goals which inspire individual actions, [15]. Within the SMART framework, the agents choose how to act after weighing up their preferences between alternative goals, punishments for not complying with a norm or rewards for complying with it.

The acceptance of a social benefit may affect how the own goals of the beneficiary can be achieved (owing to, for example, an improvement of resources). Thus, it also means that without social policy, these goals would be achieved differently. Benefit acceptance strengthens authority and legitimacy of social institutions. Moreover, conditional social policies can force agents to follow goals different from their own goals. Analogous with institutionalised power [16], 'active' social policy aims at changing goals of beneficiaries. Then, with the autonomous decisions of agents, the way for non-taking up is widened.

Regarding the social meaning of benefits and the eventuality of stigma, the question is to combine the direct returns on individual preferences and the effects of social policy on the relationship between the beneficiary and the groups to which she/he belongs. For example, G.Akerlof analysed social programs such as educational attainment and childbearing and how group interactions and social externalities have an influence

⁵ See the study of Janet Currie [10] for a review of literature regarding the take up of social programs in the U.S and U.K., with an economic point of view.

on individual decisions [17]. It amounts to specify for social policy the meaning of social membership, [18].

In the SMART conceptual framework, instancing a norm is the sign of the transition from an abstract norm to its effectiveness. Instancing is an individual process in that each agent works on the norm and appropriates it. This conceptualisation of the implementation of norms is in accordance with what is observed for social policies and with the notion of coproduction of public services by the citizens⁶.

The splitting up of this whole reasoning process by the SMART framework is well suited. We can also consider that there is a first process (like the "norm adoption process") through which the agents recognize (or do not recognize) that they are concerned about some target benefit. It implies not only to recognize the legitimacy of social policy, but it also implies that the agent admits to be eligible (the equivalent here of being an "addressee" in the norm adoption process) according to the criteria used for the delivery of the benefit. Then the deliberation process consists of estimating how the pattern of goals is modified due to positive opportunities but also due to restraints associated with the benefit. The SMART framework includes norms of enforcement, reward and penalties, which in fact are parts of the appliance of social policy. This deliberation is based on the agent's motivations. Finally, the beneficiaries have to actualize their goals (the "norm compliance process"): the goals they pursue and the priority between their goals.

3.2 Normative positions

The concept of "Normative positions" comes from a whole series of works whose common objective is to proceed to a systematic analysis of the behaviours we can expect from the agents concerned with norms. The analysis of normative positions refers to the right analysis and to the founding theory of Höhfeld. But if this approach originates in the analysis of right, it aspires to apply to the whole interactions between agents [20]⁷.

The normative positions approach characterizes elementary types of behaviour which are specified in terms of obligations, permissions, rights and duties, commitments, authorizations, responsibilities. But the main contribution for our own concern is the analysis of the internal consistency of behaviour of a given agent and the consistency with behaviour of other agents involved in a given normative situation.

We will use the presentation of the Kanger-Lindahl theory and the notation proposed by Marek Sergot [20,21] for a preliminary presentation of the social benefit relation. We follow the first steps of an analysis like that used by A. Jones and M. Sergot for security requirements in the access to computerised database of patients [22], and by M. Sergot for loan of books, the problems coming from a fence on the boundary between adjoining properties, and for car park, [20].

There are two agents: "e" (any agent eligible for a given benefit), and "g" (the agent who governs the social policy), and a fact "B" (the delivery of the benefit). With the normative one-agent act positions defined by Lindahl, the social benefit relation is represented as the following set of positions:

$$[\pm P[\pm E_e \pm B]], [\pm P[\pm E_g \pm B]]$$

With the notations used by Marek Sergot, this scheme means that [It is permitted, or not [that "e", respectively "g", sees to it or not that B be true or that B not be true]]. We also use the abbreviation proposed by Lindahl and Marek Sergot of the passivity of agent "e":

$$\text{Pass}_a B = \neg E_a B \wedge \neg E_a \neg B$$

The interpretation of the seven Lindahl's normative one-agent ("a" is "e" or "g") act positions, is the following

(T₁) $P E_a B \wedge P E_a \neg B \wedge P \text{Pass}_a B$: "a" is permitted to see to it that the benefit is delivered, to see to it that the benefit is not delivered, and to be passive;

(T₂) $P E_a B \wedge O \neg E_a \neg B \wedge P \text{Pass}_a B$: "a" is permitted to see to it that the benefit is delivered and to be passive, and has the obligation to not see to it that the benefit is not delivered;

(T₃) $P E_a B \wedge P E_a \neg B \wedge \neg P \text{Pass}_a B$: "a" is permitted to see to it that B is delivered and that B is not delivered, and is not permitted to be passive;

(T₄) $O \neg E_a B \wedge P E_a \neg B \wedge P \text{Pass}_a B$: "a" is obliged not to see to it that B is delivered, and is permitted to see to it that the benefit is not delivered and is permitted to be passive;

(T₅) $O E_a B$: "a" is obliged to see to it that the benefit is delivered;

(T₆) $O \text{Pass}_a B$: "a" is obliged to be passive;

(T₇) $O E_a \neg B$: "a" is obliged to see to it that B is not delivered.

How do these preliminary expressions let a place to non-taking up? We will examine the meaning of these expressions first for the eligible agent "e", then for the social policy organizer "g".

The eligible agent "e", is obliged, with the normative act position T₄ not to see to it that B is delivered. T₇ would be a nonsense: "e" would be obliged to see to it that B is not delivered. The obligation to be passive, T₆, seems also unrealistic. There is no more place for non-taking up if the normative eligible agent act position is the obligation to see to it that B is delivered, as with T₅.

The discussion about non-taking up as it is approached with the Lindahl's list, concentrates, from the eligible agent point of view, round three expressions: T₁, T₂, and T₃. T₁ describes a position of complete freedom for the eligible agent, leading to the different forms of non-taking up. T₂ puts the autonomy of the eligible agent under constraint: there is no alternative to social policy for the agent. The eligible agent loses the capacity to act for the non-delivery of the benefit for a capacity of no acting for the delivery of the benefit or to be passive. T₃ is a normative position which does not permit the passivity, but the eligible agent can either see to it that B is delivered or see to it that B is not delivered.

From the point of view of the other generic agent "g", the organizer of the social policy, the expressions rank in a different manner. For this agent, there is an obligation to deliver the benefit. It excludes expressions which would permit "g" to act against the delivery of the benefit, like with T₁, T₃ or T₄. We cannot admit that the organizer of social policy would have the obligation to be passive (normative act position T₆) or to see to it that the benefit is not delivered (T₇).

⁶ For instance, the contribution of G.P. Whitaker, [19].

⁷ Precisely: "all forms of regulated and organised agent interaction, legal or non-legal, formal or informal", p. 581.

So, for the social policy maker "g", the discussion about non-taking up concentrates on two expressions: T_2 and T_5 . T_5 would correspond to the simple obligation for "g" to see to it that the benefit is delivered. T_2 implies that "g" cannot do anything which could prevent the delivery of the benefit, but "g" might be passive, and the obligation to see to it the delivery of B disappears.

This preliminary discussion leads to a typology of non-taking up based on the normative positions of the eligible agent and of the social policy maker:

Case 1 $P E_c B \wedge P E_c \neg B \wedge P Pass_g B$ $O E_g B$
Case 2 $P E_c B \wedge P E_c \neg B \wedge P Pass_g B$ $P E_g B \wedge O \neg E_g \neg B \wedge P Pass_g B$
Case 3 $P E_c B \wedge O \neg E_c \neg B \wedge P Pass_c B$ $O E_g B$
Case 4 $P E_c B \wedge O \neg E_c \neg B \wedge P Pass_c B$ $P E_g B \wedge O \neg E_g \neg B \wedge P Pass_g B$
Case 5 $P E_c B \wedge P E_c \neg B \wedge \neg P Pass_c B$ $O E_g B$
Case 6 $P E_c B \wedge P E_c \neg B \wedge \neg P Pass_c B$ $P E_g B \wedge O \neg E_g \neg B \wedge P Pass_g B$

Table 1. Non-taking up and normative positions

We can organize the different cases in relation with possible non-taking up (Diagram 2). The point TU indicates a conjunction of positions with no place for non-taking up. The basis of the diagram corresponds to a normative act position of the policy maker agent "g" who has the obligation to act for the delivery of the benefit. The upper face of the diagram corresponds to the removal of this obligation and we consider it is leading to inefficiency from the governmental institutions. The vertex of the lower and of the upper faces correspond to the conjunction of different normative act positions of the eligible agent "e", with respectively obligation and no obligation for the policy maker to see to it that B is delivered. Taking TU as a point of departure, non-taking up behaviour might be due to preference ordering and to a low involvement in social policy of the eligible agent "e" (Case 3). Non-taking up might also come from alternatives to B and from an exit behaviour of "e", (Case 5). Case 1 holds the different forms of non-taking up due to preference ordering, alternatives-exit and low involvement.

Cases 4, 6 and 2, add respectively to Cases 3, 5 and 1, the inefficiency coming from the offer of benefit.

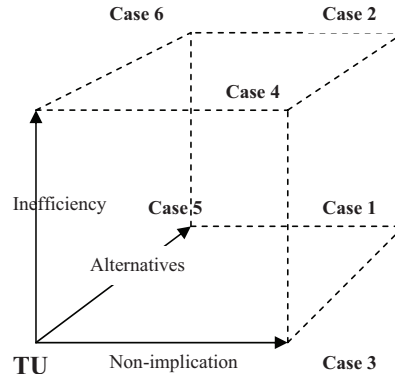


Diagram 2. Forms of non-taking up and normative positions

The specification of normative positions, even based on a preliminary approach, involves a clarification of the content of measures of social policy. Who is concerned? What are the constraints associated with the benefit? What are the actions that an eligible agent needs to do in order to realize a potential right. But, above all, simple assumptions lead to distinguish cases of non-taking up near those drawn from empirical studies, as it appears on the Table 1. It puts forward some decisive processes such as: individual preferences, adhesion to policies, alternative to benefits, insufficiency or inefficiency of the offer.

The Diagram 2 shows the beginnings of collective dynamics initiated by a measure of social policy, the implications of this measure on the actions of concerned agents according to its terms, and the regulated effects on the states of the system.

The agent's choice is determined from existing states, his preference ordering and the constraints on his actions. The specification of normative positions contributes to define which actions lead to permissible states. Then we have to return to the architecture of multi-agent system and to specify how it integrates the normative system, [23]⁸.

4 CONCLUSIONS & FUTURE WORKS

The normative multi-agents systems and the theory of normative positions constitute a fruitful framework in the analyse of autonomous behaviour such as non-taking up of social rights or benefits.

The general architecture of normative multi-agents is equipped through the transformation of goal patterns and preference ordering associated to normative situations, in order to contribute to the understanding of refusal, compromise, and acceptance. Even if it implies an evolution of the conception of

⁸ DALMAS is a proposition for such an architecture for norm-regulation of multi-agent system, and more precisely for the interplay between preferences and norms.

norms as constraints. In the broad sense of the concept, they can also extend the individual objectives and capacities.

The practicable application of this approach implies to go deeply into several points.

First we have to analyse systematically how the numerous empirical studies describe the non-taking up/taking up behaviour. Surveys and synthesis exist, as those cited at the beginning of the paper. But we have to stylize these results with the general architecture of normative multi-agent systems in the background.

Non-taking up involves individual positions and behaviours which are in relation with social determinants. Institutions, representations, stigma, conflict of norms,... refer to agents in a society and to members of social groups. Goal patterns are linked to social roles. Then, the social organization of the agents must also be explicitly introduced in the architecture of the system.

Social policy is much more complex than only giving or not a benefit or a right to do or to get something. The measures are composites or various elements: rules, advice, service, control. Several types of agents contribute to the realization of these measures, for instance, with regard to health benefits : insurance institutions, physicians, intermediary associations and non governmental organizations. Thus, in addition to the inherent complexity of the method of analysis, we need an efficient strategy for a progressive comprehension of the area.

Moreover, the application of normative behaviours to non-taking up and to the research of a better efficiency of social policy would need some automated tool. It is closely akin to the objective fixed by Marek Sergot to the system "Norman-G" used to apply the theory of normative positions and to analyse practical examples, [20]. It is also the objective of works based on the DALMAS architecture, [23]. Such a tool is necessary for an extension to more than two agents and for a more realistic description of social policy institutions. It is also necessary for a systematic analysis of the implications of the rules and of their terms.

REFERENCES

- [1] S.W. Parker and G.M. Teruel. Randomization and Social Program Evaluation: The Case of Progres. *Annals of the American Academy of Political and Social Science*, Place Randomized Trials: Experimental Tests of Public Policy, 599:199-219 (2005).
- [2] M. Matsaganis, H. Levy, and M. Flevotomou. Non take up of means-tested benefits for the elderly in Greece and Spain. *7th Espanet Conference 2009*, session stream nr. 10 - Poverty risks and social policy programmes in the 21st century the future of the welfare state: paths of social policy innovation between constraints and opportunities. Urbino 17-19 September, 17p. (2009).
- [3] R. Blundell, V. Fry, and I. Walker. Modelling the Take-up of Means Tested Benefits : the Case of Housing Benefits in the United Kingdom. *The Economic Journal*, 98(389):58-74 (1988).
- [4] V. Hernanz, F. Malherbet, and M. Pellizzari. Take-up of Welfare Benefits in OECD Countries : a review of the Evidence. *OECD social, employment and migration working papers*, 17, 47 p. (2004).
- [5] Exnota. *Exit from and non-take up of public services. A comparative analysis: France, Greece, Spain, Germany, Netherlands, Hungary. (Emergence of "non-take up")*. Final Report Exnota Consortium, http://www.exnota.org/pdf/emergence/final_report_emergence.pdf. 30p. (2005).
- [6] Exnota. *Exit from and non-take up of public services: A comparative analysis: France, Greece, Spain, Germany, Netherlands, Hungary. (Measurement of "non-take up")*. Final Report Exnota Consortium, http://www.exnota.org/pdf/measurement/final_report_measurement.pdf. 57p. (2005).
- [7] ODENORE. *Non-taking up: Methodological Preconditions and Works*. C. Chauveaud, I. Costerg, P. Warin, <http://odenore.msh-alpes.fr/travaux.html>, last modified on 15th october 2009 (2009).
- [8] W. Van Oorschot and J.H. Win. Non-take-up of social security benefits in Europe. *Journal of european social policy*, 1(1):15-30 (1991).
- [9] R. T. Riphahn. Rational poverty or poor rationality ? The take up of social assistance benefits. *Review of Income and Wealth*, 47(3):379-398 (2001).
- [10] J. Currie. The take-up of Social Benefits. *IZA Discussion Paper Series*, 1103, 51p. (2004).
- [11] F. López y López, L. Luck and M. D'Inverno. A normative framework for agent-based systems. *Computational Mathematical Organisation Theory*, 12:227-250 (2006).
- [12] R. Conte, C. Castelfranchi, and F. Dignum. Autonomous norm-acceptance. In *Intelligent Agents V (ATAL'98)*. J. Müller, M. Singh, and A. Rao (Eds), LNAI 1555, Springer-Verlag, pp. 319-333 (1999).
- [13] R. Conte and C. Castelfranchi. Norms as mental objects. From normative beliefs to normative goals. In C. Castelfranchi and J. P. Müller (Eds), *From Reaction to Cognition (MAAMAW'93)*, LNAI 957, Springer-Verlag, pp. 186-196 (1995).
- [14] F. López y López and L. Luck. Modelling Norms for Autonomous Agents. In: *Proceedings of the Fourth Mexican International Conference on Computer Science (ENC'03)*. E. Chávez, J. Favela, M. Mejía, A. Oliart (Eds). IEEE Computer Society, pp. 238-245 (2003).
- [15] F. López y López and L. Luck. A model of normative multi-agent systems and dynamic relationships. In: *Regulated agent based social systems*. G. Lindemann, D. Moldt, M. Paolucci (Eds). LNAI 2934, Springer Verlag, pp. 259-280 (2004).
- [16] A. Jones and M. Sergot. A formal characterisation of institutionalised power. *Logic Journal of the IGPL*, 4(3):429-445 (1996).
- [17] G.A. Akerlof. Social distance and Social Decisions. *Econometrica*, 65(5):1005-1027 (1997).
- [18] R. Conte and C. Castelfranchi. *Cognitive and Social Action*. UCL Press, (1995).
- [19] G.P. Whitaker. Coproduction: Citizen participation in service delivery. *Public Administration Review*. 40(3):240-246 (1980).
- [20] M. Sergot. A Computational Theory of Normative Positions. *ACM Transactions on Computational Logic*, 2(4):581-622 (2001).
- [21] M. Sergot. Normative Positions. In: *Norms, Logics and Information Systems*. P. McNamara, H. Prakken (Eds). IOS Press, Amsterdam, pp. 289-308 (1998).
- [22] A. J. I. Jones and M. Sergot. Formal Specification of Security Requirements using the Theory of Normative Positions. In: *Computer Security - ESORICS*. Y. Deswarte, G. Eizenberg, J.-J. Quisquater (Eds). Lecture Notes in Computer Science, 648, Springer-Verlag, Berlin Heidelberg, pp.103-121 (1992).
- [23] J. Odelstad and M. Boman. Algebra for agent norm-regulation. *Annals of Mathematics and Artificial Intelligence*. 42:141-166 (2004).