

# Difficulty as the Choice Dimension Forgotten by Economics

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## 1. Introduction

Neoclassical economics presents itself as a science of choice. By contrast, institutional economics<sup>1</sup> would deal not with human choices, but with the way in which habit driven agents would not have to choose. This stereotypical view of the differences between those theoretical traditions ignores, or pretends to ignore, all that institutionalists authors have written on the compatibility between deliberation and the notion of institutionally influenced individual behaviour.

In its account of economic behaviour institutionalism emphasises habit and this may indeed suggest the downplaying of choice. However, authors like Veblen and Commons while underlining the role of habit as a causal mechanism of behaviour, always insisted that this does not translate into a denial of reason and deliberation. In the institutionalist tradition, as recently noted by Hodgson (2004: 653): “reasons and beliefs themselves depend upon habits of thought (...) All deliberations, including rational optimisation, themselves rely on habits and rules”.

Although claiming the compatibility between habit and deliberation, and a proper role for deliberation, contemporary institutionalism has given little thought to deliberation as compared to the effort devoted to the elaboration of the causal relation between institutions and behaviour. This neglect of deliberation may, on the one hand, reinforce the neoclassic misrepresentation of institutionalism, and, on the other hand, nurture the illusion of a conciliation between institutionalism and neoclassical economics, which

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<sup>1</sup> We are referring to the institutionalist tradition with origin in Veblen and Commons.

would preserve the neoclassical account of rationality while acknowledging the “endogeneity of preferences”.

Although “rational choice” may be viewed as an instance of deliberation, deliberation, in the institutionalist tradition, does not equate to “rational choice”. The important point was clearly stated by Dewey: “to reduce all cases of judgment of action to this simplified and comparatively unimportant case of calculation of quantities is to miss the whole point of deliberation” (Dewey, 1922: 218).

We argue that institutionalism needs a theory of deliberation, and in this essay we advance a contribution. A complete specification of the mechanisms of interaction between institutions and behaviour must not only involve the role of institutions in influencing behaviour but the role of action in the process of institutional change. The notion of deliberation, by precisely referring to the reflexive capacity of individuals and their action within specific institutional frameworks, is crucial in this respect. Pragmatist philosophy and psychology, traditionally linked to institutionalism, namely Dewey’s, provides a foundation for such a theory of deliberation. Our contribution in this essay adds to that foundation, bringing in more recent developments from different fields, from philosophy to neurosciences, through economics and psychology.

The second section of this essay, by focusing on the evolution and changing meanings of rationality and rational choice, as conceived in mainstream economic, sets the stage. All notions of “rational choice”, endorsed by “economic theory”, share the assumption that individual choice necessarily involves a non problematic, one-dimensional, reduction of all considerations of value. In this perspective, by contrast to collective choice, individual choice would be simple. In disagreement with this view, we argue that the *difficulty* resulting from value conflicts may be present in all deliberation processes, intra or interpersonal.

The third section aims at the specifying the conditions of difficulty and the notion of difficulty. Having in mind the need for a conceptual framework allowing communication with other theoretical trends in economics, a consequentialist perspective is retained. The distinction between two types of difficulty – cognitive and moral – is drawn in the fourth section, with the support of empirical evidence from psychology and the neurosciences,

and in the fifth section the relevance of moral difficulty to economics is discussed. Finally, in the sixth section rationality and deliberation are reconceptualized in light of the pragmatist legacy of Dewey; a specification of the mechanisms mediating between action and institutional change is suggested.

## 2. “Rational choice” and its problems

Rationality is presently conceived in neoclassical economics as consistency of choice. In this perspective, a choice is rational to the extent the agent facing a set of alternatives and another set of consequences of those alternatives is able to articulate preference relations between all pairs of alternatives (completeness) and the resulting preference ordering is transitive. From completeness and transitivity the existence of a preference index (utility function) may be inferred. Utility is thus a unique and abstract measure to which the multiple dimensions of evaluation of alternatives may be reduced<sup>2</sup>. In this perspective, choice involves only a value maximization problem; it is “a simply mathematical fact. (...) simply a matter of establishing numerical trade-offs among different items” or value dimensions (Richardson, 1997: 195).

This concept of rational choice is axiomatic, logic and desubstantialized, that is, it dispenses with any reference to the motives and the values that drive the choosing agent. Besides, it involves other presuppositions which seldom are made explicit. The first of those presuppositions draws on David Hume (“reason is, and ought to be the slave of the passions”) and Aristotle (“we deliberate not about ends but about what contributes to ends”) to place ends and values out of the reach of reason and to circumscribe deliberation to the choice of means. This instrumentalist concept of rationality does not capture the difference between wants and values (Frankfurt, 1971; Hirschman, 1985), does not acknowledge the reflexive capacity of human agents and refuses significance to the interpersonal communication about values. Given the supposed impossibility of

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<sup>2</sup> If the set of alternatives is finite completeness and transitivity are enough to establish the existence of a utility function. The general case also demands the continuity of preferences. The choice over lotteries requires some additional assumptions (Mas-Colell *et al.*, 1995).

attributions of truth and falsity to value considerations, values as tastes should not be discussed. The second presupposition establishes commensurability of value, that is, the reducibility of all value dimensions to a single scalar measure. Accordingly, in case of conflicts between values, rationality would always demand that concessions in one dimension might be compensated by gains in other(s) along the surface of an indifference curve.

The axiomatic concept of rational choice is a result of a long evolutionary process in economics which has been assigning different meanings to rationality. Bentham's utilitarianism is certainly at the origins. But the relationship of economists with utilitarianism has always been much more troublesome than it appears at first sight.

By elaborating and complicating utilitarianism, Stuart Mill (1871) gave rise to the first objections. For Mill, as for Bentham (1823), the discussion on choice and individual action is made with reference to motivations as causes for action. Individuals pursue happiness or pleasure and avoid unhappiness or pain. But, for Mill, pleasures and pains have different qualities. Besides the pleasures of "mere sensation" there were more elevated ones as those of "the intellect, of the feelings and imagination, and of the moral feelings" (Mill, 1871: 138). However, Mill denied the existence of any contradiction between the notion of both quantitative and qualitative differences in pleasure, on the one hand, and the principle of utility, on the other hand. He thought the question might be overcome just by acknowledging that some types of pleasure are more desirable and valuable than others (Mill, 1871: 138).

For the first marginalists, who were committed to conquering for economics the status of a science based on observation and measure, the acknowledgement of the plurality of values gave rise to serious difficulties. For them the consequence of qualitative differences among values, in a context of analysis in which reference is made to agent's motivations, were clear (Caldas *et al.*, 2006) – there are value dimensions in respect to which comparisons and trade-offs may be morally awkward. Jevons (1871), for instance, while paying tribute to Bentham, when stating that "pleasure and pain include all the forces which drive us to action" (Jevons, 1871: 23) and that "motives and feelings are certainly of the same kind to the extent that we are able to weigh them against each

other” (Jevons, 1871: 26), made his acceptance of the utilitarian doctrine dependent on the acknowledgement that “the feelings of which a man is capable” (Jevons, 1871: 25) may be “incomparable in power and authority” (Jevons, 1871: 26), admitting even the possibility of a higher motive overbalancing “all considerations belonging even to the next lower range of feelings” (Jevons, 1871: 25).

For Marshall, the project of a scientific economics was made possible, but at the same time constrained, by the possibility of quantifying the strength of the desires that impel to action with the money price one is willing to pay or wants to obtain in exchange for the action performed. The fact that economics only considers those desires which have money as a counterpart did not imply, for Marshall, the confinement of this science to the realm of egoistic motives or the lower levels of human nature, since the same money payment “may be on its way to be spent selfishly or unselfishly, for noble or base ends” (Marshall, 1920: 12). However, Marshall also understood that some motives, like the sense of duty, might irrevocably be beyond the reach of the methods of economics “not because they are not based on self-interest”, but because these motives “cannot be classed, reduced to law and measured” (Marshall, 1920: 20).

The strategy adopted by these marginalists authors to overcome problems stemming from value incommensurability, namely those resulting from the need to assign a monetary valuation to the strength of all desires, involved, in Jevons’ perspective, a definition of a domain for economics in a territory of moral indifference located in the lower level of sentiments or, in the more ambiguous but less restrictive formulation of Marshall, by confining economics to the ordinary business of life. The domain of economics, although ill-defined, would thus be for the English marginalists that of anonymous interaction in competitive markets, where value conflicts would supposedly be less frequent and all desires would have a money counterpart.

Walras (1874) and Pareto (1909) initiated the process of desubstantialization of rational choice. Utility, avoided in Walras by the use of the word *rareté* and in Pareto *ophélimité*, is deprived here of any motivational content. In Pareto, the delusion of a direct measurement of utility is set aside and cardinal utility is replaced by an ordinal concept. Commensurability is still implicit in the index that represents the preference ordering, but

it is not as salient as before. Walras and Pareto claimed to analyse the domain of Pure Economics – one where commodities exchange themselves with other commodities without any interference of the human wills that move them around.

The desubstantialization of rational choice reaches the zenith with the contributions of Hicks and Allen (1934), Samuelson's revealed preference (1938, 1948) and the axiomatic formulations of expected utility by Von Neumann and Morgenstern (1944) and Savage (1954). In obscuring the value conflicts and the problems stemming from the reduction of those conflicts to indifference curves along which all trade-offs are allowed, axiomatization and desubstantialization prepared the ground for the imperialist adventure of "rational choice"<sup>3</sup>. Importantly, however, even in the midst of its expansionist euphoria, "rational choice" had to confront problems of incommensurability, this time not at the scale of the individual, but at the social scale.

In Arrow's work (1963) on social choice, difficulty arises in its extremely form, as impossibility. Interpersonal comparisons of utility were always faced with more reluctance by economists than intrapersonal comparisons of different value dimensions. In fact, naming a curve which represents different interpersonal assignments of utility as an *indifference* curve is at the outset more disturbing than using the same label for an intrapersonal representation<sup>4</sup>. However, given the moral nature of many intrapersonal value conflicts no reason exists to face with a lesser reluctance some of those internal comparisons and trade-offs.

In this perspective, as argued by Kavka (1991), personal choices may be as problematic as social choices. If one replace in Arrows' impossibility theorem "individuals" for "incommensurable value dimensions" the same result obtained by Arrow for social choice can be proved for individual choice, that is, impossibility. Nevertheless, one hears say, individual do choose. In fact they do, but as collectives, by deliberating with difficulty.

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<sup>3</sup> Applied analysis always required auxiliary assumptions with reference to motivations: workers maximizing income and minimizing effort, firms maximizing profit and consumers maximizing satisfaction. It might thus make sense to identify in neoclassical economics two concepts of rationality – axiomatic and welfare maximization (Sen, 1982).

<sup>4</sup> In fact it is hard to be indifferent between a situation in which Crusoe and Friday enjoy similar levels of welfare and another one in which one of them grabs the lion share.

As noted by Hirschman (1985), the incursion of neoclassical economics beyond its original domain had an unintended consequence: it exposed the limits and contradictions in the neoclassical concept of rationality or at least in its welfare version. The discovery of numerous paradoxes associated with social dilemmas in which rational individuals obtain worse results than those that would be obtained by irrational agents, fully justifies the label of “rational fools” (Sen, 1977) on neoclassical agents. Besides, the impressive evidence gathered by behavioural economics has showed that real agents are not simple maximizers of self-interest, in the sense that they do consider others and the consequences of their actions that fall on others. Those findings are stimulating a new shift in the meaning of rationality.

Utility is in the process of being once again substantialized and enlarged to encompass the welfare of others and even moral considerations. Preferences are becoming “social preferences”. This modification, in leaving untouched the notion of rationality as maximization of given preferences (even if given may now mean endogenous), does not help economics to overcome the limits of “rational choice”: Quite on the contrary, it only reopens the question that the marginalists tried to solve – the inner tension in inter or intrapersonal trade-offs or, to put it differently, the question of commensurability.

### **3. Difficulty of choice: what**

Choosing, in general terms, is selecting an object or a course of action from a set of alternatives which is perceived by the individual in the choice situation. The selection of an alternative necessarily implies the capacity to compare at least that alternative to all others. For an alternative to be selected this comparison must lead to the setting up of a preference relation between this alternative and each of the others. Choice is difficult whenever there is no alternative fulfilling this condition.

Difficulty stems potentially from the *multiplicity* of values<sup>5</sup>. Consider the set  $A$  of choice alternatives including the various objects of choice or courses of action  $(a_1, a_2, \dots, a_n)$  and

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<sup>5</sup> “A ‘value’ is any consideration with respect to which a meaningful evaluative comparison can be made” (Chang, 1997: 5).

the set  $A^p \subset A$ , representing the set of choice alternatives that, in a given moment, are perceived by the individual as feasible or relevant. Each element  $a_i$  of the set  $A^p$  has an image in the evaluation space  $C$ . The dimensions of the evaluation space  $C$  may be represented by a vector of relevant values  $V_i$  whose components  $(V_1, V_2, \dots, V_m)$  are the values or value dimensions in light of which the alternatives are assessed. It is assumed in the discussion that follows that the  $m$  relevant value dimensions are the same for all alternatives. Each alternative has an image in the space of evaluation  $C$ ,  $(v_1, v_2, \dots, v_m)$  in which  $v_j$  is the quantitative or qualitative consequence of this alternative from the standpoint of value dimension  $j$ .

In spite of the existence of multiple value dimensions, choice may be non problematic, that is, it may be possible and easy to identify and select in the set  $A^p$  one and only one alternative: (a) if in  $A^p$  there is only a non-dominated alternative; (b) if the choosing individual can reach a complete ordering of the value dimensions; (c) if the choosing individual can establish the comparative importance of value dimensions in cardinal terms (Luce *et al.*, 1997; Payne and Bettman, 2001).

Condition (a) will be fulfilled if in the set  $A^p$  an alternative  $a_i$  exists such that  $\forall j, j \neq i, v_k^i \geq v_k^j, \forall k, k = 1, \dots, m$  and  $\exists v_k^i > v_k^j$ . Condition (b) will be fulfilled when an ordering of value dimensions is available so that a hierarchical procedure – lexicographic, goal programming, etc. – may be used to select the alternative that best satisfies the priorities set up. Condition (c) is fulfilled whenever it is possible to assign a weight  $w_j$  to each value dimension, such that  $\sum_1^m w_j = 1$ , allowing the scalar transformation of vector  $(v_1, v_2, \dots, v_m)$  by multiplication with the vector of weights.

Difficulty also may stem from the *incommensurability* of the multiple value dimensions. Two types of incommensurability may be identified (O’Neill, 1993): *strong incommensurability* – the irreducibility of the various value dimensions to a single scale – and *weak incommensurability* – the incapacity to order the multiple dimensions of value



in a scale of importance. The existence of strong incommensurability excludes condition (c). In this case, the individual is simply unable, or unwilling, to figure out what the weights  $w_j$ , that is, the relative prices of the different values, should be. Consequently, the vector  $(v_1, v_2, \dots, v_m)$  is not reducible to a scalar. The existence of weak incommensurability excludes condition (b). The impossibility of ordering all values in a priority scale excludes the adoption of any hierarchical choice procedure. Incommensurability, however, does not necessarily excludes condition (a), since if a single non dominated solution exists it is possible to compare it with all the others without the one-dimensional reduction of all values or their ordering in a scale of importance.

At last difficulty presupposes *conflictuality*, that is, a situation in which any improvement in one value dimension involves a loss in at least another dimension. Conflictuality may be related with the fact that the different choice alternatives compete from the scarce resources available to the individual, blocking the simultaneous actualization of all value dimensions. Conflictuality necessarily excludes condition (a). Note that finding a non-dominated alternative means, by definition, that an option exists, which in respect to all other options is better in at least one value dimension and as good in all other dimensions.

*The three conditions – multiplicity, incommensurability and conflictuality – taken together, are conditions of difficulty.*

Difficulty gives room to one type of relation between alternatives – *incomparability* – which is not admitted in the rational choice frame. Between a pair of alternatives  $a$  and  $b$  it is now possible not only the occurrence of  $a \succ b$ ,  $b \succ a$  or  $a \approx b$ , but  $aIb$  (with I for incomparable). However, contrary to what is commonly assumed, incommensurability does not necessarily imply incomparability<sup>6</sup>. In the case of dominance, two alternatives are comparable even if the values are incommensurable.

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<sup>6</sup> Raz states that “A and B are incommensurate if it is neither true that one is better than the other nor true that they are of equal value” (Raz, 1986: 322). He does use the terms incommensurability and incomparability interchangeable. Our perspective, contrary to Raz (1986), is close to that of Stocker (1990), Chang (1997), Richardson (1997) and Nussbaum (2000).

The difficulty of choice thus refers to the effort involved in the process of deliberation when the agent is confronted with a set of alternatives whose consequences are assessed in a multidimensional space of incommensurable and conflictual values. Deliberation, in turn, may be viewed as “a dramatic rehearsal (in imagination) of various competing possible lines of action” (Dewey, 1922: 190). A process which necessarily involves effort until concluded with choice. What is then choice? Replies Dewey: “Simply hitting in imagination upon an object which furnishes an adequate stimulus to the recovery of overt action. (...) Then energy is released. The mind is made up, composed, unified” (Dewey, 1922: 192).

#### **4. Moral and cognitive difficulty**

There are both cognitive and moral aspects in difficulty. Cognitive difficulty is described by Simon (1955: 109) as a situation in which the individual “may be trying to implement a number of *values that do not have a common denominator* – e.g., he compares two jobs in terms of salary, climate, pleasantness of work, prestige, etc.”. Cognitive difficulty is part of what led Simon to the concept of bounded rationality. Given difficulty, the individual is compelled to resort to heuristic choice procedures, as for instance, choosing the first alternative satisfying aspiration levels, one for each value dimension.

Moral difficulty, which Simon did not consider in his 1955 paper, has in common with its cognitive counterpart the same absence of a “common denominator” to all values. But, while the second type of difficulty stems from the cognitive incapacity to establish the numerical trade-offs allowing the one-dimensional reduction of the multiple values, moral difficulty is rather a consequence of the dissonance or tension resulting from any attempts at determining those trade-offs. Whatever the concept of morality, it always presupposes that trade-offs among some values may compromise the integrity of the individual in the choice situation and in the future. Scarcely any value in respect to which

finding a counterpart would be easy, either in other goods or money, could be considered as moral, which does not imply the actual existence of these types of trade-offs<sup>7</sup>.

Evidence in favour of a distinction between cognitive and moral difficulty has been gathered in psychology and the neurosciences. This research suggests, on the one hand, that individuals tend to spontaneously identify the distinction between these two types of difficulty and, on the other hand, that the deliberation processes are distinct in both cases to the point of involving specific neuronal structures.

In the realm of psychology, Tetlock's and colleagues work has been exploring the reactions of individual participants in experimental studies in face of different types of transaction: "routine trade-offs", in which a money counterpart is given for goods and services typically exchanged in the market, "taboo trade-offs", in which a money counterpart is given for goods and services not usually exchanged in the market, and "tragic trade-offs", in which equally important values conflict with each other (Tetlock *et al.*, 2003).

One of the experimental studies implemented by Tetlock *et al.* (2003) aims at showing that, while certain type of transactions ("routine trade-offs") are deemed acceptable by individuals, not triggering any kind of emotional reaction and moral outrage, other are rejected ("taboo trade-offs"), given rise to expressions of indignation and to emotional stress in the participants of the experimental study<sup>8</sup>.

The other experimental situation implemented by Tetlock *et al.* (2003) aims at comparing the reactions of spectators to the decisions of a hypothetical health-care decision maker who is faced with a tragic choice between the lives of two patients, or with a transaction

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<sup>7</sup> Kant states: "In the realm of ends everything has either a price or dignity. Whatever has a price can be replaced by something else which is equivalent: whatever is above all price, and therefore has no equivalent, has dignity" (quoted in Bowles (1998: 90)).

<sup>8</sup> In this experimental study the following "routine trade-offs" are presented to participants: paying someone to clean my house, buying a house, buying food, paying a doctor to provide medical care to me or my family, and paying a lawyer to defend me against criminal charges in court. "Taboo trade-offs" are: buying and selling of human body parts for medical transplant operations, surrogate motherhood contracts, adoption rights for orphans, votes in elections for political offices, the right to become a U. S. citizen, the right to a jury trial, sexual favours (prostitution), someone else to serve jail time to which the buyer had been sentenced by a court of law, and paying someone to perform military service which the buyer had a draft obligation to perform. Participants have to assess these different types of transactions by allowing or disallowing each one, by morally approving or disapproving these transactions and by describing the emotional reaction that these transactions have triggered in them (Tetlock *et al.*, 2003).

that presupposes a monetary valuation to a patient's life<sup>9</sup>. In the tragic choice situation, the health-care decision maker is faced with two children who need a liver transplant. Because of the shortage of organs, the health-care decision maker must choose one of the patients. The participants (spectators) in the experimental study are informed on the duration of the hypothetical deliberation process. In this tragic choice situation, the longer deliberation was interpreted as revealing prudence and good sense and approved by the observers whatever the outcome of choice.

In the other situation ("taboo trade-off"), the health-care decision maker has to decide if the liver transplant to a patient (a child) would be allowed, or if the monetary resources needed should instead be allocated to other needs in the hospital (for instance, the acquisition of better equipment, or raising salaries to recruit talented doctors). It is now shown that the longer the deliberation the worse the evaluation of the health-care decision maker, even if at the end he allows the liver transplant. The longer duration of the deliberation process is viewed, in this situation, as revealing the admissibility of this type of trade-off. The mere consideration of the sacrifice of a life in exchange of a higher efficiency is perceived as being corrosive of the importance and the meaning of a sacred value (life), even if in the end the alternative chosen still upholds that value.

The neurosciences provide several studies which try to identify the neural correlates of moral judgement and the interaction between the brain regions more directly involved in emotion processing and cognition. In these experimental studies, the stimulus used generally involve the description of moral dilemma situations, which involve conflicting choices whose consequences are all not acceptable from a moral point of view (Adolphs, 2003). The neural correlates of moral emotions and cognition identified are the same in these studies (Greene *et al.* 2001, 2004; Moll *et al.* 2002, 2005)<sup>10</sup>.

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<sup>9</sup> The experimental study's participants have to assess the decision of the health-care decision making and have to describe their own feelings in respect to this decision. Participants have also to consider if the health-care decision maker should or should not be removed from his job and if the health-care decision maker was a friend of them, and knowing the decision he made, the friendship relation would or would not end.

<sup>10</sup> These brain regions are: the frontal lobe (more specifically the Brodmann's area (BA) 9/10), the orbitofrontal cortex ((BA 10/11/25), the superior temporal sulcus (BA 39), insula, the posterior and anterior cingulate cortex (BA 24/31/32), the parietal lobe (BA 7/40), the dorsolateral prefrontal cortex and the ventromedial sectors of the prefrontal cortex (Adolphs, 2003; Damásio 1994, 2003; Greene *et al.* 2001, 2004; Moll *et al.* 2002, 2005). Additionally, the limbic regions which include the amygdala, the

In the experimental studies implemented by Greene *et al.* (2001, 2004), the participants are faced with the description of various types of moral dilemmas. In each moral dilemma situation, they have to state which the proper alternative. While participants deliberate magnetic resonance images of their brains are recorded.

Greene *et al.* (2001) consider non-moral and moral dilemmas, which, in turn, may be either *personal* or *impersonal*<sup>11</sup>. The non moral dilemmas are about trivial choices between conflicting value dimensions, as, for instance, the choice of a transport (train or bus). The moral dilemmas involve conflicts between sacred values (a human life versus *n* human lives). The moral dilemma is personal when there is an alternative that involves the direct intervention of the agent (the agent sacrifices personal and directly one life to save *n*)<sup>12</sup>. The moral dilemma is impersonal when no alternative involves the personal intervention of the agent.

The experimental study shows that moral dilemma situations (personal and impersonal) differ in the extent to which emotions are engaged in moral judgment and choice. The emotional stress is stronger in personal moral dilemmas than in impersonal moral dilemmas and non moral dilemmas, as revealed by an increased brain activity in regions related to social and/or moral emotions processing<sup>13</sup>. Besides, in the personal moral dilemma condition, the majority of the participants formulate a judgement that is consistent with their refusal to intervene in the production of an outcome and the few participants who decide to actively intervene tend to exhibit a longer reaction time. This difference in reaction time is not found in other conditions (impersonal moral dilemma and non moral dilemma).

Greene *et al.* in their 2004 paper aim at exploring the reasons underlying this difference in reaction time between the personal moral dilemma condition and the remaining

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hypothalamus and the thalamus are important in certain disagreeable basic emotions processing, such as fear and disgust, and also in moral emotions processing.

<sup>11</sup> [www.sciencemag.org/cgi/content/full/293/5537/2105/DC1](http://www.sciencemag.org/cgi/content/full/293/5537/2105/DC1) contains a complete description of the sixty dilemma situations that participants have to deal with.

<sup>12</sup> “*Me hurt you*” is the label that appears in the literature in connection to the moral personal violations (Greene *et al.*, 2001, 2002, 2004). This type of moral violation pertains to bodily offences, inflicted in a particular individual or in a group of individuals, and being the result of a direct and deliberate action from the agent.

<sup>13</sup> The brain regions where an increase brain activity is registered are: frontal lobe (more precisely the BA 9/10), superior temporal sulcus (BA 39) and posterior cingulate cortex (BA 31) (Greene *et al.* 2001, 2002).

conditions. The experiment implements the difference between difficult and easy personal moral dilemmas and tests the conjecture that the larger reaction time, which is a feature of the first type of dilemma, results from the conflict experienced when the consequence deemed appropriate depends on a disgusting personal intervention<sup>14</sup>. The conjecture is corroborated by the observation of more intense brain activity in regions associated with the control of cognitive conflicts and processes of abstract reasoning<sup>15</sup>, together with significant brain activity in brain structures more closely related with the processing of moral and/or social emotions. This pattern of brain activity is not found in the case of easy personal moral dilemmas, in which the negative emotional reaction is in accordance with the negative moral judgement of the action. In those situations, the reaction time is comparatively short, and the activity of the neural structures, more directly related with cognitive conflict and processes of abstract reasoning, is lower.

These results (Greene *et al.* 2001, 2002, 2004) suggest that the longer reaction time in situations of difficult personal moral dilemmas is not related to higher computational complexity, which is also present in the case of easy personal moral dilemmas, but to the conflict arising from the moral judgement of competing choice alternatives and the corresponding emotional reaction. These results converge with Tetlock's *et al.* (2003) conclusions, in which the longer deliberation process of a hypothetical decision maker is associated to the consideration of certain types of trade-offs (taboo trade-offs), which from the emotional point of view tend to trigger a spontaneous disgust. The longer reaction time is accordingly interpreted and negatively judged by impartial observers.

The results also suggest that the different brain regions which are identified as being associated to moral judgement also participate in other processes which are not specifically moral, like physiological regulation functions that generate avoidance and approach behaviour and social behaviour in general. Many of these brain structures sustain the capacity to represent the mental states of other individuals and to infer their beliefs and intentions ("theory-of-mind")<sup>16</sup>.

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<sup>14</sup> One of the tragic examples evoked is of a group trying to hide from enemies in which a child may at any moment cry calling the enemies' attention.

<sup>15</sup> These neural structures correspond to anterior cingulate cortex (BA 24/32), parietal lobe (BA 7/40) and the dorsolateral prefrontal region (Greene *et al.* 2004; Moll *et al.*, 2005).

<sup>16</sup> The frontal lobe (more specifically BA 9/10) and superior temporal sulcus (BA 39) (Greene *et al.*, 2002).

But in spite of all advances no unanimity exists yet on the relation between cognition and the emotions associated with moral judgement and decision making. According to Moll et al. (2005), certain approaches, as Greene's *et al.* (2001, 2002, 2004), tend to underline a function of control and inhibition of cognitive processes over emotional responses. Greene et al. (2004) acknowledge that the distinction between emotion and cognition, although useful, is not obvious, since certain neural structures<sup>17</sup> in brain regions usually associated with the processing of emotions tend to exhibit a significant activity in situations where processes of cognitive control and abstract reasoning are more intensely mobilised, as in the case of difficult personal moral dilemmas. Moll's *et al.* approach (2005) and Damásio 's (1994, 2003) somatic marker hypothesis underline instead the connexion between cognitive and emotional processes giving special emphasis to the fact that social behaviour and social and/or moral emotions involve the coordinated participation of different brain regions, namely the neural structures of the prefrontal cortex, involved in information processing and the representation of long run consequences of action, together with limbic structures, directly connected to certain emotions as sadness and joy.

This psychological and neuroscientific research is inspiring in respect to the distinction drawn between moral and cognitive difficulty. Firstly, it shows that individuals spontaneously operate a distinction between moral and non moral dilemmas and between different types of moral dilemmas. Secondly, it suggests that this distinction is grounded in a difference on the specific neurophysiological processes involved. Thirdly, also suggests that not only the chooser and the doer, but also the observers, are aware of this difference. In fact, observers tend to interpret the same signal (for instance, the reaction time in a deliberation process) differently depending on the type of the dilemma evoked.

Consequently, the distinction between moral and cognitive difficulty not only makes sense but is supported by evidence. However, it may be insufficient in that different types of moral and cognitive difficulty may exist. Besides, the evidence also suggests that moral difficulty is not different from cognitive difficulty because the first type of

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<sup>17</sup> The posterior cingulate cortex (BA 23/31) (Greene *et al.*, 2004).

difficulty belongs to the realm of emotions. Not only emotions relate to both, but in moral difficulty, together with emotions, cognitive elements may be present. It can even be claimed that this cognitive element may sometimes play a regulative function over emotions. On the other hand, even in assessing morally neutral consequences of action emotional elements may be present, as suggested by the somatic marker hypothesis (Damásio, 1994).

A feature of moral difficulty is that deliberation in context of moral dilemma, invariably involves brain structures which are correlated with social behaviour, more specifically the capacity to represent and make inferences about the mental states of others. This is especially suggestive: even when one's own actions are the object of judgement there are brain structures involved which coincide with those mobilised to represent the mental states of others. This empirical finding may be stated in other words by the notion that the moral judgement of one's own actions always involves the capacity to step outside the self and putting oneself in the shoes of an impartial spectator. In face of moral difficulty, the individual is his own spectator in Dewey's imaginative dramatic rehearsal.

Once the distinction between moral and cognitive difficulty is operated what remains open is the extent to which moral difficulty is relevant in the "ordinary business of life", the realm assigned by Marshall (1920) to economics. For this purpose the psychological and neuroscientific research so far, since it only draws on extreme dilemmatic situations, is not very helpful. As stated by Moll et al. (2005: 803): "[t]he making of moral judgements on extreme and unfamiliar situations, such as those posed by classic moral dilemmas, offers interesting ways to probe philosophical points of view, but can hardly be taken as a proxy for everyday moral reasoning". The same authors argue in favour of an extension of neuroscience research to these more familiar and current moral dilemmas. Meanwhile in the absence of new empirical evidence observation and introspection have to be relied upon when trying to assess the relevance of moral difficulty for economics.

## **5. The economic relevance of moral difficulty**



A better understanding of moral difficulty is required in order to establish its (i)relevance for economics. In this respect other contributions from philosophy and economics may be useful, especially when combined with the empirical evidence from other sources.

Authors as Richardson (1997), Sunstein (1997), Nussbaum (2000) and Radin (2001) have stated that choices are morally difficult whenever they involve value judgements whose conflictual nature can compromise goods and values that are considered to be constitutive of the moral and personal identity of individuals, as well as social understandings about the way these goods should be evaluated. They also believe that, individuals evaluate these different goods and values not only from a quantitative standpoint, in terms of their contribution to maximization of a global value, but from the qualitative standpoint of a plurality of values and the different aspects and/or considerations that are behind this plurality. As stated by Stocker (1990: 182), goods and values “are different if what gives them value differs, not simply if they have a different amount of value”. For this author, the plurality of values is related to the fact that individuals are concerned with different evaluative aspects which are not only directed to the determination of an alternative to be chosen (“action-guiding-act-evaluations”), but also to a set of appreciations about the meaning and the understanding of certain choices (“non-action-guiding-act-evaluations”)<sup>18</sup>.

This last point suggests the importance of an *expressive dimension of choice*. The deliberation process and choice provide several cues about the agent’s intentions, which influence other’s judgements about the agent’s intentions and influence the understandings of the nature of the economical and social relations that frame exchange. Some of the results in psychology and the neurosciences provide some insights on the mechanisms involved from which implications for economics may be drawn.

Firstly, as stated above, this empirical evidence shows that individuals may interpret a signal, as the reaction time of a deliberation process, differently depending on the type of dilemmatic situation, and independently of the alternative effectively chosen. This interpretative effort is supported by neural structures associated to the capacity of representing the mental states of others and of inferring their beliefs. In respect to this

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<sup>18</sup> See Stocker (1990: 95-126).

capacity Adolphs (2003:176) states that: “If we understand other people in part by simulating processes within ourselves, the converse is also true: we understand ourselves in part by observing other people and their reactions to us. (...) Just as we can think about other people, we can step outside ourselves, and imagine things happening to ourselves in the future”.

Secondly, the obvious implication of associating an expressive dimension to the process of deliberation is that the reasons underlying the moral difficulty may not result only from the conflict of different values and the transgression of certain social and/or moral norms. The experiments in psychology and the neurosciences show that the attribution of money price to goods and services which are not usually object of market transactions may be a source of moral difficulty. However, the question remains on how and why certain transactions and not others are seen as problematic; why the assignment of a money price to certain goods and not others may corrupt their value and significance (Nussbaum 1998, 2000). Having in mind the expressive dimension, it may be conjectured that this may happen when the attribution of a money price or any other type of trade-off blocks the possibility for individuals to express certain judgements about themselves, about others and about the nature of the economical and social relations involved in such transactions. This suggests that moral difficulty is not relevant only in extreme dilemmatic situations, but may rather be a comparatively common feature of choice situations in social contexts.

Authors like Sen (1977) and Hirschman (1985) have argued in favour of the relevance of the moral dimension of choice in domains which are at the core of the subject matter of economics. They both rejected Edgeworth’s (1881) notion of a domain of economics circumscribed to situations of bilateral contract between equal and anonymous individuals, in which only egoistic motives would intervene. They also rejected the view of individuals as mere “wantons” whose only purpose would be the satisfaction of their first order desires.

Sen (1977) not only acknowledges that the motivations related to the type of phenomena that economics aims at understanding can hardly be reduced to egoism but also that it is not enough for economics to admit that individuals take the welfare of others into

consideration because as one component of their own welfare, as captured by the notion he advances of sympathy. According to Sen (1977: 326), “behavior based on sympathy is in an important sense egoistic, for one is oneself pleased at others’ pleasure and pained at others’ pain, and the pursuit of one’s own utility may thus be helped by sympathetic action. It is action based on commitment rather than sympathy which would be non-egoistic in this sense. For Sen (1977: 327): “one way of defining commitment is in terms of a person choosing an act that he believes will yield a lower level of personal welfare to him than an alternative that is also available to him”.

Although Sen (1977) accepts that commitment may be irrelevant in respect to certain phenomena studied in economics, he argues that only if it is considered that economics sole subject matter is the analysis of consumption of private goods by anonymous and independent individuals, could one ignore the importance of commitment in respect to economic behaviour. In specifying phenomena in respect to which commitment is an important motivation Sen (1977) identifies the provision of public goods, collective action and questions pertaining to labour relations and worker effort. In fact this list could easily be extended to all situations involving what is currently labelled as principal-agent problems and contract incompleteness. In fact, these situations share as a feature the conflict between the mere satisfaction of self-interest and the contribution to the welfare of others, and commitment to promises made. They all involve moral difficulty.

Hirschman (1985) emphasises the reflexive capacity of individuals and their exercise of communication and persuasion (“voice”). As stated by the author, the implication of reflection and persuasion is that changes in preferences should not always be assimilated to changes in tastes since they may be the outcome of value judgements on the appropriateness and desirability of one’s preferences, or using Sen’s terminology of changes in metapreferences.

Sen and Hirschman were seminal in arguing the need for a less parsimonious economic model. They thus stimulated a behavioural line of research that is becoming more and more popular among economists.

As a part of that research monetary incentives and their consequences became a topic of interest of many (Frey, 1997). In the light of the present discussion incentives may be

viewed as devices aimed at imposing commensurability on individuals. The expressive dimension perspective sheds light on why rather than solving the original conflict of values they may create a new and possibly more acute conflict (Stocker, 1990; Nussbaum, 2000). When for individuals it is important to express the adherence to certain values, the monetary incentive may block that expression, placing them in face of a new dilemma: on the one hand, the adherence to those values, whose expression is only possible in a choice context where the incentive is absent, would require a negative response (ie. withdrawing cooperation), on the other hand, the reasons for cooperating may remain although the choice of cooperation, in this new context, would tend to be interpreted as the mere satisfaction of self-interest. The agent is now caught in a trap. Whatever the alternative chosen – to cooperate in spite of the incentive or to withdraw cooperation – there may be serious moral wrongdoing and this may originate feelings of indignation, embarrassment and frustration. If indignation is the prevailing attitude a possible result of the introduction of monetary incentives is a lower disposition for cooperation. But even if one would choose to move on and still cooperate, the situation may still be regretted. Regret may then trigger the need to express disapproval and to reinstate the values which have been compromised. In future situations, when it is more unexpected the withdrawal of the disposition for cooperation may emerge. The consequence of forcing commensurability on a moral and difficult choice may thus be the irreversible slacking of the adherence of individuals to certain obligations.

Situations involving moral difficulty are thus frequent in everyday interpersonal relations even in core domains of economics. Individuals deal with moral difficulty in their everyday lives and they do this in a rational manner. Could it be that rational choice is only possible when commensurability is imposed on individuals?

## **6. Deliberation and action**

Any theory that would stipulate that all behaviour is driven by habit would sooner or later have to confront the problem that stems from the possible existence of situations in which habits point to different directions.

In face of conflict the role of deliberation becomes salient even though deliberation may exist in situations in which there is no conflict between habitual dispositions. Dewey emphasised conflict as the factor triggering deliberation when he wrote that: “With conflict of habits and release of impulse there is conscious search” (Dewey, 1922: 180).

Deliberation in Dewey’s account arises out of difficulty - “we want things that are incompatible with one another; therefore we have to make a choice of what we *really* want, ...” (Dewey, 1922: 193) – and at the same time it is the process of overcoming difficulty: “It is the emergence of a unified preference out of competing preferences” (Dewey, 1922: 193).

But the emergence of a unified preference mentioned by Dewey must not be interpreted as a process of aggregation of values in a scalar *comensurans*. In fact, deliberation is a process in which in order to choose “what to do” one has to decide at the same time “what I really want”. In this light deliberation is a search for justification, and rational choice can no longer be conceived instrumentally as the choice of the best means to achieve given ends, but rather as the process of articulating the reasons justifying choice. Justifying choice, in turn, is articulating the values under which the superiority of a given alternative, in respect to all the others, may be asserted.

In face of difficulty, that is, given the existence of a set of non dominated alternatives containing more than one alternative there are at least two possibilities for overcoming the situation of conflict: the first possibility is discovering a new alternative, not contained in the initial set  $A^p$ , that may solve the conflict by dominating the previously considered alternatives; the second possibility is the reconfiguration of values so that one of the alternatives contained in  $A^p$  becomes isolated in the set of non dominated alternatives.

The discovery of new alternatives requires a motivation for a creative effort which will tend to be stronger the more acute the awareness of the value conflict and the resistance to the acceptance of trade-offs among those values. The reconfiguration of values involves procedures for the revision of the dimensions of assessment of alternatives aimed at justifying the superiority of one alternative in respect to all others. Reference to this type of procedure must not be confused with any instrumental view of choice over

values conception which submits that search to the imperative of choice. The search in the space of values we have in mind presupposes the possibility of a rationality of ends, one which the contemporary philosophers we have been evoking try to theorize. Having no pretension to contribute to that philosophical debate we simply build on the evidence that individuals in dilemmatic situations do engage in reflection about ends and that individuals in social contexts do engage in debate about final ends.

In order to illustrate a number of conjectures on procedures of deliberation that follow, consider a situation of someone who must decide whether enrolling one of her children either in a private or in a public educational institution. Suppose further that the decision maker believes that the public system of education is an institution that should be supported and that coherence demands that he should enroll her child in the public system. But she also believes that there are other aspects to take into consideration, namely, quality of education and safety. Given the information available the decision maker believes that both quality and safety are worse in the public system.

As suggested above a first type of response to a difficulty as the one described above is the search for an alternative which was not initially considered. One may easily imagine that someone in face of this dilemma could try to overcome the conflict by choosing the public system and by providing her child with other educational opportunities, which take place in a safe environment, beyond school hours.

Other procedures involve the search in the space of values or its reconfiguration. A modality of reconfiguration can be found in Simon (1955) in connection to cognitive difficulty – the setting up of aspiration levels for each value or subset of values. From the computational point of view it is obvious that the setting up of aspiration levels reduces the search space even to the point in which a single satisfactory alternative remains.

But this procedure may be interpreted in a more suggestive way. The argument for commensurability as a condition for rational choice refuses to acknowledge to any value the prerogative of being actualized whatever the consequences in terms of other relevant value dimensions. This may be reasonable. However, it does not imply that all values must have as a counterpart gains or losses in other dimensions of value, as implied by commensurability. An important value must not compromise the achievement of an

aspiration level in secondary values, but at the same time the level of achievement of the important value must not be compromised by gains in secondary values. To put it differently: the acknowledgment of limits for the achievement of a higher level imposed by levels of aspiration in secondary values does not imply the acknowledgement of a purchase power of secondary values over a more important value. The relationship between values may thus be asymmetrical or as suggested by Richardson (1997) there may exist a relation of regulation among values.

Let us consider for instance that once the dilemma was solved in favor of the public system, the choice of a school remained open. The relevant values were now the quality of education and safety. Let us now assume that the decision maker believes that the quality of education is the most important dimension. The alternatives represented for values in a scale 0 – 10 are pictured in the following table:

	<b>Quality of education</b>	<b>Safety</b>
<b>A</b>	5	4
<b>B</b>	4	5
<b>C</b>	3	6
<b>D</b>	2	7

Since the four alternatives are incomparable, all conditions of difficulty are present. In a situation as the one described, commensurability would imply the possibility of compensating losses in quality by gains in safety and vice-versa. Our decision maker believes quality to be the most important value. This, however, does not imply that she is willing to unconditionally give up safety in order to maximize quality. Instead a threshold of security may exist for him that must not be compromised.

She may then reconfigure the value security by redefining the scale adopted: assigning a 0 in safety to the alternatives that do not satisfy the aspiration level, and a 1 to the remaining. If the aspiration level is set at 5, the data will be reconfigured as follows:

	<b>Quality of education</b>	<b>Safety</b>
<b>A</b>	5	0 (4)
<b>B</b>	4	1 (5)
<b>C</b>	3	1 (6)
<b>D</b>	2	1 (7)

Following this reconfiguration of the value safety, alternative B is now the only non-dominated in the choice set. A choice of B might be justified in the following terms: “Among the schools that satisfy the safety threshold I choose the one with the best quality”. Note that with this reconfiguration no increase in safety may compensate a loss in quality. The relationship between quality and safety is asymmetrical, quality regulates safety.

The setting up of aspiration levels and regulation relationship between values is not the only possible form of reconfiguring values. The decision maker in our example may believe that the consequences of choosing the public system in terms of other values are unbearable. Reflection during deliberation may however reveal that those consequences are unbearable only while the child is very young. In this case the value “support of the public system” could be reconfigured by a longer term commitment in form “my child will enrol in the public system as soon as he is ten years old”.

The outcome of deliberation – choice - is vividly described by Dewey (1922: 192): “Then energy is released. The mind is made up, composed, unified”. But the fact that choice was made may not translate into the notion that the chooser is now reconciled with himself or with the world. Choice is possible even if through deliberation the agent became aware that the alternatives available are constraining the achievement of important values. In that sense the decision maker may act in conflict, although this conflict is not one in respect to the choice of one alternative – “What is to be done” (the



obvious question of Nussbaum (2000: 1006)) – but on the desirability of the reconfiguration that made choice possible.

This type of action in conflict connects deliberation and action, on the one hand, and institutional change, on the other. Following Nussbaum (2000), action in conflict may be in itself the starting point of an exercise of political imagination which may translate into action aimed at institutional change. The subject in our example while choosing the public system may engage in the setting up of a parents association which together with teachers may contribute to improve quality and safety.

Changes in the context of action may induce radical reconfigurations of values which may transport the decision maker from one space of evaluation to another. In the case of monetary incentives, for instance, the paradoxical effects discussed above may be understood as the replacement of a plural evaluation space, in which private interest and commitment compete, by a one-dimensional cost-benefit space in which only private interest is considered. In the new space the outcome of choice is undetermined since it is dependent on the monetary stakes involved. Although the choice made by the agent may be the same with or without incentive, her attitude must have changed. Someone who upholds cooperation even when self-interest becomes the sole justification, did not change behaviour, but since she is now deprived of the possibility of expressing commitment her attitude has changed.

## **7. Concluding remarks**

We argued in this essay that institutionalism needs a theory of deliberation and that this theory is not to be assimilated to rational choice. In fact, there are signs suggesting that even for neoclassical economists “rational choice” is now becoming a nuisance. This was clearly foreseen by authors such as Hirshman and Sen, and is becoming obvious for those who follow advances in behavioural economics.

Preparing the ground for a discussion on deliberation we advanced the concept of difficulty, namely moral difficulty, we evoked psychological and neuroscientific

evidence on its significance, and gave arguments in favour of its relevance in respect to phenomena which are at the core of the subject matter of economics.

In respect to deliberation we brought in Dewey's contribution and related it to more recent philosophical insights. The common features of those contributions are the decoupling of commensurability and rationality and the departure from the pseudo-Humean fact-value distinction. Deliberation in this perspective involves not only an answer to the practical question – what is to be done? – but a choice of what is to be desired. Bypassing the most difficult question - the rationality of ends - we conjectured on procedures of deliberation considering both the search for new alternatives that may overcome conflict and the specification and reconfiguration of the space of values.

The understanding of deliberation as a parallel search in the space of alternatives and in the space of values gives room to the acknowledgement of the possibility of action in conflict. This is not the same conflict involved in the deliberation process. It is rather a conflict between the values that may be actualized, given the alternatives available in the context, and those upheld by the agent as constitutive of his personal and moral identity. Action in conflict may then account for the motivation of the agent for transformative interventions on the institutional frame of action – the sought for connection articulating behaviour and institutional change.

## References

Adolphs, Ralph (2003), “Cognitive Neuroscience of Human Social Behaviour”, *Nature*, 4, pp. 165-178

Arrow, Kenneth (1963), *Social Choice and Individual Values*, New York: Wiley, 2nd edition

Bentham, Jeremy (1823), An Introduction to the Principles of Morals and Legislation, Cap. I-IV, in: Page, Alfred N. (1968), *Utility Theory: A Book of Readings*. John Wiley & Sons, Inc.

- Bowles, Samuel (1998), “Endogenous Preferences: The Cultural Consequences of Markets and other Economic Institutions”, *Journal of Economic Literature*, Vol. XXXVI, pp. 75-111
- Castro Caldas, José *et al.* (2006), “Rethinking economics: the potential contribution of the classics”; *Cambridge Journal of Economics*, Advance Access published March 14
- Chang, Ruth (1997), *Incommensurability, Incomparability, and Practical Reason*, Cambridge, Harvard University Press
- Damásio, António (2003), *Ao Encontro de Espinosa. As Emoções Sociais e a Neurologia do Sentir*, Mem Martins, Publicações Europa-América
- Damásio, António R. (1994) *O Erro de Descartes. Emoção, Razão e Cérebro Humano*, Mem Martins, Publicações Europa-América
- Dewey, John (1922), *Human Nature and Conduct. An Introduction to Social Psychology*, New York, The Modern Library
- Edgeworth, Francis Y. 1967 (1881). *Mathematical Psychics. An Essay on the Application of the Mathematics to the Moral Sciences*, New York, Augustus M. Kelley
- Frankfurt, H. M. (1971), “Freedom of Will and the Concept of a Person”, *Journal of Philosophy*, 68, 5-20
- Frey, B. S. (1997), *Not Just for the Money. An Economic Theory of Personal Motivation*, Cheltenham, Edward Elgar
- Frey, Bruno (1997), *Not Just for the Money. An Economic Theory of Personal Motivation*, Cheltenham, Edward Elgar Publishing Limited.
- Greene, Joshua D. *et al.* (2001), “An fMRI Investigation of Emotional Engagement in Moral Judgment”, *Science*, 293, 2105-2109
- Greene, Joshua D. *et al.* (2004), “The Neural Bases of Cognitive Conflict and Control in Moral Judgment”, *Neuron*, 44, 389-400
- Hicks, J. R. and Allen, R. G. D. 1934. A reconsideration of the theory of value, *Economica*, NS, vol. 1, no. 1 (part I), 52-76

Hirschman, A. O. 1985. Against parsimony – three ways of complicating some categories of economic discourse, *Economics and Philosophy*, no. 1, 7-21

Hodgson, Geoffrey M. (2004), “Reclaiming habit for institutional economics”, *Journal of Economic Psychology*, n. 25, pp. 651-660.

Jevons, W. Stanley 1965 (1871). *The Theory of Political Economy*, New York, Augustus M. Kelley

Kavka, Gregory (1991), “Is Individual Choice Less Problematic than Collective Choice?”, *Economics and Philosophy*, 7, 143-165

Luce et al. (1997), “Choice Processing in Emotionally Difficult Decisions”, *Journal of Experimental Psychology*, 23, 384-405

Marshall, Alfred 1966 (1920). *Principles of Economics*, London, MacMillan

Mas-Colell, Andreu, Michael Whinston e Jerry Green (1995), *Microeconomic Theory*, New York, Oxford University Press

Mill, John Stuart (1871), “Utilitarianism”, in *On liberty and Other Essays*, Oxford, Oxford University Press

Moll et al. (2002), “The Neural Correlates of Moral Sensitivity: A Functional Magnetic Resonance Imaging Investigation of Basic and Moral Emotions”, *The Journal of Neuroscience*, 22(7), 2730-2736

Moll, Jorge et al. (2005), “The Neural Basis of Human Moral Cognition, *Nature Reviews*, 6, October, 799-809

Nussbaum, Martha (1998), “Whether from Reason or Prejudice”: Taking Money for Bodily Services, *Journal of Legal Studies*, vol. XXVII, January, 693-724

Nussbaum, Martha (2000), “The Cost of Tragedy: Some Moral Limits of Cost-Benefit Analysis”, *Journal of Legal Studies*, 29, 1005-1036

O’Neil, John (1993), *Ecology Policy and Politics*, London, Routledge and Kegan Paul.

Pareto, Vilfredo 1981 (1909). *Manuel d’Économie Politique*, Geneve, Librairie Droz

- Payne, John e James Bettman (2001), “Preferential Choice and Adaptive Strategy Use” in Gigerenzer, Gerd e Reinhard Selten (eds.), *Bounded Rationality. The Adaptive Toolbox*, Cambridge and London, The MIT Press
- Radin, Margaret (2001), *Contested Commodities*, Cambridge: Harvard University Press
- Raz, Joseph (1986), *The Morality of Freedom*, Oxford, Clarendon Press
- Richardson, Henry S. (1997), *Practical Reasoning about Final Ends*, Cambridge University Press
- Samuelson, P. (1938), “A Note on the Pure Theory of Consumer’s Behaviour”, *Economica*, vol. V, n.º 17-20, pp. 61-71.
- Samuelson, P. (1948), “Consumption Theory in Terms of Revealed Preference”, *Economica*, vol. XV, n.º 57-60, pp. 243-253.
- Savage, L. J. 1972 (1954). *The Foundation of Statistics*, New York, Dover
- Sen, Amartya (1977), Rational Fools, *Philosophy and Public Affairs*, 6(4), 317-44
- Sen, Amartya (1982), *Choice, Welfare and Measurement*, Cambridge, MA, Harvard University Press.
- Simon, Herbert (1955), A Behavioural Model of Rational Choice, *Quarterly Journal of Economics*, 69, 99-118
- Stocker, Michael (1990), *Plural and Conflicting Values*, Oxford, Clarendon Press
- Sunstein, Cass (1997), Incommensurability and Valuation in Law in *Free Markets and Social Justice*, Oxford, Oxford University Press
- Tetlock, P., O. Kristel, S. Beth, M. Green and J. Lerner (2003), “The Psychology of the Unthinkable: Taboo trade-offs, forbidden base rates, and heretical counterfactuals.” *Journal of Personality and Social Psychology*, 78, 853-870
- Walras, L. 1988(1874). *Éléments d’Économie Politique Pure*, Paris, Economica