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Università degli Studi di Napoli Federico II

14

numero 2 anno 2014

BDC

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14

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Towards an Inclusive, Safe, Resilient and Sustainable City: Approaches and Tools

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Registrazione: Cancelleria del Tribunale di Napoli, n. 5144, 06.09.2000
BDC è pubblicato da FedOAPress (Federico II Open Access Press) e realizzato con Open Journal System

Print ISSN 1121-2918, electronic ISSN 2284-4732

Indice/Index

"ECONOMIC DEMOCRACY", POLITICAL DEMOCRACY AND EVALUATION FRAMEWORKS

Giuseppe Munda

Abstract

When one wishes to formulate, evaluate and implement public projects or policies, the existence of a plurality of social actors, with interest in the options being assessed, generates a conflictual situation. In this article, I show that the compensation principle was invented by Kaldor and Hicks to achieve two clear objectives: to compare individuals' preferences according to the efficiency oriented utilitarian calculus, explicitly avoiding the principle one individual, one vote; to implement an objective evaluation criterion, that could be accepted in the framework of the dominant positivistic philosophical paradigm. Here, I try to prove that in the compensation principle, there is no escape from value judgements, it is not the positivistic objective evaluation criterion. A relevant question is: are the original Kaldor-Hicks objectives still relevant in the 21st Century?

Keywords: public policy, well-being, Social Multi-Criteria Evaluation

"DEMOCRAZIA ECONOMICA", DEMOCRAZIA POLITICA E VALUTAZIONI

Sommario

Quando si vuole formulare, valutare e implementare politiche o progetti pubblici, l'esistenza di una pluralità di attori sociali, interessati alle opzioni da valutare, genera una situazione di conflitto. Come si può gestire tale conflitto? In questo articolo, dimostro che il principio di compensazione è stato inventato da Kaldor e Hicks per perseguire due chiari obiettivi: confrontare le preferenze degli individui secondo il calcolo utilitaristico orientato all'efficienza, evitando esplicitamente il principio un individuo, un voto; implementare un criterio di valutazione oggettivo, accettato nell'ambito del paradigma filosofico positivista. In questa sede, cercherò di provare che nel principio di compensazione non è possibile evitare i giudizi di valore, per cui non è il criterio di valutazione oggettivo desiderato dal positivismo. Una questione importante è: gli obiettivi originali di Kaldor-Hicks sono ancora rilevanti nel 21° secolo?

Parole chiave: politiche pubbliche, benessere, Social Multi-Criteria Evaluation

1. Introduction

Although some forms of "direct democracy" were already present in the ancient Greece, the theory of modern democracy was developed during the Age of Enlightment, when the essential elements of democracy were defined, i.e. separation of powers, basic civil rights, human rights, religious liberty and separation of church and state. "No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the worst form of government except all those other forms that have been tried from time to time". This famous quote attributed to Winston Churchill synthesizes the basic issue that the perfect form of government does not exist, however any other form of government is much less desirable than democracy. This is also the main message of the so-called impossibility theorem (Arrow, 1963), which proves that a perfect voting system cannot exist. In social choice, the reaction to Arrow's theorem has been the search for less ambitious voting structures, making it necessary to retain a few basic requirements only. These basic requirements are generally threefold:

1. anonymity: all voters must be treated equally;
2. neutrality: all options must be treated equally;
3. monotonicity: more support for an option cannot jeopardize its success.

Even though human rights are calling for citizen equality and clearly anonymity should then be a fundamental column of democracy, historically this basic requirement has been implemented very recently only. Just to give a few examples, when the US electoral system started (in the 18-th century), only white male property owners (about 10 to 16 percent of the nation's population) had the right to vote. Property ownership and tax requirements were eliminated in 1850, at this stage almost all adult white males could vote. Only in 1965 the Voting Rights Act protected the rights of minority voters and eliminated voting barriers such as the literacy test. In Italy, the modern electoral system started in 1861 when the voting right was limited to male property owners; the property ownership requirement was eliminated in 1882, only in 1946 everybody could vote (including women and illiterate people). In Switzerland, only in 1971, Swiss males by a two thirds majority referendum, finally gave their female compatriots their full federal voting rights. In the UK, in 1432 it was established that only male property owners were entitled to vote in a county, and there was no major reform until the Reform Act in 1832. In 1918 all men over 21 were given the right to vote, and finally it was the Representation of the People Act in 1928 that made women's voting rights equal with men, with voting possible at 21 with no property restrictions. Obviously, the idea of equality was not really embedded in real-world democracy for a very long period; almost everywhere in the beginning voting rights were restricted to property owners, income distribution was considered the most important selection criterion.

When one wishes to implement public policies, there is a previous need of comparing different options and valuating and evaluating them to assess their social attractiveness. One of the key tasks of welfare economics is exactly this valuation and evaluation exercise (Dasgupta, 2001). Traditional welfare economics proposes the measurement of social costs and benefits made on the basis of the so called compensation principle; usually associated with the names of Kaldor (1939) and Hicks (1939). This principle can be synthesized by Kaldor's own words: he first presented Harrod's criticism to welfare economics, where equality was even considered a serious problem to be avoided when evaluating the social desirability of different policy options: «Consider the Repeal of the Corn Laws. This tended

to reduce the value of a specific factor of production-land. It can no doubt be shown that the gain to the community as a whole exceeded the loss to the landlords-but only if individuals are treated in some sense as *equal*[1].Otherwise how can the loss to some-and that there was a loss can hardly be denied-be compared with the general gain?» (Kaldor, 1939, p. 549); and then presented the solution to this "criticism": «It is only as a result of this consequential change in the distribution of income that there can be any loss of satisfactions to certain individuals, and hence any need to compare the gains of some with the losses of others. But it is always possible for the Government to ensure that the previous income-distribution should be maintained intact: by compensating the "landlords" for any loss of income and by providing the funds for such compensation by an extra tax on those whose incomes have been augmented. In this way, everybody is left as well off as before in his capacity as an income recipient; while everybody is better off than before in his capacity as a consumer. For there still remains the benefit of lower corn prices as a result of the repeal of the duty» (Kaldor, 1939, p. 550).

Hicks supported the compensation principle too because he was very attracted by its apparent objectivity. In fact Hick's was very worried by a positivist attack to normative economics, which he himself agreed with «positive economics can be, and ought to be, the same for all men; one's welfare economics will inevitably be different according as one is a liberal or a socialist, a nationalist or an internationalist, a christian or a pagan» (Hicks, 1939, p. 696). The compensation principle was a solution to this problem: «By adopting the line of analysis set out in this paper, it is possible to put welfare economics on a secure basis, and to render it immune from positivist criticism» (Hicks, 1939, p. 711). «I have accomplished my end if I have demonstrated the right of Welfare Economics – the "Utilitarian Calculus" of Edgeworth – to be considered as an integral part of economic theory, capable of the same logical precision and the same significant elaboration as its twin brother, Positive Economics, the "Economical Calculus"» (Hicks, 1939, p. 712).

In summary, we may conclude that the compensation principle was invented to achieve two clear objectives:

1. to compare individuals' preferences according to the efficiency oriented utilitarian calculus, explicitly avoiding the principle one individual, one vote;
2. to implement an objective evaluation criterion, that could be accepted in the framework of the dominant positivistic philosophical paradigm.

A relevant question now is: are these objectives still relevant in the 21st Century? In this article I argue that they are not. Section 2 will discuss the relationship between efficiency and equity in the framework of the compensation principle and Section 3 will derive some policy implications and will present an alternative evaluation methodology. In Section 4 some conclusions will be drawn.

2. Efficiency and equity in the framework of the compensation principle

The notion of individual preference that is relevant to the Kaldor-Hicks compensation principle (and cost-benefit analysis), is the preference expressed on the market place (or which would be expressed if there were a market), and not the preference expressed by a political vote (see e.g. Mishan, 1971; Pearce and Nash, 1989). This kind of "economic democracy" is preferred to classical political voting procedures for different reasons:

Political systems other than in very well-defined referenda involve voting not for issues so much as for individuals to represent the constituent's view. Market or economic voting is

considered closer to the voters' intentions: by definition if a voter, identified as a consumer, does not want something, she/he does not buy it.
Even if referenda were desirable, they cannot be held continuously on every policy decision that has to be made. To observe consumers' behaviour on the market is much cheaper, quicker and easier.
As clearly expressed by Pearce and Nash (1989, p. 7): «the use of money values permits some expression of the intensity of preference in the vote: it enables the individual to say how deeply he wants or does not want the project or good in question».
The Kaldor-Hicks principle declares a social state A "socially preferable" to an existing social state B if those who gain from the move to A can compensate those who lose and still have some gains left over. Such a situation is consistent with a Pareto improvement since we have B indifferent to A for the losers (once they are compensated) and A preferred to B for the winners (if they can over-compensate). If the monetary value of benefits exceeds the monetary value of costs, then the winners can hypothetically compensate the losers and still have some gains left over. The excess of gains over required compensation is equal to the net benefits of the project. While in political voting, minorities always loose since they have to accept "majority dictatorship", economic democracy, implemented through the Kaldor-Hicks compensation principle, always compensate losers, thus it seems to improve the fairness of the policy process.
In summary, even though Kaldor and Hicks were looking for a policy criterion implementing objective Pareto efficiency, explicitly not grounded on egalitarian considerations, finally economic democracy seems to perform much better than political democracy; in fact it is easier and cheaper to implement, it uses more information on individual's preferences (i.e. intensity of preference), and losers are always compensated. Let's then see if these arguments are correct.
The main underlying idea of using preferences expressed on the market is that individuals can be compared by means of a common property, being consumers, and one measurement unit i.e. money values measuring their willingness to pay for a good or service. One obvious consideration is that the comparison of individuals is possible according to the characteristics of this property and measurement unit only: money values are worth to be used when they are connected to one objective and one institution only, i.e. economic efficiency and markets. They fail to incorporate other objectives and values, such as fairness and equity.
Economic development implies the creation of new assets in terms of physical, social and economic structures. Within a process of "creative destruction" traditional environmental, social, and cultural assets derived from a society's common heritage may disappear. The existence of a plurality of social actors, with interest in the policy being assessed, generates a conflictual situation. «Looking at a single individual, (...) he is prevented from being better off than he is, not only because total production is limited, but also because so much of total production is at the disposal of persons other than himself. The same thing holds, of course, for any group or society of individuals, so long as that group is less than the totality of a closed community» (Hicks, 1939, p. 698-699).
I think we should take for granted the existence of a multiplicity of legitimate values in society[2]. Any social decision problem is characterised by conflicts between competing values and interests and different groups and communities that represent them. Choosing any particular operational definition for value and its corresponding valuation technique

involves making a decision about what is important and real. Any policy option always implies winners and losers, thus it is important to check if a policy option seems preferable just because some dimensions (e.g. the environmental) or some social groups (e.g. the lower income groups) are not taken into account. The fact that «one's welfare economics will inevitably be different according as one is a liberal or a socialist, a nationalist or an internationalist, a christian or a pagan» (Hicks, 1939, p. 696) is the normal state of affairs in policy decisions. I do not see any reason why this issue of existence of a plurality of values should be considered a problem that can be solved by considering consumers' preferences as the only relevant social values. Sagoff (1988) made clear the point that one's preferences as a consumer may differ from one's preferences as a citizen significantly. In my opinion, it is much more scientific an approach which deals with such a plurality of values than one which solve all conflicts by imposing a perspective considered superior on some ethical or technical grounds.

When one wishes to preserve a monument or a natural area, a fundamental question is: is there any resource which society is willing to assign to this objective? Indeed no society can avoid the economic problem of "opposition between tastes and obstacles", as Pareto made clear. To answer this question the concept of total economic value becomes immediately relevant. To attribute monetary values to e.g. historical heritage implies to capture user (actual, option and bequest) and non-user (existential, symbolic, etc.) values. Of course, to compute total economic values has nothing to do with the idea of a "true" or "correct" value. All monetary valuation attempts suffer deep philosophical problems (see e.g. Copp, 1987; Fusco Girard, 1986; Hansson, 2007; O'Neill, 1993; Sagoff, 1988; Spash, 2008) and technical uncertainties (see e.g. Aldred, 2009; Frey, 1986; Grüne-Yanoff, 2009; Hansen, 2011; Martinez-Alier *et al.*, 1998; Munda, 1996; Vatn and Bromley, 1994) such as:

- which monetary valuation technique has to be used?
- which time horizon has to be considered?
- which social discount rate?

One should remember that the market alone may be successful in efficient allocation of resources, but does not give any guarantee for preservation of the cultural or natural heritage at all nor for the fairness of the decision taken. According to the compensation principle, the social cost of a given policy option is defined as the sum of money paid as compensation to those who have been suffered damage, the level of utility that the damaged had before the event took place should determine the amount of compensation to pay[3].

In my opinion, monetary compensation is with no doubt the only possible tool when an irreparable and irreversible damage has already occurred. This way, if an accident with serious contamination occurs (e.g. in the case of Seveso in Italy (1976), of Bhopal in India (1984), of the Exxon Valdez in Alaska (1989), of the oil-tanker Prestige offshore the coasts of Galicia (2002), or more recently the BP oil spill in the Gulf of Mexico (2010) it seems correct and opportune to indemnify the victims of such contamination. But it stays to verify if, in the long run, compensation is an effective tool to prevent the appearance of enormous future social costs. Society has a much longer life expectancy than individuals, thus the value society attaches to e.g. natural resources is likely to deviate from individual values, since the simple summation of individual preferences may imply the extinction of species and ecosystems. This implies that public policy cannot be merely based upon the aggregation of individual values, and estimation of willingness to pay at any particular point of time. It is interesting to note that, Walras himself already noted that the market

cannot be used as a basis for rational collective decision-making and that «human destinies are not absolutely independent, but to some extent dependent on one another. There is a social morality which is distinct from individual morality» (cited in Burgenmeier, 1994, p. 347). Negative externalities to be internalised by monetary compensation can also be seen as "cost-shifting". In general, if the damaged people are poor (or even not yet been born), the cost of the internalization of the externality will be low. This is why a lot of multinationals locate particularly dangerous production plants in the developing countries where, in case of accidents, they are generally forced to pay monetary compensations much lower than in the western countries (see e.g. Martinez-Alier, 2002). The accident of the chemical plant of the Union Carbide in Bhopal, India, in 1984, is a sad example. Obviously, the institutional and juridical context is fundamental. In the case of oil contamination provoked by Texaco in Ecuador (with serious consequences on the human health) the fundamental point of the trial was deciding whether the competent court should have been in USA or in Ecuador. The Texaco insisted on the fact that it had to be in Ecuador.

Accepting low values for a negative externality that provokes an impact on poor community is a "political decision", far from being ethically neutral. Some years ago, an internal document of the World Bank, subsequently made public, suggested that toxic waste should be located in Africa, since the cost of the compensation was extremely low and therefore such solution has to be considered as the most efficient one. One should note that the issue of value free Science is a key issue for real-world policy and not a philosophical debate only. For example, an influential economist claimed that his work for the intergovernmental Panel on Climate Change (IPCC), where lives of people in rich countries are valued up to fifteen times higher than those in poor countries, was a matter of scientific correctness versus political correctness (New Scientist, 19 August, 1995). Is it really a matter of value free scientific correctness to use valuations based on assessments of a community's willingness and ability to pay to avoid risks of death[4]? What that economist was saying in reality was that efficiency is the only societal value according to which policy options should be evaluated; concerns on fairness and equity are not relevant.

Indeed the inseparability between efficiency and equity can be easily proved from a theoretical point of view too. The use of willingness to pay in money terms as a measure of individuals' intensity of preference would be correct only if individuals' income could be measured on a ratio scale of measurement, that is the only degree of freedom is the unit of measurement and not the origin[5]. In this measurement framework if individual X expresses the double willingness to pay for the good A than individual Z, then it is correct to derive that she/he has the double intensity of preference towards that good with respect to Z. Now, we have to consider that although it is true that zero money would be the common origin and thus money could be measured on a ratio scale logically, on the ontological side, the real origin of the scale is the true-life individuals' income, which is necessarily different across individuals. Real-world marginal utility of income across individuals is not constant clearly, thus different intensities of preference cannot be compared, on objective grounds, unless we know the exact personal distribution of income.

In empirical applications, the compensation principle is implemented by using cost-benefit analysis, where costs and benefits are aggregated linearly in a net present value (NPV) formula. The assumption underlying the NPV rule is that of an additive social welfare function, such as $SW = \sum_h U_h$ where the subscript h denotes the individual to whom the

utility function applies. Under the assumption that the marginal utility of money income (λ) is identical for all individuals, the variation of this social welfare function indicating the social worth of a project is:

$$\Delta SW = \sum_h \sum_i \frac{\partial U_{ih}}{\partial Y_{ih}} \bullet \Delta Y_{ih} = \lambda \sum_h \sum_i P_i \Delta Y_{ih} = \lambda \sum_i P_i \Delta Y_i \quad (1)$$

where *h* subscript denotes the individual to whom the utility function and quantity of the good Y_i apply. The translation into monetary terms is accomplished by the equation:

$$\lambda \frac{\partial U_i}{\partial Y_i} = P_i$$

where P_i is the (relative) price of good *i*.

Nevertheless, the assumption of the constancy of the marginal utility of income across individuals is a distributional question, and that assumption embodies particular social values.Given that society is unlikely to be indifferent among various possible distributions of income, some ways of integrating the distributional aspects into the analysis have to be found. The most popular methodology is to introduce distributional weights explicitly, by using different weights for different social groups (Bojo *et al.*, 1990). However, it is not clear how to derive such weights, since they can be based on a variety of ethical, philosophical and methodological principles and who should attach them (economists, policy-makers, society, etc.). On the other hand, one has to note that failures to use any weighting system imply making the implicit value judgement that the existing distribution of income is optimal. If, and only if, one is happy with such a value judgement, it is reasonable to use un-weighted market valuations to measure costs and benefits. Therefore, there is no escape from value judgements; the compensation principle is not the positivistic objective evaluation criterion Hicks hoped to be.On the other side it does not consider individuals as equal exactly the goal Kaldor aimed at, it can be considered a direct application of the ancient principle that property owners should count more.

A futher demonstration of the lack of concern for distributional issues embodied in this way of measuring social costs is the so-called Scitowszky paradox (Scitowszky, 1941). Real-world applications of the kaldor-Hicks test require only that gainers be able to compensate losers, it does not require actual payment to be made. But often policy decisions lead to widespread price changes, resulting in some consumers paying more for goods they purchase, and others less. Scitowszky has termed such effects pecuniary externalities. Price changes themselves redistribute income; for every consumer who pays more, a producer receives more, and vice versa. Scitowszky demonstrated that in absence of compensation, it is possible for circumstances to exist such that once the change has been implemented, a move back to the status quo could also be judged socially desirable. This because the move back could be desirable when valued at the new set of prices that emerge from the new distribution of income, resulting from the policy implementation.

3. Implications for project and policy evaluation

My main point here is the impossibility to deal with the concept of value (and connected policy instruments) as an objective value free category. Indeed, the key question is value for what and for whom? Monetary valuation methods are based on phenomena such as

consumer's surpluses, market failures, demand curves which are just a partial point of view, since connected with one institution and one objective only: markets and efficiency. From a social point of view, issues connected with actions outside of markets and behaviour of people different from the class of consumers should also be taken into account[6]. I believe that the point is not to be against giving economic value to natural resources, to human health (or even lives) or to cultural heritage. A location may be valuable for its biodiversity (measured in richness of species or genetic variety), and also as a landscape, and have also economic value (measured by the travel cost method or contingent valuation). These are different types of value. The point is that social decisions involve multiple types of values, of which economic efficiency is only one. Therefore it is misleading to make social decisions based only on that one value (Lo and Spash, 2013; Munda, 2008; O'Neill, 2001).

The classical Adam Smith's example on the value of diamonds versus water is relevant here. No doubt in a city environment everyone would prefer diamond over water, however in a different environment, e.g. a boat in the middle of the ocean, water has definitely a higher value than diamonds. Economic values depend on subjective human preferences, no discussion about this. Attempts to explain economic values through objective, context invariant categories such as energy are an obvious non-sense. On the other side, e.g. Odum's Emergy[7] measures (Odum, 1996) can be a good proxy of the ecological value of an ecosystem. Galapagos Islands have a higher ecological value than the Dutch Inside Sea surely, but the same does not necessarily apply to economic value (economic indeed would favour the Inside Sea, which, since totally eutrophised, offers an important economic service receiving all the nutrients coming from human activity). Different values, since they are related to different objectives and institutions, cannot be merged into only one metric.

Let us consider a recent real-world example, that I think synthesises well this point: Pavan Sukhdev's analysis of the Niyamgiri hill conflict between the British mining company Vedanta and the local tribal of the Dongria Kondh in Odisha, India[8]. Sukkdev was the leader of the UNEP project *The Economics of Ecosystems and Biodiversity* that collected around the world money values placed on environmental services to make the point that money valuation increases the visibility of the loss of "natural capital". However, he also acknowledges that sometimes money values are controversial; in fact while Vedanta wants to mine bauxite, the Dongria Kondh consider the hill as a deity. «Valuing these hills based on the forest resources that would be lost if mining was to proceed clearly does not, and cannot, fully account for its loss, because this is a matter of human right. The "price" of these hills, to this community, could well be infinity» (Sukhdev, 2012, p. 69).

Sukhdev does not mistake value for price, and this is why he rightly puts inverted commas on the word "price" because there cannot be infinite prices and because human rights cannot be traded off. What he may mean (although he does not say so) is that there are plural values of these hills. To Vedanta they have a value in terms of bauxite multiplied by the price of bauxite, net of costs of extraction, and brought to present value. For the community, they are immensely valued in the scale of sacredness, they are deemed to be God itself who performs divine services for the members of the tribe.

So we can see the Niyamgiri Hill as provider of environmental services (in a Millennium Ecosystem Assessment framework), including immaterial cultural services of great religious importance. Can we bring them into a single measuring rod like fictitious prices? Even fictitious prices elicited through willingness to pay or other methods of economic valuation cannot bring these different kinds of environmental services into a common

value. The problem is not (only) the technical difficulties of valuing non-market products and services, and choosing one particular discount rate to reach a NPV of the mountain (to compare to the benefits from bauxite mining). The problem is, moreover, that some of the services escape by nature from money valuation; there is value incommensurability[9].

Indeed, Hicks made very clear the point that economic welfare and social welfare are very different concepts. In fact he considered a theoretical weakness «when the reader is asked to accept a direct correlation between economic welfare and social welfare in general (whatever that may be). This is not easy to swallow; in any case it is open to the positivist objection that it reflects a particular social outlook, held by certain classes at certain times, and never likely to be acceptable universally» (Hicks, 1939, p. 697). In recent years, such a concept of social welfare, which Hicks did not appreciate so much for its subjectivity, has gained increasing popularity. A growing quantity of literature has been written about concepts such as multidimensional poverty (Sen, 1979, 1985; Duclos *et al.*, 2006), quality of life, happiness and well-being (e.g. Arrow *et al.*, 2012; Easterlin, 1995, 2001; Frey and Stutzer, 2002; Michalos, 1980, 1997). This tendency has even increased after the influential Stiglitz *et al.* (2009) report, which proposed the use of the concept of well-being as a multidimensional proxy for measuring societal prosperity and progress.

The world is characterised by deep complexity. This obvious observation has important implications on the manner in which policy problems are represented and decision-making is framed. Various authors claim that modern public economic policy needs to expand its empirical relevance by introducing more and more realistic (and of course more complex) assumptions in its models. In this context, one of the most interesting research directions in contemporary public economics, is the attempt of taking into account political constraints, interest groups and collusion effects explicitly (see e.g. Laffont, 2000, 2002; van Winden, 1999), as a consequence, transparency becomes an essential feature of public policies (Stiglitz, 2002). This implies that to reach a ranking of policy options, there is a previous need for deciding about what is important for different social actors as well as what is relevant for the representation of the real-world entity described in the model. As stated by Martinez-Alier (2002) an obvious question is then who is the one entitled to simply complexity? The new nature of the problems faced in this third millennium (e.g., food security, genetic modified organisms, climate change, ecc.), implies that very often when deciding on problems that may have long term consequences we are confronting issues "where facts are uncertain, values in dispute, stakes high and decisions urgent" (Funtowicz and Ravetz, 1991). In this case, scientists cannot provide any useful input without interacting with the rest of society and the rest of the society cannot perform any sound decision making without interacting with the scientists.

In summary, I think that instead of focusing on "missing markets" as a source of theoretical and empirical problems, or trying to explain economic values by means of energy or other common rod measures (clearly a non-sense from an economic point of view), we should focus on the creative power that missing markets have, because they push us away from commensurability towards a multidimensional evaluation of evolving realities implementing the incommensurability principle[10]. I believe we may accept as true the statement that incommensurability does not imply incomparability; on the contrary incommensurability is the only rational way to compare various objects under different methodological assumptions than maximisation or optimisation (Sen, 1997, 2000; Sen and Williams, 1982). It is in terms of incommensurability that evaluation has to take place in

practice. Evaluation of objects relative to different descriptions invokes not just different practices and perspectives, but also the different criteria and standards for evaluation associated with these. It presupposes value-pluralism. This is exactly the basic idea of multi-criteria evaluation, which can be considered a form of applied consequentialism[11]. Incommensurability can therefore be implemented by using multi-criteria evaluation. In empirical evaluations of public projects and public provided goods, multi-criteria evaluation seems to be an adequate policy tool since it allows taking into account a wide variety of evaluation criteria (e.g. environmental impact, distributional equity, and so on) and not simply profit maximisation, as a private economic agent would mainly do.

In formal terms discrete multi-criteria evaluation problems can be described in the following way A is a finite set of N feasible options; M is the number of different points of view or evaluation criteria g_m (m=1, 2, ... , M) considered relevant in an evaluation problem, where the option a is evaluated to be better than option b (both belonging to the set A) according to the m-th point of view if $g_m(a)>g_m(b)$ (Arrow and Raynaud, 1986; Figueira *et al.*, 2005; Fusco Girard and Nijkamp, 1997; Roy, 1996). This information can be synthesised in a matrix called evaluation or impact matrix. In 1986 Kenneth Arrow and Hervé Raynaud published a very influential book titled "Social choice and multicriterion decision-making", where the formal analogies between the discrete multi-criterion problem and the social choice one are analysed deeply. This book is based on the assumption that, in the case where all criteria have ordinal impact scores, if one considers the evaluation criteria as voters, a multi-criteria impact matrix and a voting matrix are identical. As a consequence all results of social choice also apply to multi-criteria decision theory fully (at least when no intensity of preference and no indifference/preference thresholds[12] are used; for a recent overview of these technical issues see Munda, 2012). However in my opinion, the relations between social choice and multi-criteria evaluation are stronger than the simple mathematical analogy. In fact I consider that multi-criteria evaluation is a type of applied democracy when it is used for evaluating policy options, this is the main idea behind Social Multi-Criteria Evaluation (SMCE) (Munda, 2004, 2008).

In a social multi-criteria evaluation framework, the pitfalls of the technocratic approach can be overtaken by applying different methods of sociological research. For example, "institutional analysis", performed mainly on historical, legislative and administrative documents, can provide a map of the relevant social actors. By means of focus groups it is possible to have an idea of people's desires and it is then possible to develop a set of policy options. Main limitations of the focus group technique are that they are not supposed to be a representative sample of the population and that sometimes people are not willing to participate or to state publicly what they really think (above all in small towns and villages). For this reason anonymous questionnaires and personal interviews are an essential part of the participatory process.

The selection of evaluation criteria has to be also based on what it is learned through the participation process. However, at this stage a problem generally arises: the evaluation criteria should come directly from the public participation process or they should be "translated" by the research team? I think that the rough material collected during interviews and focus groups could be used as a source of inspiration but the technical formulation of criteria having properties such as "non-redundancy", "legibility" and so on is a clear job of the researchers. Of course in this step, subjectivity is unavoidable, for this reason a widespread information campaign on the assumptions and conclusions of the study

including local people, regional and national authorities, international scientists and even children at school is, in my opinion, highly recommendable.

Finally one has to note that policy evaluation is not a one-shot activity. On the contrary, it takes place as a learning process which is usually highly dynamic, so that judgements regarding the political relevance of items, alternatives or impacts may present sudden changes, hence requiring a policy analysis to be flexible and adaptive in nature. This is the reason why evaluation processes have a cyclic nature. By this is meant the possible adaptation of elements of the evaluation process due to continuous feedback loops among the various steps and consultations among the actors involved.

As a tool for conflict management, SMCE has demonstrated its usefulness in many policy problems in various geographical and cultural contexts (Cerreta and De Toro, 2010; Gamboa, 2006; Garmendia and Stagl, 2010; Monterroso *et al.*, 2011; Munda and Russi, 2008; Özkaynak, 2008; Scolobig *et al.*, 2008; Soma and Vatn, 2009; Straton *et al.*, 2010; Zendehdel *et al.*, 2010). The main point of force is the fact that the use of various evaluation criteria has a direct translation in terms of plurality of values used in the evaluation exercise. From this point of view, social multi-criteria evaluation can be considered as a tool for implementing political democracy. Social multi-criteria evaluation puts its emphasis on the transparency issue; the main idea being that results of an evaluation exercise depends on the way a given policy problem is structured and thus the assumptions used, the ethical positions taken, and the interests and values considered have to be made clear. In this framework, mathematical models still play a very important role: the one of guaranteeing consistency between assumptions used and results obtained.

4. Conclusions

In this article, I showed that the compensation principle was invented by Kaldor and Hicks to achieve two clear objectives:

1. to compare individuals' preferences according to the efficiency oriented utilitarian calculus, explicitly avoiding the principle one individual, one vote;
2. to implement an objective evaluation criterion, that could be accepted in the framework of the dominant positivistic philosophical paradigm.

By using theoretical and empirical arguments I proved that in the compensation principle, there is no escape from value judgements, it is not the positivistic objective evaluation criterion Hicks hoped to be. On the other side it does not consider individuals as equal exactly the goal Kaldor aimed at.

However, monetary valuation techniques are the only ones that can answer these two questions:

- how many resources society is willing to devote to a given objective?
- how much society has to pay for compensation after e.g. an accident? Their desirability in this context is not questioned here.

Monetary valuation methods are based on one institution only: markets. From a social point of view, issues connected with actions outside of markets and behaviour of people different from the class of consumers should also be taken into account. It is misleading to take social decisions based on only one type of value. Value incommensurability is the normal state of affairs; multi-criteria evaluation can be considered a formal framework for applied consequentialism under incommensurability. In particular, social multi-criteria evaluation is proposed as a public policy framework to integrate different scientific languages, when

concerns about civil society and future generations have to be considered along with policy imperatives and market conditions. This can have beneficial consequences, not only for economic prosperity, but also when dealing with the difficult problems of our millennium.

Acknowledgements
Comments by Joan Martinez-Alier on previous drafts of this paper are gratefully acknowledged. I also thank him for providing the information on Niyamgiri hill conflict and signaling its relevance in the framework of this article. Financial support by projects HAR2013-47182-C2-1-P and 2014 SGR 591 is acknowledged.

Notes

1. Emphasis added to the original.
2. Here I disagree with Hammitt (2013, p. 200) who considers a problem the possibility that «a policy that everyone prefers may not satisfy the compensation test».
3. Although there are symbolic goods which may present difficult possibilities of transactions in actual or fictitious markets surely. How much one should receive to accept compensation for the destruction of the Big Ben, the Sagrada Familia, the Statue of Liberty or the Coliseum? Indeed Kaldor admitted the existence of such losses of a symbolic kind: «An increase in the money value of the national income (given prices) is not, however, necessarily a sufficient indication of this condition being fulfilled: for individuals might, as a result of a certain political action, sustain losses of a non-pecuniary kind- e.g., if workers derive satisfaction from their particular kind of work, and are obliged to change their employment, something more than their previous level of money income will be necessary to secure their previous level of enjoyment; and the same applies in cases where individuals feel that the carrying out of the policy involves an interference with their individual freedom. Only if the increase in total income is sufficient to compensate for such losses, and still leaves something over to the rest of the community, can it. be said to be "justified" without resort to interpersonal comparisons» (Kaldor, 1939, p. 551).
4. One has to note that the issue is not maintaining that a human life has infinite value; for example, a reduction in road accidents can be secured at some cost, but society is unlikely to devote the whole of the national income to this end. The point is that often this valuation is made implicitly and stating that is a technical issue, when it is a political one instead.
5. The word measurement is usually reserved for the situation in which a number is assigned to each observation; this number reflects a magnitude of some quantitative property (how to assign this number constitutes the so-called representation problem). The measurement procedure used constitutes a function rule $m: O \rightarrow R$, telling how to give an object o its *m(o)* value in a systematic way. Measurement operations or procedures differ in the information that the numerical measurements themselves provide about the true magnitudes. Quantitative measurement procedures associate objects $o \in O$ with a real number *m(o)* allowing much more precise statements about the true magnitudes than ordinal scale measurements. Suppose that the statement of equation (1) is true:

$$\begin{cases} m(o_1) \neq m(o_2) \text{ only if } t(o_1) \neq t(o_2) \\ m(o_1) > m(o_2) \text{ only if } t(o_1) > t(o_2) \\ t(o) = x \text{ iff } m(o) = ax + b, \text{where } a \in R^+ \end{cases} \quad (1)$$

That is, the numerical measurement m(o) is some affine function of the true magnitude x. When (1) applies, the measurement operation is called interval scaling, or measurement at the interval-scale level. When measurement is at the interval-scale level, any of the ordinary operations of arithmetic can be applied to the differences between numerical measurements, and the results can be interpreted as statements about magnitudes of the underlying property. It is sometimes possible to find measurement operations making the statement of Equation (2) true:

$$\begin{cases} m(o_1) \neq m(o_2) \text{ only if } t(o_1) \neq t(o_2) \\ m(o_1) > m(o_2) \text{ only if } t(o_1) > t(o_2) \\ t(o) = x \text{ iff } m(o) = ax, \text{where } a \in R^+ \end{cases} \quad (2)$$

When the measurement operation defines a function such as the statement contained in (2), then measurement is said to be at the ratio-scale level. For such scales, ratios of numerical measurements are unique and can be interpreted directly as ratios of magnitudes of objects.

6. For example, the European Commission White Paper on Governance (where principles such as transparency, participation and accountability are emphasized) goes in this direction (www.ec.europa.eu).
7. Emergy is the «available solar energy used up directly and indirectly to make a service or product» (Odum, 1996, p. 8).
8. The information on this example was given to me by Joan Martinez-Alier.
9. From a philosophical perspective (O'Neill, 1993), it is possible to distinguish between the concepts of strong comparability (there exists a single comparative term by which all different actions can be ranked) implying strong commensurability (a common measure of the various consequences of an action based on a interval or ratio scale of measurement, such as money or energy) or weak commensurability (a common measure based on an ordinal scale of measurement, such as consumer's utility), and weak comparability, which implies incommensurability i.e. there is an irreducible value conflict when deciding what common comparative term should be used to rank alternative options; this irreducible value conflict is unavoidable but compatible with rational choice employing, for example, practical reason or multi-criteria evaluation (Chang, 1997; Martinez-Alier *et al.*, 1998; Rabinowicz, 2012; Raz, 1986).
10. «There is great pressure for research into techniques to make larger ranges of social value commensurable. Some of the effort should rather be devoted to learning - or learning again, perhaps - how to think intelligently about conflicts of value which are

incommensurable» (Williams, 1972, p. 103). A call for dealing explicitly with incommensurability can also be found in Arrow (1997).

11. Here I disagree with Hansson (2007, p. 163) who considers cost-benefit analysis «the only well-developed form of applied consequentialism».
12. By introducing a positive constant indifference threshold q the resulting preference model is the threshold model:

$$\left\{\begin{array}{lcl} a_j P a_k & \Leftrightarrow & g_m(a_j) > g_m(a_k)+q \\ a_j I a_k & \Leftrightarrow & \left|g_m(a_j) - g_m(a_k)\right| \leq q \end{array}\right\}$$

where aj and ak belong to the set A of alternatives and gm to the set G of evaluation criteria.

The famous bold paradox in Greek philosophy (how many hairs one has to cut off to transform a person with hairs to a bold one?), later on Poincaré (1935, p. 69) and finally Luce (1956) made the point that the transitivity of indifference relation is incompatible with the existence of a sensibility threshold below which an agent either does not sense the difference between two elements, or refuses to declare a preference for one or the other. Luce was the first one to discuss this issue formally in the framework of preference modelling. Mathematical characterisations of preference modelling with thresholds can be found in Roubens and Vincke (1985).

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