

# Economic science vs. welfare economics

## An epistemological reading of the history of welfare economics\*

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### Abstract

This paper aims to provide an historical-epistemological explanation of the evolution of welfare economics. Taking seriously the evolution of the concept of preferences in standard microeconomics, and the evolution of the corresponding utility in welfare economics, induces two statements from an epistemological perspective. First, the evolution of welfare economics is mainly driven by epistemic values, because the arguments regarding interpersonal comparisons of utility and the properties of utility are induced by the aim of transforming economics into a science similar to natural science. Second, this view of the epistemology of welfare economics appears unlikely to fit the more general aims of welfare economics, requiring an ability to deal with norms and to whisper to the ears of Princes. The scrutiny of the methods of axiomatics on the one hand, and of the New British Welfare economics on the other hands shows their inability to meet both challenges simultaneously. The paper concludes on which epistemological perspective would rather be consistent with respecting normative transparency and operationality meanwhile.

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Welfare economics is the economic study of the definition and the measure of social welfare. It assesses the consequences of individual actions and public decisions on social states. It offers the theoretical framework used in public economics to help collective decision making, to design public policies, and to make social evaluations. The old news of the death of welfare economics was predicting its inability to make any policy recommendation (See Hicks 1939: 697, Chipman and Moore 1978: 548, Mishan 1981, Hausman and MacPherson 1996: 96, Mongin 2002: 165 among others). This paper aims to provide an historical-epistemological explanation of the reasons for this fateful evolution of welfare economics.

While its first period is more well-known (e.g. Myint 1965, the history of welfare economics throughout the twentieth century is hardly known and studied. Most textbooks on history of economic thought do not even develop a chapter on welfare economics, and few journal articles tackle the subject from an historical perspective. Exceptions though now exist (Mongin 2002, Baujard 2010,2011,2012, Nishizawa, Dardi and Caldari Eds.(2014); see also, yet for only partial presentations, Samuelson 1947, Hicks 1975), bringing out a consensus on the distinction of four successive periods: (1) the utilitarian legacy [1780–1890]; (2) the old welfare economics [1890–1940]; (3) the new welfare economics [1940–1950] divided into the British approach, the American approach and the French school of public economics; (4) the post-arrovian period [1950–2000] in which diverse developments are maintained separate, among which cost-benefit analysis, social choice theory and equity theory.

Ahead of this historical panorama of welfare economics, the evolution of welfare economics through the twentieth century is standardly associated with the controversy over the possibility and the relevance of interpersonal comparisons of utility (e.g., Cooter and Rappoport 1984). Some recent thesis defends that the transformation of the properties of the concept of utility itself is providing a more profound explanation of this evolution (Baujard 2011, 2014). This paper defends that the evolution of the concept of preferences in standard microeconomics, and of the corresponding utility in welfare economics, hence of welfare economics is actually a consequence of an epistemological turn. The epistemological turn of economics in the XXth century have shaped the definition and the scope of the discipline. Although these choices are not specific to welfare economics, they determine the status, the methods and the reach of welfare economics. This paper studies how an epistemological posture has affected the characteristics of welfare economics, its evolution and its fate. It is clear to distinguish two historical stages. Firstly, the stage of scientific ambition stated the desire to build a science respecting scientific criteria. The evolution of welfare economics is hence driven by epistemic values, because

the arguments regarding interpersonal comparisons of utility and the properties of utility are induced by the aim of transforming economics into a science similar to natural science. Second, in the stage of economic science, the epistemological posture appears unlikely to fit the more general aim of welfare economics, as far as its specificity is to deal with norms and to support decision-making. Highlighting such epistemological tensions proves to be a path to explain the news of the death of welfare economics, and offers the keys to go beyond it.

## 1 The stage of the scientific ambitions

### 1.1 The genesis of economic science

The third Volume of the history of economic analysis written by Schumpeter (1954) covering the years 1870 to 1914 is called “ The age of science ”. As we shall now see, this commitment has had a significant impact on the status of economics, hence normative economics in particular, developed at this period. Because it is clearly stated in his texts, it is illuminating to recall the Paretian position to understand the goal of transforming economics into a science, i.e. taking the natural sciences as an example, and then scrutinize the consequences of this goal.

In the *Treaty of General Sociology*, V. Pareto (1917) clearly affirms its ambition to build a social science built upon the rules of natural sciences. Pareto defines science as “a mixture of experimental data and logical deductions of such data” (Pareto 1917: § 20). Using methods similar to those of other sciences, Pareto expects sociology and economics not to remain the dogmatic disciplines they have been so far. Denying the interest of experimental proof is, according to Pareto, like marrying to religious or spiritual dogmas based in metaphysics ; the latter, because they can not be subjected to experiments, should be excluded from the field of sciences. The only reliable guides and criteria of truth should be experience and observation. Selecting these criteria of truth have several consequences on the scope of economics and welfare economics in particular.

As far as scientific evidences are based on observation and experience, the scope of science restricts to observable facts. However, only material facts are observable and measurable. Consequently, the scope of economic science restricts to the material sphere. A similar line of thought is held by Alfred Marshall and Arthur C. Pigou as welfare economists. The foundations of “the old welfare economics” (according to Samuelson’s words) [1890–1930] can be found in A. Marshall (1890) and A. C. Pigou’s works (1920) (See McLure 2012). These authors apply the utilitarian project

within the economic framework, although they want to gain independency towards such philosophical traces. Their work aims to study the conditions for optimal social welfare in terms of Pareto optimality. Interpersonal comparisons of utilities are well accepted as far as distributive aspects are central in the project of this first welfare economics. In particular, Marshall acknowledges that economic science can just produce statements regarding measurable desires. As soon as some desires cannot be captured by willingness to pay and actual payments, they are unobservable and should therefore be ignored. The motives of action, which ultimately do not generate any monetary transaction – including love, benevolence or virtue of justice –, cannot be considered in the scope of economic analysis (e.g., Marshall 1890: 24). Pigou recognizes that identifying all the causes that affect welfare would be a “a task so enormous and complicated as to be quite impracticable” (Pigou 1920: 11). Rather than pursuing the quixotic goal of tackling welfare in general, Pigou suggests to focus on economic welfare only, i.e., this part of welfare for which scientific methods can best be used. As money appears as the most suitable measuring instrument, the possibility of monetary measure defines the boundary between economics and other disciplines.

Another consequence of the restriction of scope of economics as a science is the ban of ethics. This was an important change compared to the prior period characterized by the first marginalists, among whom William S. Jevons who held utilitarian views shamelessly. Since Jeremy Bentham’s works on the principle of utility around the end of the XVIIIth century, the utilitarian legacy indeed weighs heavily on the future economics. For utilitarians, social welfare is assessed on the basis of individual utilities. The utility principle says that an individual shall and should promote her utility. It also says that the collective aim is to promote social welfare. This duality of the utility principle, defined at the individual and the collective level, generates some tensions (Baujard 2013). Although the issue of interpersonal comparisons of utilities is not explicitly raised at the time, the problem of the sacrifice of some individuals’ utilities for others which is directly linked to it is already important and shall be quite influential in its legacy for the old welfare economics. Now, with the scientific ambition, any intrusion of ethics into economics should be dismissed, because ethics cannot be a science (e.g. Pareto 1896: §1, 1917: §144). There is no essentialist definition of ethical rules; no observation or experimentation of ethical rules can be made. Economics hence may become a science if it gets rid of its utilitarian traces. Although not as explicit than in Pareto’s texts, this growing concern was already influential in the first welfare economics. This is particularly the case of Marshall, yet a convinced utilitarian, who endeavoured to exclude ethical language

and the influence of utilitarianism from his construction of a novel economic theory. R. Martinoia (1999: 140) raised an important evolution in the use of Marshall hedonistic and ethical vocabulary before and after the third edition of the *Principles* (Marshall 1890, 1907, 1920 among others). Marshall removed the use of the word “penalty”; he replaced “pleasure” by “satisfaction” or “benefit”; and so on. He also erased certain discussions and references related to psychological or ethical debates in the last edition of the *Principles*. It is difficult to deny that Marshall was inspired by hedonism and utilitarianism to build the theory of demand and surplus theory, although, after these strictly rethorical modifications of the *Principles*, he may claim to more neutrality and scientificity. The goal of independence vis-à-vis ethics may have rethorical consequences as we have just described, but it may also more substantial consequences on welfare economics. For instance, Pareto accepts all preferences, including immoral, sadistic or masochistic preferences, among acceptable preferences by reference to such neutrality criteria. Normative issues are therefore rejected outside the scope of scientific economics, and the choice of these scientific methods leads to deprive utility of any moral value.

## 1.2 From behaviorism to the interpretational flexibility of preferences

Another consequence of these methods is that it favors a behaviorist interpretation of utility.

We may perceive the premisses of behaviorism again as soon as in Pareto’s texts. The restriction on experience and observation entails that economics focuses on the realization rather than the origin of some problems at stake, and excludes any metaphysical interpretation or analysis of causes of phenomena. Obviously, a given choice results from many potentially conflicting intentions and constraints, or from different forces (V. Pareto actually uses such mechanical analogy, see Pareto 1917: §120-122). This group of diverse causes is summarized in the pursuit of more economic utility – i.e., “ophelimity” in Pareto’s terms–, and it demonstrates by the choice of the individual. The only fact the scientist can observe is the choice itself. As a result, the only receivable interpretation of utility is behaviorist, and, conversely, utility is nothing but the numerical representation of preferences behind choices (see e.g. his letter to the attention of Adrien Naville January 11, 1897 in response to criticism of the latter upon his formulation of ophelimity in the “Principles of pure political economy”, on the link between choices and preference, edited in Pareto 1896: §5). In this sense, Pareto paves the way to behaviorism (See Lewin 1996: 1308, Chapman

2003: 1174, Bruni and Guala 2001), which will appear later.

Behaviorism is explicitly introduced in economics in the 40s. A group of economists aimed to provide operational and inductive bases to the theory of demand, hence to economic theory. One consequence of their epistemological concern is avoid references to utility as such, because utility eludes observation (e.g. Picavet 1996: 141) and “for this reason remains suspect” (Mongin 2000: 44). Hutchison’s book (1938) marked a major milestone in methodology. Following Samuelson, he defended the importance of logical positivism in economic science, hence the necessity of testing hypotheses of theories. The theory of revealed preference, notably developed P. A. Samuelson (1947) and H. S. Houthakker (1950), is based on a behavioral interpretation of preferences (See Mongin 2000a,b). The observation of environmental conditions or stimuli – i.e., choice conditions – and corresponding answers – individual choices – is sufficient to infer function of individual preferences and demand fonction. This theory is able to retrieve the properties of consumer theory such as the existence of a function of demand, the Slutsky conditions and individual rationality. Samuelson (1948: 251) concludes that “The whole theory of consumer’s behaviour can thus be based upon operationnally meaningful foundations in terms of revealed preference.” Provided a strict behaviorist interpretation of utilities, any economic theory becomes allegedly testable.

Utility is however not excluded from economic reasoning (e.g. Samuelson 1938: 62). The new standard language in economics suppose reasoning with preferences rather than choices, and it becomes equivalent to refer to preferences or utility. The latter has merely no further substantial meaning than the numerical representation of preferences. Houthakker (1950) establishes that, under the strong axiom of revealed preferences, observing choices is a necessary condition to build an ordinal utility function, from which a demand function can be derived. Chipman, Hurwicz, Richter and Sonnenschein (1971) completes the proof by setting the axiomatic conditions for the equivalence between demand, revealed preferences and utility. The basis of reasoning has moved back from behavior to preferences (e.g. Hicks 1956: 17), such that rationality conditions are now imposed upon preferences. Under reflexivity, symmetry and transitivity, a rational preference generates consistent choices, and vice versa.

Just like in the chicken-and-egg problem, the revealed preferences theory as such does not aim to decide which of utility or choices is the first principle. However the statement of equivalence between welfare and behavior raises some serious issues when preferences are used in welfare economics, for which normative issues are at stake. Firstly, such utilities are not interpersonally comparable. Such comparisons

are meaningless and should be avoided. The trade-offs between agents, that are often necessary when designing a policy, become a difficult nay impossible task. This is a standard analysis. Secondly and not less importantly, the use of these behavioral utilities in welfare economics amounts to consider that individual behaviors systematically serve individual welfares. Taking this argument to the extreme, the statement of equivalence amounts to a confusion between the is and the ought, as if observed behaviors (the positive interpretation of preferences) are the good and fair norm of behaviors (the normative interpretation of preferences). As standardly raised by philosophers, individual are likely to make mistakes, have false beliefs, bad information, akrasia, and so on. That normative issues are not taken seriously is highly problematic. Samuelson does not commit such this confusion. He indeed highlights that “I should like to state my personal opinion that nothing said [here] in the field of consumer’s behavior affects in any way or touches upon at any point the problem of welfare economics, except in the sense of revealing the confusion in the traditional theory of distinct subjects.” (Samuelson 1938: 71)) But Samuelson is not representative of all economists, and no such distinction has been explicitly made. Hereafter, there shall be more than just a confusion between normative and positive preferences.

In normative economics, Kenneth Arrow (1951) started another movement regarding the interpretation of preferences. While it was supposed to be uniquely behaviorist, the use of axiomatics widely opened the possibilities of interpretation of utility<sup>1</sup>, resulting in an interpretational flexibility. The absence of a formal system providing with a unifying interpretation in social choice theory has profound implications. Firstly, each axiomatic result in normative economics is reliable in itself, independently of other results in welfare economics or social choice theory.

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<sup>1</sup>We refer here to the kind of axiomatics he used in the impossibility theorem, rather than that of general equilibrium: the former follows from a theorematic axiomatics – i.e. a characterization method– and not from a definitional axiomatics – foundational axiomatics per se (See Mongin 2003: 3). The characterization method supposes two stages and does not a priori suppose any unified theory. In the first stage, conditions (called axioms) are formulated abstractly and formally. In the second stage, two types of conclusions can be drawn from the consequences of the system formed by these conditions. One type of result is an empty set, i.e. we have an impossibility theorem. This type of result is meaningful because since this shows that the conditions, however all desirable, are shown to be incompatible. It does not help however to identify where to locate the problem. In the other type of result, it is possible to characterize a set of rules respecting the requirements. This corresponds to a solution. The use of this solution for the prescription of public policies depends on the interpretation and the operability of the elements used in the axiomatics. See also Mongin (2002: 147).

Secondly, axioms and results do not have an *a priori* substantial interpretation<sup>2</sup> Theorematic axiomatization establishes logical links between axioms, hence some true syntactic statements, whatever after all the retained semantics associated with axioms and even preferences. One advantage of a flexible semantics is that the syntactic results may equally apply to many different domains; one disadvantage is that the interpretation of the results are not straightforward, i.e., not directly enlightening on substantive issues, nor operational for designing evaluations and prescriptions. A. K. Sen endorses this assessment: “Social choice is an analytical discipline that makes extensive use of axiomatic methods. Many of its strengths and weaknesses relate precisely to this analytical character, including the strength arising from its interpretational versatility and the weakness of a tendency towards neglect of substantive issues.” (Sen 1994: 1). Utility in formal social choice theory may be positive, or, alternatively, normative; it does not need to be one and the other meanwhile. Yet, abstraction in social choice theory makes it difficult to talk about the world, and even more difficult to suggest any solutions to the world’s issues.

## 2 An autonomous epistemology for welfare economics

### 2.1 From the vain ambition of value neutrality to transparency

The “new welfare economics” emerged in the late thirties, early forties, and mainly developed after the 50s. K. Arrow (1951,1963) established the impossibility of deriving a social utility function on the basis of individual preferences without resorting to interpersonal comparisons, as he himself interpreted. A clear separation between disciplines has resulted from this bad news [1950–nowadays].

We distinguish two approaches of the new welfare economics which we label “American” or “British” for the sake of clarity and for historical reasons<sup>3</sup>. The

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<sup>2</sup>Syntax is “the analysis of signs taken in themselves, regardless of what they mean or represent” (Mongin 2003: 13). Semantics refers to “semantic analysis of the signs seen in their reports to the meanings and truth” (Mongin 2003: 13).

<sup>3</sup>What goes well without saying, goes even better when you say it. Although we have here labeled the schools by some of their representative countries—US, GB—, no fetishism of the label should hold. Each of these school is before all international. For instance, the “Critics of welfare



American approach, represented by A. Bergson (Burk 1938), O. Lange (1942) and P. Samuelson (1947), considers that normative judgments are contained to a subset of acceptable value judgments. The Pareto criterion is one of them. They try to conceive a framework based on strictly ordinal utilities. Arrow's theorem could be interpreted as an impossibility to build a social welfare function as developed by the American approach. The alternative British approach therefore gained a much greater appeal: not only was it considered as immune from the Arrow's result, it actually allowed for public recommendations. The British approach is well-represented by N. Kaldor (1939), J. Hicks (1941) and T. Scitovsky (1941). They developed an alternative concept of Pareto improvements, the 'Pareto efficiency criterion', which considers the possibility of hypothetical compensations among individuals, then applies the test of unanimity. Because the compensations are hypothetical rather than real, they pretend their consideration does not imply any actual interpersonal comparisons of utility. It is used by public agencies and most economic theorists in international, geographical or industrial economics in their welfare analyses – among others Tinbergen, Haberger or Marglin. Welfare is analyzed through cost-benefit analysis. Important researches have been conducted to be able to understand the theoretical foundations of the welfare evaluations based on compensating variation (or equivalent variations), as well as develop new tools to compute shadow prices. Normative issues as such are excluded from the scope of these analyses, insofar as they belong to an independent political treatment of distributive issues. It has been shown that interpersonal comparisons are made, but at least they are not made explicitly.

New welfare economics and public economics, in the sense of the British school, are commonly referred to as neutral, at least for two reasons. Firstly, new welfare economics inherited the scientific commitment of economic theory: as scientific, it is axiologically neutral. Secondly and most importantly, it has been influenced by Friedman's view (1953). According to this view, debates in economics rather emerge from divergences between forecasts of economic consequences of actions than of divergence in objectives<sup>4</sup>. Consequently, economic research should focus on the rela-

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economics" of the Englishman Ian Little could be considered as belonging primarily to the the american Approach (Little 1950). Conversely, many agencies and academics in the US ground their practice on the Kaldor-Hicks justification of cost-benefit analysis, although here labelled as belonging to the "British school".

<sup>4</sup>"I venture the judgement however, that currently in the Western World, and especially in United States, differences about economic policy among disinterested citizens derive prominently from different predictions about the economic consequences of taking action – differences that

tionship between phenomena and behaviors, and should not depend on normative goals.

It is yet hard to confirm the axiological neutrality of the allegedly neutral tools of the British Welfare economics. Let us consider the consumer surplus. Surplus calculation require a number of assumptions, among which the decreasing law of marginal utility, the focus on material and real experience, separable additivity of utility among goods, constance of marginal utility of money... In other words, surplus can just help to make prescriptions when policies do not affect habits, consumption levels, wealth distribution. Under these requirements, surplus provide an operational tool to make prescriptions. Cost-benefit analysis (e.g. Boadway and Bruce 1984, Laffont 1988) uses surplus and hypothetical compensation criteria. The latter pretends to enable the comparisons of social states without interpersonal comparisons of utility. It is yet debatable. Mishan raises an operational objection to the neutrality of compensation criteria. Compensation criteria are not able to assess the distributive effects of new policies (See Mishan 1984, Hennipman 1982, 1984a,b). However, if prescriptions to make these new policies should actually be applied, these distributive effects would hold, just as if they were judged legitimate and fair: “To propose a test of economic efficiency is in effect to recommend it. And to recommend it, or at least to justify its recommendation, entails value judgements that ought to be explicit.” (Mishan 1984: 96), such that welfare economics is not neutral according to Mishan. As a result, the lack of transparency of public economics regarding its normative commitments is an issue: “We cannot make policy recommendations except on the basis of value judgments, and these value judgments should be made explicit. [...] [T]he New Welfare Economics has succeeded in replacing the utilitarian smoke-screen by a still thicker and more terrifying smoke-screen of its own.” (Chipman et Moore 1978: 581). There is also a theoretical objection to the neutrality of compensating variations. Baumol (1947) considers that they imply interpersonal comparisons of utility since compensations, gains and losses are captured in monetary terms. The social value of a monetary unit is supposed equal whoever rich or poor it concerns. Bossert (1995, see also Lahiri 2001) remarks that the different welfare variations criteria (equivalent and compensating variations) are

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in principle can be eliminated by the progress of positive economics – rather than fundamental differences in basic values, differences about which men can ultimately only fight. [...] If this judgement is valid, it means that a consensus on “correct” economic policy depends much less on the progress of normative economics proper than on the progress of a positive economics yielding conclusions that are, and deserve to be, widely accepted. It means also that the major reason for distinguishing positive economics sharply from normative economics is precisely the contribution that can thereby be made to agreement about policy.” (Friedman 1953: 212)

not necessarily consistent and, taken together, may generate cycles (See also Kuznets 1948, Chipman et Moore 1978, Arrow 1951). Consistency is obtained conditionally to the existence of a social welfare function, hence a specific and explicit normative conception – as provided by the American school. Social Welfare functions should therefore be used in welfare economics and in cost-benefit analysis in particular – this shall be done, fortunately, however much later (e.g. Adler 2012). More generally, the tools of the British welfare economics are based on the weak Pareto criteria, which is debatable (Robbins 1981: 422) for this criteria is fundamentally welfarist (Fleurbaey 1996: 48). In welfarism, only information based on individual utility on the social states are relevant to assess these very social states. External effects to some extent cannot be taken into account (Sen 1970). At the end, the legitimacy of welfarism largely depends on the interpretation of individual utilities (Picavet 1999), such that the issue of the legitimacy of normative choices behind the criteria have move towards the legitimacy of certain interpretations of individual utility.

According to the Hume’s principle standardly summarized by “no Ought from is’, no normative proposition can be derived from only positive premises. All normative statement therefore includes at least normative premises. We can distinguish between two notions of “ought”; either it refers to an evaluative judgement, either to a prescriptive judgement. The latter always supposes the former, although the converse does not hold. When prescriptions are at stake, they concern a specific context which supposes that descriptive judgments are pervaded by values (See Mongin 2001: 20, Baujard 2013). Hence it is logically impossible to consider that prescriptions are value-free. The only issue is the possibility of demarcation, i.e., of transparency of the value-content of prescriptions. There is no shame in giving up the quixotic search of neutrality (see similar arguments for science in general by Douglas 2004, 2009). As the normativity of prescriptions is inescapable, an acceptable and more appropriate criterion should be the requirement of transparency, as contributing to objectivity. As Longino (2004: 127) says, “we should stop asking whether social values play a role in science and instead ask which values and whose values play a role and how”. Taking normative issues seriously is hence necessary to circumvent the problem of the non-neutrality of the British school of the new welfare economics. Rather than neutrality, transparency may become an acceptable criteria.

It is fair to say that there today exists in economics important resources providing the tools for transparency regarding normative issues, in particular with the emergence of social choice theory – and from then on, cooperative game theory,

fair allocation theory, non welfarist issues in normative economics, and so on. Not only transparency, the use of axiomatics makes it possible to take normative issues seriously. The method is able to examine the compatibility between values, and to capture all nuances of philosophical debates. One instance may be found in the contributions of these analytical approaches to the concept of freedom. The use of axiomatics has enable researchers to distinguish important concepts of freedom (See, e.g. Baujard 2007, 2011). It is interesting to notice that such contributions are uniformly written by economists or by political and moral philosophers (e.g. Martin van Hees as a philosopher and Clemens Puppe as an economist). If one epistemological challenge should be to tackle normativity seriously, the branches of economic science using axiomatics —after social choice theory— is providing an efficient answer.

## **2.2 From operationalisation to prescriptions in welfare economics**

The investigation now moves to consider whether it is possible to use the statements of normative economic theory for actual public decision. This at least requires one condition: utilities should get an operational sense, hence the way they are interpreted by a public decision maker should be made explicit.

Whereas social choice theory offers the tools to study normative issues with great accuracy and technicity, it deliberately stays mute on what preferences stand for. Social choice theory provides scientific statements in a strictly deductive form based on clearly stated assumptions, i.e., keeps reasoning in a strictly theoretical abstract world. The conclusions it derives are independent of the semantical interpretation of the assumptions, which remain flexible. In accordance with the interpretational flexibility of preferences developed with Arrow's influence, preferences could hence represent either real well-being, or welfare relevant for justice issues, or even behavioral utility. There is no reason to choose one or the other, while it would be necessary in the real world. This epistemological option results in the loss of this particular operational aspect. By contrast, if one consider applications of the British New Welfare Economics to public economics, both a substantive interpretation of preferences and an operational translation of preferences are considered. It is tempting to consider a suitable normative interpretation while relying on allegedly scientific revealed preferences. It is indeed quite common that individual utilities are inferred through revealed preferences theory in evaluation of public policy (e.g., surveys by Boiteux et Baumstark 2001:40, 78, 178). Public economics is a positive

study, and is meant to formulate concrete prescriptions. By claiming value neutrality despite evidence of value-ladenness, the British New welfare economics has given up its effort to explicate its normative assumptions, resulting in lack of transparency as we have seen above. In a nutshell, the formulation of prescriptions in public economics require to face two distinct challenges meanwhile: normativity and operability. The appeal to axiomatic methods meets the normative challenge, and fails at being operational; the appeal to the British New Welfare Economics meets the operational challenges, and fails at being normatively transparent. Each pole have specialized in a distinct epistemological purpose, and none of them is now able to address these two objectives simultaneously.

One may hope to marry both to meet the challenges. A. K. Sen, when referring to economics as a moral science is paving the way to a convergence between economics to values, normative economics to positive economics. Historically and institutionally, an actual divorce between social choice theory – and more generally normative economics, including equity theory – and public economics has however been observed (e.g. Mongin 2002, Mishan 1984). This is unfortunate as far as normativity is a necessary ingredient of prescriptions; and without prescriptions, welfare economics is merely dead. François Maniquet (199: 805, 807, we translate) concludes: “The links between public economics and equity theory are now almost nonexistent. [...] We would like to emphasize again the great potential of the convergence of public economics and equity theory. We now have the tools that are necessary to reconsider the economic role of the State in the light of what can be considered fair in a particular context. Isn’t it an urgent task to undertake?” If urgent, why does it prove so difficult? I claim the epistemological status of economics science is responsible for these difficulties.

In order to guarantee both normative transparency and operability, it is necessary, not only to go beyond any confusion between positive and normative economics, but also to understand the essential difference between theoretical economics and applied economics. I defend that a major difference lies in the possibility to restrict the scope of economics within theory while reality does merely not allow for such a restriction. In this respect, going back to the founders of welfare economics is again illuminating. We develop here two converging aspects of the issue: the distinction between utility and ophelimity, and between welfare and economic welfare. Pareto introduces the distinction between ‘utility’ and ‘ophelimity’ (Pareto 1905), whose objects of study are, respectively, sociology and economics – regrettably, the distinction between ophelimity and utility had little success among economists, as noticed by Pareto: “it is difficult in many cases to realize whether economists

want to talk about subjective utility (ophelimity) or objective utility. When they focus on this subject, they distinguish them, but soon they get confused” (Pareto 1896: §82). Utility is a property of the relationship between human beings and objects in general; this property is objective and interpersonally comparable. In contrast, ophelimity – or economic utility – is a subjective property of objects in their relationship with a particular individual, regardless of any normative judgment. Interpersonal comparisons of ophelimity is meaningless. Studying ophelimity rather than utility implies that the complexity of social issues and the importance of social bond is merely ignored. Economics studies how to maximize individual ophelimity, which is only an intermediate step. Pareto imagines that, in a second step, the other social sciences such as law, religion, ethics, or sociology weigh this first result taking into account many other factors in order to maximize social welfare. This is also Samuelson’s view (1947: 249): the new welfare economics is not a real guide to action; making prescriptions makes it necessary to add interpersonal comparisons, ethical positions to decide between different optimal situations. He further specifies that welfare economics that is not followed by such a second stage would be useless. A strictly economic reasoning cannot decide upon the good and the bad, the fair or the unjust. Social sciences are therefore characterized by a sequential sharing. Economics focuses on the first step, theoretical and confined only to the material sphere. Economics is restricted to “pure economics” and fails to be able to be involved in prescriptions for public policies. Sociology, in the sense of Pareto, is responsible for the second stage. By extending their object of study to all of the social sphere, social sciences can make assessments, judgments and requirements to the attention of policy makers. As a second illustration, recall the pigovian distinction between welfare and economic welfare. A problem occurs when changes in overall well-being – which depends on a plurality of causes – does not go in the same direction of those of economic well-being. As economics focuses only on one part of the entire social sphere, theory can surely never explain everything. Theory explains some basic parts of phenomena, which remain universal constants between different social facts (e.g. Pareto 1917: §32-33). Economics as a science should focus on highlighting these constants. The rest of the phenomenon is not tackled by this particular theory. Hence its ability to talk about the whole world and provide sound prescriptions for public policies is no longer straightforward. The authors of the first welfare economics argue – or claim they need to suppose – that economic welfare and overall welfare are likely to evolve in the same direction (e.g. Pigou 1920: 11-12). The conclusions of economic science can be applied to public decisions only under this condition, which is obviously not a realistic assumption to

think properly about concrete prescriptions. Otherwise, it becomes hard to ignore the diversity of (non-economic) causes and elements to consider what happens, shall or should happen really. In other words, the restriction of scope of economics to make economics a science makes it a science, but may fail at talking about the world, and even more at making sound prescriptions.

What kind of discipline should allow us to tackle both challenges, normativity and operationality, simultaneously? We have now deduced that neither an entirely abstract theory nor a positive science may meet all challenges. The famous distinction between normative and positive economics, attributed to J.N. Keynes (1890), is insufficient to consider how to go from theory to applications and prescriptions. Prescription is indeed a perilous task. Normative economics, including social choice theory and equity theory, satisfies the requirement of transparency of values, but fails at respecting the possibility of implementing value judgments in real context, and to predict consequences of decisions, because they use a strictly deductive method. Besides normative and positive economics, a third kind of economics is therefore needed, as identified raised by J. N. Keynes (see also the distinction between pure economics and political economics by Robbins 1981; and the influence of German historicism on this position, Campagnolo 2015): the art of political economics aims to design prescriptions of actions. The latter does not only need theoretical knowledge in economics, but also contextual knowledge, interactions of such knowledge with the context, and the enlightments coming from any other disciplines. Amartya Sen, among others, is paving the way to this promising future (e.g. Baujard and Gilardone 2015).

## Conclusion

The specificity of welfare economics is to deal with norms and to support actual decision-making. There are therefore two challenges to be met simultaneously: normativity and operationality. Considering seriously the evolution of the concept of preferences in standard microeconomics, and of the corresponding utility in welfare economics, induces two statements on welfare economics from an epistemological perspective.

First, the internal evolution of welfare economics is mainly driven by epistemic values, because the arguments regarding interpersonal comparisons of utility and the properties of utility are induced by the aim of transforming economics into a science similar to natural science.

Second, this view of the epistemology of welfare economics appears unlikely to fit

the more general aim of welfare economics. If it becomes abstract and theoretical, it may meet the normative challenge whereas it fails at the operational challenge; if it specializes in formulating prescriptions only, it is operational while normative transparency is more than doubtful. Taking on board these two challenges simultaneously may need not only to stick to the progress that has been accomplished in welfare economics, but also to open the study towards other disciplines.

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