

De Finetti's critique of economics is today more relevant than ever

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Abstract. Following a personal recollection, the paper considers the main areas of economics of interest to de Finetti from his critique of main stream economics to contradictions between individual and collective behaviour to methodological issues. It then tackles the issue of why de Finetti's writings are very relevant today and relates the relevance to major changes in the economy and society as well in economics. A section is devoted to possible links – and major differences - between de Finetti's approach and contemporary 'Happiness' studies. The conclusion emphasises the coherence in the approach to various strands of de Finetti's work from probability to economics to philosophy.

Key words. De Finetti and economics; critique of economics; methodology of economics; happiness studies and de Finetti; coherence of de Finetti's work.

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1. Introduction

1a. A personal recollection

I am very pleased to have been invited to present this paper because it has given me the opportunity and incentive to revisit some of the works by my old teacher and it now gives me the opportunity to talk about him, his contribution to economics and his vision for the economy and society.

De Finetti played an important part in my life. I studied with him a few years after he became Professore Ordinario at La Facolta' di Economia e Commercio in Rome. There were three courses he was responsible for: Matematica Generale, Matematica Finanziaria and Matematica Attuariale in the first, second and third year of our studies; he lectured on the first and last course. I also did my Tesi di Laurea with him on decision theory in inventories and the Poisson distribution; this meant that I was in contact with him for quite a while. Moreover, after my graduation, I attended the Summer Schools he organized in L'Aquila and Frascati; at the former one we had Ragnar Frisch, Malinvaud and Morishima among the speakers, while at the latter one I met Savage.

Most first year students found the material and his delivery difficult to follow and indeed they were. His soft voice was often inaudible in the large, crowded, old theatre of Piazza Borghese where the Faculty was located at the time; like many mathematicians, he often spoke while writing formulae on the blackboard: no OHP or PP presentations then! The material presented in the first year was not easy for many of the students with a poor mathematics background.

However, some of us felt from the very beginning that there was something special in him and his course; it was partly how he made the content relevant with the aid of examples and partly his presentation of the material; he was always trying to lead us to the essential points in the arguments and gloss over the more technical and specific ones. I particularly liked his blending of formulae and graphs; analysis and geometry: we were always asked to try and represent graphically the algebraic formulations. Some of us began arriving early for his lectures to make sure we could secure a seat in the first few rows.

By the third year most students had dropped off the course – as was then the norm in Italian Universities and to a large extent still is – and there were, blissfully, few of us following his unit on probability. This was the time when he did with us his experiment on probabilities assessment: we were asked to assign probabilities to our predictions for the forthcoming football matches. Following the Sunday football matches, he would discuss with us the actual results against our own assessments. The porter in charge of our classroom always scored best: much better than us students and the probability Professor. De Finetti told us that for this experiment he was liaising with a Professor Lindley of Britain.

I also remember an amusing anecdote he told us at the start of his probability course warning us not to mix up probability with either superstition or religion. His story relates to an episode that occurred in a Church in the north of Italy; I do not remember whether he or one of his relatives was in the congregation. The priest was giving a sermon against the combined evils of superstition and gambling; he was against both.

Moreover, he was trying to impress on the congregation the irrationality of superstition² in relation to gambling on the 'lotto' by saying that it was pure superstition to believe that if he mentioned three numbers they should come out in the lotto draw. He did mention three numbers at random; a member of the congregation did play them immediately after and they did come up. Both de Finetti and his students roared with laughter and bonds between them were further cemented.

By then he had become much less daunting for me and my sister, who was studying with me at the time, also for a specific personal reason. Our home in Piazza Annibaliano was along the same bus route as his in Via Poggio Catino: the 58 bus leading from Piazza San Silvestro near the Faculty where he taught and we attended courses. We would often meet him on the bus and he was always very courteous towards the two shy sisters.

However, de Finetti had also a dramatic effect on my private life. It was one evening in February 1970 in Cambridge when at a small party in my room, one of the guests brought along a friend of his, a Donald Gillies. We both tried small academic talk and thus I learned that he had just finished his doctoral thesis on Philosophy of Probability. I asked him whether he might have come across the name of my Professor in Rome, a Bruno de Finetti. He almost jumped up from the floor where we were all sitting. It gave us an excuse for meeting again, and again. After 36 years we still, occasionally, discuss de Finetti and his work.

1b. Reading de Finetti on economics then and now

Apart from some remarks here and there on decision theory during the course on probability theory and during my work for the thesis, I did not hear much from de Finetti on his views on economics. My first proper encounter with them was during the summer schools which were specifically on economics-related topics.

I have to confess that at the time – the late 1960s - I felt that his views were out of sink with the prevailing views that I was by now becoming familiar with in my further studies of economics, the subject I had, by then, switched to. Macroeconomics was the order of the day while he was putting forward a micro, Paretian type economics. Moreover, he was criticising the neo-classical economic theory; but that seemed to me to have been so discredited that it was, perhaps, not worth considering. At the time most progressive people in economics were convinced that the neo-classical system was wrong and that it was gradually being recognized as such. A new world would emerge.

Over the last few months I have read or re-read de Finetti's economics works and my reaction now is that they are very relevant today; indeed more relevant than when he wrote them: it is as if the economies and economics have moved much more along the lines he had been criticizing. The next sections will explain why I have now moved to this position.

² Many Italians believed that dreams could be interpreted in terms of numbers which would come out in the weekly 'lotto' draw. There were experts and indeed books on the art of numerical interpretation of dreams. For example, it was common belief that if a dead person spoke to you in your dream, you should play 47.

2. De Finetti's writings on economics³

Why was de Finetti interested in economics? The question is relevant because the answer is connected with understanding his approach to economics. In his 1969, cap 1 he gives two main reasons: the first is a desire to attack prevailing fetishes coming from "...his moral revolt against acquiescence to distortions" (p. 26) found in society and economies. Put it slightly differently, this is the desire to:

"...create an economic system that is efficient and aims at meeting the needs of society in an environment of social justice and free from those distortions that derive from sectoral pressures, partisan interests, egoism of privileged people, internal contradictions of the private structure on which the economy is based" (1969: 29).

From this dissatisfaction derive his reasons for studying economics; they are contained in various points in his writings and particularly in the formulation of the following question:

"How could we modify the rules of the game so that the apparent antithesis between the interests of each individual considered in isolation and those of each individual seen as member of society disappears?" (1969: 90)

Moreover, he sees economics as a study of problems and institutions in order to change institutions, priorities and outcomes (p. 87). Essentially his study of economics comes out of a desire:

- For social justice;
- For efficient systems and institutions;
- To use his mathematical skills to show that it is possible to eliminate the contradictions between the interests of individuals as such and those of individuals as members of communities and societies.

On the latter point it is interesting to note that his use of mathematics in economics parallels his use of it in probability theory. In the former case mathematics is to be used to smooth out contradictions in the preferences of each individual – within her/his own sets of choices – as well as those between individuals. In the case of probability it was through the elimination of contradictions that the Dutch Book could be avoided and thus a system of probability compatible with the basic Kolmogoroff axioms could be developed⁴. Not surprisingly, he notices the increasingly close "...points of contact ...between various aspects of economics and applications of probability calculus and statistical methods" (1969: 26).

³ Most of the remarks about de Finetti's works come from his 1969, 1973 and 1976 which are all collections of essays some published previously. To help the reader trace the historical roots of de Finetti's views the appendix gives details of the first publication of the essays. The translation of passages in this paper is my own.

⁴ I owe this point to D.A. Gillies

The major economics areas and issues we find throughout his writings are the following.

1. Critique of 'classical' theory.
2. Efficiency issues, particularly in the Italian public sector.
3. Policy perspective; social issues, social justice; humanity in dealing with economic issues.
4. Uncertainty/risk/social security issues.
5. Methodological issues in economics.
6. Role of mathematics in science in general and in economics in particular.
7. Positive versus normative economics.
8. How to use mathematics to achieve the aims he wants in economics: operational research; welfare functions and Pareto optimality.

Critique of the neo-classical theory, efficiency, policies and uncertainty

De Finetti, like Keynes, uses the term 'classical' economics to indicate the system of orthodox economics usually known as the neo-classical system/theory. He thinks that this theory is too abstract and does not take account of the historical context; there is too much reliance on ad hoc explanation to fill the gap between theory and reality. Moreover, the neo-classical economists have been unable and unwilling to deal with the conflicts and contradictions between the interest and preferences of individuals and those of society of which the same individuals are members; one of the consequences of this approach is the fact that the conflicts between the present and the future are not given enough weight: the future and the social are usually sacrificed for the sake of the present and the individual. According to de Finetti the overall result is that in the end society as a whole – or most people within it - suffers.

Two types of conflicts and contradictions keep recurring in de Finetti's writings. (1) External economies and diseconomies; and (2) contradictions between the effects of individual versus collective behaviour.

External economies or diseconomies are those effects of individual behaviour - including contractual agreements - that spill over third parties or society as a whole; these externalities can be positive or negative. The price emerging from the free unhampered working of the market cannot allow for externalities be these positive or negative⁵.

The following are examples of negative externalities.

1. The price of the chemical products sold by my firm will take account of the private costs of producing them but not of the social costs – health hazards - of the pollution generated in the rivers, air etc..
2. The exhaust fumes from my car pollute the environment causing problems for other people; yet the price of petrol does not reflect this negative externality, neither does the price of cars reflect the diseconomy of noise and traffic.
3. If I contract an infectious disease, I can pass it on and society as a whole is in receipt of a negative externality from me: this means that it is in the interest of society as a whole – as well as of myself – that my health should be protected.

⁵ For a clear exposition of the theoretical debate on market failures and externalities see Acocella (1998: part 2)

There are also many cases of positive externalities.

1. If I maintain my garden beautiful, my neighbors and the passers by benefit from it.
2. The education of children benefits them and also society including future employers.
3. There can be important positive externalities on the production side: the investment in training employees by one company will benefit others – sometimes competitors – when workers move to new jobs.
4. Firms learn from the environment in which they operate – from customers, suppliers, distributors; moreover those firms that have production activities in many countries – the transnational companies (TNCs) transmit knowledge to a variety of locations via their internal networks: this is an important issues in the contemporary world in which TNCs are becoming ever more relevant in production activities (Zanfei 2000; Frenz and Ietto-Gillies 2007).

Contradictions between individual and collective behaviour. The unfettered pursuit of individual gains may rebound against everybody. Egoistic behaviour may be legal and above board or it may be the result of cheating; in either case it may backfire. de Finetti gives the following examples. (a) In a theatre hall, a member of the public may be tempted to stand up to get a better view; however, if everybody stands up nobody is in a better position. (b) If an individual employer manages to lower wages and retain his work force the demand for his products may remain unchanged provided the rest of the economy retains higher wages; however, if all employers cut real wages demand will fall for all of them and they may end up worse off. Similarly an employer that may raise wages for her/his employees in the hope of increasing demand for her/his product, can only succeed if other employers raise wages as well.

De Finetti is very critical of neo-classical economics also on the ground that it favours the *status quo*. The so called optimum solution of neo-classical economics are based on the existing distribution of resources; he challenges the assumption that such allocation must be taken as given because economists should not express value judgments on what is the best or acceptable level of income and wealth distribution. Though he accepts Pareto's methodology, he is very critical of the Pareto optimality principle: points of Pareto optimum can be very bad for society. His view is that the incorporation of value judgments is exactly what economics should be about and that mathematics should help to formulate and solve the technical problems deriving from it⁶.

He is also against unbridled capitalism of free market economies on the basis that business decisions led only by the profit motive (1976: 19) lead to the production of useless or damaging products: e.g. cigarettes; ever more fast cars; or to the destruction of agricultural products to support the incomes of farmers in developed countries while people in developing countries starve. To illustrate his dislike of financial and profit motives as the main aims in society and his abhorrence for the inequalities to which they lead, he uses a folk saying from his native Trieste: "the devil shits on the biggest mound" (1976: 22) and he specifies that money is the devil's shit.

⁶ De Finetti's views on his normative Pareto system are clearly highlighted in Adriani (2006) as well as in Scazzieri, R. 'The feasibility of normative structures'. The latter paper was presented at the Bologna workshop.

He is also sarcastic on the justifications usually given of the unfettered market mechanism on the basis of freedom. He writes:

“A curious rhetoric may in fact continue to identify as “freedom” any organizational deficiency. [...]But, as a human reality - the only one that counts - what is such freedom? [...] it is freedom for a privileged minority who have the means needed to take advantage of it [...] true and supreme freedom for individuals is that they should all be liberated from the worries and distortions that nowadays poison our existence for opposite, though parallel, reasons those of us who are afflicted by possessions and those afflicted by the lack of possessions...” (1969: 86).

He concludes that free market economies far from being efficient are highly *inefficient* because they produce many useless or damaging products and because they lead to prices that do not account for negative externalities and for the social costs of putting them right. Moreover, there are many institutional inefficiencies particularly in the public sector and in Italy. He thinks that the skills of scientists – including economists and mathematicians – should be used to advise on the best institutional structures for both private and public sectors. A whole chapter (1969: 17) is devoted to attacks on the bureaucracy and the waste of citizens’ time it leads to. He proposes a centralized system for personal identification to be used in all dealings between public institutions and individuals, from the collection of taxes to the payments of social benefits: essentially what was later introduced as the Codice Fiscale which already existed in Britain as the Social Security number. Another institution that comes in for a strong attack on the part of de Finetti is the Italian university system for excessive bureaucracy, low respect for the needs and rights of students and misuse of power by some academics.

At several points he considers *policy issues*. He is in favour of government interventions to correct the negative effects of externalities as well as to correct what he sees as grossly unequal distribution of resources. He writes (1976: 19) that “...nobody who is not aware of the real situation on men on the planet Earth (think of a Martian) could possibly advise a distribution as unequal as the existing one and, worse still, a distribution that leaves so much of humanity in dis-human conditions.”

He thinks (1973) that most people – or all reasonable and honest people – would agree with the following aims for society:

- Lower degree of inequalities
- Lower degree of social insecurity
- Lower degree of reliance on markets and competitiveness
- Maximum freedom of choice for individuals
- More efficient and less complicated institutions and processes

He puts his common sense as well as his mathematical skills to the suggestions of solutions. For him economics is and must be ‘normative’ that is it must suggest acceptable and feasible solutions for changing distortions and indeed for proposing better institutions and systems. Specifically, he argues along the following lines.

- He wants a normative version of the Paretian approach. Pareto type of analysis can be applied not to accept the status quo but to show how feasible solutions can

be achieved taking account of the preferences of each of us as individuals and as members of the community and society. In the latter role we should all express our preferences; the task of the scientists (economists and mathematicians) is to point out possible inconsistencies and - where necessary – lead us towards more consistent choices.

- Decision theory and normative economics go together. The techniques of Operational Research can and should be applied to the development of public policies. Operational research can also assist in the development of the individual and socially best system in a variety of fields.

On the latter point he deals with a specific example of great interest to him as a probabilist and social scientist as well as to us all. He devotes a chapter (1969: 16) to Social Security. He discusses the issues of uncertainty and risk in a variety of social areas such as unemployment, health, old age, accidents etc. What is the best (i.e. most effective and efficient) insurance system – for society as a whole - for each and all of us? What is the best method – for society as a whole – of funding the cost of such insurance(s)? He argues in favour of a unitary system with a single public institution in charge of it in which the large numbers and variety of risks lead to ‘compensation of risks’. Moreover, the best way to fund the cost is via the fiscal system in which people pay on the basis of their ability rather than on the basis of their individual risk. This system would also lead to a redistribution of resources from the less to the more needy people: a move he greatly favours.

Essentially his view of economics can thus be summarized. In line with his approach on probability, de Finetti feels that economics should start from individuals and their preferences and build up to a consistent system. Microeconomics is undoubtedly his preferred method of analysis: for an understanding of the real problems facing people we should resort to the micro economy and analyze the behaviour of individuals with their specific preferences and value judgements. He sees macroeconomics as useful for analyzing broad trends and as a general guide for understanding the system; however, aggregation hides more than it discloses and should not be used as the sole methods for policy planning. Input-output analysis is useful for understanding the linkages between sectors: “With ...precautions, the input-output analysis is certainly an appropriate bridge between macroeconomic generalities and microeconomic perfections” (1969: 217). Nonetheless he does not exclude a priori any of these three methods: we could say that he is in favour of methodological pluralism. He writes (1969: 226): “None of the methods of analysis ... should be excluded : the methodology of macroeconomic models as a preliminary attempt, the method of a preliminary summary organisation in a Leontief type framework, and then that of an effective scrutiny in disaggregated, detailed, localized terms” .

The latter can be translated into individual welfare functions which must relate to two sets of preferences: those that we all have as individuals and those that refer to us as members of society, i.e those preferences that we would like to see in the social system. Neutrality does not exist in real life; it is only a convenient assumption in neo-classical economics. Therefore value judgments about all aspects of society are not only acceptable but must be encouraged, thus the welfare functions will take account of individuals’ preferences for society as a whole (for example, individual preferences on

income distribution which should not be taken as given and unchangeable). On this point the task for the economist and mathematician is to bring to light possible contradictions and get people to reformulate their preferences on the basis of those contradictions⁷. The pretence of an economic science without value judgments is just that: a pretence done with the purpose of perpetuating the *status quo* and smuggling in the values and interest of the establishment.

Methodology, mathematics and economics

Scattered in many of de Finetti's writings there are many remarks on methodology of science and on the proper use of mathematics in economics. One of the main points he stresses is the role of the scientist in determining aims: the scientists must be involved in value judgments. His 1976 book has the following title: "From utopia to the alternative" and indeed in the very first chapter he argues in favour of a utopian view for the economy and society. He encourages people to move away from a vision of society constrained by what is seen as realistic; this often means a view which is in line with the interests of the existing establishment and the status quo. Instead we should think of the ultimate aims we want for society and then on the means to achieve them. He clarifies that his '*Utopia*' is not to be taken as "something absurd and unrealizable, rather as a preliminary and idealized description of a future to be constructed as far as possible in line with such a model" (p. 8-9). He wants people to go into uncharted territory, think the unthinkable if the aims justify it: eventually the unthinkable becomes realizable and realized.

He thinks that science would not have progressed or continue to progress without utopian thinking, without the scientist being able to make a qualitative jump away from prevalent systems, theories and environments be they in the realm of sciences, technology or society. He wrote in 1965 on these issues (1969: 250):

"I thought I might be too optimistic, some ten or fifteen years ago, in foreseeing the development of computers and their applications, in general and in Italy in particular; others probably thought I was mad; and yet, those mad predictions of mine, today might appear to you those of the most retrograde and skeptic madman one can possibly imagine (in the opposite sense)."

He meant that, if anything, he had been too conservative in assessing the potential of the computer, not too radical. And later on the same page:

"Reality is the fruit of the fantasy of those people who with fantasy truly build [...] and, with their fantasy, they can and do go forward, because gradually fantasy is transformed into the reality of new projects, new principles, new approaches and this process generates new platforms for new constructive leaps of fantasy"

⁷ I wonder whether the contemporary mania for focus groups as a source of social and political information might be used positively to elicit information on preferences and to bring out possible contradictions.

To this writer it seems that when talking about utopia he has in mind something like Kuhnian revolutionary science applied to social issues; he wants to encourage economists to move away from ‘normal science’ approaches and go into ‘revolutionary science’.

He warns against a-historical approaches in which: “...every epoch and every doctrine may present its own conceptions as ‘truths’ in an absurdly absolute sense without clarifying their historical, relative and provisional values” (p. 33)⁸.

He also warns against assumptions that are too unrealistic; some assumptions are needed but they must have the basis in the real world. The relevance of these remarks could be seen in the context of the methodological debate on instrumentalism in economics of which, however, de Finetti may not have been aware. They were sparked off by Friedman (1953)’s claim that realism in economics does not matter; we should accept unrealistic assumptions provided we think that the world behaves *as if* they were true. Indeed for Friedman:

“...the relevant question to ask about the ‘assumptions’ of a theory is not whether they are descriptively ‘realistic’, for they never are, but whether they are sufficiently good approximations for the purpose in hand” (p. 15); ... “The decisive test is whether the hypothesis works for the phenomenon it purports to explain.” (p. 30)⁹

De Finetti is also skeptical on the use of analogies between economics and the natural sciences be they biology or mechanics. There are grotesque errors on the part of those scientist who “...think of modeling economics or sociology on the theories of mechanics and therefore believe in the possibility of a spontaneous equilibrium in an economic and political regime of anarchic liberalism...” (1969: 41)

Whether it is appropriate to use mathematics in economics and to what extent, is not something that can be judged in the abstract and a priori: it all depends on what use one makes of it and whether mathematics is useful for the problem in hand. Mathematics can help to reach sensible solutions; however, in order to reach sensible and exact conclusions it is not enough to resort to the use of mathematical techniques (1969: 30). What he likes to see is mathematics as a constructive instrument which confronts real problems rather than pseudo ones¹⁰; mathematicians must work in symbiosis with economists and not as outsiders: what we need between the two sets of scientists is collaboration in the sense of full communication, coordination and co-penetration to problems. In a paper inspired by the first World Conference of the Econometrics Society in 1965 in Rome, he writes:

“Any mathematical development, any mathematical critique may emerge from requirements or curiosity that are purely mathematical in nature; however, if they do only this without making us ponder on the economic interpretation they cannot

⁸ The historical, relative and provisional conception of truth is affirmed more strongly in his 2006 book as discussed at the Bologna workshop.

⁹ Among the people who have contributed to the debate are Musgrave (1981) and Samuelson (1963).

¹⁰ A cautious acceptance of the use of mathematics can also be read in Barone as noted in Tiberi (2006: 355).

be of relevance to economics; they risk giving rise to confusions by suggesting incautious and gratuitous interpretations.” (1969: 176)

De Finetti criticizes the use of mathematics in conventional economics, where often “...mathematics and analysis in particular are seen as all powerful instruments, capable of giving precise and unique answers from complicated developments based on uncertain, vague and approximate hypotheses that are translated in formulae with a large margin of arbitrariness” (p. 64). He also invites the researcher to be aware of the many hypotheses built in into estimation methods (1969: 258).

In 1976: 25 he tells a personal anecdote. “It so happen that on one occasion, while traveling, I found myself in the same compartment with a gentleman who was accompanied by a young man and a young woman with whom he was conversing with airs of a cultured and important person. One of the longest and articulated discourses related to [...] astrology of which he maintained the scientific character because it is based on...trigonometry!”

He is very doubtful about the possibility that game theory might solve real economic problems. In a chapter dedicated to this subject (1969: ch. 7) a section is devoted to “Value of negative lesson” (131-5) he follows and supports Rapoport (1962) in the following elements. (a) Game theory may be useful but not because of the solutions it leads to, rather because it brings to light the different types of reasoning possible in different situations. This leads to more general methodological remarks about the value of negative learning as well as about the relevance of problems raised by theories as well as problems solved by them if any. (b) Game theory brings to light the fact that solutions do not always exist. (c) Decisions based entirely on self interest, lack of trust and cheating can lead to disasters for all parties as in the Tosca-Scarpia case. (d) The most important contribution of studies on game theory is due to the fact that this type of analysis reveals its own limitations.

In his 1973 he puts to use his mathematical skills (algebra and graphs together in his favourite analytical and didactic method) to illustrate how his ‘utopian’ vision for the economy and society can have real solutions; individual welfare functions take account of choices of each of us as individuals and as members of society.

3. Why de Finetti’s writings are so relevant today

The last few years of De Finetti’s life saw the beginning of significant changes in the economies of the world and in economics. It all began with the Thatcher and Reagan revolution which later spread to other countries with a variety of intensities and speed. It spread – and often was forced on - to developing countries by the so called Washington consensus that is by the consensus of policies of the International Monetary fund (IMF) the World Bank and the US Treasury. It spread to developed countries via the deliberate policies of national governments or the pressure/imposition on them by supranational or international institutions such as the EU or the World Trade Organization (WTO)¹¹.

I shall discuss the changes in the contemporary economic and social world by dividing them into two parts: (1) changes in the economy and society; and (2) changes in

¹¹ The WTO was established in 1995 to replace the old GATT (General Agreement on Tariffs and Trade) established after WWII.

economics. The emphasis is on those changes relevant in terms of de Finetti's view of society and the comments I shall make relate the relationship between his views on specific issues and the changes we have seen or are seeing.

(1) *Changes in the economy and society*

The greater integration of the world's economies and societies – the so called globalization process – as well as the new technologies has led to an increased relevance of *externalities*. Some externalities operate at the same time and within generations, some extend into the future and affect future generations. Here are some examples of how the economic system in the globalization era has led to increase in a variety of negative externalities¹².

- As already mentioned, health and diseases have always been a source of externality: if poor people are more liable to illnesses, there is a danger for them as well as for rich people who may be infected by them. However, there are now stronger and wider *health externalities* as a result of stronger integration between the countries of the world: in the post WWII decades tuberculosis was considered to have been eliminated in the developed countries; however, it is now coming back as a result of the movements of people to and from countries where it is still endemic. This is true of other diseases be they old ones such as malaria or relatively new ones such as AIDS .
- *Environmental externalities*. This is one of the strongest elements of externalities: the high consumption of fuel by some countries has negative effects on us all and indeed on future generations.
- *Financial crises* spill over more quickly and involve a larger number of countries.
- *New technologies* have brought their own spillovers: for example noise spillovers from incessant talking on mobile phones.
- *Social and emotional spillovers*. As communications and television viewing has increased world wide, images of different societies – even if not always accurate - are brought to other parts of the world bringing feelings of unease which lead to desire for better economic, social conditions or democratic and human rights in countries deprived of them. This causes emotional spillovers effects – in viewers sitting far away in front of their television sets - from images which would not have been available decades ago.

De Finetti argued that one of the reasons why government intervention is needed is to correct market failures due to externalities. The need for intervention has now become even more pressing than in his time. However, such intervention is much more difficult now for two reasons. First, because the political environment has become much less interventionist, or rather less willing to correct market distortions because the market is seen as an impartial, efficient mechanism for allocating resources. Second, because externalities that originate in the global sphere require international cooperation and appropriate international institutions fit for the purpose: those institutions that exists were

¹² On the so called global public goods and ills which lead to financial, environmental and health externalities cf. Acocella et al, ch 4.

established with different purposes in mind and far from solving the problems they often exacerbate them.

Moreover, de Finetti was critical of the unfettered working of the market; yet we have seen an increase in privatization and *marketisation*: goods and services that used to be produced by the public sector are now produced through the market.

As I already mentioned one of the issues on which de Finetti felt passionately strong was the *efficiency* of the overall economic system and of specific institutions, particularly Italian public bodies. Has inefficiency increased? Difficult to say, of course, but my gut feeling is that it has for the following reasons. As western societies have become more affluent, there has developed a struggle by large corporations to induce us to consume more and more products often useless or even harmful ones¹³. A case in point is the food industry. Western consumers are urged to consume food with high calories and fat content: we have death by obesity at the same time as people in many developing countries die of starvation. The obesity pandemic is a relatively new phenomenon – developed largely after de Finetti’s life – and it is due mainly to problems in the economic and social system. In echoes of Galbraith’s *The affluent Society*, de Finetti writes on the issue of balance between necessary and superfluous products:

“The private sector, particularly if left in the state of crazy atomism demanded by its zealots, can only give us that wonderful ‘miracle’ that in exchange for lack of necessities, allows us to wallow in excess of the superfluous“ (1969:100).

There is another development of the last two decades that may have increased inefficiencies: the practice of outsourcing or externalization of parts of the production process, usually the non-core part. Some material components or services are outsourced through a variety of contractual arrangements by large private and public institutions to smaller ones. This has led to the fragmentation of production¹⁴ with great difficulties in co-ordination as well as – in many cases – higher costs (as the British NHS is experiencing¹⁵). It is a heaven for lawyers who are called in first to draft contracts and later to resolve conflicts between principal and contractor.

Moreover, there seem to be a rampant culture of control; the new technologies have increased our ability to collect and elaborate data; this is often used to increase control and develop more and more performance indicators and targets which often have the opposite result from the intended ones: these indicators distort behaviour and deflect it away from the objective of doing one’s professional job and providing a professional service into meeting targets (see the case of the British NHS or indeed the effects of the Research Assessment Exercise on British universities and on research in general¹⁶).

De Finetti was very passionate about issues of *social justice* and he had a vision of the world as composed of individuals who lived and behaved as part of a community

¹³ This statement does not mean to detract from the fact that the new technologies have brought us some new useful products.

¹⁴ The organizational and locational fragmentation of production and labour force is discussed in Ietto-Gillies (2002: ch. 6).

¹⁵ Cf. Ietto-Gillies (2006). I understand that the contracts and regulations of London transport with its contractors runs into millions of pages.

¹⁶ Using several examples from the history of science, Gillies (2006) argues that the RAE discourages innovative research of the type that might lead to new Kuhnian paradigms.

and society. In his analysis the starting point was individuals; however, their behaviour had to be seen within - and shaped by - the need of the community and society. What developments have there been in the last two decades?

We can certainly say that the Thatcher revolution has greatly enhanced the culture of individualism: one of her famous statements was that 'there is no such thing as society'¹⁷. The change in culture seems to have brought with it – among other problems – a decline in the level of trust between people. de Finetti emphasis on trust comes out very clearly in the course of his discussion of the value of Pope John XXIII's *Pacem in Terris*; in that passage he sees the need for people to: "...induce others to listen by listening, gain understanding by showing understanding, ..." (1969: p. 137).

Layard (2005: 81) reports the results of a survey in which people are asked the following question in 1959 and in 1998: "Would you say that most people can be trusted – or would you say that you can't be too careful in dealing with people?" In the earlier date 56% of Britons reply 'yes' while only 30% give the positive reply by 1998. For the US the two percentages are 56 in the mid-1960s and 33 in the later period.

On the issue of *insecurity and uncertainty*, de Finetti argues that individuals within society must be made to feel more secure. He wanted an end to temporary university contracts (1969: ch. 17) and an efficient, fair, secure social security systems that addresses all sources of economic insecurity from unemployment to health to old age to accidents. Well, uncertainty and insecurities have increased tremendously in the last two decades: particularly those related to employment – generated by the so-called flexible labour markets - and to old age.

An example which involves issues of both insecurity and negative externalities is the right of citizens to carry arms in the US. With the gun the individual may acquire a feeling of personal security but only at the cost of much greater risks and insecurity for society as a whole.¹⁸

One of the main differences between the world today and the world in de Finetti's time is the change in income and wealth distribution and the increase in *inequality* within and between countries. de Finetti was appalled at the inequality existing when he was writing; changes in income distribution has certainly not gone in the direction he advocated, on the contrary the rich have become richer and the poor poorer. Indeed there is now a greater reliance on the voluntary and charity sector, something he would have been appalled by: he specifically spoke (1973: 46) against the whole concept as well as the practice of charity and charities because they put the needy in a humiliating position.

Let us see how inequality and poverty that so much worried him have changed since he was writing. Economic inequality can be considered between countries and within countries. It is generally agreed that the recent high growth rates of China and India have checked the trend in international - between-countries – world wide income inequality; nonetheless, the situation of many African countries has become much worse. However, the economic inequality within single countries seems to have increased for many countries and particularly the developed ones.

Atkinson and Brandolini (2004) in a study of global world inequality which takes account of various conceptions and measurements of inequality conclude the following:

¹⁷ Interview in *Woman's own*, 1987

¹⁸ The increase in insecurity was suggested by C. Howson during the discussion at the Bologna workshop.

“When we adjust for the within-country distribution of income, the evidence is almost unequivocally of a rise in income inequality from 1970 to 1992, whatever the underlying conception of inequality.” (p.17).

Let us look specifically at within-country inequalities. Tony Atkinson, a world expert on the measurement of inequality, at a lecture at La Sapienza University gave comparisons for the Gini coefficient of inequality between 23 developed or intermediate countries. It shows that around the year 2000 the within-country inequality in income distribution was highest in: Mexico (where the coefficient was almost 50%), Russia, USA, Estonia, Israel, UK and Italy; it was lowest in: Slovak Rep., Finland, Netherlands, Slovenia, Belgium, Norway, Sweden, Check Rep. and Germany. As regards the UK, the presentation gives further details that show that the Gini coefficient has increased from around 26% in 1977 to over 35% in 1990 with a slight decline to around 33% in the mid-1990s and a slight increase after that to reach the previous level of around 36% in 2000.

Atkinson (2003) traces the secular trend in the incomes of the top 1% UK earners during the XXth century. His fig 2:36 shows that the share of the top 1% declined steadily from after WWII to 1979 and then increased steadily during the Conservative and New Labour governments. The UK trend in the last 25 years is similar to that in the US – though the two shares in 2000 are respectively 13 and 17 percent - but not to that of France where the share has remained fairly constant throughout the period. One of his conclusions on the UK is that “..the shares of top incomes are now broadly back where they were at the end of the Second World War. The last quarter of a century saw an almost complete reversal of the decline in observed inequality at the top that had taken place in the preceding twenty-five years” (p. 22-3).

Callinicos (2001) also reports that inequality has widened under New Labour and writes:

“... during Blair government’s first two years in office...The richest 10 per cent of the population saw their income rise by 7.1 per cent, compared to only 1.9 per cent for that of the poorest 10 per cent.” (p. 52).

He thinks that the responsibility for such trends under New Labour lies largely with the “...shifting the fiscal burden from direct to indirect taxation” (p. 53) started under the Thatcher government and continued under Blair-Brown. This strategy makes the overall system of taxation more regressive.

Regarding the EU – 15 countries – Gallino (2005:166-7) reports that the percentage of incomes from wages and salaries in the total GDP went from 76% in 1976 to 68,5% in 2002. Similar figures for Italy show a share of 76.6% in the period 1975-79 against 62.2% in 2000-03.

Italy is the country that de Finetti would have been most interested in. Here we have evidence from two papers from the Banca D’Italia. Brandolini, Cannari, D’Alessio and Faiella (2004, paper n. 530) deals with wealth distribution in Italy in the 1990s. Table 6 (p. 31) shows that the bottom 40 per cent of the population in terms of wealth per capita, has seen its share of wealth decline from 8.3 to 7.0 between 1989 and 2000; the next 40 per cent has also experienced a decline in the same period: from 33.8 to 29.2 per

cent. Where has the extra wealth gone? To the richest people. In fact, during the same period, we see the following changes: the top 10 per cent of the population have increased their share of national wealth from 40.2 to 48.5 per cent; the top 5 per cent of the population had an increase from 27.3 to 36.4 per cent; the top 1 per cent – the very, very wealthy Italians – have increased their share from 10.6 to 17.2 per cent. Between 1989 and 2000, the Gini coefficient for wealth distribution has increased from 0.553 to 0.613.

The comparisons between these figures and those for the same coefficient related to income, show that - as for other countries – wealth distribution tends to be much more concentrated than income distribution. Brandolini *et. al.* (2004) conclude on this point:

“The distribution of wealth is a lot more unequal than the distribution of income. In 2000 the Gini index was 0.61 for net wealth, compared with 0.37 for disposable income; it was 0.60 for tangible assets, and a much higher 0.81 for financial assets.” (p. 41)

Brandolini, Cipollone and Sestito (2001, paper 427) in a study of trends in salaries and wages between 1977 and 1998 reach the following conclusions.

“Between 1977 and 1989, both mean and median real monthly net earnings rose by about one fourth or 1.8 per cent per year [...]. In the following nine years, they declined by around 1 per cent per year; some of this reduction was due to the spread of part-time work [...]. In the 1990s, the decline in monthly wages was compounded with a reduction in the average number of months worked [...] causing a pronounced fall in annual income from employment [...] much of the fall in net earnings in the 1990s may have been caused by the rising fiscal burden”. (p. 15)

This trend in earnings led to an increase in the number of low paid and poor people. The same paper concludes on this point:

“...the diffusion of low-paid jobs evolved in parallel with that of earnings inequality. The proportion of low-paid workers declines from 17 per cent in 1977 to a minimum 8 per cent in 1989, rose to 16 per cent in 1993, and after a fall in 1995, reached a peak of 18 per cent in 1998.” (p.44)¹⁹

The rise in part-time work accounts for this pattern. The authors further conclusion on poverty is that:

“...the probability of being in poverty is more closely correlated with the amount of employment in the household, particularly employment of members other than the head, than with low pay” (p. 44)

¹⁹ Low-paid workers are defined by OECD (1996: 69) as “... workers who earn less than two thirds of median earnings of all full-time workers”.

There is no doubt that inequality has increased world wide since de Finetti was writing. At the time, he thought that a Martian would be appalled at the inequalities on Planet Earth (1976: 19 cited in section 2); what would he think today?

(2) *Changes in economics*

As I mentioned above de Finetti strongly criticizes the neo-classical economic theory on the basis of the various issues I have considered. Now, when De Finetti was writing it is fair to say that the accepted paradigm in economics was Keynesianism and that macro economics was the most relevant approach to the study of the economy. Following the stagflation period of the 1970s and other economic, social and political developments, Keynesianism – which is a variant of what Keynes said and advocated - was criticised and gradually a new orthodoxy was developed. The latter is based largely on microeconomics and on a stronger version of neo-classical economics: free market, acceptance of the status quo regarding the distribution of resources; supply side rather than demand side policies. It is supply side policies that lead to flexible labour markets and thus to short term contracts and insecurity for people. Partly thanks to the new theories, casualisation of labour, short term contracts, high levels of unemployment have been and are accepted, justified and seen as the fault of workers and trade unions.

A more recent development is the large number of critiques of the new orthodoxy including the critique of excessive mathematization and abstraction of much economics (Lawson, 1997; Gillies, 2004). As in other historical periods and on other issues, a revolt on this particular point started in France in 2000 and has led to a lively debate with involvement by economists and non economists²⁰. However, it has had very little impact on the practice of the teaching and on the economic profession so far.

Nonetheless, there are also critiques of unbridled liberalization and free market economics²¹. For example Roncaglia (2005: 121) concludes his book with the following statement which de Finetti might have agreed with: “[the market] is not a *deus ex machina*, an invisible hand in which to trust passively, but a complex institution, within which there is a very large space for deliberate political intervention, an intervention directed towards the twin goal of justice and freedom.”²²

Moreover, there is a relatively new development in the social sciences that has some affinity with de Finetti’s position and that might have appealed to him, at least in some aspects: ‘happiness’ studies to which I now turn.

4. ‘Happiness’ studies and de Finetti’s views on economics

The last decade has seen a surge of studies on ‘happiness’. The reason why I consider them here is that they have a bearing on de Finetti’s writings on economics. In my view, these studies are indeed a development which he might have been interested in and we may even say that he was a precursor of some of the ideas behind ‘happiness’ studies. My notes on ‘Happiness’ from a reading of Richard Layard *Happiness. Lessons from a New Science*, (2006, first published in 2005).

²⁰ An account of the revolt and the following debate is in Fullbrook (2003)

²¹ See various contributions in Fullbrook (2004).

²² My translation from Italian.

4a. Layard on 'Happiness'

The study of 'happiness' may, at first, appear as a strange area for economists to delve in; is it not more the realm of psychology? The origin of this 'New Science' as Layard labels it, is indeed in psychology and in neuroscience. Recent diagnostic tests have shown that the brain does indeed record feelings of happiness or misery (Layard, 2005: ch. 2) and this is consistent with the results of survey into peoples' feelings and moods as well as circumstances leading to those feelings. So happiness has an objective dimension and some researchers talk of a 'new science'.

The study is multidisciplinary and indeed it is one of the strengths of Layard's book that it brings together many threads of thought – from neuroscience to psychology to sociology to politics to economics - and blends them together to make a coherent story with relevant policy implications. In chapter 5 titled: '*So what does make us happy?*' Layard gives us seven factors affecting happiness: family relationships; financial situation; work; community and friends; health as well as personal freedom and personal values. However, though the absolute level of income matters for the happiness of the very poor and poor, as we grow richer other factors become more relevant: how well off we are comparative to others; how well related and supported we are within the family, friends, community and work environment; how healthy we are. The major source of unhappiness is mental illness which affects many individuals and whose effects spill over to family, friends, and communities.

How does economics come into all this? The economist comes in first in terms of the possible questioning of economics' goals in the light of results on indicators of happiness. In the US there has been a steady increase in incomes per capita since the mid 1960s; however, there has not been increase in the percentage of people who declare themselves very happy. The story in Britain and other developed countries is similar. The overall results show that increases in incomes make people happier at earlier stages of development; when high levels of incomes per capita are reached people become happier – temporarily – only when their income is higher than that of other people around them. This leads to feelings of happiness if income distribution is in one's favour; however, this makes the relatively poorer people unhappy. So it is a zero-sum game or indeed a negative-sum game if the number of people who lose out exceeds the number of those who gain, as is usually the case.

Layard points out that there are 'happiness' externalities from income distribution: if X is the only employee to receive a rise in salary or bonus, everybody else becomes less happy than they were before. Thus inequality does matter and Layard maintains that performance-related pay increases unhappiness by singling out individuals against groups. The rat race makes people unhappy; even those who win are happy only temporarily and they will soon want more. If everybody is better off, the rat race makes them all miserable: it is like behaviour in a football stadium: if one person stands while everybody is seated s/he can see better. However, this behaviour may prompt other to stand up and eventually nobody is better off²³. Moreover, a culture of long hours of work generates unhappiness by preventing the development of good relationships within the

²³ As already mentioned, De Finetti gives - on a similar vein - the example of people sitting or standing in theatres.

family, community and friends. So the recommendation is that people should rebalance their work-life pattern, offer themselves for fewer hours and be contented with lower incomes. Moreover, as insecurity is also a great source of unhappiness, people must be prepared to trade off more security for lower wages.

Second, the economist comes in because the elements that seem to matter for people's happiness have a bearing on economics and on economic policies. Economics comes in directly because of the impact on happiness of economic elements such as: wages, income distribution, working conditions. More indirectly the economic condition of individuals and countries affects the health of the population and its effects spill over into family, friends and community factors. Moreover, economics affects indirectly other 'happiness' factors implicit in the following questions: how much time does our working life leave us to cultivate our personal relationships and nurture our families? How does income inequality shape our social relationships at work and outside it? To what extent are our personal and social relationships affected by the competitive environment in which we live?

A third route in which economics and the economist come in is in the development of policies to reach the aim of greater happiness or less misery. While the first part of Layard's book is devoted to a formulation of the problem and to bringing together evidence, the second part ("*What can be done?*") presents possible solutions.

Layard is in favour of progressive taxation not only to enable society to meet reasonable levels of public expenditure, but also as a means to a less unequal society and thus a less unhappy society.

4b. De Finetti and 'Happiness' studies

How does all this fit in with de Finetti's views on economics? There are indeed many analogies as well as differences between the two authors. Let us look at the analogies first.

- Both de Finetti and Layard conceive an economics with wider aims than those set purely by the market: they want an economics with a human face, one that puts at the centre people rather than faceless markets. Layard wants the pursuit of happiness; de Finetti wants social justice and rational, efficient systems in the private and public spheres, systems that help rather than harass the individual.
- Both authors express concerns for individuals, their emotions and well being; both favour a micro approach with individuals at the centre of analysis and policies.
- De Finetti's work as much as Layard's shows dissatisfaction with the standard macro indicators in economics such as GDP. For Layard this is due to the fact that GDP does not reflect peoples' happiness; for de Finetti it is because GDP does not take account of externalities and of the production of useless or harmful products; neither does it account for inequalities and social injustices.
- Externalities which play such a strong role in de Finetti, writings, are considered though to a lesser degree by Layard as well.
- Both de Finetti and Layard see the need to make society less unequal: de Finetti as a result of his passion for social justice; Layard in search of a less unhappy society.
- They both want a less insecure society.

- They are both critical of societies that are too competitive and lead to the rat race.
- Both consider the issue of trust to be important in the organization of society. The pursuit of happiness (Layard) and the aim of a more just and rational society (de Finetti) should put trust and cooperation centre stage.
- They are both in favour of a multidisciplinary approach. de Finetti uses his mathematical skills to show the feasibility of solutions to the problem of taking account of peoples' preferences in the in the sphere of ordinary choices as well on choices that involve political judgements. Layard uses results from psychology, neuroscience and sociology to show that objective measures of wellbeing other than the standard GDP are possible.
- Both authors take the capitalist system as given and permanent but would like to see changes in priorities as well as (de Finetti) in institutions.

On the issue of trust²⁴ it should be noted that the level of mistrust in society may have increased partly as a result of increased individualistic values but in part it may have been generated by the policies and behaviour of governments. The practice of continuous assessment and of setting targets shows a high level of mistrust which – far from leading to better performance – leads to opportunistic behaviour: if the employer does not treat teachers, doctors, lecturers etc. as professionals, they may stop behaving as such; they will then direct their efforts to meeting targets²⁵ - whatever they may be – rather than to provide a service as professionals. Layard thinks that this situation leads to more unhappiness; de Finetti would have seen the inefficiency side in this system of controls because of: (a) the cost of carrying out the evaluations and monitoring; (2) the distortions caused to employees' behaviour.

Yet there are major differences between these two authors.

- There is in de Finetti a deeper questioning of the market system and its alleged efficiency. Layard sees the market mechanism as a source of efficiency while de Finetti sees large inefficiencies in the production of useless or harmful products.
- There is more passion in de Finetti about issues of social justice.
- Moreover, de Finetti thinks that the shortcomings of capitalism are obvious and most people would agree on the need to correct them provided they are honest, not hampered by prejudice and vested interests and are put in a position to fully understand the issues.

A specific criticism that could be levelled at Layard's position is the following. His points about the excessive amount of competition among people, the destructive rat race, the long working hours with their negative effects on families are all too real. However, when it comes to remedies and policies he seems to put all the emphasis on the part of

²⁴ It is interesting to see that while levels of trust seem to have declined, studies on trust and its relevance for businesses have mushroomed. Many of these studies – particularly in the international business literature – look at the use of the concept and the practice in Asian countries. This is partly connected with the fact that the higher levels of outsourcing in the economy need higher levels of trust between principal and contractor: it is as if the level of trust has plummeted at a time when developments in the world of production require more of it.

²⁵ A good discussion of the problems created by the culture of monitoring, assessing evaluating on British Universities is in Evans (2004).

individuals with the implication that individuals have choices on how many hours they work, whether to compete for positions or not. There is no attempt to see the system as a whole and to see that business and the market system have a (the?) major role in the structure and condition of the labour market and thus in whether jobs are secure or insecure or how many hours we should be working and thus what sort of life-work balance we end up with.

Layard sees the rat race as an innate trait in humans linked to the survival of the fittest. This approach sits at odds with his well documented positive effect that cooperation with - and trust in - other human beings has on happiness. It is possible that the main driver of the culture of status and the rat race is business and the market system; in this case it is the inner working of capitalism that must bear most of the responsibilities for the problems that lead to unhappiness. By focusing only on individuals – with some responsibility on governments to ease the pains – we risk putting extra burden on them. Individuals are made to feel responsible for problems that are inherently social in nature. Ordinary people may end up more unhappy as they are made to feel something along the following: ‘not only I cannot win the rat race, neither can I be satisfied with my situation in life, or plan a more successful work-life balance and generally be at peace with myself: who is a higher failure than me?’

Do these criticisms apply also to de Finetti’s vision? He also accepts the capitalist system as the natural system for organizing economic life. However, he is much more critical of this system and prepared to be more interventionist to correct short comings which he sees as completely obvious and transparent particularly in terms of inequality and social injustices. He puts the burden of responsibility on the system and its institutions as well as on those individuals with power within it and not on ordinary individuals.

5. Summary and conclusions

The paper tries to give a flavour of de Finetti’s work in economics. After a brief exposition of my reading of his views, I tackle the issue of how his views on the economy, society and economics might be even more applicable today than in his own days. I do this by discussing the changes in the economy as well as in economics that we have witnessed in the last 25 years. This leads to a consideration of ‘Happiness’ studies and their possible relationship (analogies and differences) with de Finetti’s approach to economics.

Imagining a different course of history is always difficult and probably not very helpful in general. Nonetheless, while writing these notes I have often thought what might have been if de Finetti had been born 30 years later and would still be with us. Well, I think it would be very nice for us all to have him with us and celebrate his 70th birthday. However, I am also convinced that he would be a very unhappy man to see how the society and economy on which he had so many aspirations and towards whose improvement he had devoted so much energy has changed for the worse, in the opposite direction to his ‘utopian’ vision in almost all dimensions.

I would like to finish by touching on three further points. The first point relates to a possible solution of the ‘*enigma*’ posed by de Finetti’s approach to economics. De Felice (1981) as a conclusion to his introduction to de Finetti’s works, writes that he

agrees with Carnap that de Finetti is a ‘*puzzle*’. De Felice gives this word its board game meaning as jigsaw puzzle and sees de Finetti’s works as a series of pieces that fit together neatly and coherently. This is an interesting interpretation and one which I fully endorse: indeed it applies very well to the relationship between de Finetti’s views on economics and those in probability. It also applies to the relationship between his views on the application of mathematics to economics (the usefulness criterion) and his philosophical views on how we should choose concepts (their usefulness) (de Finetti, 2006: 127).

However, I would like now to consider a further meaning of the word *puzzle*: puzzle as ‘enigma/mystery’²⁶. As already mentioned de Finetti’s approach is one that starts from the individual person as consumer and citizen; this is in accordance with his subjective approach to probability. Yet in economics he is the most passionate advocate of social issues and many of his pronouncements relate to issues of equity and social justice. How is this ‘social’ approach compatible with his individualistic approach? Again the solution may be found if we look at his approach on probability and compare it with his approach in economics. The probability conundrum – consistency of the subjective approach with the axioms of probability – was solved by imposing consistency between bets to avoid a Dutch Book. In economics, his determination that economics should be *normative* and that people should express their preferences individually, transparently and directly led to his modified Pareto system and away from a macro economics approach. Using the same methodology as in his probability theory, he worked on a system in which the preferences of individuals in the realm of social choices were to be made consistent within the individual’s overall set as well as compatible with the desiderata of other individuals in society. Thus he uses his philosophical approach to probability and his mathematical skills to work towards an economics with a human and social-justice face: one in which the citizen as social individual comes first; the scientists help to overcome inconsistencies and the state intervenes to set priorities and to secure the achievement of people’s desiderata in the individual and social spheres.

The second point refers to the language of de Finetti’s writings. The fact that his works are full of passion made it more enjoyable for me to read them but more difficult to express in my own words the full impact they have on the reader. His language is not so easy to follow: he often writes long sentences - as in many Italian writings - full of qualifications and adjectives designed to express all the possible feelings and angles on the issue under discussion.

Moreover, there are many ‘deFinettinisms’ (my own expression): these are words specific to de Finetti and which are not to be found in any vocabulary. They are made up by him; they are his way of expressing his strong feelings. When feelings run high we are sometimes left speechless: our language is not strong or precise enough to express those feelings and thoughts. Those of us used to more than one language now and then experience that some feelings and expressions are better rendered in a different language from the one we are speaking at the time; often this is our native dialect which may point to the fact that the language we best express ourselves in is linked to our childhood and to the way we used to express our feelings when we first learned to speak.

²⁶ I should note that, most likely, none of these interpretations of *puzzle* corresponds to what Carnap had in mind. As D.A.Gillies has pointed out to me Carnap may have found puzzling that de Finetti should have come out with a non objective view of probability.

This point is made explicit in some of the works of Luigi Meneghello, a writer and former Professor of Italian at the University of Reading in Britain. He is fluent in Italian and English but always preferred to resort to his native Vicentino – dialect from the province of Vicenza – to express his more subtle or strong feelings; indeed he says that he found it easier to translate/express English poetry in Vicentino rather than in Italian. In my view this is unlikely to have anything to do with the richness of Italian versus Vicentino; it may be related to the fact that the strong feelings of poems may lead the author/translator to use the language of his strong and subtle feelings: in the case of Meneghello such a language was indeed the Vicentino dialect. For de Finetti the feelings are sometimes so strong that he has to construct his own words. Might I suggest that someone does a study of ‘deFinettinisms’?

The last issue is more a sort of joke, a sick joke indeed on an issue which would have enraged him while the irony of it all might have amused him. In his 1976 book he discusses the long and painful process underpinning the attempt to introduce more updated computer systems to combat tax evasion in Italy: a story of machines/computers bought but not utilized. A new Minister – Visentini - was trying to revive the project while de Finetti was writing and he ends his piece congratulating the Minister and stating in a humorous way as someone asserting an absurdity: “...can we hope that in the meantime we do not get some other Minister who might give (to the rich, the mafiosi and intriguers) the right to evade taxes altogether?” (p. 47).

Mio caro Professore, I understand that a few years ago we did get, in our country, political pronouncements which could have been interpreted to such effect. It is no joke how far in the wrong directions things have gone in Italy and elsewhere since you were striving for changes towards a more humane society.

Appendix

The three books by de Finetti used in the above discussions are collections of essays written at different times. It may be useful for the reader to be able to identify the year when certain statements and ideas by de Finetti were first put forward. To this end I here report details of the papers published in the three books by de Finetti referred to above. The following details are given: (1) Chapter, pages and title of each of the papers written by de Finetti himself; (2) full reference to the first date of publication; (3) indication – as given by de Finetti himself in the synopsis to the chapter – of whether the later publication contains amendments. The absence of details (2) and/or (3) means that the paper was written expressly for the volume or that no amendments were reported by de Finetti.

De Finetti, B. (1969), *Un matematico e l'economia*, Milano: Giuffrè'

Capitolo primo, 'All'attacco contro i feticci', pp. 15-32.

Capitolo secondo, 'Il tragico sofisma', pp. 33-49. First published in *Rivista Italiana di scienze Economiche*, Anno VII, fasc. III, maggio-giugno 1935.

Capitolo terzo, 'Formulazione matematica dei controesempi', pp. 50-66.

Capitolo quarto, 'L'incertezza', pp. 67-76.

Capitolo quinto, 'Nuove prospettive', pp. 79-91. Capitolo sesto, 'Benvenuto al disgelo', pp. 92-104. First published in *Civiltà delle Macchine* (Anno X, n. 3, maggio-giugno 1962 with the title (which De Finetti tells us was given by the editors of the journal in substitution to his own): 'Teorie e realtà' nell'economia europea'.

Capitolo settimo, 'La teoria dei giochi: cosa ci dice; su cosa ci invita a riflettere', pp. 105-143. First published in two instalments in *Civiltà delle Macchine*, (Anno XI, nn. 4 e 5, Luglio-agosto e settembre-ottobre, 1963 with the following title: 'La teoria dei giochi' and 'Riflessioni attuali sulla teoria dei giochi'.

Capitolo nono, 'Econometristi allo spettroscopio', pp. 174-188. First published in *Rivista trimestrale*, n. 15-16, sett.-dic. 1965.

Capitolo decimo, 'Nuovi aspetti', pp. 191-196.

Capitolo undicesimo, 'L'apporto della matematica nell'evoluzione del pensiero economico', pp. 197-229. First presented at the VII Congresso dell'Unione Matematica Italiana, Genova 30 Sett- 5 ott. 1963; published later as a separate paper in the series by Edizioni Ricerche, Roma and in 1964 in the *Atti del Congresso*. Ed. Cremonese. Small amendment: a note has been added to the 1969 edition.

Capitolo dodicesimo, 'Unità di concetti e varietà di metodi nella Ricerca Operativa', pp. 230-244. First published in *Mondo Economico*, 14-XI, 1959.

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