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**A Social Pillar For Sustainable Development: The Demographic
Revolution – Reconceptualizing Macroeconomics**

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*The global demographic revolution is taking place in a situation of profound economic change, which requires us to consider what, today, constitutes “ The Wealth of Nations”. This is of course a very complex matter that I have tried to deal with over the last 30 years *. Only the main central points of reference are listed hereunder for the sake of discussion and further research, keeping in mind the fact that the word “sustainability” is in fact an indicator of the necessity to reconceptualize macro-economics and hence the definition and strategies for “wealth”:*

- *The notion of wealth is often assimilated to that of National Income, without realizing that the first normally relates to a stock of goods and services, and the latter to a flow (of remunerated production, the “ value added “). In this way a country or town can be very “rich” by spending money disposing of waste, rebuilding houses destroyed by hurricanes or wars, cleaning water and air, but be at the lowest level of survival.*
- *The basic implicit assumption when the discipline of economics was first developed (by Adam Smith and followers) was that in a world of scarcity, the value added was really adding to the natural wealth. It was the successful birth of the Industrial Revolution, which also produced what we now know as “economics”: manufacturing was the key.*
- *See among others : Orio Giarini and Henri Loubergé, “ The Diminishing Returns of Technology “, Pergamon Press, Oxford, 1978 (122 p.) ; Orio Giarini, “ Dialogue on Wealth and Welfare “ (Report to the Club of Rome), Preface by Aurelio Peccei, Pergamon Press, Oxford, 1980 (386 pp.) ; Orio Giarini and Walter Stahel, “The Limits to Certainty – Facing Risks in the New Service Economy “ (Information Series of the Club of Rome and The Risk Institute, Geneva), Preface by Ilya Prigogine, Kluwer Academic Publishers, Dordrecht (270 pp.) ; Orio Giarini and Patrick M.Liedtke, “The Employment Dilemma and the Future of Work “ (Report to the Club of Rome), The Geneva Association 1996, Geneva (151 pp.)*
- *See also : “ The European Papers on the New Welfare “, 11 issues published since 2005 (of which 6 in English), fully available on www.newwelfare.org*

- *Ever since, the economic activity has been divided into three sectors (agricultural, industrial and services): today this subdivision is misleading, in a situation in which 80% of all jobs are in services. Services today dominate WITHIN industrial production (from research to waste management).*
- *And there is no product without service and vice versa, only the relationship between the two has changed: thanks to technology, in most cases, the production costs of tools has, in relative terms, greatly diminished, and the costs for their utilisation – through services - has greatly increased.*
- *We like to stress the point that the notion of value itself depends on a chain of “productions” which starts with R&D, well before any “manufacturing process” begins, and depends on the ability to manage a portfolio of research possibilities – hence a first form of risk management. The manufacturing phase itself is based on a majority of service functions (planning, quality control, safety control, storage, distribution, financing etc.). Then the product and related services go through a period of utilisation (which is the real value added), based on the management of two uncertainties: the length of time of utilisation, the costs of repair, accidents and maintenance. At the end there is the cost of waste disposal (with a part only going to recycling). All this is a process based on variable periods of time, where the notions of vulnerability and risk management are fundamental.*
- *The traditional notion of value is based on the costs (remuneration) of the factors of (industrial) production: the prize is given in a moment in time – crossing the demand curve. This “equilibrium” system is assumed as a theoretical basis for a system which aims at defining or achieving certainty (a kind of tautology). Incomplete information of various kinds is referred to as the reason why in practice there are always margins which make it impossible to achieve a “perfect” system. Some economists still believe that with time “scientific” advance will reduce this “incomplete” information. In reality, things go the other way because value, real economic value, has to consider longer and longer periods of time, and anything in the the future (especially the long term) is largely uncertain. The notion of sustainability is at the core of this issue. On the other side, many social scientists still believe that complete information is the goal of science : on the contrary science is a process of advancing knowledge by surpassing all our present limits, where all we know is incomplete. Pascal said: knowledge is like a ball in a universe of ignorance and the more you expand this ball, the more you get in touch with a larger number of unknown realities.*
- *There is therefore something very profound in the logic where the notion of value in “service based economy “, as indicator of increased wealth, has shifted from the cultural premises of the industrial revolution (the costs of the production factors) to the utilisation of products and systems in a time framework (which is in fact probabilistic). It is also very important to understand that “utilisation” does not mean “use” (in the ancient economic meaning, equal to destination in use), but the period when there is a positive performance, producing “ benefits” (real, positive value). In*

this way, waste (and more generally the environmental or ecological investment) is integrated with “ costs”. There is no longer contradiction between wealth and value.

- *Measuring real economic value, today requires the taking into account of: added values which add to wealth, “deducted values” which represent costs to re-establish destroyed capacity of available resources to produce wealth (e.g. depolluting water), human capital (the stock of knowledge and capabilities available, only partly quantifiable in monetary terms) , the environmental capital (also only partly quantifiable in monetary terms). In other words, the definition and quantification of the “Wealth of Nations” requires the combination of monetary and non-monetary indicators, in as much as they measure positive values.*
- *The utilisation and diffusion of money must of course be considered as extremely important, although human nature has a tendency to misuse major inventions (like fire, the knife or the control of the atom).*
- *Economics should better evaluate the transition from the non-monetarized systems to the monetarized ones, keeping in mind the complementary contribution to wealth and in general to society of non-remunerated activities. Scarcity sometimes is a consequence of human activity (in this case monetarized activities indicate the increase of poverty) and not simply in a natural situation (when the monetarized activities indicate the fight for wealth, against poverty) . We would also not dismiss the idea that technology might in some cases become so efficient as to make some products-services totally free,*
- *Economics sometimes (Samuelson, the Chicago school) also indicate that this discipline is also concerned with activities which do not imply the actual use of money: but this refers only to situations where there is an exchange (where in fact money, even if not expressed as such is an implicit reference). In fact a large part of wealth can hardly be referred to any exchange system (the value of the oceans, of forests, of the earth’s endowment) : only small, partial activities can and are “monetarized” (mining, logging, tourism etc), not the whole system. But it is the integration of the whole system which provides the “Wealth of Nations”, extending classical and neoclassical economics well beyond the present frontiers to include all relevant contributing factors to our wealth, in a period where the Industrial Revolution has given place to the Service Economy.*
- *In this economy, deterministic thinking linked to notions like the equilibrium of supply and demand curves, opens the way to a non-deterministic philosophy and culture, where the issue of managing risks and uncertainty is at the center of the picture to provide economic (probable) value from now into the future.*
- *The notion of “sustainability” is in fact an indicator of the necessity for “industrial” economics to make a substantial step to better understand how to increase the wealth of nations. In this perspective middle and long term issues (“sustainable”) , linked to the future, inevitably require an analysis based on uncertainty and risk management.*

- *Both economists and ecologists (and other connected areas), taking example from the type of questions Adam Smith and his followers were after, should overcome the segmentation of their discipline. They would gain in credibility. Concerning the famous report to the Club of Rome on “The Limits to Growth”, which opened the discussion on many of the issues mentioned here, and to some many more, one could explore the fact that this report made clear that the future of the “Wealth of Nations” cannot be envisaged as a simple extrapolation of the old, traditional Industrial Revolution. Even if industrial (manufacturing) production will remain important (but overwhelmed by services in different forms, the best “industries” use and develop the best services), it is about the development and extension of the Wealth of Nations around the globe that we are concerned. The main limits are in a conceptual mind frame, which we should try to open up.*
- *Sustainable development has therefore essentially to do with a reconceptualisation of macro-economics. And it is within this context that the ongoing demographic revolution should be considered, as it represents probably the most challenging social issue for our world in the immediate decades ahead. This increasing human capital, in terms of quality, quantity and the extension of the life cycle provides the raw material for one of the greatest challenges in human history.*